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Status Report

ILLINOIS STATE GEOLOGICAL SURVEY
PRAIRIE RESEARCH INSTITUTE

Total Records: 1679

Top 3 County Records		Top 3 Log Type Records		Top 3 Coal Records		Top 3 Member Records	
Williamson	1679	Drillers Log	1312	HERRIN	1088	HERRIN COAL	1088
		Electric Log	180	SPRINGFIELD	567	SPRINGFIELD COAL	567
		Measured section	78	DANVILLE	289	ANNA BLACK SHALE	556

Data Summary

Cross-tabulation of all selected logs, individual logs will vary.
Tabulation of logged intervals only, invidual logs will vary.

Depth and Thickness measurements in feet

Member	Lithology	Avg. Depth	Min. Depth	Max. Depth	Avg. Thk	Min. Thk	Max. Thk
SURVANT - UPPER		**267.1**	97.0	456.0	**2.0**	1.2	2.5
SURVANT - LOWER		**298.5**	101.5	465.0	**0.8**	0.5	1.3
MT. CARMEL	SANDSTONE	**27.2**	5.0	80.0	**48.6**	13.1	88.0
CARTHAGE	LIMESTONE	**94.2**	93.3	95.0	**7.0**	6.2	7.9
MACOUPIN	LIMESTONE	**138.8**	80.0	166.0	**1.3**	0.8	2.2
WOMAC	COAL	**100.0**	15.0	225.0	**1.5**	0.3	4.4
CHAPEL	COAL	**192.9**	68.0	300.2	**0.8**	0.4	1.2
TRIVOLI	SANDSTONE	**59.6**	18.0	185.0	**67.6**	12.0	139.0
POND CREEK	COAL	**188.0**	21.0	482.8	**1.0**	0.1	4.2
DEGRAFF	COAL	**171.1**	27.8	352.3	**0.6**	0.1	2.0
PIASA	LIMESTONE	**189.3**	20.0	484.5	**3.3**	0.3	20.0
DANVILLE	COAL	**197.7**	9.6	530.5	**1.7**	0.1	8.0
GALUM	LIMESTONE	**144.8**	104.0	193.0	**2.4**	1.5	4.0
ALLENBY	COAL	**181.8**	8.0	514.6	**0.8**	0.0	4.9
SS BELOW NO. 7	SANDSTONE	**270.7**	10.0	506.0	**6.3**	1.0	23.0
BANKSTON FORK	LIMESTONE	**194.7**	12.0	543.0	**6.2**	0.7	25.0
ANVIL ROCK	SANDSTONE	**131.0**	2.0	565.2	**30.8**	2.0	98.0
LAWSON	SHALE	**182.2**	2.0	545.7	**40.3**	2.0	126.4
CONANT	LIMESTONE	**227.0**	27.0	590.3	**1.1**	0.1	18.3
JAMESTOWN	COAL	**196.3**	15.5	590.8	**0.6**	0.1	18.0
BRERETON	LIMESTONE	**154.7**	6.0	591.1	**5.6**	0.3	27.0
ANNA	SHALE	**154.3**	8.7	595.4	**3.8**	0.2	18.0
ENERGY	SHALE	**162.9**	8.0	598.0	**26.8**	0.3	125.3
HERRIN	COAL	**159.3**	5.0	617.0	**6.5**	0.3	13.5
HIGGINSVILLE	LIMESTONE	**188.9**	24.0	516.0	**6.0**	0.3	19.2
VERMILIONVILLE	SANDSTONE	**320.2**	51.0	606.0	**18.4**	2.0	34.0
BRIAR HILL	COAL	**178.4**	10.0	641.0	**1.3**	0.2	13.0
CANTON	SHALE	**343.2**	113.0	658.0	**20.5**	4.0	43.0
ST. DAVID	LIMESTONE	**144.5**	15.6	493.3	**2.1**	0.3	17.0
TURNER MINE	SHALE	**119.3**	1.5	494.9	**5.0**	0.5	22.3

DYKERSBURG	SHALE	**137.6**	2.0	642.8	**16.7**	0.8	84.3
SPRINGFIELD	COAL	**197.2**	2.8	714.0	**4.1**	0.5	9.0
SS BELOW NO. 5	SANDSTONE	**338.0**	338.0	338.0	**22.0**	22.0	22.0
HANOVER	LIMESTONE	**244.3**	54.3	471.6	**3.2**	0.3	12.0
EXCELLO	SHALE	**212.6**	31.9	475.5	**5.1**	0.2	36.5
HOUCHIN CREEK	COAL	**306.6**	22.5	760.0	**2.2**	0.4	5.2
SURVANT	COAL	**304.0**	115.0	562.7	**1.6**	0.3	4.0
MECCA QUARRY	SHALE	**392.8**	247.0	593.1	**2.7**	1.8	8.3
COLCHESTER	COAL	**493.0**	40.0	885.0	**0.8**	0.2	3.0
DEKOVEN	COAL	**340.2**	18.4	945.0	**2.8**	0.8	5.0
LOWER DEKOVEN	COAL	**388.1**	20.6	952.0	**1.5**	0.7	4.8
DAVIS	COAL	**492.8**	10.0	960.0	**3.0**	0.8	5.3
CARRIER MILLS	SHALE	**22.8**	22.8	22.8	**13.4**	13.4	13.4
SEAHORNE LS	LIMESTONE	**643.6**	69.5	1005.0	**1.5**	0.5	3.3
STONEFORT	LIMESTONE	**338.1**	41.0	547.8	**4.0**	0.7	15.0
WISE RIDGE	COAL	**277.7**	18.0	561.3	**1.3**	0.1	2.2
MT. RORAH	COAL	**268.3**	41.0	562.5	**2.4**	0.5	7.3
DELONG	COAL	**145.9**	145.9	145.9	**1.2**	1.2	1.2
CREAL SPRING	LIMESTONE	**111.8**	89.3	134.3	**2.2**	1.5	2.9
MURPHYSBORO	COAL	**233.7**	51.0	608.0	**5.4**	1.6	11.5
MURRAY BLUFF	SANDSTONE	**111.2**	111.2	111.2	**60.9**	60.9	60.9
REYNOLDSBURG	COAL	**298.4**	298.4	298.4	**1.1**	1.1	1.1
				Net Coal	**42.1**		

Coal Logs

This report contains non-confidential coal log descriptions from the Coal Section's stratigraphic database in the county listed. Coal logs are sorted by township/range and section. For each log, North American Datum 1983 (NAD83) Longitude/Latitude coordinates in decimal degrees are provided as well as a legal description which uses the Public Land Survey System (PLSS). The following are two examples of coal log locations:

Example location 1: COUNTY: SALINE TWP/RNG: 7S 5E SECTION: 19 QUARTERS/FOOTAGES: 330'S line, 330'W line of SE NE LONGITUDE: -88.691911 LATITUDE: 37.900435

This log is from a borehole located in Saline County, Township 7 South, Range 5 East, 330 feet from the south line and 330 feet from the west line of the southeast quarter of the northeast quarter of section 19.

Example location 2: COUNTY: SALINE TWP/RNG: 9S 5E SECTION: 36 QUARTERS/FOOTAGES: 530'N, 530'W, SE/c NE NW LONGITUDE: -88.60834 LATITUDE: 37.700006

This log is from a borehole located in Saline County, Township 9 South, Range 5 East, 530 feet north and 530 feet west of the southeast corner of the northeast quarter of the northwest quarter of section 36.

Beneath the header is geology information for that data point. The Coal Section stratigraphic database from which this .PDF file is derived is a multi-project database which contains drill hole and outcrop descriptions of Pennsylvanian stratigraphy in Illinois. Consequently, the level of detail and accuracy in the data and their interpretation vary (sometimes widely) with the geologist, project type, or original data source. Multiple descriptions of a particular location may be present. Note that both the coal stratigraphic database and this .PDF listing are only a subset of the total amount of data available from the ISGS Geologic Records Library archives, and reflect only coal-specific data and interpretations of past and present Coal Section geologists. They are not a comprehensive listing of all data that may be available from the ISGS.

MAPID: 19990001000C **VERSION:** 1 **PROJECT:** GALATIA
COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.707786 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.788845 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 469.9 **LOGGED (FT.):** 262.3 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. 108 **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
212.9	CARBONDALE	HERRIN	COAL	5.3	257.0	

MAPID: 19990002000C **VERSION:** 1 **PROJECT:** GALATIA
COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.706961 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.786391 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.1 **LOGGED (FT.):** 250.2 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
212.1	CARBONDALE	HERRIN	COAL	5.2	245.0	

MAPID: 19990003000C **VERSION:** 1 **PROJECT:** GALATIA

COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.711611 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.786752 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.8 **LOGGED (FT.):** 213.5 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
220.8	CARBONDALE	HERRIN	COAL	5.5	208.0	

MAPID: 19990004000C **VERSION:** 1 **PROJECT:** GALATIA

COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.711358 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.783213 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 432.3 **LOGGED (FT.):** 217.2 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
219.3	CARBONDALE	HERRIN	COAL	4.2	213.0	

MAPID: 19990005000C **VERSION:** 1 **PROJECT:** GALATIA

COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.716268 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.779457 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.3 **LOGGED (FT.):** 272.0 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
236.3	CARBONDALE	HERRIN	COAL	5.0	267.0	

MAPID: 19990006000C **VERSION:** 1 **PROJECT:** GALATIA

COUNTY: WILLIAMSON **TWP/RNG:** **SECTION:** **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.710637 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 37.77915 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.5 **LOGGED (FT.):** 239.5 **LOG TYPE:** Company map
SOURCE: AMAX COAL CO. **WELL TYPE:** Coal Test
COMMENT: AMAX COAL COMPANY MAP, ISGS FILE 5-D-6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
229.5	CARBONDALE	HERRIN	COAL	5.5	234.0	

MAPID: 19900175000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 660' S line, 660' E line

QUADRANGLE: HERRIN **LONGITUDE:** -89.042412 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.849223 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 359.0 **LOGGED (FT.):** 211.2 **LOG TYPE:** Drillers Log

SOURCE: A.S. FEE 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
359.0	PLEISTOCENE		CLAY	6.0	0.0	
353.0	PLEISTOCENE		CLAY	3.0	6.0	WITH SAND; YELLOW
350.0	PLEISTOCENE		CLAY	3.0	9.0	HARD; BROWN
347.0	PLEISTOCENE		CLAY	26.0	12.0	WITH SAND; BLUE
321.0	MODESTO		SHALE	5.0	38.0	BLUE
316.0	MODESTO		LIMESTONE	0.3	43.0	BLUE
315.7	MODESTO		SHALE	10.3	43.3	BLUE
305.5	MODESTO		SHALE	4.0	53.5	SMOOTH; DARK
301.5	MODESTO		SHALE	0.6	57.5	BITUMINOUS; BLACK
300.9	MODESTO	DEGRAFF	COAL	0.3	58.1	SLATY
300.7	MODESTO		UNDERCLAY	2.2	58.3	
298.5	MODESTO	PIASA	LIMESTONE	4.5	60.5	BUFF
294.0	MODESTO		SHALE	0.8	65.0	GRAY
293.2	MODESTO		SHALE	1.2	65.8	SMOOTH; GRAY
292.0	CARBONDALE	DANVILLE	COAL	1.5	67.0	
290.5	CARBONDALE		UNDERCLAY	0.5	68.5	
290.0	CARBONDALE		SANDSTONE	2.3	69.0	GRAY
287.7	CARBONDALE		SHALE	3.0	71.3	SMOOTH; DARK
284.7	CARBONDALE	ALLENBY	COAL	0.2	74.3	
284.5	CARBONDALE		UNDERCLAY	0.3	74.5	
284.2	CARBONDALE		SHALE	9.0	74.8	SMOOTH; GRAY
275.2	CARBONDALE	BANKSTON FORK	LIMESTONE	5.3	83.8	BUFF
269.9	CARBONDALE		SHALE	7.0	89.1	SAND; GRAY
262.9	CARBONDALE		SHALE	12.0	96.1	SANDY; VARIEGATED
250.9	CARBONDALE		SHALE	1.8	108.1	SMOOTH; DARK
249.2	CARBONDALE	BRERETON	LIMESTONE	4.5	109.8	BLUE
244.7	CARBONDALE		SHALE	2.8	114.3	SMOOTH; DARK
241.9	CARBONDALE	ENERGY	SHALE	11.3	117.1	SAND; VARIEGATED; VARIEGATED
230.7	CARBONDALE	ENERGY	SHALE	24.0	128.3	SMOOTH; DARK
206.7	CARBONDALE	ENERGY	SHALE	19.0	152.3	SAND; GRAY
187.7	CARBONDALE	ENERGY	SHALE	24.7	171.3	SMOOTH; DARK
163.0	CARBONDALE	HERRIN	COAL	9.2	196.0	
153.8	CARBONDALE		UNDERCLAY	6.0	205.2	

MAPID: 19900175000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 660' S line, 660' E line

QUADRANGLE: HERRIN **LONGITUDE:** -89.042412 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.849223 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 359.0 **LOGGED (FT.):** 205.2 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
307.7	MODESTO	PIASA	LIMESTONE	4.5	51.3	
303.2	MODESTO		SILTY SHALE	11.2	55.8	
292.0	CARBONDALE	DANVILLE	COAL	1.5	67.0	
290.5	CARBONDALE		SHALE & SANDSTONE	5.8	68.5	
284.7	CARBONDALE	ALLENBY	COAL	0.2	74.3	
284.5	CARBONDALE		GRAY SHALE	9.3	74.5	
275.2	CARBONDALE	BANKSTON FORK	LIMESTONE	5.3	83.8	
269.9	CARBONDALE	LAWSON	SILTY SHALE	7.0	89.1	
262.9	CARBONDALE	LAWSON	SILTY SHALE	12.0	96.1	
250.9	CARBONDALE	JAMESTOWN	DARK GRAY SHALE	1.8	108.1	
249.2	CARBONDALE	BRERETON	LIMESTONE	4.5	109.8	
244.7	CARBONDALE	ANNA	BLACK SHALE	2.8	114.3	
241.9	CARBONDALE	ENERGY	SILTY SHALE	11.3	117.1	
230.7	CARBONDALE	ENERGY	DARK GRAY SHALE	24.0	128.3	
206.7	CARBONDALE	ENERGY	SILTY SHALE	19.0	152.3	
187.7	CARBONDALE	ENERGY	DARK GRAY SHALE	24.7	171.3	
163.0	CARBONDALE	HERRIN	COAL	9.2	196.0	

MAPID: 19901942000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.045971 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.857389 **DATE COLLECTED:** 12 / 0 / 1956

SURFACE ELEVATION (FT.): 370.0 **LOGGED (FT.):** 1430.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1060.0	BASE OF PENN.		UNCLASSIFIED	-	1430.0	

MAPID: 19902199000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 2 **QUARTERS/FOOTAGES:** 330' S line, 170' E line of SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.069064 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.849006 **DATE COLLECTED:** 2 / 0 / 1960

SURFACE ELEVATION (FT.): 393.0 **LOGGED (FT.):** 1400.0 **LOG TYPE:** Electric Log

SOURCE: NAT'L. ASSOC. PETRO. CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1007.0	BASE OF PENN.		UNCLASSIFIED	-	1400.0	

MAPID: 19900176000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.080235 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.861095 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 383.0 **LOGGED (FT.):** 237.0 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
383.0	PLEISTOCENE		UNCONSOLIDATED	2.0	0.0	
381.0	PLEISTOCENE		CLAY	17.0	2.0	
364.0	PLEISTOCENE		MUD	38.0	19.0	
326.0	PLEISTOCENE		SAND	23.0	57.0	
303.0	PLEISTOCENE		SAND & GRAVEL	4.0	80.0	
299.0	PLEISTOCENE		MUD	4.0	84.0	
295.0	CARBONDALE		SHALE	21.5	88.0	
273.5	CARBONDALE		SHALE	2.5	109.5	
271.0	CARBONDALE		SHALE	13.0	112.0	
258.0	CARBONDALE		LIMESTONE	4.0	125.0	
254.0	CARBONDALE		SHALE	18.0	129.0	
236.0	CARBONDALE		BLACK SHALE	0.8	147.0	
235.2	CARBONDALE		LIMESTONE	16.5	147.8	
218.7	CARBONDALE		SHALE	19.0	164.3	
199.7	CARBONDALE	BRERETON	LIMESTONE	4.5	183.3	
195.2	CARBONDALE	ANNA	BLACK SHALE	4.5	187.8	
190.7	CARBONDALE	ENERGY	SHALE	36.5	192.3	
154.2	CARBONDALE	HERRIN	COAL	7.8	228.8	
146.4	CARBONDALE		UNDERCLAY	0.4	236.6	

MAPID: 19902129000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.092797 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.858225 **DATE COLLECTED:** 2 / 0 / 1958

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 1430.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1035.0	BASE OF PENN.		UNCLASSIFIED	-	1430.0	

MAPID: 19900177000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.1354 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.849596 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 122.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
397.0	PLEISTOCENE		CLAY	14.0	3.0	
383.0	CARBONDALE		SANDSTONE	57.0	17.0	SOFT; YELLOW
326.0	CARBONDALE		SANDSTONE	20.0	74.0	LIGHT GRAY
306.0	CARBONDALE		SANDSTONE	10.0	94.0	SOFT; BROWN
296.0	CARBONDALE		SHALE	6.3	104.0	LIGHT BLUE
289.7	CARBONDALE	HERRIN	COAL	7.8	110.3	
282.0	CARBONDALE		UNDERCLAY	4.0	118.0	

MAPID: 19900178000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of SW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.151119 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.851099 **DATE COLLECTED:** 7 / 6 / 1918
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 132.0 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 39 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	42.0	0.0	
358.0	CARBONDALE		SANDSTONE	66.0	42.0	
292.0	CARBONDALE		SHALE	13.5	108.0	GRAY
278.5	CARBONDALE	HERRIN	COAL	4.5	121.5	
274.0	CARBONDALE	HERRIN	COAL	0.2	126.0	BAND
273.8	CARBONDALE	HERRIN	COAL	2.0	126.2	
271.8	CARBONDALE	HERRIN	CLAYSTONE	0.3	128.2	BLUE BAND
271.5	CARBONDALE	HERRIN	COAL	1.3	128.5	
270.2	CARBONDALE		UNDERCLAY	1.7	129.8	
268.5	CARBONDALE		LIMESTONE	0.5	131.5	

MAPID: 19902225000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.147758 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.855658 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 396.0 **LOGGED (FT.):** 115.5 **LOG TYPE:** Electric Log
SOURCE: D.T. DRILLING CO. WestrnCM 1 **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
287.0	CARBONDALE	HERRIN	COAL	6.5	109.0	

MAPID: 19902225000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.147758 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.855658 **DATE COLLECTED:** 2 / 0 / 1963
SURFACE ELEVATION (FT.): 396.0 **LOGGED (FT.):** 1254.0 **LOG TYPE:** Electric Log
SOURCE: D T DRLG CO **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
34.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	362.0	
-39.0	SPOON	DAVIS	UNCLASSIFIED	-	435.0	
-858.0	BASE OF PENN.		UNCLASSIFIED	-	1254.0	

MAPID: 19900179000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 7 **QUARTERS/FOOTAGES:** NE NE SW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.143351 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.83937 **DATE COLLECTED:** 3 / 28 / 1902

SURFACE ELEVATION (FT.): 384.0 **LOGGED (FT.):** 131.8 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
384.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
380.0	PLEISTOCENE		CLAY	18.0	4.0	YELLOW
362.0	PLEISTOCENE		SAND	39.0	22.0	YELLOW
323.0	PLEISTOCENE		SAND	15.0	61.0	GRAY
308.0	PLEISTOCENE		SAND	7.0	76.0	RUNNING
301.0	CARBONDALE		SANDSTONE	10.0	83.0	SANDY
291.0	CARBONDALE		SANDSTONE	24.0	93.0	GRAY
267.0	CARBONDALE		BLACK SHALE	3.0	117.0	BLACK
264.0	CARBONDALE	HERRIN	COAL	5.8	120.0	
258.2	CARBONDALE		UNDERCLAY	6.0	125.8	

MAPID: 19901947000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.141042 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.843096 **DATE COLLECTED:** 3 / 0 / 1957

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 1340.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-945.0	BASE OF PENN.		UNCLASSIFIED	-	1340.0	

MAPID: 19900181000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.124049 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.840526 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 151.5 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
378.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
374.0	PLEISTOCENE		CLAY	20.0	4.0	YELLOW
354.0	CARBONDALE		SANDSTONE	50.0	24.0	SOFT
304.0	CARBONDALE		SANDSTONE	32.0	74.0	
272.0	CARBONDALE		SHALE	28.0	106.0	LIGHT GRAY
244.0	CARBONDALE	BRERETON	LIMESTONE	3.0	134.0	GRAY
241.0	CARBONDALE		SHALE	3.0	137.0	DARK BLUE
238.0	CARBONDALE	HERRIN	COAL	7.5	140.0	
230.5	CARBONDALE		UNDERCLAY	4.0	147.5	

MAPID: 19900181000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.124049 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.840526 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 147.5 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATION COAL CO. 5 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
354.0	CARBONDALE	LAWSON	SANDSTONE	50.0	24.0	
304.0	CARBONDALE	LAWSON	SANDSTONE	32.0	74.0	
272.0	CARBONDALE	LAWSON	GRAY SHALE	28.0	106.0	
244.0	CARBONDALE	BRERETON	LIMESTONE	3.0	134.0	
241.0	CARBONDALE	ANNA	BLACK SHALE	3.0	137.0	
238.0	CARBONDALE	HERRIN	COAL	7.5	140.0	

MAPID: 19900445000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135412 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.845935 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
407.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
396.0	PLEISTOCENE		SAND	31.0	11.0	SOFT; YELLOW
365.0	PLEISTOCENE		SAND	22.0	42.0	SOFT; BROWN
343.0	PLEISTOCENE		SAND	21.0	64.0	GRAY
322.0	CARBONDALE		SHALE	8.0	85.0	BLUE
314.0	CARBONDALE		SHALE	9.0	93.0	
305.0	CARBONDALE		SHALE	6.0	102.0	
299.0	CARBONDALE	HERRIN	COAL	8.0	108.0	
291.0	CARBONDALE		UNDERCLAY	1.0	116.0	

MAPID: 19902277000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 9 **QUARTERS/FOOTAGES:** 350' N line, 30' W line of SE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.10072 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.836011 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 392.0 **LOGGED (FT.):** 137.1 **LOG TYPE:** Survey Core Study
SOURCE: BELL & ZOLLER COAL CO. 103 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
376.1	CARBONDALE	LAWSON	SILTY SHALE	38.7	15.9	
337.5	CARBONDALE	LAWSON	SILTY SHALE	41.7	54.5	
295.8	CARBONDALE	LAWSON	GRAY SHALE	3.7	96.2	
292.1	CARBONDALE	LAWSON	SILTY SHALE	15.0	99.9	
277.1	CARBONDALE	CONANT	LIMESTONE	3.3	114.9	
273.9	CARBONDALE		BLACK SHALE	2.0	118.1	
271.9	CARBONDALE	BRERETON	NODULAR LIMESTONE	0.6	120.1	
271.3	CARBONDALE	ANNA	BLACK SHALE	0.8	120.7	
270.5	CARBONDALE	ENERGY	GRAY SHALE	1.3	121.5	
269.1	CARBONDALE	ENERGY	GRAY SHALE	5.0	122.9	
264.1	CARBONDALE	ENERGY	CARBONACEOUS SHALE	1.1	127.9	
263.0	CARBONDALE	HERRIN	COAL	8.1	129.0	

MAPID: 19900182000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.080087 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.846458 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 391.0 **LOGGED (FT.):** 169.8 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
391.0	PLEISTOCENE		UNCONSOLIDATED	1.5	0.0	
389.5	PLEISTOCENE		HARD PAN	4.0	1.5	
385.5	PLEISTOCENE		CLAY	9.5	5.5	YELLOW
376.0	PLEISTOCENE		SAND	10.0	15.0	YELLOW
366.0	PLEISTOCENE		CLAY	25.0	25.0	WITH SAND; YELLOW
341.0	PLEISTOCENE		CLAY	15.0	50.0	LIGHT GRAY
326.0	PLEISTOCENE		CLAY	6.0	65.0	WITH SAND; RED
320.0	PLEISTOCENE		SAND	3.0	71.0	BLUE
317.0	CARBONDALE		SANDSTONE	7.0	74.0	SOFT
310.0	CARBONDALE		LIMESTONE	2.8	81.0	WITH CHERT
307.2	CARBONDALE		SANDSTONE	33.2	83.8	WITH COAL; GRAY
274.0	CARBONDALE		SHALE	13.0	117.0	SANDY; GRAY
261.0	CARBONDALE		SHALE	9.0	130.0	DARK BLUE
252.0	CARBONDALE	BRERETON	LIMESTONE	3.5	139.0	BLUE
248.5	CARBONDALE	ANNA	BLACK SHALE	5.5	142.5	BLACK
243.0	CARBONDALE	ENERGY	SHALE	12.9	148.0	LIGHT BLUE
230.1	CARBONDALE	HERRIN	COAL	7.5	160.9	
222.6	CARBONDALE		UNDERCLAY	1.3	168.4	

MAPID: 19900183000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.080074 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.842689 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 377.0 **LOGGED (FT.):** 145.8 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
377.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
373.0	PLEISTOCENE		CLAY	6.0	4.0	LIGHT GRAY
367.0	PLEISTOCENE		SAND	10.0	10.0	YELLOW
357.0	PLEISTOCENE		SAND	5.0	20.0	BLUE
352.0	PLEISTOCENE		CLAY	25.0	25.0	RED
327.0	PLEISTOCENE		SAND	6.0	50.0	
321.0	CARBONDALE		SANDSTONE	56.0	56.0	GRAY
265.0	CARBONDALE		LIMESTONE	3.5	112.0	HARD; BLUE
261.5	CARBONDALE		SHALE	10.2	115.5	DARK BLUE
251.3	CARBONDALE	BRERETON	LIMESTONE	5.5	125.7	BLUE
245.8	CARBONDALE		SHALE	4.8	131.2	BITUMINOUS
241.0	CARBONDALE		SHALE	0.8	136.0	BLUE
240.2	CARBONDALE	HERRIN	COAL	9.0	136.8	

MAPID: 19900184000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.080052 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.835153 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 194.1 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & IRON 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
394.0	PLEISTOCENE		HARD PAN	6.0	1.0	LIGHT
388.0	PLEISTOCENE		CLAY	32.0	7.0	LIGHT YELLOW
356.0	PLEISTOCENE		SAND	11.0	39.0	YELLOW
345.0	PLEISTOCENE		SAND	5.0	50.0	BLUE
340.0	PLEISTOCENE		SAND	27.0	55.0	WITH CLAY; YELLOW
313.0	PLEISTOCENE		SAND	6.0	82.0	
307.0	CARBONDALE		SHALE	2.0	88.0	BLUE
305.0	CARBONDALE		SANDSTONE	8.5	90.0	GRAY
296.5	CARBONDALE		LIMESTONE	2.5	98.5	WITH CHERT
294.0	CARBONDALE		SHALE	11.0	101.0	SANDY
283.0	CARBONDALE		SHALE	10.0	112.0	SANDY; DARK
273.0	CARBONDALE		SHALE	22.0	122.0	LIGHT BLUE
251.0	CARBONDALE	BRERETON	LIMESTONE	2.8	144.0	
248.2	CARBONDALE	BRERETON	LIMESTONE	3.4	146.8	
244.7	CARBONDALE	ENERGY	SHALE	10.8	150.3	DARK BLUE
234.0	CARBONDALE	ENERGY	SHALE	22.8	161.0	LIGHT BLUE
211.2	CARBONDALE	HERRIN	COAL	8.4	183.8	
202.8	CARBONDALE		UNDERCLAY	1.9	192.2	

MAPID: 19902117000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** 1290' S line, 1040' E line
QUADRANGLE: HERRIN **LONGITUDE:** -89.081376 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.836831 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 389.0 **LOGGED (FT.):** 177.7 **LOG TYPE:** Survey Core Study
SOURCE: BELL & ZOLLER COAL CO. 93 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
292.5	CARBONDALE	LAWSON	SANDSTONE	38.0	96.5	
254.5	CARBONDALE	BRERETON	LIMESTONE	3.0	134.5	
251.5	CARBONDALE	ENERGY	CALCAREOUS SHALE	31.5	137.5	
220.0	CARBONDALE	HERRIN	COAL	8.7	169.0	

MAPID: 19902215000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.078918 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.8399 **DATE COLLECTED:** 8 / 0 / 1962
SURFACE ELEVATION (FT.): 379.0 **LOGGED (FT.):** 1450.0 **LOG TYPE:** Company Sample Study
SOURCE: SHERMAN, ERNEST **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1071.0	BASE OF PENN.		UNCLASSIFIED	-	1450.0	

MAPID: 19901943000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.067301 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.845245 **DATE COLLECTED:** 1 / 0 / 1957
SURFACE ELEVATION (FT.): 382.0 **LOGGED (FT.):** 1455.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-26.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	408.0	
-93.0	SPOON	DAVIS	UNCLASSIFIED	-	475.0	
-1073.0	BASE OF PENN.		UNCLASSIFIED	-	1455.0	

MAPID: 19902125000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 11 **QUARTERS/FOOTAGES:** 400' N line, 400' E line of NW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.065181 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.846869 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 164.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E E OLD BEN3-B **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
267.0	CARBONDALE	BRERETON	LIMESTONE	6.0	123.0	
261.0	CARBONDALE	ANNA	BLACK SHALE	3.0	129.0	
258.0	CARBONDALE	ENERGY	GRAY SHALE	23.0	132.0	
235.0	CARBONDALE	HERRIN	COAL	9.0	155.0	

MAPID: 19900185000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.056699 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.838587 **DATE COLLECTED:** 11 / 20 / 1900

SURFACE ELEVATION (FT.): 370.0 **LOGGED (FT.):** 502.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
370.0	PLEISTOCENE		CLAY	23.0	0.0	
347.0	PLEISTOCENE		SAND	20.0	23.0	
327.0	PLEISTOCENE		CLAY	17.0	43.0	
310.0	PLEISTOCENE		SAND	6.0	60.0	
304.0	PLEISTOCENE		SAND	27.0	66.0	
277.0	CARBONDALE		SANDSTONE	57.0	93.0	
220.0	CARBONDALE		BLACK SHALE	6.0	150.0	BLACK
214.0	CARBONDALE		SHALE	14.0	156.0	BLUE
200.0	CARBONDALE	BRERETON	LIMESTONE	6.0	170.0	WHITE
194.0	CARBONDALE	HERRIN	COAL	10.0	176.0	
184.0	CARBONDALE		LIMESTONE	8.0	186.0	
176.0	CARBONDALE		SHALE	24.0	194.0	BITUMINOUS
152.0	CARBONDALE		SANDSTONE	32.0	218.0	
120.0	CARBONDALE	SPRINGFIELD	COAL	2.0	250.0	
118.0	CARBONDALE		UNDERCLAY	28.0	252.0	
90.0	CARBONDALE		SANDSTONE	72.0	280.0	
18.0	CARBONDALE		SHALE	108.0	352.0	BITUMINOUS
-90.0	CARBONDALE		LIMESTONE	38.0	460.0	BLACK
-128.0	CARBONDALE		SHALE	4.0	498.0	BLACK

MAPID: 19900186000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:**

QUADRANGLE: HERRIN **LONGITUDE:** -89.049616 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.840241 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 217.3 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
363.0	PLEISTOCENE		CLAY	4.0	27.0	WITH SAND
359.0	PLEISTOCENE		UNCONSOLIDATED	43.0	31.0	
316.0	PLEISTOCENE		SAND	26.0	74.0	LIGHT
290.0	PLEISTOCENE		SAND & GRAVEL	6.5	100.0	
283.5	CARBONDALE	ANVIL ROCK	SANDSTONE	49.5	106.5	
234.0	CARBONDALE		SHALE	6.0	156.0	SANDY; DARK
228.0	CARBONDALE	BRERETON	LIMESTONE	6.5	162.0	DARK
221.5	CARBONDALE	ANNA	BLACK SHALE	5.5	168.5	BLACK
216.0	CARBONDALE	ENERGY	SHALE	6.0	174.0	SANDY; BLUE
210.0	CARBONDALE	ENERGY	SHALE	25.5	180.0	WITH LIMESTONE PARTINGS; BLUE
184.5	CARBONDALE	HERRIN	COAL	8.7	205.5	
175.8	CARBONDALE		UNDERCLAY	3.2	214.2	

MAPID: 19902101000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' N line, 330' W line

QUADRANGLE: HERRIN **LONGITUDE:** -89.057971 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.846846 **DATE COLLECTED:** 8 / 0 / 1957

SURFACE ELEVATION (FT.): 365.0 **LOGGED (FT.):** 1440.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1075.0	BASE OF PENN.		UNCLASSIFIED	-	1440.0	

MAPID: 19900187000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.047266 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.823637 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 393.0 **LOGGED (FT.):** 184.1 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
393.0	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
392.0	PLEISTOCENE		HARD PAN	17.0	1.0	
375.0	PLEISTOCENE		SAND	3.0	18.0	YELLOW
372.0	PLEISTOCENE		CLAY	9.0	21.0	LIGHT YELLOW
363.0	PLEISTOCENE		SAND	5.0	30.0	YELLOW
358.0	PLEISTOCENE		SAND	7.0	35.0	WITH CLAY; YELLOW
351.0	PLEISTOCENE		MUD	15.0	42.0	SOLID; GRAY
336.0	PLEISTOCENE		CLAY	13.0	57.0	RED
323.0	CARBONDALE	ANVIL ROCK	SANDSTONE	9.0	70.0	ROTTEN; GREEN
314.0	CARBONDALE	ANVIL ROCK	SANDSTONE	4.0	79.0	GRAY
310.0	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	83.0	SANDY
307.0	CARBONDALE	ANVIL ROCK	SANDSTONE	60.6	86.0	WITH COAL STREAKS; GRAY
246.4	CARBONDALE		SHALE	10.4	146.6	DARK BLUE
236.0	CARBONDALE	BRERETON	LIMESTONE	4.0	157.0	HARD; DARK BLUE
232.0	CARBONDALE	ANNA	SHALE	5.5	161.0	BITUMINOUS
226.5	CARBONDALE	ENERGY	SHALE	9.0	166.5	LIGHT BLUE
217.5	CARBONDALE	HERRIN	COAL	7.5	175.5	
210.0	CARBONDALE		UNDERCLAY	1.1	183.0	

MAPID: 19900187000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.047266 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.823637 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 393.0 **LOGGED (FT.):** 190.5 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 4 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
239.0	CARBONDALE		SHALE & SANDSTONE	10.5	154.0	
228.5	CARBONDALE	BRERETON	LIMESTONE	4.0	164.5	
224.5	CARBONDALE	ANNA	BLACK SHALE	5.5	168.5	
219.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	174.0	
210.0	CARBONDALE	HERRIN	COAL	7.5	183.0	

MAPID: 19900446000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.070655 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.823937 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 172.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
398.0	PLEISTOCENE		CLAY	33.0	0.0	YELLOW
365.0	PLEISTOCENE		CLAY	33.0	33.0	DARK BLUE
332.0	PLEISTOCENE		SAND & GRAVEL	9.0	66.0	
323.0	CARBONDALE		SHALE	5.0	75.0	GRAY
318.0	CARBONDALE	ANVIL ROCK	SANDSTONE	20.0	80.0	GRAY
298.0	CARBONDALE		SHALE	44.0	100.0	DARK BLUE
254.0	CARBONDALE	BRERETON	LIMESTONE	2.5	144.0	
251.5	CARBONDALE	ANNA	SHALE	3.5	146.5	BITUMINOUS
248.0	CARBONDALE	ENERGY	SHALE	10.0	150.0	SANDY; BLUE
238.0	CARBONDALE	HERRIN	COAL	8.8	160.0	
229.2	CARBONDALE		SHALE	3.3	168.8	DARK

MAPID: 19901812000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.070655 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.823937 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 228.7 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY CO & IRON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
-	PLEISTOCENE		CLAY	19.0	1.0	GRAY
-	PLEISTOCENE		CLAY	17.0	20.0	YELLOW
-	PLEISTOCENE		SAND	2.0	37.0	WITH NODULES
-	PLEISTOCENE		CLAY	9.0	39.0	GREEN
-	PLEISTOCENE		CLAY	14.0	48.0	BLUE
-	PLEISTOCENE		SAND	3.0	62.0	GREEN
-	PLEISTOCENE		CLAY	9.0	65.0	WITH SANDSTONE; YELLOW
-	PLEISTOCENE		CLAY	7.0	74.0	BLUE
-	CARBONDALE		ROCK	3.0	81.0	
-	CARBONDALE		SHALE	6.0	84.0	
-	CARBONDALE		SANDSTONE	1.0	90.0	
-	CARBONDALE		SHALE	17.0	91.0	
-	CARBONDALE		SHALE	19.5	108.0	
-	CARBONDALE	BRERETON	LIMESTONE	2.4	127.5	
-	CARBONDALE	ANNA	BLACK SHALE	5.3	129.9	BLACK
-	CARBONDALE	ENERGY	SHALE	23.3	135.3	
-	CARBONDALE	HERRIN	COAL	8.8	158.5	
-	CARBONDALE		UNDERCLAY	2.4	167.3	
-	CARBONDALE		LIMESTONE	1.0	169.7	
-	CARBONDALE		SHALE	3.0	170.7	BLUE
-	CARBONDALE		LIMESTONE	7.0	173.7	
-	CARBONDALE		SHALE	13.0	180.7	BLUE
-	CARBONDALE		SHALE	3.0	193.7	SOFT; GRAY
-	CARBONDALE	ST. DAVID	LIMESTONE	0.8	196.7	
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.5	197.5	BLACK
-	CARBONDALE	DYKERSBURG	SHALE	10.0	202.0	BLUE
-	CARBONDALE	SPRINGFIELD	COAL	2.7	212.0	
-	CARBONDALE	SPRINGFIELD	UNDERCLAY	0.3	214.7	
-	CARBONDALE	SPRINGFIELD	COAL	0.9	214.9	
-	CARBONDALE		UNDERCLAY	2.8	215.8	
-	CARBONDALE		SHALE	5.0	218.7	BLUE
-	CARBONDALE		SHALE	5.0	223.7	WITH COAL STREAKS

MAPID: 19902240000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06251 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.822891 **DATE COLLECTED:** 7 / 0 / 1963
SURFACE ELEVATION (FT.): 394.5 **LOGGED (FT.):** 1410.0 **LOG TYPE:** Electric Log
SOURCE: GALLAGHER, VICTOR R. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-8.5	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	403.0	
-80.5	SPOON	DAVIS	UNCLASSIFIED	-	475.0	
-1015.5	BASE OF PENN.		UNCLASSIFIED	-	1410.0	

MAPID: 19902292000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NW NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.076588 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.832352 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 189.0 **LOG TYPE:** Electric Log
SOURCE: GALLAGHER, VICTOR R ZEIGLER 2 **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
245.0	CARBONDALE	BRERETON	LIMESTONE	5.0	155.0	
240.0	CARBONDALE	ANNA	BLACK SHALE	3.0	160.0	
237.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	163.0	
220.0	CARBONDALE	HERRIN	COAL	9.0	180.0	

MAPID: 19902256000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 15 **QUARTERS/FOOTAGES:** 10' N line, 2620' E line
QUADRANGLE: HERRIN **LONGITUDE:** -89.086865 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.833242 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 383.0 **LOGGED (FT.):** 156.7 **LOG TYPE:** Drillers Log
SOURCE: BELL & ZOLLER COAL & MINING 99 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
362.2	CARBONDALE	LAWSON	SILTY SHALE	7.2	20.8	
355.1	CARBONDALE	LAWSON	SILTY SHALE	31.8	27.9	
323.2	CARBONDALE	LAWSON	SILTY SHALE	31.3	59.8	
292.0	CARBONDALE	LAWSON	GRAY SHALE	38.5	91.0	
253.5	CARBONDALE		GRAY SHALE	13.3	129.5	
240.2	CARBONDALE	BRERETON	LIMESTONE	2.3	142.8	
237.9	CARBONDALE	ANNA	BLACK SHALE	2.9	145.1	
235.0	CARBONDALE	HERRIN	COAL	8.7	148.0	

MAPID: 19923182000C **VERSION:** 1 **PROJECT:** NCRDS17

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 15 **QUARTERS/FOOTAGES:** 2000' N, 150' W, SE/c NE NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.089239 **GEOLOGIST:** STRAAYER

CONFIDENTIAL: N **LATITUDE:** 37.831407 **DATE COLLECTED:** / / 1981

SURFACE ELEVATION (FT.): 383.0 **LOGGED (FT.):** 211.5 **LOG TYPE:** Drillers Log

SOURCE: ZEIGLER CC 21-1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
383.0	PLEISTOCENE		CLAY	10.0	0.0	
373.0	PLEISTOCENE		GLACIAL DRIFT	91.5	10.0	
281.5	CARBONDALE		SHALE	6.5	101.5	SOFT
275.0	CARBONDALE	ENERGY	SILTY, SANDY SHALE	22.0	108.0	
253.0	CARBONDALE	ENERGY	SHALE	10.0	130.0	

MAPID: 19900191000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 18 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.144527 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.831065 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 135.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
394.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
390.0	PLEISTOCENE		CLAY	20.0	4.0	YELLOW
370.0	PLEISTOCENE		SAND	30.0	24.0	YELLOW
340.0	PLEISTOCENE		SAND	20.0	54.0	GRAY
320.0	PLEISTOCENE		SAND	10.0	74.0	RUNNING
310.0	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	84.0	SOFT
300.0	CARBONDALE	ANVIL ROCK	SANDSTONE	15.0	94.0	YELLOW
285.0	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	109.0	GRAY
275.0	CARBONDALE	BRERETON	LIMESTONE	6.0	119.0	BLUE
269.0	CARBONDALE	HERRIN	COAL	10.0	125.0	

MAPID: 19900194000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NE NW SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.138834 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.809856 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 375.3 **LOGGED (FT.):** 58.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
375.3	PLEISTOCENE		UNCONSOLIDATED	37.0	0.0	
338.3	CARBONDALE	BRERETON	LIMESTONE	0.6	37.0	
337.7	CARBONDALE	BRERETON	LIMESTONE	5.4	37.6	WITH SHALE
332.3	CARBONDALE	ANNA	SHALE	4.7	43.0	BLACK
327.6	CARBONDALE	HERRIN	COAL	9.0	47.7	
318.6	CARBONDALE		UNDERCLAY	1.3	56.7	

MAPID: 19900195000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135429 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.808926 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 387.6 **LOGGED (FT.):** 117.5 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
387.6	PLEISTOCENE		UNCONSOLIDATED	73.0	0.0	
314.6	CARBONDALE		LIMESTONE	6.0	73.0	
308.6	CARBONDALE		SHALE	6.6	79.0	SOFT; GRAY
302.0	CARBONDALE		SHALE	9.4	85.6	DARK BLUE
292.6	CARBONDALE		SHALE	0.9	95.0	CALCAREOUS
291.7	CARBONDALE	ST. DAVID	LIMESTONE	1.5	95.9	DARK BLUE
290.2	CARBONDALE	TURNER MINE	BLACK SHALE	4.8	97.4	BLACK
285.3	CARBONDALE	DYKERSBURG	SHALE	1.8	102.3	LIGHT BLUE
283.6	CARBONDALE	SPRINGFIELD	COAL	4.4	104.0	
279.2	CARBONDALE		UNDERCLAY	0.8	108.4	
278.4	CARBONDALE		SANDSTONE	8.3	109.2	GRAY

MAPID: 19900196000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135389 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.812645 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 388.4 **LOGGED (FT.):** 100.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
388.4	PLEISTOCENE		UNCONSOLIDATED	74.0	0.0	
314.4	CARBONDALE		SHALE	2.0	74.0	BLUE
312.4	CARBONDALE	HERRIN	COAL	9.0	76.0	
303.4	CARBONDALE		UNDERCLAY	0.3	85.0	
303.1	CARBONDALE		LIMESTONE	8.7	85.3	
294.4	CARBONDALE		LIMESTONE	6.0	94.0	SANDY

MAPID: 19900197000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.137721 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.807073 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 394.6 **LOGGED (FT.):** 108.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 15 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
394.6	PLEISTOCENE		UNCONSOLIDATED	74.0	0.0	
320.6	CARBONDALE		LIMESTONE	3.6	74.0	GRAY
317.0	CARBONDALE		SHALE	3.0	77.6	GRAY
314.0	CARBONDALE		SHALE	9.9	80.6	DARK BLUE
304.1	CARBONDALE	ST. DAVID	LIMESTONE	1.8	90.5	DARK BLUE
302.3	CARBONDALE	TURNER MINE	BLACK SHALE	7.2	92.3	BLACK
295.2	CARBONDALE	DYKERSBURG	SHALE	2.3	99.4	GRAY
292.9	CARBONDALE	SPRINGFIELD	COAL	4.3	101.7	
288.7	CARBONDALE		SHALE	2.1	105.9	SOFT; GRAY

MAPID: 19901000000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NW SE NE SE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.134868 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.808461 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 89.0 **LOG TYPE:** Survey Sample Study

SOURCE: MADISON COAL CORP 54 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			NO RECORD	14.0	0.0	
-	PLEISTOCENE		GLACIAL DRIFT	54.0	14.0	
-	CARBONDALE		SHALE	9.0	68.0	
-	CARBONDALE	ST. DAVID	BLACK LIMESTONE	1.5	77.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	78.5	
-	CARBONDALE	SPRINGFIELD	COAL	4.5	84.5	

MAPID: 19901042000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.137652 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.814493 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 380.0 **LOGGED (FT.):** 118.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 51 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
380.0			NO RECORD	30.0	0.0	
350.0	PLEISTOCENE		GLACIAL DRIFT	6.8	30.0	
343.2	CARBONDALE	BRERETON	LIMESTONE	5.2	36.8	
338.0	CARBONDALE	ANNA	BLACK SHALE	18.0	42.0	
320.0	CARBONDALE	ENERGY	SHALE	6.5	60.0	
313.5	CARBONDALE	HERRIN	COAL	10.0	66.5	
303.5	CARBONDALE		LIMESTONE	-	76.5	CORE BROKEN THICKNESS UNKNOWN
-	CARBONDALE		SANDSTONE	-		CORE BROKEN THICKNESS UNKNOWN
-	CARBONDALE		BLACK LIMESTONE	-		CORE BROKEN,THICKNESS UNKNOWN
280.0	CARBONDALE		SHALE	13.0	100.0	
267.0	CARBONDALE	SPRINGFIELD	COAL	5.0	113.0	

MAPID: 19901042000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.137652 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.814493 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 340.0 **LOGGED (FT.):** 77.0 **LOG TYPE:** Survey Core Study
SOURCE: MADISON COAL CORP. 51 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
302.7	CARBONDALE	BRERETON	LIMESTONE	5.2	37.3	
297.5	CARBONDALE	ANNA	BLACK SHALE	5.0	42.5	
292.5	CARBONDALE	ENERGY	BLACK SHALE	13.0	47.5	
279.5	CARBONDALE	ENERGY	SILTY SHALE	6.5	60.5	
273.0	CARBONDALE	HERRIN	COAL	10.0	67.0	

MAPID: 19901468000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NW NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136483 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.817283 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 79.1 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	32.0	0.0	
-	PLEISTOCENE		SAND/CLAY	6.8	32.0	BLUE
-	CARBONDALE	BRERETON	LIMESTONE	2.0	38.8	
-	CARBONDALE	ANNA	BLACK SHALE	7.1	40.8	BLACK
-	CARBONDALE	ENERGY	SHALE	22.8	47.8	GRAY
-	CARBONDALE	HERRIN	COAL	8.5	70.6	

MAPID: 19901469000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW NW NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.141068 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.815398 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-	PLEISTOCENE		MUD	34.2	30.0	WITH SAND; BLUE
-	CARBONDALE	HERRIN	COAL	2.7	64.2	TOP ERODED, SOFT
-	CARBONDALE	HERRIN	CLAYSTONE	0.2	66.8	BLUE BAND
-	CARBONDALE	HERRIN	COAL	2.0	67.0	
-	CARBONDALE		UNDERCLAY	1.0	69.0	

MAPID: 19901470000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SW NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.141094 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.811705 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 82.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	52.0	0.0	
-	PLEISTOCENE		MUD	21.5	52.0	BLUE
-	CARBONDALE		SHALE	8.5	73.5	GRAY

MAPID: 19901471000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.138818 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.811709 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 4 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	50.0	0.0	
-	PLEISTOCENE		MUD	10.0	50.0	BLUE

MAPID: 19901472000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136539 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.811715 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 71.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 5 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	44.0	0.0	
-	PLEISTOCENE		MUD	25.3	44.0	WITH GRAVEL; BLUE
-	CARBONDALE		LIMESTONE	0.5	69.3	BROWN
-	CARBONDALE		SHALE	1.2	69.8	LIGHT

MAPID: 19901473000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.134346 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.804268 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 62.3 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	49.3	0.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	49.3	BLACK
-	CARBONDALE	HERRIN	COAL	5.8	53.3	
-	CARBONDALE	HERRIN	CLAYSTONE	0.3	59.2	BLUE BAND
-	CARBONDALE	HERRIN	COAL	1.9	59.4	
-	CARBONDALE		UNDERCLAY	1.0	61.3	

MAPID: 19901474000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.134283 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.809856 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 67.8 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
-	PLEISTOCENE		MUD	27.5	40.0	BLUE
-	CARBONDALE		LIMESTONE	0.3	67.5	BROWN

MAPID: 19901475000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE SW SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.138886 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.804299 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 43.3 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	11.6	14.0	
-	CARBONDALE	ANNA	BLACK SHALE	7.2	25.6	BLACK
-	CARBONDALE	ENERGY	SHALE	0.8	32.8	GRAY
-	CARBONDALE	HERRIN	COAL	6.7	33.5	
-	CARBONDALE	HERRIN	CLAYSTONE	0.5	40.2	BLUE BAND
-	CARBONDALE	HERRIN	COAL	2.1	40.7	
-	CARBONDALE		UNDERCLAY	0.5	42.8	

MAPID: 19901476000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NW SE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136595 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.806142 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 65.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
-	PLEISTOCENE		MUD	25.0	40.0	BLUE

MAPID: 19901477000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NW SE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136595 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.806142 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 71.3 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 10 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
-	PLEISTOCENE		MUD	22.2	40.0	BLUE
-	CARBONDALE	HERRIN	COAL	8.2	62.2	TOP ERODED, SOFT
-	CARBONDALE		UNDERCLAY	1.0	70.3	

MAPID: 19901478000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136615 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.804284 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.8 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	35.7	0.0	
-	PLEISTOCENE		GRAVEL	2.8	35.7	WITH ROTTEN SHALE
-	CARBONDALE	ANNA	BLACK SHALE	3.8	38.5	BLACK
-	CARBONDALE	ENERGY	SHALE	17.5	42.3	HARD; GRAY
-	CARBONDALE	HERRIN	COAL	6.7	59.8	
-	CARBONDALE	HERRIN	CLAYSTONE	0.5	66.5	BLUE BAND
-	CARBONDALE	HERRIN	COAL	1.1	67.0	
-	CARBONDALE		UNDERCLAY	0.7	68.1	

MAPID: 19901481000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136539 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.811715 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 80.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 14 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	80.0	0.0	

MAPID: 19901481000C **VERSION:** 2 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136539 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.811715 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 80.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 14 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
-	PLEISTOCENE		MUD	44.0	27.0	BLUE
-	PLEISTOCENE		SAND & GRAVEL	9.0	71.0	

MAPID: 19901482000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** NE NW SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.138834 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.809856 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 71.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 15 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
-	PLEISTOCENE		MUD	49.0	22.0	BLUE

MAPID: 19900198000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SW SW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.13322 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.803329 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 92.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
394.0	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
377.0			SANDSTONE	12.3	17.0	
364.7			SHALE	5.7	29.3	
359.0	CARBONDALE	BRERETON	LIMESTONE	27.0	35.0	
332.0	CARBONDALE	ANNA	BLACK SHALE	9.0	62.0	
323.0	CARBONDALE	HERRIN	COAL	9.3	71.0	
313.7	CARBONDALE		UNDERCLAY	1.3	80.3	
312.5	CARBONDALE		LIMESTONE	0.3	81.5	
312.2	CARBONDALE		SHALE	4.3	81.8	
307.8	CARBONDALE		BLACK SHALE	5.8	86.2	

MAPID: 19900198000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SW SW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.13322 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.803329 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 80.3 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
359.0	CARBONDALE	BRERETON	LIMESTONE	27.0	35.0	
332.0	CARBONDALE	ANNA	BLACK SHALE	9.0	62.0	
323.0	CARBONDALE	HERRIN	COAL	9.3	71.0	

MAPID: 19900201000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** 43' S line, 1175' E line of NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.100207 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.811133 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 392.9 **LOGGED (FT.):** 559.7 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 56 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
392.9	PLEISTOCENE		UNCONSOLIDATED	54.0	0.0	
338.9	CARBONDALE	ANVIL ROCK	SILTSTONE	7.2	54.0	ARGILLACEOUS; GRAY
331.7	CARBONDALE		SHALE	8.8	61.2	SILTY; DARK GRAY
323.0	CARBONDALE	BRERETON	LIMESTONE	2.0	69.9	GRAY-BLACK
321.0	CARBONDALE	ANNA	SHALE	5.1	71.9	SMOOTH; BLACK
315.9	CARBONDALE	ENERGY	SHALE	13.0	77.0	GRAY
302.9	CARBONDALE	HERRIN	COAL	8.3	90.0	CORE MISSING
294.6	CARBONDALE		UNDERCLAY	6.2	98.3	
288.4	CARBONDALE		LIMESTONE	5.5	104.5	ARGILLACEOUS; GRAY
282.9	CARBONDALE		LIMESTONE	1.6	110.0	GRAY
281.3	CARBONDALE		LIMESTONE	1.2	111.6	GRAY/BROWN
280.1	CARBONDALE		SANDSTONE	5.3	112.8	FINE; LIGHT GRAY
274.9	CARBONDALE		SHALE	10.0	118.0	SMOOTH; GRAY-BLACK
264.9	CARBONDALE	ST. DAVID	LIMESTONE	1.9	128.0	ARGILLACEOUS; DARK GRAY
263.0	CARBONDALE	TURNER MINE	SHALE	7.9	129.9	CALCAREOUS; BLACK
255.1	CARBONDALE	DYKERSBURG	SHALE	1.8	137.8	SILTY; LIGHT GRAY
253.2	CARBONDALE	SPRINGFIELD	COAL	4.2	139.7	
249.1	CARBONDALE		UNDERCLAY	3.7	143.8	LIGHT GRAY
245.4	CARBONDALE		SHALE	16.0	147.5	FINE; GREEN GRAY
229.4	CARBONDALE		SHALE	15.5	163.5	WITH SANDSTONE; GREEN GRAY
213.9	CARBONDALE		SILTSTONE	26.7	179.0	CARBONACEOUS; DARK GRAY
187.2	CARBONDALE		SILTSTONE	3.8	205.7	SHALEY; DARK GRAY
183.4	CARBONDALE		SHALE	2.5	209.5	CALCAREOUS; DARK GRAY
180.9	CARBONDALE		LIMESTONE	1.6	212.0	ARGILLACEOUS; BLACK
179.3	CARBONDALE		SHALE	0.7	213.6	SILTY; GRAY-BLACK
178.6	CARBONDALE	EXCELLO	SHALE	2.4	214.3	CARBONACEOUS; BLACK
176.2	CARBONDALE	HOUCHIN CREEK	COAL	0.4	216.7	BONEY
175.9	CARBONDALE		UNDERCLAY	1.2	217.0	GRAY
174.7	CARBONDALE		LIMESTONE	0.5	218.2	ARGILLACEOUS; GRAY/BROWN
174.2	CARBONDALE		SANDSTONE	8.9	218.7	FINE; LIGHT GRAY
165.3	CARBONDALE		SHALE	13.8	227.6	SILTY; LIGHT GRAY
151.5	CARBONDALE		SHALE	1.6	241.4	DARK GRAY
149.9	CARBONDALE		SHALE	4.5	243.0	DARK GRAY
145.4	CARBONDALE	SURVANT	COAL	1.1	247.5	WITH SHALE PARTINGS
144.3	CARBONDALE		SILTSTONE	2.7	248.6	ARGILLACEOUS; LIGHT GRAY
141.6	CARBONDALE		SHALE	3.6	251.3	SILTY; DARK GRAY
138.1	CARBONDALE		SANDSTONE	2.6	254.8	FINE GRAINED AND CALCAREOUS; GRAY

135.5	CARBONDALE		SILTSTONE	21.1	257.4	ARGILLACEOUS; DARK GRAY
114.4	CARBONDALE		SILTSTONE	8.5	278.5	ARGILLACEOUS; DARK GRAY
105.9	CARBONDALE		SHALE	25.7	287.0	SILTY; DARK GRAY
80.2	CARBONDALE		SHALE	0.8	312.7	SILTY; DARK GRAY
79.4	CARBONDALE		SHALE	5.5	313.5	WITH LIMESTONE; DARK GRAY
73.9	CARBONDALE	COLCHESTER	COAL	0.7	319.0	PYRITIC BNDS
73.2	CARBONDALE		UNDERCLAY	1.3	319.7	DARK GRAY
72.0	CARBONDALE		LIMESTONE	1.1	320.9	ARGILLACEOUS; GRAY/BROWN
70.9	CARBONDALE		SILTSTONE	1.5	322.0	ARGILLACEOUS; GRAY
69.4	CARBONDALE		SANDSTONE	4.0	323.5	MICACEOUS; GRAY
65.4	CARBONDALE		SILTSTONE	4.5	327.5	ARGILLACEOUS; GRAY
60.9	CARBONDALE		SANDSTONE	14.4	332.0	FINE; LIGHT GRAY
46.5	CARBONDALE		SILTSTONE	1.8	346.4	MICACEOUS; DARK GRAY
44.7	CARBONDALE		SILTSTONE	16.8	348.2	WITH IRONSTONE; DARK GRAY
28.0	CARBONDALE	DEKOVEN	COAL	1.6	364.9	WITH FUSSAIN
26.4	CARBONDALE		SHALE	0.5	366.5	SILTY; GRAY
25.9	CARBONDALE		SANDSTONE	2.0	367.0	MICACEOUS; LIGHT GRAY
23.9	CARBONDALE		SILTSTONE	0.8	369.0	SANDY; DARK GRAY
23.1	CARBONDALE		SANDSTONE	0.8	369.8	FINE; GRAY
22.2	CARBONDALE		SILTSTONE	2.4	370.7	INTERBEDDED WITH SANDSTONE
19.8	CARBONDALE		SHALE	4.1	373.1	CARBONACEOUS; DARK GRAY
15.7	CARBONDALE	LOWER DEKOVEN	COAL	0.7	377.2	FUSSAIN AND VITRAIN BANDS
15.1	CARBONDALE		UNDERCLAY	1.3	377.8	LIGHT GRAY
13.7	CARBONDALE		SILTSTONE	6.3	379.2	ARGILLACEOUS; DARK GRAY
7.5	CARBONDALE		SILTSTONE	8.1	385.4	CARBONACEOUS; DARK GRAY
-0.6	CARBONDALE	DAVIS	COAL	0.8	393.5	PYRITIC
-1.4	TRADEWATER		SILTSTONE	3.9	394.3	ARGILLACEOUS; LIGHT GRAY
-5.3	TRADEWATER		SANDSTONE	8.0	398.2	CARBONACEOUS; LIGHT GRAY
-13.3	TRADEWATER		SANDSTONE	3.3	406.2	WITH CLAY CLASTS; LIGHT GRAY
-16.5	TRADEWATER		SANDSTONE	1.3	409.4	FINE; LIGHT GRAY
-17.8	TRADEWATER		SANDSTONE	10.6	410.7	MICACEOUS; LIGHT GRAY
-28.4	TRADEWATER		SILTSTONE	0.3	421.3	ARGILLACEOUS; DARK GRAY
-28.6	TRADEWATER		SILTSTONE	6.3	421.5	WITH SANDSTONE
-34.9	TRADEWATER		SHALE	15.1	427.8	SILTY; GRAY
-50.0	TRADEWATER		SHALE	3.7	442.9	HARD; BLACK
-53.7	TRADEWATER		CLAYSTONE	1.2	446.6	SILTY; GREEN GRAY
-54.9	TRADEWATER		CLAYSTONE	3.7	447.8	UNIT 73 IS MISTAKE; SILTY; GREEN GRAY
-58.5	TRADEWATER	STONEFORT	LIMESTONE	3.6	451.4	GRAY/BROWN
-62.1	TRADEWATER		SHALE	1.9	455.0	HARD; BLACK
-64.0	TRADEWATER		SHALE	0.7	456.9	BLACK
-64.7	TRADEWATER		SHALE	11.0	457.6	WITH IRONSTONE LAYER; GRAY; GRAY
-75.7	TRADEWATER	WISE RIDGE	COAL	0.8	468.6	BONEY
-76.5	TRADEWATER		UNDERCLAY	2.0	469.4	GRAY
-78.5	TRADEWATER		SILTSTONE	4.5	471.4	CARBONACEOUS; LIGHT GRAY
-83.0	TRADEWATER		IRONSTONE	4.8	475.9	OOLITIC

-87.9	TRADEWATER		SHALE	5.1	480.8	HARD; BLACK
-92.9	TRADEWATER	MT. RORAH	COAL	1.5	485.8	BLOCKY
-94.4	TRADEWATER	MT. RORAH	UNDERCLAY	0.3	487.3	GRAY
-94.7	TRADEWATER	MT. RORAH	COAL	0.3	487.6	BONEY
-94.9	TRADEWATER		SHALE	0.2	487.8	DARK GRAY
-95.1	TRADEWATER		SHALE	3.8	488.0	MICACEOUS; LIGHT GRAY
-98.9	TRADEWATER		SILTSTONE	4.6	491.8	WITH IRONSTONE
-103.5	TRADEWATER		SHALE	1.8	496.4	SOFT; DARK GRAY
-105.4	TRADEWATER		SHALE	1.2	498.3	SMOOTH; DARK GRAY
-106.5	TRADEWATER	MURPHYSBORO	COAL	3.2	499.4	BLOCKY
-109.7	TRADEWATER		SANDSTONE	57.1	502.6	COARSE; LIGHT GRAY

MAPID: 19900201000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** 43' S line, 1175' E line of NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.100207 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.811133 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 392.9 **LOGGED (FT.):** 1000.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP. **WELL TYPE:** Diamond Drill

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
392.9			UNCONSOLIDATED	54.0	0.0	
338.9	CARBONDALE		SILTSTONE	7.2	54.0	
331.7	CARBONDALE		SHALE	8.8	61.2	
323.0	CARBONDALE	BRERETON	LIMESTONE	2.0	69.9	
321.0	CARBONDALE	ANNA	BLACK SHALE	5.1	71.9	
315.9	CARBONDALE	ENERGY	GRAY SHALE	13.0	77.0	
302.9	CARBONDALE	HERRIN	COAL	8.3	90.0	
294.6	CARBONDALE		UNDERCLAY	6.2	98.3	
288.4	CARBONDALE		LIMESTONE	8.3	104.5	
280.1	CARBONDALE		SANDSTONE	5.3	112.8	
274.9	CARBONDALE		DARK SHALE	10.0	118.0	
264.9	CARBONDALE	ST. DAVID	LIMESTONE	1.9	128.0	
263.0	CARBONDALE	TURNER MINE	BLACK SHALE	7.9	129.9	
255.1	CARBONDALE		SHALE	1.8	137.8	
253.2	CARBONDALE	SPRINGFIELD	COAL	4.2	139.7	
249.1	CARBONDALE		UNDERCLAY	3.7	143.8	
245.4	CARBONDALE		SHALE	31.5	147.5	
213.9	CARBONDALE		SILTSTONE	30.5	179.0	
183.4	CARBONDALE		SHALE	2.5	209.5	
180.9	CARBONDALE	HANOVER	LIMESTONE	1.6	212.0	
179.3	CARBONDALE		SHALE	0.7	213.6	
178.6	CARBONDALE	EXCELLO	BLACK SHALE	2.4	214.3	
176.2	CARBONDALE	HOUCHIN CREEK	COAL	0.4	216.7	
175.9	CARBONDALE		UNDERCLAY	1.2	217.0	
174.7	CARBONDALE		LIMESTONE	0.5	218.2	
174.2	CARBONDALE		SANDSTONE	8.9	218.7	
165.3	CARBONDALE		SHALE	13.9	227.6	
151.5	CARBONDALE		SHALE	6.1	241.4	
145.4	CARBONDALE	SURVANT	COAL	1.1	247.5	
144.3	CARBONDALE		SILTSTONE	2.7	248.6	
141.6	CARBONDALE		SHALE	3.6	251.3	
138.1	CARBONDALE		SANDSTONE	2.6	254.8	
135.5	CARBONDALE		SILTSTONE	29.6	257.4	
105.9	CARBONDALE		SHALE	32.0	287.0	
73.9	CARBONDALE	COLCHESTER	COAL	0.7	319.0	UNCERTAIN CORRELATION
73.2	SPOON		UNDERCLAY	1.3	319.7	
72.0	SPOON		LIMESTONE	1.1	320.9	
70.9	SPOON		SILTSTONE	1.5	322.0	
69.4	SPOON		SANDSTONE	4.0	323.5	

65.4	SPOON		SILTSTONE	4.5	327.5	
60.9	SPOON		SANDSTONE	14.4	332.0	
46.5	SPOON		SILTSTONE	18.5	346.4	
28.0	SPOON		COAL	1.6	364.9	
26.4	SPOON		SHALE	0.5	366.5	
25.9	SPOON		SANDSTONE	2.0	367.0	
23.9	SPOON		SILTSTONE	0.8	369.0	
23.1	SPOON		SANDSTONE	0.8	369.8	
22.2	SPOON		UNCLASSIFIED	2.4	370.7	
19.8	SPOON		SHALE	4.1	373.1	
15.7	SPOON		COAL	0.7	377.2	
15.1	SPOON		UNDERCLAY	1.3	377.8	
13.7	SPOON		SILTSTONE	14.3	379.2	
-0.6	SPOON	DEKOVEN	COAL	0.8	393.5	UNCERTAIN CORRELATION
-1.4	SPOON		SILTSTONE	3.9	394.3	
-5.3	SPOON		SANDSTONE	23.1	398.2	
-28.4	SPOON		SILTSTONE	6.6	421.3	
-34.9	SPOON		SHALE	15.1	427.8	
-50.0	SPOON		BLACK SHALE	3.7	442.9	
-53.7	SPOON		SHALE	1.2	446.6	
-54.9	SPOON		CLAYSTONE	3.7	447.8	
-58.5	SPOON		LIMESTONE	3.6	451.4	
-62.1	SPOON		BLACK SHALE	13.6	455.0	
-75.7	SPOON	DAVIS	COAL	0.9	468.6	UNCERTAIN CORRELATION
-76.5			UNDERCLAY	2.0	469.4	
-78.5			SILTSTONE	4.5	471.4	
-83.0			UNCLASSIFIED	4.8	475.9	
-87.9			BLACK SHALE	5.1	480.8	
-92.9			COAL	1.5	485.8	
-94.4			UNDERCLAY	0.3	487.3	
-94.7			COAL	0.3	487.6	
-94.9			SHALE	4.0	487.8	
-98.9			SILTSTONE	4.6	491.8	
-103.5			SHALE	3.0	496.4	
-106.5			COAL	3.2	499.4	
-109.7			SANDSTONE	57.1	502.6	
-166.8			CONGLOMERATE	0.7	559.7	
-167.4			SHALE	2.5	560.3	
-170.0			SILTSTONE	1.1	562.9	
-171.1			UNKNOWN	97.9	564.0	
-269.0			SHALE	0.8	661.9	
-269.9			SILTSTONE	0.5	662.8	
-270.4			SANDSTONE	52.8	663.3	
-323.1			SANDSTONE/SILTSTONE	20.0	716.0	
-343.1			SHALE	18.3	736.0	
-361.4			SANDSTONE	15.3	754.3	
-376.6			SHALE	6.5	769.5	

-383.1	SANDSTONE	104.0	776.0
-487.1	SHALE	16.0	880.0
-503.1	BLACK SHALE	3.3	896.0
-506.4	SHALE	20.3	899.3
-526.6	SILTSTONE	8.0	919.5
-534.6	SANDSTONE	4.3	927.5
-538.9	SILTSTONE	1.0	931.8
-539.9	SHALE	4.3	932.8
-544.2	SANDSTONE/SILTSTONE	30.9	937.1
-575.1	SHALE	1.0	968.0
-576.1	SHALE & SANDSTONE	2.2	969.0
-578.3	SANDSTONE	28.8	971.2

MAPID: 19902508000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** 290' N line, 270' E line of SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.106389 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.810235 **DATE COLLECTED:** 6 / 0 / 1971

SURFACE ELEVATION (FT.): 416.5 **LOGGED (FT.):** 1250.0 **LOG TYPE:** Electric Log

SOURCE: AUSTIN ENGINEERING CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
86.5	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	330.0	
26.5	SPOON	DAVIS	UNCLASSIFIED	-	390.0	
-833.5	BASE OF PENN.		UNCLASSIFIED	-	1250.0	

MAPID: 19900204000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.061274 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.812721 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 169.6 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNCONSOLIDATED	1.5	0.0	
388.5	PLEISTOCENE		HARD PAN	4.0	1.5	
384.5	PLEISTOCENE		CLAY	9.5	5.5	YELLOW
375.0	PLEISTOCENE		SAND	10.0	15.0	YELLOW
365.0	PLEISTOCENE		SAND/CLAY	25.0	25.0	YELLOW
340.0	PLEISTOCENE		CLAY	15.0	50.0	LIGHT GRAY
325.0	PLEISTOCENE		CLAY	6.0	65.0	WITH SAND; RED
319.0	PLEISTOCENE		SAND	3.0	71.0	BLUE
316.0	CARBONDALE		SANDSTONE	7.0	74.0	ROTTEN
309.0	CARBONDALE		LIMESTONE	2.8	81.0	WITH CHERT
306.2	CARBONDALE	ANVIL ROCK	SANDSTONE	33.2	83.8	WITH COAL STREAKS; GRAY
273.0	CARBONDALE		SHALE	13.0	117.0	SANDY; GRAY
260.0	CARBONDALE		SHALE	9.0	130.0	DARK BLUE
251.0	CARBONDALE	BRERETON	LIMESTONE	3.5	139.0	BLUE
247.5	CARBONDALE	ANNA	BLACK SHALE	5.5	142.5	BLACK
242.0	CARBONDALE	ENERGY	SHALE	13.0	148.0	LIGHT BLUE
229.0	CARBONDALE	HERRIN	COAL	7.5	161.0	
221.5	CARBONDALE		UNDERCLAY	1.2	168.5	

MAPID: 19900205000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 23 **QUARTERS/FOOTAGES:** 660' N line, 660' E line of SE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.061243 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.812735 **DATE COLLECTED:** 7 / 1 / 1912

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 1000.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0	PLEISTOCENE		CLAY	24.0	0.0	
366.0	PLEISTOCENE		CLAY	14.0	24.0	SANDY
352.0	PLEISTOCENE		HARD PAN	10.0	38.0	
342.0	PLEISTOCENE		CLAY	26.0	48.0	SANDY
316.0	PLEISTOCENE		GRAVEL	2.0	74.0	SANDY
314.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	76.0	
306.0	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	84.0	
300.0	CARBONDALE	ANVIL ROCK	SANDSTONE	33.0	90.0	
267.0	CARBONDALE		SHALE	3.0	123.0	
264.0	CARBONDALE		SHALE	9.5	126.0	BLUE
254.5	CARBONDALE	BRERETON	LIMESTONE	2.5	135.5	
252.0	CARBONDALE	ANNA	SHALE	4.5	138.0	BLACK
247.5	CARBONDALE	ENERGY	SHALE	20.0	142.5	LIGHT
227.5	CARBONDALE	HERRIN	COAL	6.2	162.5	
221.3	CARBONDALE	HERRIN	COAL	0.1	168.7	
221.2	CARBONDALE	HERRIN	COAL	2.0	168.8	
219.2	CARBONDALE		SHALE	3.8	170.8	LIGHT
215.5	CARBONDALE		SHALE	10.5	174.5	WITH LIMESTONE NODULES; GREEN
205.0	CARBONDALE		SHALE	4.0	185.0	LIGHT
201.0	CARBONDALE		SHALE	11.0	189.0	BLUE
190.0	CARBONDALE		SHALE	2.5	200.0	BLUE
187.5	CARBONDALE	TURNER MINE	SHALE	5.3	202.5	BLACK
182.2	CARBONDALE	DYKERSBURG	SHALE	1.5	207.8	BLUE
180.7	CARBONDALE	SPRINGFIELD	COAL	3.5	209.3	
177.2	CARBONDALE		UNDERCLAY	2.0	212.8	
175.2	CARBONDALE		SHALE	54.0	214.8	SANDY
121.2	CARBONDALE		SHALE	20.0	268.8	BLUE
101.2	CARBONDALE		SHALE	2.0	288.8	BLACK
99.2	CARBONDALE		ROCK	0.8	290.8	HARD; BLUE
98.4	CARBONDALE	EXCELLO	SHALE	1.3	291.6	BLACK
97.2	CARBONDALE	HOUCHIN CREEK	COAL	1.9	292.8	
95.2	CARBONDALE		SHALE	1.1	294.8	LIGHT
94.2	CARBONDALE		SHALE	8.0	295.8	SANDY
86.2	CARBONDALE		SHALE	24.2	303.8	LIGHT
62.0	CARBONDALE	SURVANT	COAL	1.8	328.0	
60.2	CARBONDALE		SHALE	3.0	329.8	SAND
57.2	CARBONDALE		SHALE	6.0	332.8	LIGHT
51.2	CARBONDALE		SANDSTONE	1.0	338.8	
50.2	CARBONDALE		SANDSTONE	16.0	339.8	WITH SHALE

34.2	CARBONDALE		SHALE	46.0	355.8	BLUE
-11.8	CARBONDALE	MECCA QUARRY	SHALE	1.8	401.8	BLACK
-13.7	CARBONDALE	COLCHESTER	COAL	0.6	403.7	
-14.3	CARBONDALE		UNDERCLAY	2.6	404.3	
-16.8	CARBONDALE		SHALE	17.0	406.8	SAND
-33.8	CARBONDALE		SANDSTONE	26.0	423.8	
-59.8	CARBONDALE		SHALE	6.3	449.8	BLUE
-66.2	CARBONDALE	DEKOVEN	COAL	2.2	456.2	
-68.3	CARBONDALE		SHALE	5.0	458.3	SAND
-73.3	CARBONDALE		SHALE	5.9	463.3	BLUE
-79.3	CARBONDALE	LOWER DEKOVEN	COAL	0.8	469.3	
-80.1	CARBONDALE		SHALE	15.6	470.1	BLUE
-95.7	CARBONDALE	DAVIS	COAL	2.8	485.7	
-98.4	TRADEWATER		UNDERCLAY	3.4	488.4	
-101.8	TRADEWATER		SHALE	13.0	491.8	SANDY
-114.8	TRADEWATER		SANDSTONE	11.0	504.8	WITH SHALE
-125.8	TRADEWATER		SHALE	25.0	515.8	BLUE
-150.8	TRADEWATER		SHALE	3.0	540.8	BLACK
-153.8	TRADEWATER		SHALE	4.0	543.8	LIGHT
-157.8	TRADEWATER	STONEFORT	LIMESTONE	3.0	547.8	
-160.8	TRADEWATER		SHALE	2.0	550.8	BLACK
-162.8	TRADEWATER		SHALE	8.5	552.8	BLUE
-171.3	TRADEWATER	WISE RIDGE	COAL	1.2	561.3	
-172.5	TRADEWATER	MT. RORAH	SHALE	7.3	562.5	LIGHT
-179.8	TRADEWATER		SANDSTONE	3.0	569.8	
-182.8	TRADEWATER		SHALE	2.0	572.8	SAND
-184.8	TRADEWATER		SHALE	9.0	574.8	WITH SANDSTONE; DARK
-193.8	TRADEWATER		SHALE	8.4	583.8	DARK
-202.3	TRADEWATER		COAL	3.0	592.3	
-205.3	TRADEWATER		SHALE	12.8	595.3	DARK
-218.0	TRADEWATER	MURPHYSBORO	COAL	4.8	608.0	
-222.8	TRADEWATER	MURPHYSBORO	COAL	2.5	612.8	
-225.3	TRADEWATER		SHALE	8.8	615.3	LIGHT
-234.0	TRADEWATER		SANDSTONE	2.0	624.0	
-236.0	TRADEWATER		SHALE	2.0	626.0	LIGHT
-238.0	TRADEWATER		SHALE	6.0	628.0	SAND
-244.0	TRADEWATER		SHALE	8.0	634.0	BLUE
-252.0	TRADEWATER		SANDSTONE	15.0	642.0	WITH SHALE
-267.0	TRADEWATER		SHALE	4.0	657.0	BLUE
-271.0	TRADEWATER		SANDSTONE	1.0	661.0	
-272.0	TRADEWATER		SHALE	69.0	662.0	BLUE
-341.0	TRADEWATER		SANDSTONE	41.0	731.0	WITH SHALE
-382.0	TRADEWATER		SHALE	7.0	772.0	BLUE
-389.0	TRADEWATER		SHALE	29.0	779.0	HARD; BLUE
-418.0	TRADEWATER		SANDSTONE	7.0	808.0	
-425.0	TRADEWATER		SHALE	3.0	815.0	BLUE
-428.0	TRADEWATER		SANDSTONE	18.0	818.0	
-446.0	TRADEWATER		SHALE	13.0	836.0	HARD; BLUE

-459.0	TRADEWATER	SANDSTONE	110.0	849.0	
-569.0	TRADEWATER	SHALE	10.0	959.0	BLUE
-579.0	TRADEWATER	SANDSTONE	14.0	969.0	
-593.0	TRADEWATER	SHALE	13.0	983.0	BLUE
-606.0	TRADEWATER	SANDSTONE	4.0	996.0	

MAPID: 19900205000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 23 **QUARTERS/FOOTAGES:** 660' N line, 660' E line of SE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.061243 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.812735 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 171.3 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION, DEPTHS CORRECTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
314.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	76.0	
306.0	CARBONDALE	LAWSON	SANDSTONE	6.0	84.0	
300.0	CARBONDALE	LAWSON	SANDSTONE	33.0	90.0	
267.0	CARBONDALE	LAWSON	GRAY SHALE	3.0	123.0	
264.0	CARBONDALE	LAWSON	GRAY SHALE	9.5	126.0	
254.5	CARBONDALE	BRERETON	LIMESTONE	2.5	135.5	
252.0	CARBONDALE	ANNA	BLACK SHALE	4.5	138.0	
247.5	CARBONDALE	ENERGY	GRAY SHALE	20.0	142.5	
227.5	CARBONDALE	HERRIN	COAL	8.3	162.5	

MAPID: 19900206000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.047155 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.80148 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 413.0 **LOGGED (FT.):** 160.3 **LOG TYPE:** Drillers Log

SOURCE: SUNNYSIDE COAL 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
413.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
408.0	PLEISTOCENE		CLAY	15.0	5.0	YELLOW
393.0	MODESTO		SANDSTONE	23.0	20.0	
370.0	MODESTO	DEGRAFF	COAL	0.5	43.0	
369.5	MODESTO		SHALE	7.5	43.5	BLUE
362.0	MODESTO		BLACK SHALE	3.0	51.0	BLACK
359.0	MODESTO		SHALE	4.0	54.0	BLUE
355.0	MODESTO		SANDSTONE/SHALE	4.0	58.0	BLUE
351.0	MODESTO	PIASA	LIMESTONE	3.5	62.0	
347.5	CARBONDALE		SHALE	4.5	65.5	BLUE
343.0	CARBONDALE		SHALE	9.0	70.0	DARK BLUE
334.0	CARBONDALE		LIMESTONE	1.0	79.0	
333.0	CARBONDALE		SANDSTONE	4.0	80.0	
329.0	CARBONDALE		UNCLASSIFIED	6.0	84.0	SANDY
323.0	CARBONDALE		SHALE	29.0	90.0	BLUE
294.0	CARBONDALE	ANNA	BLACK SHALE	3.0	119.0	BLACK
291.0	CARBONDALE	ENERGY	SHALE	30.0	122.0	BLUE
261.0	CARBONDALE	HERRIN	COAL	8.0	152.0	
253.0	CARBONDALE		UNDERCLAY	0.3	160.0	

MAPID: 19900206000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.047155 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.80148 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 160.0 **LOG TYPE:** Drillers Log

SOURCE: SUNNYSIDE COAL **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
372.0	CARBONDALE	DANVILLE	GRAY SHALE	0.5	43.0	
371.5	CARBONDALE		DARK GRAY SHALE	7.5	43.5	
364.0	CARBONDALE	ALLENBY	BLACK SHALE	3.0	51.0	
361.0	CARBONDALE		SHALE & SANDSTONE	8.0	54.0	
353.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	62.0	
349.5	CARBONDALE	LAWSON	GRAY SHALE	4.5	65.5	
345.0	CARBONDALE	LAWSON	DARK GRAY SHALE	9.0	70.0	
336.0	CARBONDALE	BRERETON	LIMESTONE	1.0	79.0	
335.0	CARBONDALE	ENERGY	SANDSTONE	4.0	80.0	
331.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	6.0	84.0	
325.0	CARBONDALE	ENERGY	DARK GRAY SHALE	29.0	90.0	
296.0	CARBONDALE	ENERGY	BLACK SHALE	3.0	119.0	
293.0	CARBONDALE	ENERGY	DARK GRAY SHALE	30.0	122.0	
263.0	CARBONDALE	HERRIN	COAL	8.0	152.0	

MAPID: 19900207000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 27 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.0788 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.791552 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 519.0 **LOG TYPE:** Drillers Log
SOURCE: SAM BRUSH-MADISON COAL CO **WELL TYPE:** Coal Test
COMMENT: COAL INFO LISTED ONLY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.0			UNKNOWN	110.0	0.0	
300.0	CARBONDALE	HERRIN	COAL	9.0	110.0	
291.0	CARBONDALE		ROCK	41.0	119.0	
250.0	CARBONDALE	SPRINGFIELD	COAL	4.0	160.0	
246.0	CARBONDALE		ROCK	60.0	164.0	
186.0	CARBONDALE	HOUCHIN CREEK	COAL	2.5	224.0	
183.5	CARBONDALE		ROCK	32.5	226.5	
151.0	CARBONDALE	SURVANT	COAL	2.5	259.0	
148.5	CARBONDALE		ROCK	152.0	261.5	
-3.5	CARBONDALE	DAVIS	COAL	4.0	413.5	
-7.5	TRADEWATER		ROCK	80.0	417.5	
-87.5	TRADEWATER	MT. RORAH	COAL	4.0	497.5	
-91.5	TRADEWATER		ROCK	11.5	501.5	
-103.0	TRADEWATER	MURPHYSBORO	COAL	6.0	513.0	

MAPID: 19900451000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SW SW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.104187 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.789821 **DATE COLLECTED:** 0 / 0 / 1908
SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 125.0 **LOG TYPE:** Drillers Log
SOURCE: ROBERT DICK COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
434.0	CARBONDALE	ANVIL ROCK	SANDSTONE	35.0	9.0	
399.0	CARBONDALE		SHALE	25.0	44.0	BLUE
374.0	CARBONDALE	BRERETON	LIMESTONE	4.0	69.0	
370.0	CARBONDALE	ANNA	BLACK SHALE	4.0	73.0	BLACK
366.0	CARBONDALE	ENERGY	SHALE	35.0	77.0	WHITE
331.0	CARBONDALE	HERRIN	COAL	9.0	112.0	
322.0	CARBONDALE		UNDERCLAY	4.0	121.0	

MAPID: 19900451000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SW SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.104187 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.789821 **DATE COLLECTED:** 0 / 0 / 1908

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 121.0 **LOG TYPE:** Drillers Log

SOURCE: ROBERT DICK COAL **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
434.0	CARBONDALE	LAWSON	SANDSTONE	35.0	9.0	
399.0	CARBONDALE	LAWSON	DARK GRAY SHALE	25.0	44.0	
374.0	CARBONDALE	BRERETON	LIMESTONE	4.0	69.0	
370.0	CARBONDALE	ANNA	BLACK SHALE	4.0	73.0	
366.0	CARBONDALE	ENERGY	GRAY SHALE	35.0	77.0	
331.0	CARBONDALE	HERRIN	COAL	9.0	112.0	

MAPID: 19902599000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 28 **QUARTERS/FOOTAGES:** 990' S line, 330' E line of SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.101864 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.791643 **DATE COLLECTED:** 9 / 0 / 1973

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 1240.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-797.0	BASE OF PENN.		UNCLASSIFIED	-	1240.0	

MAPID: 19900209000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.126279 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.790599 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 414.9 **LOGGED (FT.):** 106.5 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 11 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
414.9	PLEISTOCENE		UNCONSOLIDATED	62.5	0.0	
352.4	CARBONDALE		SHALE	4.2	62.5	LIGHT BLUE
348.2	CARBONDALE		SHALE	10.5	66.7	DARK BLUE
337.7	CARBONDALE	ST. DAVID	LIMESTONE	3.3	77.2	DARK BLUE
334.4	CARBONDALE	TURNER MINE	BLACK SHALE	5.9	80.5	BLACK
328.5	CARBONDALE	DYKERSBURG	SHALE	3.9	86.4	GRAY
324.6	CARBONDALE	DYKERSBURG	SHALE	2.0	90.3	BLUE-GRAY
322.6	CARBONDALE	SPRINGFIELD	COAL	4.1	92.3	
318.5	CARBONDALE		UNDERCLAY	4.3	96.4	
314.1	CARBONDALE		SHALE	1.2	100.8	SOFT; LIGHT GRAY
313.0	CARBONDALE		SHALE	1.3	101.9	GRAY
311.7	CARBONDALE		SHALE	3.3	103.2	SAND; GRAY

MAPID: 19900210000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** NW SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.122778 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.791562 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 424.2 **LOGGED (FT.):** 750.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 12 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
424.2	PLEISTOCENE		UNCONSOLIDATED	41.0	0.0	
383.2	CARBONDALE	ENERGY	SHALE	22.2	41.0	BLUE
361.0	CARBONDALE	HERRIN	COAL	9.3	63.2	
351.7	CARBONDALE		UNDERCLAY	2.3	72.5	
349.4	CARBONDALE		SHALE	1.8	74.8	CALCAREOUS
347.6	CARBONDALE		LIMESTONE	3.0	76.6	GRAY
344.6	CARBONDALE		LIMESTONE	2.5	79.6	WITH SHALE PARTINGS
342.1	CARBONDALE		SHALE	0.6	82.1	GRAY
341.5	CARBONDALE		LIMESTONE	4.8	82.7	GRAY
336.8	CARBONDALE		SHALE	3.4	87.4	SANDY
333.4	CARBONDALE		SHALE	0.3	90.8	DARK BLUE
333.1	CARBONDALE		SHALE	0.8	91.1	GRAY
332.3	CARBONDALE		SHALE	7.8	91.9	DARK BLUE
324.5	CARBONDALE	ST. DAVID	LIMESTONE	1.2	99.7	DARK BLUE
323.4	CARBONDALE	TURNER MINE	BLACK SHALE	5.2	100.8	BLACK
318.2	CARBONDALE	DYKERSBURG	SHALE	8.3	106.0	GRAY
309.9	CARBONDALE	SPRINGFIELD	COAL	4.0	114.3	
305.9	CARBONDALE		UNDERCLAY	7.2	118.3	WITH SHALE
298.8	CARBONDALE		LIMESTONE	3.0	125.4	SANDY
295.8	CARBONDALE		SANDSTONE	2.3	128.4	SHALEY
293.5	CARBONDALE		SHALE	6.9	130.7	SANDY
286.6	CARBONDALE		SHALE	42.4	137.6	BLUE
244.2	CARBONDALE		SHALE	5.3	180.0	DARK BLUE
238.9	CARBONDALE	HANOVER	LIMESTONE	2.5	185.3	BLACK
236.4	CARBONDALE	EXCELLO	SHALE	2.7	187.8	BLACK
233.7	CARBONDALE	HOUCHIN CREEK	COAL	1.5	190.5	
232.2	CARBONDALE		SHALE	3.2	192.0	GRAY
229.0	CARBONDALE		SHALE	5.3	195.2	SANDY
223.7	CARBONDALE		SANDSTONE	3.8	200.5	
219.9	CARBONDALE		SHALE	2.2	204.3	SANDY
217.8	CARBONDALE		SANDSTONE	1.8	206.4	
216.0	CARBONDALE		SHALE	15.8	208.2	BLUE
200.3	CARBONDALE		SHALE	1.3	223.9	SANDY
198.9	CARBONDALE		SHALE	2.9	225.3	DARK BLUE
196.0	CARBONDALE		SHALE	1.2	228.2	SANDY; BLUE
194.9	CARBONDALE	SURVANT	COAL	1.7	229.3	
193.2	CARBONDALE		SHALE	4.3	231.0	DARK BLUE
188.9	CARBONDALE		LIMESTONE	0.4	235.3	
188.4	CARBONDALE		SHALE	4.9	235.8	SANDY

183.5	CARBONDALE		SHALE	52.5	240.7	DARK BLUE
131.0	CARBONDALE	MECCA QUARRY	BLACK SHALE	1.8	293.2	BLACK
129.2	CARBONDALE	COLCHESTER	COAL	1.0	295.0	
128.2	CARBONDALE		UNDERCLAY	2.5	296.0	
125.7	CARBONDALE		LIMESTONE	5.8	298.5	SANDY
119.9	CARBONDALE		SHALE	3.6	304.3	SANDY
116.3	CARBONDALE		SANDSTONE	2.3	307.9	SHALEY
113.9	CARBONDALE		SHALE	1.8	310.3	SANDY
112.2	CARBONDALE		SANDSTONE	0.7	312.0	
111.5	CARBONDALE		SHALE	2.0	312.7	WITH SANDSTONE
109.5	CARBONDALE		SANDSTONE	0.3	314.7	
109.2	CARBONDALE		SHALE	16.3	315.0	SANDY; BLUE
92.9	CARBONDALE		SHALE	9.1	331.3	BLUE
83.9	CARBONDALE	DEKOVEN	COAL	2.3	340.3	
81.5	CARBONDALE	DEKOVEN	SHALE	0.3	342.7	BLUE
81.3	CARBONDALE	DEKOVEN	COAL	0.3	342.9	
81.0	CARBONDALE		SANDSTONE	7.5	343.2	
73.5	CARBONDALE		SHALE	4.9	350.7	BLUE
68.6	CARBONDALE		SHALE	0.5	355.6	SANDY; BLUE
68.1	CARBONDALE		SHALE	3.7	356.1	BLUE
64.4	CARBONDALE	LOWER DEKOVEN	COAL	1.0	359.8	
63.4	CARBONDALE		SHALE	0.8	360.8	SANDY; GRAY
62.7	CARBONDALE		SHALE	0.3	361.5	BLUE
62.4	CARBONDALE		SHALE	5.2	361.8	BLACK
57.2	CARBONDALE	DAVIS	COAL	2.8	367.0	
54.4	TRADEWATER		SHALE	8.7	369.8	SANDY; GRAY
45.8	TRADEWATER		SANDSTONE	4.8	378.4	
41.0	TRADEWATER		SHALE	2.8	383.2	SANDY; LIGHT GRAY
38.2	TRADEWATER		SHALE	6.0	386.0	WITH SANDSTONE PARTINGS; DARK GRAY
32.2	TRADEWATER		SHALE	3.2	392.0	SANDY; DARK BLUE
29.0	TRADEWATER		SHALE	17.0	395.2	DARK BLUE
12.0	TRADEWATER		SHALE	5.2	412.2	WITH COAL PARTINGS
6.9	TRADEWATER		SHALE	2.2	417.3	GRAY
4.7	TRADEWATER		SHALE	4.3	419.5	SANDY; GRAY
0.4	TRADEWATER	STONEFORT	LIMESTONE	4.1	423.8	GRAY
-3.7	TRADEWATER		SHALE	1.7	427.9	BLACK
-5.4	TRADEWATER	WISE RIDGE	COAL	0.5	429.6	BONEY
-5.9	TRADEWATER	WISE RIDGE	SHALE	0.8	430.1	BLACK
-6.6	TRADEWATER	WISE RIDGE	COAL	0.3	430.8	BONEY
-7.0	TRADEWATER		SHALE	19.5	431.2	WITH BROWN LAMINATIONS; DARK BLUE
-26.5	TRADEWATER	MT. RORAH	COAL	2.0	450.7	
-28.5	TRADEWATER		SHALE	14.7	452.7	BLUE
-43.1	TRADEWATER		LIMESTONE	2.8	467.3	WITH CONGLOMERATE
-46.0	TRADEWATER		COAL	0.6	470.2	
-46.6	TRADEWATER		SHALE	13.0	470.8	DARK BLUE
-59.6	TRADEWATER		LIMESTONE	1.4	483.8	GRAY
-61.0	TRADEWATER		SHALE	1.8	485.2	BLACK

-62.7	TRADEWATER		LIMESTONE	0.5	486.9	DARK BLUE
-63.2	TRADEWATER		SHALE	8.3	487.4	DARK BLUE
-71.6	TRADEWATER	MURPHYSBORO	COAL	2.3	495.8	
-73.9	TRADEWATER		SHALE	0.8	498.1	SOFT; GRAY
-74.7	TRADEWATER		SHALE	4.0	498.9	SANDY; LIGHT GRAY
-78.7	TRADEWATER		SANDSTONE	42.8	502.9	
-121.6	TRADEWATER		SHALE	9.3	545.8	DARK BLUE
-130.8	TRADEWATER		SANDSTONE	3.3	555.0	
-134.1	TRADEWATER		SHALE	7.6	558.3	DARK BLUE
-141.6	TRADEWATER		SANDSTONE	4.6	565.8	
-146.2	TRADEWATER		SHALE	4.5	570.4	BLACK
-150.7	TRADEWATER		SHALE	1.5	574.9	SANDY; GRAY
-152.2	TRADEWATER		SANDSTONE	9.2	576.4	
-161.4	TRADEWATER		SHALE	4.8	585.6	DARK BLUE
-166.1	TRADEWATER		SANDSTONE	14.0	590.3	
-180.1	TRADEWATER		SHALE	1.0	604.3	GRAY
-181.1	TRADEWATER		SHALE	3.7	605.3	DARK BLUE
-184.8	TRADEWATER		COAL	1.0	609.0	BONEY
-185.8	TRADEWATER		SANDSTONE	2.0	610.0	WITH SHALE PARTINGS
-187.8	TRADEWATER		SANDSTONE	44.0	612.0	
-231.8	TRADEWATER		SANDSTONE	2.0	656.0	WITH SHALE PARTINGS
-233.8	TRADEWATER		SHALE	10.5	658.0	WITH SANDSTONE PARTINGS
-244.3	TRADEWATER		SHALE	4.0	668.5	SANDY; BLUE
-248.3	TRADEWATER		SANDSTONE	1.0	672.5	WITH SHALE
-249.3	TRADEWATER		SANDSTONE	26.0	673.5	
-275.3	TRADEWATER		SANDSTONE	36.0	699.5	WITH SHALE PARTINGS
-311.3	TRADEWATER		SANDSTONE	14.5	735.5	

MAPID: 19900211000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.128613 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.79607 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 407.2 **LOGGED (FT.):** 103.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
407.2	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
391.2	PLEISTOCENE		SAND	2.0	16.0	
389.2	PLEISTOCENE		UNCONSOLIDATED	12.0	18.0	
377.2	CARBONDALE		SHALE	7.4	30.0	
369.8	CARBONDALE		SHALE	8.3	37.4	DARK BLUE
361.5	CARBONDALE		BLACK SHALE	1.8	45.7	BLACK
359.7	CARBONDALE	BRERETON	LIMESTONE	7.8	47.5	DARK BLUE
351.9	CARBONDALE	ANNA	BLACK SHALE	7.5	55.3	BLACK
344.4	CARBONDALE	HERRIN	COAL	8.8	62.8	5" GRAY SHALE AT 69'6"
335.5	CARBONDALE		UNDERCLAY	1.0	71.7	
334.5	CARBONDALE		LIMESTONE	10.8	72.7	GRAY
323.7	CARBONDALE		SHALE	4.8	83.5	SANDY; GRAY
318.9	CARBONDALE		SHALE	13.8	88.3	DARK BLUE
305.2	CARBONDALE		SHALE	0.5	102.0	CALCAREOUS
304.7	CARBONDALE		LIMESTONE	0.5	102.5	

MAPID: 19900211000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.128613 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.79607 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 71.8 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
376.8	CARBONDALE	LAWSON	CLAYSTONE	7.4	30.2	
369.4	CARBONDALE	LAWSON	DARK GRAY SHALE	8.3	37.6	
361.2	CARBONDALE		BLACK SHALE	1.8	45.8	
359.3	CARBONDALE	BRERETON	LIMESTONE	7.8	47.7	
351.5	CARBONDALE	ANNA	BLACK SHALE	7.5	55.5	
344.0	CARBONDALE	HERRIN	COAL	8.8	63.0	

MAPID: 19900212000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** SW SW NW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.132098 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.796937 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 383.6 **LOGGED (FT.):** 98.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
383.6	PLEISTOCENE		UNCONSOLIDATED	40.5	0.0	
343.1	CARBONDALE		LIMESTONE	16.0	40.5	GRAY
327.1	CARBONDALE		SHALE	5.5	56.5	GRAY
321.6	CARBONDALE		SHALE	8.0	62.0	DARK BLUE
313.6	CARBONDALE	ST. DAVID	LIMESTONE	1.4	70.0	DARK BLUE
312.2	CARBONDALE	TURNER MINE	BLACK SHALE	7.5	71.4	BLACK
304.7	CARBONDALE	DYKERSBURG	SHALE	5.7	78.9	GRAY
299.0	CARBONDALE	SPRINGFIELD	COAL	4.1	84.6	
294.9	CARBONDALE		UNDERCLAY	1.5	88.7	
293.4	CARBONDALE		SHALE	2.8	90.2	GRAY
290.6	CARBONDALE		LIMESTONE	5.0	93.0	GRAY

MAPID: 19900213000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** SW NW SW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.132113 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.793271 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 404.8 **LOGGED (FT.):** 104.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
404.8	PLEISTOCENE		UNCONSOLIDATED	78.0	0.0	
326.8	CARBONDALE	ST. DAVID	LIMESTONE	1.7	78.0	DARK BLUE
325.1	CARBONDALE	TURNER MINE	SHALE	6.6	79.7	BLACK
318.5	CARBONDALE	DYKERSBURG	SHALE	2.9	86.3	GRAY
315.6	CARBONDALE	SPRINGFIELD	COAL	4.4	89.2	
311.2	CARBONDALE		UNDERCLAY	0.5	93.6	
310.7	CARBONDALE		SHALE	6.1	94.1	SOFT; GRAY
304.6	CARBONDALE		LIMESTONE	3.8	100.2	SANDY; GRAY

MAPID: 19901479000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 29 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.132073 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.802434 **DATE COLLECTED:** 0 / 0 / 1946
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.6 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 12 **WELL TYPE:** Coal Test
COMMENT: CORE TEST FOR COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.5	0.0	
-	CARBONDALE		SHALE	28.7	10.5	
-	CARBONDALE		LIMESTONE	7.4	39.2	

MAPID: 19900214000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.140041 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.801548 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 396.8 **LOGGED (FT.):** 75.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 14 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
396.8	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
362.8	CARBONDALE		SHALE	8.5	34.0	BLACK
354.3	CARBONDALE	BRERETON	LIMESTONE	7.0	42.5	BLUE
347.3	CARBONDALE	ANNA	SHALE	12.4	49.5	BLACK
334.9	CARBONDALE	HERRIN	COAL	8.7	61.9	
326.2	CARBONDALE		UNDERCLAY	0.7	70.6	
325.5	CARBONDALE		SHALE	3.8	71.3	GRAY

MAPID: 19900215000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** NE SE NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.134385 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.798756 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 413.5 **LOGGED (FT.):** 96.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 10 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
413.5	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
394.5	CARBONDALE		SANDSTONE	5.3	19.0	
389.2	CARBONDALE		SHALE	4.3	24.3	SANDY
384.9	CARBONDALE		SANDSTONE	13.7	28.6	WITH SHALE PARTINGS
371.2	CARBONDALE		SHALE	14.0	42.3	DARK BLUE
357.2	CARBONDALE	BRERETON	LIMESTONE	16.2	56.3	LIGHT BLUE
341.1	CARBONDALE	ANNA	BLACK SHALE	6.5	72.4	BLACK
334.6	CARBONDALE	HERRIN	COAL	8.1	78.9	
326.5	CARBONDALE		UNDERCLAY	0.2	87.0	
326.3	CARBONDALE		SHALE	5.6	87.2	GRAY
320.7	CARBONDALE		LIMESTONE	3.3	92.8	GRAY

MAPID: 19900216000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** NW SW NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.1412 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.798802 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 362.5 **LOGGED (FT.):** 152.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
362.5	PLEISTOCENE		UNCONSOLIDATED	84.0	0.0	
278.5	CARBONDALE		SHALE	3.0	84.0	SOFT; GRAY
275.5	CARBONDALE		SHALE	46.5	87.0	BLUE
229.0	CARBONDALE		CLAYSTONE	0.5	133.5	
228.5	CARBONDALE	ST. DAVID	LIMESTONE	2.0	134.0	BLUE
226.5	CARBONDALE	TURNER MINE	SHALE	3.7	136.0	WITH COAL PARTINGS; BLACK
222.8	CARBONDALE	SPRINGFIELD	COAL	2.3	139.7	COAL #5 ERODED/LOGGED COAL IS LOWER
220.5	CARBONDALE		SHALE	1.8	142.0	SOFT; BLUE
218.7	CARBONDALE		SHALE	1.7	143.8	SANDY
217.0	CARBONDALE		SANDSTONE	6.5	145.5	

MAPID: 19900217000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.135527 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.797848 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 402.0 **LOGGED (FT.):** 79.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 13 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
402.0	PLEISTOCENE		UNCONSOLIDATED	52.0	0.0	
350.0	CARBONDALE	ST. DAVID	LIMESTONE	4.3	52.0	GRAY
345.7	CARBONDALE	TURNER MINE	BLACK SHALE	8.5	56.3	BLACK
337.2	CARBONDALE	SPRINGFIELD	COAL	9.0	64.8	
328.2	CARBONDALE		UNDERCLAY	1.0	73.8	
327.2	CARBONDALE		SHALE	1.0	74.8	GRAY
326.2	CARBONDALE		SHALE	3.2	75.8	WITH LIMESTONE

MAPID: 19901480000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW NW NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.140041 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.801548 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.6 **LOG TYPE:** Drillers Log

SOURCE: PRS, INC. 13 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
-	PLEISTOCENE		GRAVEL	16.0	8.0	
-	CARBONDALE		SHALE	5.8	24.0	WITH SLATE; GRAY
-	CARBONDALE	BRERETON	LIMESTONE	15.6	29.8	
-	CARBONDALE	ANNA	BLACK SHALE	12.4	45.4	BLACK
-	CARBONDALE	HERRIN	COAL	6.7	57.8	
-	CARBONDALE	HERRIN	CLAYSTONE	0.4	64.5	BLUE BAND
-	CARBONDALE	HERRIN	COAL	3.2	64.9	
-	CARBONDALE		UNDERCLAY	0.5	68.1	

MAPID: 19901480000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW NW NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.140041 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.801548 **DATE COLLECTED:** 0 / 0 / 1948
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 68.3 **LOG TYPE:** Drillers Log
SOURCE: P R S 13 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
375.8	CARBONDALE	LAWSON	GRAY SHALE	5.8	24.2	
370.0	CARBONDALE	BRERETON	LIMESTONE	15.6	30.0	
354.4	CARBONDALE	ANNA	BLACK SHALE	12.4	45.6	
342.0	CARBONDALE	HERRIN	COAL	10.3	58.0	

MAPID: 19901483000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.134372 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.800589 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 51.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 16 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	PLEISTOCENE		CLAY & GRAVEL	6.9	20.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.6	26.9	BLACK
-	CARBONDALE	ENERGY	SHALE	7.2	30.5	GRAY
-	CARBONDALE	HERRIN	COAL	7.8	37.7	
-	CARBONDALE	HERRIN	CLAYSTONE	0.7	45.5	
-	CARBONDALE	HERRIN	COAL	3.8	46.2	
-	CARBONDALE		UNDERCLAY	1.0	50.0	

MAPID: 19901484000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.143455 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.800656 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 44.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 17 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
-	PLEISTOCENE		CLAY & GRAVEL	29.0	15.0	

MAPID: 19901485000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.143455 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.800656 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 58.0 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 18 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	PLEISTOCENE		SAND & GRAVEL	46.0	12.0	

MAPID: 19901486000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.134397 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.796925 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 56.8 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 19 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	21.0	0.0	
-	PLEISTOCENE		SAND & GRAVEL	8.0	21.0	
-	PLEISTOCENE		MUD	9.0	29.0	BLUE
-	PLEISTOCENE		GRAVEL	10.2	38.0	WITH BOULDERS
-	CARBONDALE	HERRIN	COAL	5.4	48.2	SOFT, TOP ERODED
-	CARBONDALE	HERRIN	CLAYSTONE	0.8	53.6	
-	CARBONDALE	HERRIN	COAL	1.9	54.3	
-	CARBONDALE		UNDERCLAY	0.5	56.3	

MAPID: 19901487000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** SE SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.134394 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.796925 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 61.2 **LOG TYPE:** Drillers Log
SOURCE: PRS, INC. 20 **WELL TYPE:** Coal Test
COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
-	PLEISTOCENE		MUD	29.2	22.0	BLUE
-	CARBONDALE		LIMESTONE	10.0	51.2	GRAY

MAPID: 19901052000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135475 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.775879 **DATE COLLECTED:** 6 / 0 / 1926
SURFACE ELEVATION (FT.): 428.6 **LOGGED (FT.):** 33.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 182 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
428.6	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
414.6	CARBONDALE		SHALE	4.0	14.0	SANDY
410.6	CARBONDALE		SHALE	12.0	18.0	GRAY
398.6	CARBONDALE	SPRINGFIELD	COAL	3.5	30.0	

MAPID: 19901057000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 660' W line of NE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.1355 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.777704 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 415.8 **LOGGED (FT.):** 26.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 202 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
415.8	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
402.8	CARBONDALE		ROCK	1.5	13.0	
401.3	CARBONDALE		BLACK SHALE	3.0	14.5	BLACK
398.3	CARBONDALE		ROCK	1.0	17.5	
397.3	CARBONDALE	TURNER MINE	BLACK SHALE	4.5	18.5	BLACK
392.8	CARBONDALE	SPRINGFIELD	COAL	3.2	23.0	

MAPID: 19901060000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** NE SE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135508 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.77954 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 409.6 **LOGGED (FT.):** 35.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED COAL CO 222 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
409.6	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
390.6			ROCK	1.5	19.0	
389.1	CARBONDALE	TURNER MINE	BLACK SHALE	6.5	20.5	
382.6	CARBONDALE		SHALE	5.0	27.0	
377.6	CARBONDALE	SPRINGFIELD	COAL	3.7	32.0	

MAPID: 19901063000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SW SE NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.136677 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.782271 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 406.1 **LOGGED (FT.):** 35.8 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 241 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
406.1	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
389.1	PLEISTOCENE		BOULDER	1.5	17.0	HARD
387.6	PLEISTOCENE		CLAY	2.0	18.5	
385.6	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	20.5	BLACK
380.6	CARBONDALE	DYKERSBURG	SHALE	6.5	25.5	HARD; GRAY
374.1	CARBONDALE	SPRINGFIELD	COAL	3.8	32.0	

MAPID: 19901067000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 660' N line, 0' W line of SE NE

QUADRANGLE: DE SOTO **LONGITUDE:** -89.137831 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.783194 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 401.9 **LOGGED (FT.):** 41.6 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 261 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
401.9	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
387.9	PLEISTOCENE		SAND	6.0	14.0	
381.9	CARBONDALE		SHALE	9.0	20.0	SOFT
372.9	CARBONDALE	ST. DAVID	LIMESTONE	2.0	29.0	
370.9	CARBONDALE	TURNER MINE	BLACK SHALE	7.0	31.0	BLACK
363.9	CARBONDALE	SPRINGFIELD	COAL	3.6	38.0	

MAPID: 19901068000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135538 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.783184 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 405.9 **LOGGED (FT.):** 44.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 262 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
405.9	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
387.9	CARBONDALE		SHALE	8.0	18.0	HARD; GRAY
379.9	CARBONDALE		LIMESTONE	1.5	26.0	
378.4	CARBONDALE		SHALE	2.0	27.5	HARD
376.4	CARBONDALE		BLACK SHALE	3.0	29.5	BLACK
373.4	CARBONDALE		ROCK	0.8	32.5	HARD
372.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	33.3	BLACK
370.6	CARBONDALE	DYKERSBURG	SHALE	6.0	35.3	HARD
364.6	CARBONDALE	SPRINGFIELD	COAL	3.6	41.3	

MAPID: 19901070000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SW NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.136704 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.785943 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 396.8 **LOGGED (FT.):** 45.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 281 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
396.8	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
374.8	CARBONDALE		SHALE	8.0	22.0	SOFT
366.8	CARBONDALE	ST. DAVID	LIMESTONE	2.0	30.0	HARD
364.8	CARBONDALE	TURNER MINE	SHALE	7.0	32.0	BLACK
357.8	CARBONDALE	DYKERSBURG	SHALE	3.0	39.0	SOFT
354.8	CARBONDALE	SPRINGFIELD	COAL	3.8	42.0	

MAPID: 19901071000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 660' W line of NE NE
QUADRANGLE: DE SOTO **LONGITUDE:** -89.135546 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.785025 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 387.6 **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 282 **WELL TYPE:** Coal Test
COMMENT: COAL MISSING

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
387.6	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
371.6	CARBONDALE		SHALE	11.0	16.0	
360.6	CARBONDALE		LIMESTONE	2.0	27.0	
358.6	CARBONDALE		BLACK SHALE	6.0	29.0	BLACK
352.6	CARBONDALE		SHALE	2.0	35.0	SOFT

MAPID: 19923558000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 800' S line, 140' E line
QUADRANGLE: DE SOTO **LONGITUDE:** -89.133661 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.776271 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 33.3 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT: PERMIT 161 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	19.7	0.0	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.8	19.7	
-	CARBONDALE	TURNER MINE	BLACK SHALE	7.5	21.5	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	29.0	
-	CARBONDALE		UNDERCLAY	0.5	32.8	

MAPID: 19900218000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.126303 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.783259 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 409.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log
SOURCE: GEORGE PHILLIPS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
409.0	PLEISTOCENE		UNCONSOLIDATED	50.0	0.0	
359.0	CARBONDALE		LIMESTONE	2.0	50.0	
357.0	CARBONDALE		SHALE	13.0	52.0	
344.0	CARBONDALE		BLACK SHALE	5.0	65.0	
339.0	CARBONDALE		SHALE	15.0	70.0	
324.0	CARBONDALE	SPRINGFIELD	COAL	5.0	85.0	

MAPID: 19900219000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.126322 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.779593 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 46.0 **LOG TYPE:** Drillers Log
SOURCE: **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
415.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
395.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	20.0	
393.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.5	22.0	BLACK
387.5	CARBONDALE	DYKERSBURG	SHALE	14.0	27.5	DARK GRAY
373.5	CARBONDALE	SPRINGFIELD	COAL	4.5	41.5	

MAPID: 19901048000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.132025 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.774985 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 429.0 **LOGGED (FT.):** 32.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 163 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
429.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
414.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	15.0	BLACK
408.0	CARBONDALE	DYKERSBURG	SHALE	8.0	21.0	GRAY
400.0	CARBONDALE	SPRINGFIELD	COAL	3.5	29.0	

MAPID: 19901049000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SE SW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.127483 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.775006 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 418.9 **LOGGED (FT.):** 40.1 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 165 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
418.9	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
395.9	CARBONDALE		SHALE	2.0	23.0	
393.9	CARBONDALE		ROCK	1.7	25.0	
392.2	CARBONDALE	TURNER MINE	BLACK SHALE	9.0	26.7	BLACK
383.2	CARBONDALE	DYKERSBURG	SHALE	1.0	35.7	GRAY
382.2	CARBONDALE	SPRINGFIELD	COAL	3.4	36.7	

MAPID: 19901050000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.121792 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.775951 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 416.8 **LOGGED (FT.):** 44.7 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 167A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
416.8	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
396.8	CARBONDALE	TURNER MINE	SHALE	9.0	20.0	
387.8	CARBONDALE	TURNER MINE	ROCK	2.0	29.0	
385.8	CARBONDALE	TURNER MINE	BLACK SHALE	10.0	31.0	BLACK
375.8	CARBONDALE	SPRINGFIELD	COAL	3.7	41.0	

MAPID: 19901051000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.118381 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.775067 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 421.0 **LOGGED (FT.):** 45.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 169A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
421.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
411.0	PLEISTOCENE		HARD PAN	7.0	10.0	
404.0	CARBONDALE		ROCK	1.3	17.0	
402.7	CARBONDALE		SHALE	13.8	18.3	
389.0	CARBONDALE		ROCK	1.5	32.0	
387.5	CARBONDALE	TURNER MINE	BLACK SHALE	6.5	33.5	BLACK
381.0	CARBONDALE	DYKERSBURG	SHALE	4.0	40.0	GRAY
377.0	CARBONDALE	SPRINGFIELD	COAL	1.7	44.0	

MAPID: 19901053000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.130894 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.775903 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 421.5 **LOGGED (FT.):** 43.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 184 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
421.5	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
408.5	PLEISTOCENE		HARD PAN	7.0	13.0	
401.5	CARBONDALE		SHALE	7.0	20.0	
394.5	CARBONDALE		ROCK	2.0	27.0	HARD
392.5	CARBONDALE		BLACK SHALE	3.0	29.0	BLACK
389.5	CARBONDALE		ROCK	1.0	32.0	HARD
388.5	CARBONDALE	TURNER MINE	BLACK SHALE	1.5	33.0	BLACK
387.0	CARBONDALE	DYKERSBURG	SHALE	5.5	34.5	GRAY
381.5	CARBONDALE	SPRINGFIELD	COAL	3.8	40.0	

MAPID: 19901054000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SE SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.126341 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.775927 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 409.2 **LOGGED (FT.):** 41.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 186 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
409.2	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
397.2	CARBONDALE		SHALE	10.0	12.0	SANDY
387.2	CARBONDALE		ROCK	1.7	22.0	
385.5	CARBONDALE	TURNER MINE	BLACK SHALE	6.3	23.7	BLACK
379.2	CARBONDALE	DYKERSBURG	SHALE	8.0	30.0	GRAY
371.2	CARBONDALE	SPRINGFIELD	COAL	3.8	38.0	

MAPID: 19901055000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** 660' S line, 0' W line of SW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.124067 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.775928 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 416.1 **LOGGED (FT.):** 46.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 187A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
416.1	PLEISTOCENE		UNCONSOLIDATED	21.0	0.0	
395.1	CARBONDALE		SHALE	8.0	21.0	
387.1	CARBONDALE		ROCK	3.0	29.0	
384.1	CARBONDALE	TURNER MINE	BLACK SHALE	11.0	32.0	BLACK
373.1	CARBONDALE	SPRINGFIELD	COAL	3.3	43.0	

MAPID: 19901056000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.009205 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.775711 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 409.5 **LOGGED (FT.):** 23.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 188 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
409.5	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	STOPPED

MAPID: 19901058000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW NW SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.132056 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.77864 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 419.4 **LOGGED (FT.):** 32.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 203 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
419.4	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
411.4	PLEISTOCENE		HARD PAN	7.0	8.0	
404.4	CARBONDALE		BLACK SHALE	3.0	15.0	BLACK
401.4	CARBONDALE		ROCK	0.8	18.0	
400.6	CARBONDALE		SHALE	1.2	18.8	SOFT
399.4	CARBONDALE		ROCK	0.5	20.0	
398.9	CARBONDALE		SHALE	7.5	20.5	GRAY
391.4	CARBONDALE	SPRINGFIELD	COAL	4.8	28.0	

MAPID: 19901059000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** 0' S line, 660' W line of NE SW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.126325 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.77776 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 405.9 **LOGGED (FT.):** 41.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 206 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.9	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
395.9	PLEISTOCENE		SAND	3.0	10.0	
392.9	CARBONDALE		ROCK	5.5	13.0	
387.4	CARBONDALE		SHALE	4.0	18.5	
383.4	CARBONDALE		ROCK	3.0	22.5	
380.4	CARBONDALE		SHALE	10.5	25.5	GRAY
369.9	CARBONDALE		ROCK	1.3	36.0	
368.6	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	37.3	BLACK
367.6	CARBONDALE	SPRINGFIELD	COAL	3.5	38.3	

MAPID: 19901061000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.130913 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.779561 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 410.2 **LOGGED (FT.):** 38.3 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 224 **WELL TYPE:** Coal Test

COMMENT: "BROKE INTO OLD WORKS" FROM RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.2	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
397.2	CARBONDALE		SANDSTONE	3.0	13.0	
394.2	CARBONDALE		SHALE	12.0	16.0	SOFT
382.2	CARBONDALE		LIMESTONE	2.3	28.0	HARD
379.9	CARBONDALE		SHALE	2.0	30.3	GRAY
377.9	CARBONDALE		BLACK SHALE	6.0	32.3	BLACK

MAPID: 19901062000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.009219 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.779333 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 227 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	PLEISTOCENE		CLAY	25.0	14.0	SOFT
-	CARBONDALE		SHALE	16.0	39.0	SOFT

MAPID: 19901064000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.132082 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.782292 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 421.6 **LOGGED (FT.):** 48.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 243 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
421.6	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
406.6	PLEISTOCENE		SAND	4.0	15.0	
402.6	PLEISTOCENE		CLAY	2.0	19.0	SOFT
400.6	CARBONDALE		LIMESTONE	2.7	21.0	
397.9	CARBONDALE		SHALE	12.0	23.7	HARD; GRAY
385.9	CARBONDALE	ST. DAVID	LIMESTONE	2.0	35.7	
383.9	CARBONDALE	TURNER MINE	BLACK SHALE	6.5	37.7	HARD
377.4	CARBONDALE	DYKERSBURG	SHALE	0.8	44.2	HARD
376.6	CARBONDALE	SPRINGFIELD	COAL	3.8	45.0	

MAPID: 19901065000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** 0' S line, 660' W line of SW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.130932 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.781389 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 403.9 **LOGGED (FT.):** 41.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO 244 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
403.9	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
389.9	CARBONDALE		SANDSTONE	3.0	14.0	HARD
386.9	CARBONDALE		SHALE	11.0	17.0	HARD; GRAY
375.9	CARBONDALE	ST. DAVID	LIMESTONE	3.5	28.0	
372.4	CARBONDALE	TURNER MINE	BLACK SHALE	6.5	31.5	BLACK
365.9	CARBONDALE	SPRINGFIELD	COAL	3.8	38.0	

MAPID: 19901066000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SE NW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.1263 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.783267 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 405.7 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 246 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.7	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
395.7	PLEISTOCENE		CLAY	23.0	10.0	SOFT
372.7	CARBONDALE		ROCK	4.0	33.0	HARD
368.7	CARBONDALE		SHALE	15.0	37.0	HARD
353.7	CARBONDALE		ROCK	4.0	52.0	HARD

MAPID: 19901069000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** 660' S line, 0' W line of SW NW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.13325 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.783193 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 412.8 **LOGGED (FT.):** 47.6 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 263 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
412.8	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
394.8	CARBONDALE		SHALE	6.0	18.0	SOFT
388.8	CARBONDALE		SHALE	12.0	24.0	HARD
376.8	CARBONDALE		LIMESTONE	1.5	36.0	
375.3	CARBONDALE		BLACK SHALE	3.0	37.5	BLACK
372.3	CARBONDALE		ROCK	0.5	40.5	HARD
371.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	41.0	BLACK
368.8	CARBONDALE	SPRINGFIELD	COAL	3.6	44.0	

MAPID: 19901072000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW NW NW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.132112 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.785947 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 405.8 **LOGGED (FT.):** 49.2 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 283 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
405.8	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
386.8	CARBONDALE		SANDSTONE	5.0	19.0	
381.8	CARBONDALE		SHALE	10.0	24.0	SOFT
371.8	CARBONDALE	ST. DAVID	LIMESTONE	2.5	34.0	
369.3	CARBONDALE	TURNER MINE	BLACK SHALE	7.0	36.5	BLACK
362.3	CARBONDALE	DYKERSBURG	SHALE	2.0	43.5	SOFT
360.3	CARBONDALE	SPRINGFIELD	COAL	3.7	45.5	

MAPID: 19910498000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SW SE SW

QUADRANGLE: DE SOTO **LONGITUDE:** -89.128046 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.774552 **DATE COLLECTED:** 1 / 0 / 1926

SURFACE ELEVATION (FT.): 418.9 **LOGGED (FT.):** 40.1 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO 165 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
418.9	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
395.9	CARBONDALE		SHALE	2.0	23.0	
393.9	CARBONDALE		ROCK	1.7	25.0	
392.2	CARBONDALE	TURNER MINE	BLACK SHALE	9.0	26.7	
383.2	CARBONDALE		SHALE	1.0	35.7	
382.2	CARBONDALE	SPRINGFIELD	COAL	3.4	36.7	

MAPID: 19923178000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 40' S line, 300' E line of SW SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066766 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.78142 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 409.0 **LOGGED (FT.):** 126.5 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
409.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
398.0	PLEISTOCENE		SAND	31.0	11.0	SOFT; YELLOW
367.0	PLEISTOCENE		SAND	22.0	42.0	BROWN
345.0	PLEISTOCENE		SAND	21.0	64.0	GRAY
324.0	CARBONDALE		SHALE	8.0	85.0	BLUE
316.0	CARBONDALE		SHALE	9.7	93.0	
306.3	CARBONDALE		SHALE	6.3	102.7	
300.0	CARBONDALE	HERRIN	COAL	8.5	109.0	
291.5	CARBONDALE		UNDERCLAY	9.0	117.5	

MAPID: 19923178000C **VERSION:** 2 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 40' S line, 300' E line of SW SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066766 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.78142 **DATE COLLECTED:** 3 / 3 / 1983
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 73.3 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN BH1 **WELL TYPE:** Coal Test
COMMENT: PERMIT #96, MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
397.0	PLEISTOCENE		CLAY	14.6	3.0	BROWN
382.4	PLEISTOCENE		CLAY	7.0	17.6	RED-BROWN
375.4	CARBONDALE		CLAYSTONE	7.4	24.6	WITH COAL
368.0	CARBONDALE		UNDERCLAY/SHALE	28.7	32.0	
339.3	CARBONDALE	HERRIN	COAL	9.0	60.7	
330.3	CARBONDALE		UNDERCLAY	3.6	69.7	
326.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	0.0	73.3	

MAPID: 19923886000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 240' N line, 300' E line of NW NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.066763 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.780647 **DATE COLLECTED:** 3 / 9 / 1983

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 70.7 **LOG TYPE:** Drillers Log

SOURCE: ACE DIGGIN BH2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.0	PLEISTOCENE		SILTY CLAY	6.0	0.0	
399.0	PLEISTOCENE		CLAY	23.5	6.0	BROWN
375.5	PLEISTOCENE		DARK SHALE	0.5	29.5	
375.0	CARBONDALE		COAL	2.0	30.0	
373.0	CARBONDALE		UNDERCLAY	2.0	32.0	
371.0	CARBONDALE	ANNA	BLACK SHALE	2.0	34.0	
369.0	CARBONDALE	ENERGY	SHALE	25.7	36.0	
343.3	CARBONDALE	HERRIN	COAL	9.0	61.7	

MAPID: 19923887000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 320' S line, 120' W line of NW NE SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.06295 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.780318 **DATE COLLECTED:** 3 / 23 / 1983

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 59.3 **LOG TYPE:** Drillers Log

SOURCE: ACE DIGGIN BH3 **WELL TYPE:** Coal Test

COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	30.0	0.0	YELLOW-BROWN
365.0	PLEISTOCENE		CLAY	8.0	30.0	BROWN-GRAY
357.0	PLEISTOCENE		SAND	6.0	38.0	BROWN-BLUE
351.0	PLEISTOCENE		CLAY	3.0	44.0	
348.0	CARBONDALE	HERRIN	COAL	9.3	47.0	TOP ERODED
338.7	CARBONDALE		UNDERCLAY	3.0	56.3	

MAPID: 19923888000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' N line, 120' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06295 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.780845 **DATE COLLECTED:** 3 / 28 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN BH4 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE#1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	26.0	0.0	BROWN
369.0	PLEISTOCENE		CLAY	9.0	26.0	LIGHT BLUE
360.0	PLEISTOCENE		SAND	12.0	35.0	WHITE-BROWN
348.0	PLEISTOCENE		CLAY	3.0	47.0	
345.0	CARBONDALE	HERRIN	COAL	6.0	50.0	TOP ERODED

MAPID: 19923889000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 320' N line, 160' W line of NE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.065177 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.784117 **DATE COLLECTED:** 3 / 29 / 1983
SURFACE ELEVATION (FT.): 385.0 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN BH5 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
385.0	PLEISTOCENE		CLAY	26.8	0.0	BROWN
358.2	PLEISTOCENE		CLAY	36.7	26.8	GRAY
321.5	PLEISTOCENE		CLAY	0.2	63.5	
321.3	CARBONDALE	HERRIN	COAL	0.3	63.7	TOP ERODED

MAPID: 19923890000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 60' N line, 60' E line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06122 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781109 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 58.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH1 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	35.0	0.0	YELLOW
360.0	PLEISTOCENE		CLAY	23.0	35.0	BLUE; NO COAL

MAPID: 19923891000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 20' N line, 280' E line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.061984 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781225 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 54.1 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH2 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	40.0	0.0	
355.0	PLEISTOCENE		CLAY	7.3	40.0	
347.7	CARBONDALE	HERRIN	COAL	6.8	47.3	TOP MAY BE ERODED

MAPID: 19923892000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 20' N line, 160' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062812 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781229 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 58.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH3 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	PLEISTOCENE		CLAY	6.3	45.0	
343.7	CARBONDALE	HERRIN	COAL	6.8	51.3	TOP ERODED, NOT COMPLETE

MAPID: 19923893000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 120' S line, 40' E line of SW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.061163 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.777904 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 51.7 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH4 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.7	45.0	NO COAL

MAPID: 19923894000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 200' S line, 240' E line of SW NE SW
QUADRANGLE: HERRIN **LONGITUDE:** -89.07124 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.778196 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH5 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		CLAY	49.0	0.0	
351.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.0	49.0	NO COAL

MAPID: 19923895000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 70' N line, 220' E line of SW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.061784 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779234 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 49.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH6 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	47.0	0.0	
348.0	CARBONDALE	HERRIN	COAL	2.8	47.0	TOP ERODED

MAPID: 19923896000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 330' S line, 175' W line of SW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062759 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.778495 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 53.1 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH7 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.8	0.0	
349.2	CARBONDALE	HERRIN	COAL	7.3	45.8	

MAPID: 19923897000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' N line, 300' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062324 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.78084 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 55.5 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH8 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	PLEISTOCENE		CLAY	2.2	45.0	
347.8	CARBONDALE	HERRIN	COAL	8.3	47.2	

MAPID: 19923898000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 320' N line, 180' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062741 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.7804 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 55.2 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH9 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	PLEISTOCENE		CLAY	1.7	45.0	
348.3	CARBONDALE	HERRIN	COAL	8.5	46.7	

MAPID: 19923899000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 80' N line, 160' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06281 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781063 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 58.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH10 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.2	0.0	
349.8	PLEISTOCENE		CLAY	4.3	45.2	
345.5	CARBONDALE	HERRIN	COAL	8.5	49.5	

MAPID: 19923900000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 200' N line, 120' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062951 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.780735 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 53.5 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH11 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	PLEISTOCENE		CLAY	4.0	45.0	
346.0	CARBONDALE	HERRIN	COAL	4.5	49.0	NOT COMPLETE

MAPID: 19923901000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 120' W line of NW NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.062949 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779876 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 55.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH12 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	41.0	0.0	
354.0	PLEISTOCENE		CLAY	6.5	41.0	
347.5	CARBONDALE	HERRIN	COAL	8.3	47.5	TOP MAY BE ERODED

MAPID: 19923902000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 100' N line, 100' E line of NE NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.059005 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.780985 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 62.2 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH13 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	44.5	0.0	
350.5	CARBONDALE		SHALE	8.5	44.5	
342.0	CARBONDALE	HERRIN	COAL	9.2	53.0	

MAPID: 19923903000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 150' S line, 90' E line of SE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.063679 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781704 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH14 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	CARBONDALE		SHALE	10.0	45.0	
340.0	CARBONDALE	HERRIN	COAL	9.0	55.0	

MAPID: 19923904000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 260' E line of SE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06427 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781737 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 67.6 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH15A **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	46.0	0.0	
349.0	CARBONDALE		SHALE	13.0	46.0	
336.0	CARBONDALE	HERRIN	COAL	8.6	59.0	

MAPID: 19923905000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 180' S line, 260' E line of SE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06427 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781792 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 67.0 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH16 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	45.0	0.0	
350.0	CARBONDALE		SHALE	12.9	45.0	
337.1	CARBONDALE	HERRIN	COAL	9.1	57.9	

MAPID: 19923906000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 200' S line, 1' W line of SE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.065723 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781855 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 70.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH17 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	44.5	0.0	
350.5	CARBONDALE		SHALE	17.3	44.5	
333.2	CARBONDALE	HERRIN	COAL	9.0	61.8	

MAPID: 19923907000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 20' S line, 120' E line of SW SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.06614 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781363 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 71.2 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH18 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
395.0	PLEISTOCENE		CLAY	35.0	0.0	
360.0	CARBONDALE		SHALE	27.2	35.0	
332.8	CARBONDALE	HERRIN	COAL	9.0	62.2	

MAPID: 19923908000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1' N line, 80' W line of NW NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.067803 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781314 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 70.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH19 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
398.0	PLEISTOCENE		CLAY	39.0	0.0	
359.0	CARBONDALE		SANDY SHALE	16.0	39.0	
343.0	CARBONDALE		SHALE	6.9	55.0	
336.1	CARBONDALE	HERRIN	COAL	8.8	61.9	

MAPID: 19923909000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 240' E line of NW NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066556 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779901 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 64.7 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH20 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.0	PLEISTOCENE		CLAY	20.0	0.0	
390.0	PLEISTOCENE		CLAY	7.5	20.0	
382.5	CARBONDALE		COAL	1.5	27.5	
381.0	CARBONDALE		SHALE	34.7	29.0	
346.3	CARBONDALE	HERRIN	COAL	1.0	63.7	HIT OLD WORKS

MAPID: 19923910000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 120' E line of NW NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066138 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.7799 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 77.3 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH21 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
415.0	PLEISTOCENE		CLAY	30.0	0.0	
385.0	CARBONDALE		SHALE	38.4	30.0	
346.6	CARBONDALE	HERRIN	COAL	8.8	68.4	

MAPID: 19923911000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 10' N line, 120' E line of SW NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066134 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.77943 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 63.5 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH22 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.0	PLEISTOCENE		CLAY	30.0	0.0	
380.0	CARBONDALE		COAL	1.5	30.0	
378.5	CARBONDALE		SHALE	28.5	31.5	
350.0	CARBONDALE	HERRIN	COAL	3.5	60.0	HIT OLD WORKS

MAPID: 19923912000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 280' S line, 280' E line of NW NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.066693 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.780233 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 408.0 **LOGGED (FT.):** 73.3 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH23 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
408.0	PLEISTOCENE		CLAY	28.0	0.0	
380.0	CARBONDALE		COAL	2.0	28.0	
378.0	CARBONDALE		SHALE	34.3	30.0	
343.7	CARBONDALE	HERRIN	COAL	8.9	64.3	

MAPID: 19923913000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 40' S line, 200' W line of NE NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.065024 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779559 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 413.0 **LOGGED (FT.):** 54.5 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH24 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
413.0	PLEISTOCENE		CLAY	36.0	0.0	
377.0	CARBONDALE		SHALE	17.0	36.0	
360.0	CARBONDALE	HERRIN	COAL	1.5	53.0	HIT OLD WORKS

MAPID: 19923914000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 200' W line of NE NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.065025 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.77989 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 69.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH25 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.0	PLEISTOCENE		CLAY	35.0	0.0	
375.0	CARBONDALE		SHALE	15.8	35.0	
359.2	CARBONDALE		COAL	0.2	50.8	
359.1	CARBONDALE		SHALE	9.8	50.9	
349.2	CARBONDALE	HERRIN	COAL	9.1	60.8	

MAPID: 19923915000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 160' S line, 160' E line of NE NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.063923 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779883 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 75.8 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH26 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.0	PLEISTOCENE		CLAY	45.0	0.0	
365.0	CARBONDALE		SHALE	21.6	45.0	
343.4	CARBONDALE	HERRIN	COAL	9.2	66.6	

MAPID: 19923916000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 120' N line, 10' E line of SE NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.063402 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779108 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 54.3 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH27 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
398.0	PLEISTOCENE		CLAY	41.5	0.0	
356.5	CARBONDALE		SHALE	4.2	41.5	
352.3	CARBONDALE	HERRIN	COAL	8.7	45.7	

MAPID: 19923917000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 240' S line, 240' W line of NE NE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.060179 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.780078 **DATE COLLECTED:** 0 / 0 / 1983
SURFACE ELEVATION (FT.): 408.0 **LOGGED (FT.):** 71.2 **LOG TYPE:** Drillers Log
SOURCE: ACE DIGGIN DH28 **WELL TYPE:** Coal Test
COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
408.0	PLEISTOCENE		CLAY	35.0	0.0	
373.0	CARBONDALE		SHALE	27.0	35.0	
346.0	CARBONDALE	HERRIN	COAL	9.2	62.0	

MAPID: 19923918000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 250' N line, 80' E line of NE SW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.063642 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.784302 **DATE COLLECTED:** 0 / 0 / 1983

SURFACE ELEVATION (FT.): 385.0 **LOGGED (FT.):** 74.2 **LOG TYPE:** Drillers Log

SOURCE: ACE DIGGIN DH29 **WELL TYPE:** Coal Test

COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
385.0	PLEISTOCENE		CLAY	61.0	0.0	
324.0	CARBONDALE		COAL	1.0	61.0	
323.0	CARBONDALE		SHALE	3.3	62.0	
319.7	CARBONDALE	HERRIN	COAL	8.8	65.3	

MAPID: 19923919000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 100' N line, 150' W line of SW NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.067544 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.77919 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 36.0 **LOG TYPE:** Drillers Log

SOURCE: ACE DIGGIN DH30 **WELL TYPE:** Coal Test

COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.0	PLEISTOCENE		CLAY	17.0	0.0	
388.0	CARBONDALE		SANDSTONE	3.0	17.0	
385.0	CARBONDALE		SHALE	16.0	20.0	HIT OLD WORKS (NO COAL)

MAPID: 19923920000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 80' N line, 250' E line of NW NW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.066594 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.781088 **DATE COLLECTED:** 0 / 0 / 1983

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 103.5 **LOG TYPE:** Drillers Log

SOURCE: ACE DIGGIN DH31 **WELL TYPE:** Coal Test

COMMENT: PERMIT 96; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		CLAY	48.0	0.0	
362.0	CARBONDALE		SANDSTONE	0.5	48.0	
361.5	CARBONDALE		SHALE	1.3	48.5	
360.2	CARBONDALE		COAL	1.3	49.8	
359.0	CARBONDALE		SHALE	19.5	51.0	
339.5	CARBONDALE	HERRIN	COAL	8.9	70.5	
330.6	CARBONDALE		UNDERCLAY	3.3	79.4	
327.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.8	82.7	
317.5	CARBONDALE		SHALE	11.0	92.5	

MAPID: 19901949000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 147' S line, 330' E line of NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.938406 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854955 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 397.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E E Boles 1-A **WELL TYPE:** Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
153.5	CARBONDALE	BRERETON	LIMESTONE	7.0	298.5	
146.5	CARBONDALE	ANNA	BLACK SHALE	9.5	305.5	
137.0	CARBONDALE	ENERGY	GRAY SHALE	73.0	315.0	
64.0	CARBONDALE	HERRIN	COAL	9.0	388.0	

MAPID: 19901949000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 147' S line, 330' E line of NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.938406 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854955 **DATE COLLECTED:** 3 / 0 / 1957

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 1590.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-203.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	655.0	
-268.0	SPOON	DAVIS	UNCLASSIFIED	-	720.0	
-1138.0	BASE OF PENN.		UNCLASSIFIED	-	1590.0	

MAPID: 19900123000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.955903 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.846937 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 250.6 **LOG TYPE:** Drillers Log

SOURCE: INTERSTATE FUEL CO. 1 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			CLAY	15.0	0.0	YELLOW
-	PLEISTOCENE		CLAY	10.0	15.0	SANDY; YELLOW
-	PLEISTOCENE		CLAY	6.0	25.0	BLUE
-	PLEISTOCENE		CLAY	10.0	31.0	WITH SAND; BLUE
-	PLEISTOCENE		SAND	41.0	41.0	WITH WOOD; YELLOW
-	PLEISTOCENE		CLAY	20.0	82.0	SOFT; YELLOW
-	MODESTO		BLACK SHALE	3.0	102.0	BLACK
-	MODESTO	PIASA	LIMESTONE	3.5	105.0	HARD; BLUE
-	MODESTO		SHALE	3.5	108.5	BLUE
-	CARBONDALE	DANVILLE	COAL	2.5	112.0	
-	CARBONDALE		UNDERCLAY	7.7	114.5	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	122.2	
-	CARBONDALE		SANDSTONE	8.0	130.0	GRAY
-	CARBONDALE		BLACK SHALE	4.0	138.0	BLACK
-	CARBONDALE	ENERGY	SANDSTONE	15.0	142.0	GRAY
-	CARBONDALE	ENERGY	SHALE	8.0	157.0	SANDY
-	CARBONDALE	ENERGY	SHALE	50.0	165.0	SANDY; GRAY
-	CARBONDALE	ENERGY	SHALE	26.3	215.0	SMOOTH; GRAY
-	CARBONDALE	HERRIN	COAL	9.1	241.3	
-	CARBONDALE		UNDERCLAY	0.3	250.3	

MAPID: 19900123000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.955903 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.846937 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 250.2 **LOG TYPE:** Drillers Log

SOURCE: INTER STATE FUEL 1 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
293.0	MODESTO	PIASA	LIMESTONE	3.5	105.0	
289.5	MODESTO		DARK GRAY SHALE	3.5	108.5	
286.0	CARBONDALE	DANVILLE	COAL	2.5	112.0	
283.5	CARBONDALE		CLAYSTONE	7.7	114.5	
275.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	122.2	
268.0	CARBONDALE	LAWSON	SANDSTONE	8.0	130.0	
260.0	CARBONDALE	ANNA	BLACK SHALE	4.0	138.0	
256.0	CARBONDALE	ENERGY	SANDSTONE	15.0	142.0	
241.0	CARBONDALE	ENERGY	SILTY SHALE	8.0	157.0	
233.0	CARBONDALE	ENERGY	SILTY SHALE	50.0	165.0	
183.0	CARBONDALE	ENERGY	DARK GRAY SHALE	26.3	215.0	
157.0	CARBONDALE	HERRIN	COAL	9.2	241.0	

MAPID: 19900125000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.965077 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.858142 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 319.9 **LOG TYPE:** Drillers Log

SOURCE: INTERSTATE FUEL CO. 3 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	8.0	0.0	YELLOW
-	PLEISTOCENE		CLAY	20.0	8.0	WITH SAND; YELLOW
-	PLEISTOCENE		CLAY	38.0	28.0	BLUE
-	PLEISTOCENE		CLAY	8.0	66.0	WITH SAND; BLUE
-	PLEISTOCENE		CLAY	2.0	74.0	YELLOW
-	MODESTO		SHALE	12.0	76.0	BLUE
-	MODESTO		SHALE	5.5	88.0	WITH NODULES; BLUE
-	MODESTO		BLACK SHALE	1.5	93.5	BLACK
-	MODESTO		LIMESTONE	1.2	95.0	
-	MODESTO		SANDSTONE	3.6	96.2	FINE; GRAY
-	MODESTO		SHALE	18.3	99.8	SANDY
-	MODESTO		SHALE	7.1	118.0	BITUMINOUS; BLACK
-	MODESTO	POND CREEK	COAL	0.8	125.1	
-	MODESTO		UNDERCLAY	3.3	125.9	
-	MODESTO		SANDSTONE	12.8	129.2	GRAY
-	MODESTO		SHALE	26.0	142.0	SMOOTH; DARK
-	MODESTO	DEGRAFF	COAL	0.7	168.0	
-	MODESTO		UNDERCLAY	2.3	168.7	
-	MODESTO	PIASA	LIMESTONE	1.5	171.0	
-	MODESTO		SHALE	0.5	172.5	BITUMINOUS; BLACK
-	MODESTO		SHALE	2.3	173.0	SMOOTH; DARK
-	CARBONDALE	DANVILLE	COAL	1.4	175.3	
-	CARBONDALE		UNDERCLAY	2.3	176.8	
-	CARBONDALE		SHALE	3.1	179.0	SANDY; GRAY
-	CARBONDALE		SHALE	4.2	182.1	SMOOTH; DARK GRAY
-	CARBONDALE	ALLENBY	COAL	0.4	186.3	
-	CARBONDALE		UNDERCLAY	6.0	186.7	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	192.7	BUFF
-	CARBONDALE		UNDERCLAY	8.6	198.1	BUFF
-	CARBONDALE	ENERGY	SHALE	42.3	206.7	SANDY; LIGHT
-	CARBONDALE	ENERGY	SHALE	61.0	249.0	SANDY; DARK
-	CARBONDALE	HERRIN	COAL	9.4	310.0	
-	CARBONDALE		UNDERCLAY	0.5	319.4	

MAPID: 19900125000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.965077 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.858142 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 393.0 **LOGGED (FT.):** 319.4 **LOG TYPE:** Drillers Log

SOURCE: INTER STATE FUEL 3 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
222.0	MODESTO	PIASA	LIMESTONE	1.5	171.0	
220.5	MODESTO		BLACK SHALE	2.8	172.5	
217.7	CARBONDALE	DANVILLE	COAL	1.4	175.3	
216.2	CARBONDALE		GRAY SHALE	9.5	176.8	
206.7	CARBONDALE	ALLENBY	COAL	0.4	186.3	
206.3	CARBONDALE		CLAYSTONE	6.0	186.7	
200.3	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	192.7	
194.9	CARBONDALE	LAWSON	SILTY SHALE	42.3	198.1	
152.6	CARBONDALE	ENERGY	SILTY SHALE	61.0	240.4	
83.0	CARBONDALE	HERRIN	COAL	9.4	310.0	

MAPID: 19901204000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 297' S line, 245' W line of SE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.977789 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.855313 **DATE COLLECTED:** 9 / 9 / 1942

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 278.0 **LOG TYPE:** Survey Core Study

SOURCE: OLD BEN COAL CORP 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
375.0	PLEISTOCENE		CLAY	30.0	15.0	RED
345.0	PLEISTOCENE		CLAY	25.0	45.0	SILTY; LIGHT GRAY
320.0	CARBONDALE		SANDSTONE	15.0	70.0	FINE; LIGHT GRAY
305.0	CARBONDALE		SHALE	15.0	85.0	SOFT; LIGHT GRAY
290.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	100.0	MOTTLED; VARIEGATED
280.0	CARBONDALE		SHALE	10.0	110.0	LIGHT GRAY
270.0	CARBONDALE		SANDSTONE	20.0	120.0	WITH SLATE; LIGHT
250.0	CARBONDALE		SANDSTONE	20.0	140.0	FINE; LIGHT GRAY
230.0	CARBONDALE		SANDSTONE	10.0	160.0	CARBONACEOUS; LIGHT GRAY
220.0	CARBONDALE		SANDSTONE	10.0	170.0	LIGHT GRAY
210.0	CARBONDALE		SANDSTONE	10.0	180.0	FINE; LIGHT GRAY
200.0	CARBONDALE		CLAYSTONE	10.0	190.0	SILTY; GRAY
190.0	CARBONDALE		SANDSTONE	10.0	200.0	COARSE; WHITE
180.0	CARBONDALE		SANDSTONE	10.0	210.0	
170.0	CARBONDALE		CLAYSTONE	10.0	220.0	SILTY; LIGHT GRAY
160.0	CARBONDALE		CLAYSTONE	20.0	230.0	SILTY; LIGHT GRAY
140.0	CARBONDALE		SILTSTONE	10.0	250.0	LIGHT GRAY
130.0	CARBONDALE		CLAYSTONE	10.0	260.0	LIGHT GRAY
120.0	CARBONDALE	HERRIN	COAL	8.0	270.0	

MAPID: 19901205000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 47' S line, 242' W line of SE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.977808 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.854623 **DATE COLLECTED:** 9 / 19 / 1942

SURFACE ELEVATION (FT.): 387.8 **LOGGED (FT.):** 274.0 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
387.8	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
383.8	PLEISTOCENE		CLAY	11.0	4.0	YELLOW
372.8	PLEISTOCENE		SAND	5.0	15.0	YELLOW
367.8	PLEISTOCENE		GLACIAL DRIFT	10.0	20.0	GRAY
357.8	PLEISTOCENE		GLACIAL DRIFT	15.0	30.0	BROWN
342.8	PLEISTOCENE		GLACIAL DRIFT	25.0	45.0	GRAY
317.8	PLEISTOCENE		SAND	15.0	70.0	SATURATED WITH WATER
302.8	MODESTO		SHALE	10.0	85.0	LIGHT GRAY
292.8	MODESTO		SANDSTONE	5.0	95.0	
287.8	MODESTO		SHALE	10.0	100.0	LIGHT GRAY
277.8	MODESTO		SHALE	11.0	110.0	GRAY
266.8	MODESTO		SHALE	2.0	121.0	BLACK
264.8	MODESTO		SHALE	5.0	123.0	GRAY
259.8	MODESTO	PIASA	LIMESTONE	2.0	128.0	GRAY
257.8	MODESTO		SHALE	3.0	130.0	GRAY
254.8	CARBONDALE	DANVILLE	COAL	2.0	133.0	
252.8	CARBONDALE		SHALE	3.0	135.0	
249.8	CARBONDALE		SANDSTONE	2.0	138.0	
247.8	CARBONDALE		SHALE	8.0	140.0	GRAY
239.8	CARBONDALE		LIMESTONE	2.0	148.0	
237.8	CARBONDALE		SHALE	10.0	150.0	SANDY; LIGHT GRAY
227.8	CARBONDALE		SHALE	15.0	160.0	GRAY
212.8	CARBONDALE		SANDSTONE	45.0	175.0	
167.8	CARBONDALE		SHALE	25.0	220.0	WITH SANDSTONE
142.8	CARBONDALE		SHALE	20.5	245.0	
122.3	CARBONDALE	HERRIN	COAL	8.0	265.5	
114.3	CARBONDALE		UNDERCLAY	0.5	273.5	

MAPID: 19901206000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 453' N line, 238' W line of NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.977833 **GEOLOGIST:** LOUCHIOS

CONFIDENTIAL: N **LATITUDE:** 37.85325 **DATE COLLECTED:** 9 / 29 / 1942

SURFACE ELEVATION (FT.): 389.4 **LOGGED (FT.):** 257.0 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 4 **WELL TYPE:** Coal Test

COMMENT: MINE NO. 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
389.4	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
374.4	PLEISTOCENE		UNCONSOLIDATED	55.0	15.0	
319.4	PLEISTOCENE		SAND	20.0	70.0	
299.4	SHELBURN		GRAY SHALE	9.0	90.0	
290.4	SHELBURN	PIASA	LIMESTONE	2.0	99.0	CUTLER LS
288.4	SHELBURN		GRAY SHALE	3.0	101.0	
285.4	SHELBURN	DANVILLE	COAL	2.0	104.0	
283.4	SHELBURN		GRAY SHALE	15.0	106.0	
268.4	SHELBURN	BANKSTON FORK	LIMESTONE	2.0	121.0	
266.4	CARBONDALE	ENERGY	GRAY SHALE	37.0	123.0	
229.4	CARBONDALE	ENERGY	SANDSTONE	10.0	160.0	
219.4	CARBONDALE	ENERGY	GRAY SHALE	77.5	170.0	
141.9	CARBONDALE	HERRIN	COAL	9.0	247.5	
132.9	CARBONDALE		UNDERCLAY	0.5	256.5	

MAPID: 19922615000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 600' N line, 330' E line of SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.979839 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.84916 **DATE COLLECTED:** 4 / 0 / 1974

SURFACE ELEVATION (FT.): 382.0 **LOGGED (FT.):** 1390.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1008.0	BASE OF PENN.		UNCLASSIFIED	-	1390.0	

MAPID: 19900126000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990344 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.856333 **DATE COLLECTED:** 3 / 0 / 1901

SURFACE ELEVATION (FT.): 370.0 **LOGGED (FT.):** 212.5 **LOG TYPE:** Drillers Log

SOURCE: INTERSTATE FUEL CO. 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
370.0	PLEISTOCENE		CLAY	40.0	0.0	
330.0	PLEISTOCENE		CLAY	20.0	40.0	YELLOW
310.0	MODESTO		SHALE	6.0	60.0	SOFT; BLUE
304.0	MODESTO	PIASA	LIMESTONE	0.8	66.0	
303.2	MODESTO		SHALE	6.7	66.8	SOFT; BLUE
296.5	CARBONDALE	DANVILLE	COAL	1.4	73.5	
295.1	CARBONDALE		UNDERCLAY	2.0	74.9	
293.1	CARBONDALE		SHALE	11.0	76.9	SOFT; BLUE
282.1	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	87.9	
276.6	CARBONDALE		UNDERCLAY	5.0	93.4	
271.6	CARBONDALE		SHALE	2.0	98.4	SANDY; GRAY
269.6	CARBONDALE		LIMESTONE	0.3	100.4	
269.2	CARBONDALE	ENERGY	SANDSTONE	0.8	100.8	GRAY
268.4	CARBONDALE	ENERGY	UNDERCLAY	0.3	101.6	DRILLER LISTS WOOD
268.1	CARBONDALE	ENERGY	SANDSTONE	0.5	101.9	
267.6	CARBONDALE	ENERGY	SANDSTONE	1.2	102.4	GRAY
266.4	CARBONDALE	ENERGY	LIMESTONE	0.3	103.6	
266.1	CARBONDALE	ENERGY	SHALE	3.0	103.9	GRAY
263.1	CARBONDALE	ENERGY	LIMESTONE	0.3	106.9	
262.8	CARBONDALE	ENERGY	SHALE	1.5	107.2	DARK
261.3	CARBONDALE	ENERGY	UNDERCLAY	5.5	108.7	
255.8	CARBONDALE	ENERGY	SHALE	21.0	114.2	SANDY
234.8	CARBONDALE	ENERGY	SANDSTONE	5.3	135.2	FINE
229.5	CARBONDALE	ENERGY	SHALE	19.0	140.5	SANDY
210.5	CARBONDALE	ENERGY	CORE LOSS	0.3	159.5	CREVICE
210.2	CARBONDALE	ENERGY	SHALE	12.0	159.8	SANDY
198.2	CARBONDALE	ENERGY	SHALE	31.7	171.8	SMOOTH,SANDY
166.6	CARBONDALE	HERRIN	COAL	8.4	203.4	
158.2	CARBONDALE		UNDERCLAY	0.7	211.8	CHEM ANALYSIS FOLLOWS ON RECORD

MAPID: 19900126000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990344 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.856333 **DATE COLLECTED:** 0 / 0 / 1901

SURFACE ELEVATION (FT.): 380.0 **LOGGED (FT.):** 211.4 **LOG TYPE:** Drillers Log

SOURCE: INTER STATE FUEL 4 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
314.0	MODESTO	PIASA	LIMESTONE	7.5	66.0	
306.5	CARBONDALE	DANVILLE	COAL	1.4	73.5	
305.1	CARBONDALE		GRAY SHALE	13.0	74.9	
292.1	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	87.9	
287.6	CARBONDALE	LAWSON	CLAYSTONE	5.0	92.4	
282.6	CARBONDALE	LAWSON	SILTY SHALE	2.0	97.4	
280.6	CARBONDALE	CONANT	LIMESTONE AND SANDSTONE	1.2	99.4	
279.4	CARBONDALE	JAMESTOWN	COAL	0.3	100.6	
279.1	CARBONDALE		SILTY SHALE	2.7	100.9	
276.4	CARBONDALE	BRERETON	LIMESTONE	3.6	103.6	
272.8	CARBONDALE	ANNA	BLACK SHALE	1.5	107.2	
271.3	CARBONDALE	ENERGY	CLAYSTONE	5.5	108.7	
265.8	CARBONDALE	ENERGY	SILTY SHALE	21.0	114.2	
244.8	CARBONDALE	ENERGY	SANDSTONE	5.3	135.2	
239.5	CARBONDALE	ENERGY	SILTY SHALE	62.9	140.5	
177.0	CARBONDALE	HERRIN	COAL	8.4	203.0	

MAPID: 19901335000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 700' S line, 1' E line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.983206 **GEOLOGIST:** LOUCHIOS

CONFIDENTIAL: N **LATITUDE:** 37.849105 **DATE COLLECTED:** 4 / 17 / 1946

SURFACE ELEVATION (FT.): 379.8 **LOGGED (FT.):** 169.7 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 56 **WELL TYPE:** Coal Test

COMMENT: MINE NO. 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
379.8	PLEISTOCENE		GLACIAL DRIFT	88.5	0.0	SOIL AND DRIFT
291.3			SANDSTONE	41.5	88.5	
249.8	CARBONDALE	ENERGY	GRAY SHALE	30.0	130.0	
219.8	CARBONDALE	HERRIN	COAL	9.3	160.0	
210.5	CARBONDALE		UNDERCLAY	0.4	169.3	

MAPID: 19901336000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 700' S line, 300' E line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.984242 **GEOLOGIST:** LOUCHIOS

CONFIDENTIAL: N **LATITUDE:** 37.849095 **DATE COLLECTED:** 4 / 24 / 1946

SURFACE ELEVATION (FT.): 380.3 **LOGGED (FT.):** 167.0 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 57 **WELL TYPE:** Coal Test

COMMENT: MINE NO. 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
380.3	PLEISTOCENE		GLACIAL DRIFT	94.0	0.0	SOIL AND DRIFT
286.3			SANDSTONE	36.0	94.0	
250.3			GRAY SHALE	0.5	130.0	
249.8			SANDSTONE	4.5	130.5	
245.3	CARBONDALE	ENERGY	SANDY SHALE	15.0	135.0	
230.3	CARBONDALE	ENERGY	GRAY SHALE	6.8	150.0	
223.5	CARBONDALE	HERRIN	COAL	9.8	156.8	
213.8	CARBONDALE		UNDERCLAY	0.5	166.5	

MAPID: 19901464000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 768' N line, 300' E line of NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.984165 **GEOLOGIST:** LOUCHIOS

CONFIDENTIAL: N **LATITUDE:** 37.859788 **DATE COLLECTED:** 4 / 28 / 1944

SURFACE ELEVATION (FT.): 382.8 **LOGGED (FT.):** 243.2 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 16 **WELL TYPE:** Coal Test

COMMENT: TRUE ELEV DATUM 1.2' FROM FLOOR

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
382.8	PLEISTOCENE		GLACIAL DRIFT	74.0	0.0	
308.8	SHELBURN		DARK SHALE	12.5	74.0	
296.3	SHELBURN		BLACK SHALE	1.5	86.5	
294.8	SHELBURN		GRAY SHALE	1.0	88.0	
293.8	SHELBURN	PIASA	LIMESTONE	2.5	89.0	
291.3	SHELBURN		GRAY SHALE	2.7	91.5	
288.6	SHELBURN	DANVILLE	COAL	1.8	94.2	
286.8	SHELBURN		GRAY SHALE	7.0	96.0	
279.8	SHELBURN		COAL	1.3	103.0	
278.5	SHELBURN		GRAY SHALE	1.0	104.3	
277.5	SHELBURN		DARK SHALE	1.3	105.3	
276.3	SHELBURN		LIMESTONE	0.5	106.5	
275.8	SHELBURN		SHALE	13.8	107.0	
262.0	SHELBURN	BANKSTON FORK	LIMESTONE	3.0	120.8	
259.0	SHELBURN	BANKSTON FORK	LIMESTONE & SHALE	2.3	123.8	
256.8	SHELBURN		GRAY SHALE	10.0	126.0	
246.8	SHELBURN		SANDSTONE	5.0	136.0	
241.8	SHELBURN		GRAY SHALE	9.0	141.0	
232.8	SHELBURN		SANDSTONE	28.5	150.0	
204.3	SHELBURN		GRAY SHALE	54.5	178.5	
149.8	CARBONDALE	HERRIN	COAL	8.7	233.0	
141.1	CARBONDALE		UNDERCLAY	1.5	241.7	

MAPID: 19901465000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 768' N line, 900' E line of NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.986243 **GEOLOGIST:** LOUCHIOS

CONFIDENTIAL: N **LATITUDE:** 37.859791 **DATE COLLECTED:** 5 / 11 / 1944

SURFACE ELEVATION (FT.): 379.0 **LOGGED (FT.):** 324.2 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 17 **WELL TYPE:** Coal Test

COMMENT: TRUE ELEV DATUM 1' FROM FLOOR; COAL QUAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
379.0	PLEISTOCENE		GLACIAL DRIFT	77.0	0.0	SOIL, CLAY, SAND
302.0	SHELBURN		GREEN SHALE	7.2	77.0	
294.8	SHELBURN		GRAY SHALE	34.3	84.2	
260.5	SHELBURN		GREEN SHALE	1.6	118.5	
258.9	SHELBURN	PIASA	LIMESTONE	3.4	120.1	CUTLER LS
255.5	SHELBURN		GRAY SHALE	0.7	123.5	
254.8	SHELBURN		BLACK SHALE	0.7	124.2	
254.2	SHELBURN		GRAY SHALE	1.6	124.8	
252.6	SHELBURN	DANVILLE	COAL	1.4	126.4	
251.2	SHELBURN		GRAY SHALE	9.7	127.8	
241.5	SHELBURN		LIMESTONE	0.8	137.5	
240.7	SHELBURN		COAL	0.3	138.3	
240.4	SHELBURN		UNDERCLAY	1.0	138.6	
239.4	SHELBURN		GRAY SHALE	2.9	139.6	
236.5	SHELBURN	BANKSTON FORK	LIMESTONE	2.5	142.5	
234.0	CARBONDALE		GRAY SHALE	117.3	145.0	
116.7	CARBONDALE	HERRIN	COAL	8.7	262.3	
108.1	CARBONDALE		UNDERCLAY	4.3	270.9	
103.8	CARBONDALE		SHALE	5.8	275.2	
98.1	CARBONDALE		LIMESTONE	8.1	280.9	
90.0	CARBONDALE		GRAY SHALE	17.0	289.0	
73.0	CARBONDALE		BLACK SHALE	5.6	306.0	
67.4	CARBONDALE		GRAY SHALE	1.8	311.6	
65.7	CARBONDALE	SPRINGFIELD	COAL	4.1	313.3	
61.6	CARBONDALE		UNDERCLAY	3.8	317.4	
57.8	CARBONDALE		GRAY SHALE	3.0	321.2	

MAPID: 19901496000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 700' S line, 600' E line of SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985281 **GEOLOGIST:** LOUCHIOS
CONFIDENTIAL: N **LATITUDE:** 37.849085 **DATE COLLECTED:** 5 / 7 / 1946
SURFACE ELEVATION (FT.): 381.7 **LOGGED (FT.):** 166.3 **LOG TYPE:** Drillers Log
SOURCE: OLD BEN COAL CORP. 58 **WELL TYPE:** Coal Test
COMMENT: MINE NO. 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
381.7	PLEISTOCENE		GLACIAL DRIFT	94.0	0.0	SOIL AND DRIFT
287.7			DARK SHALE	2.0	94.0	
285.7			SANDSTONE	29.0	96.0	
256.7	CARBONDALE	ENERGY	GRAY SHALE	31.3	125.0	
225.4	CARBONDALE	HERRIN	COAL	9.5	156.3	
215.9	CARBONDALE		UNDERCLAY	0.5	165.8	

MAPID: 19901497000C **VERSION:** 1 **PROJECT:** NCRDS 2011

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 383' S line, 334' W line of SW
QUADRANGLE: HERRIN **LONGITUDE:** -89.000903 **GEOLOGIST:** LOUCHIOS
CONFIDENTIAL: N **LATITUDE:** 37.848069 **DATE COLLECTED:** 5 / 31 / 1946
SURFACE ELEVATION (FT.): 376.6 **LOGGED (FT.):** 159.4 **LOG TYPE:** Drillers Log
SOURCE: OLD BEN COAL CORP. 59 **WELL TYPE:** Coal Test
COMMENT: MINE NO. 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
376.6	PLEISTOCENE		GLACIAL DRIFT	85.0	0.0	SOIL AND DRIFT
291.6			SANDSTONE	15.0	85.0	
276.6	CARBONDALE	ENERGY	GRAY SHALE	49.1	100.0	
227.5	CARBONDALE	HERRIN	COAL	9.8	149.1	
217.7	CARBONDALE		UNDERCLAY	0.5	158.9	

MAPID: 19901503000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 0' N line, 2154' E line of NE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990667 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854509 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 190.0 **LOG TYPE:** Drillers Log

SOURCE: OLD BEN COAL CORP. 66 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
317.5	CARBONDALE	LAWSON	SANDSTONE	24.0	60.5	
293.5	CARBONDALE	LAWSON	CALCAREOUS SANDSTONE	36.0	84.5	
257.5	CARBONDALE	JAMESTOWN	GRAY SHALE	5.0	120.5	
252.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	125.5	
247.5	CARBONDALE	ENERGY	SANDSTONE	10.0	130.5	
237.5	CARBONDALE	ENERGY	SANDSTONE	5.0	140.5	
232.5	CARBONDALE	ENERGY	GRAY SHALE	33.5	145.5	
199.0	CARBONDALE	HERRIN	COAL	11.0	179.0	

MAPID: 19901934000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.984306 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.855444 **DATE COLLECTED:** 9 / 0 / 1956

SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 1215.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
114.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	280.0	FAULT?
54.0	SPOON	DAVIS	UNCLASSIFIED	-	340.0	
-821.0	BASE OF PENN.		UNCLASSIFIED	-	1215.0	

MAPID: 19900419000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.016312 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.854761 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 249.5 **LOG TYPE:** Drillers Log

SOURCE: POND CREEK COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	68.0	0.0	
-	MODESTO		SHALE	20.0	68.0	BLUE
-	MODESTO	PIASA	LIMESTONE	3.0	88.0	
-	MODESTO		SHALE	20.0	91.0	
-	CARBONDALE	DANVILLE	COAL	2.0	111.0	WITH SLATE
-	CARBONDALE		UNDERCLAY	3.0	113.0	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	116.0	
-	CARBONDALE		SHALE	25.0	120.0	
-	CARBONDALE	BRERETON	LIMESTONE	5.0	145.0	
-	CARBONDALE	ENERGY	SHALE	87.0	150.0	SANDY; BLUE
-	CARBONDALE	HERRIN	COAL	9.0	237.0	
-	CARBONDALE		UNDERCLAY	3.5	246.0	

MAPID: 19900419000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.016312 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854761 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 386.0 **LOGGED (FT.):** 246.0 **LOG TYPE:** Drillers Log

SOURCE: POND CREEK COAL **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
298.0	MODESTO	PIASA	LIMESTONE	3.0	88.0	
295.0	MODESTO		GRAY SHALE	20.0	91.0	
275.0	CARBONDALE	DANVILLE	BONE COAL	2.0	111.0	
273.0	CARBONDALE		CLAYSTONE	3.0	113.0	
270.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	116.0	
266.0	CARBONDALE	LAWSON	GRAY SHALE	25.0	120.0	
241.0	CARBONDALE	BRERETON	LIMESTONE	5.0	145.0	
236.0	CARBONDALE	ENERGY	SILTY SHALE	87.0	150.0	
149.0	CARBONDALE	HERRIN	COAL	9.0	237.0	

MAPID: 19901771000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.004457 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.859856 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 281.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN IL COAL & COKE 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
394.0			NO RECORD	85.0	0.0	
309.0	MODESTO		SHALE	18.0	85.0	
291.0	MODESTO		SANDSTONE	30.0	103.0	
261.0	MODESTO		SHALE	13.0	133.0	
248.0	CARBONDALE	DANVILLE	COAL	1.0	146.0	
247.0	CARBONDALE		SHALE	10.0	147.0	
237.0	CARBONDALE		LIMESTONE	8.0	157.0	
229.0	CARBONDALE		SHALE	24.0	165.0	
205.0	CARBONDALE		LIMESTONE	6.0	189.0	HARD
199.0	CARBONDALE		LIMESTONE	20.0	195.0	SANDY
179.0	CARBONDALE		LIMESTONE	16.0	215.0	SHALEY
163.0	CARBONDALE		SHALE	40.0	231.0	SANDY
123.0	CARBONDALE	HERRIN	COAL	10.0	271.0	

MAPID: 19902078000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.010351 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.850145 **DATE COLLECTED:** 6 / 0 / 1957
SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 1408.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-1030.0	BASE OF PENN.		UNCLASSIFIED	-	1408.0	

MAPID: 19902112000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 6 **QUARTERS/FOOTAGES:** 50' S line, 50' E line of SE SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.030667 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.847972 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 381.0 **LOGGED (FT.):** 225.7 **LOG TYPE:** Survey Core Study

SOURCE: BELL & ZOLLER COAL CO. 91 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
285.7	MODESTO	PIASA	LIMESTONE	4.4	95.3	
281.2	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	99.8	LOWER BENCH
276.9	CARBONDALE	LAWSON	CALCAREOUS SHALE	13.5	104.1	
263.4	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.5	117.6	
257.9	CARBONDALE	ENERGY	SILTY SHALE	93.9	123.1	
164.0	CARBONDALE	HERRIN	COAL	8.7	217.0	

MAPID: 19923046000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 6 **QUARTERS/FOOTAGES:** 2310' S line, 2300' W line

QUADRANGLE: HERRIN **LONGITUDE:** -89.032039 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854211 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 1440.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1045.0	BASE OF PENN.		UNCLASSIFIED	-	1440.0	

MAPID: 19900128000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.037724 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.838664 **DATE COLLECTED:** 5 / 26 / 1905

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 238.3 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	PLEISTOCENE		UNCONSOLIDATED	12.5	0.0	
382.5	PLEISTOCENE		SAND	12.0	12.5	YELLOW
370.5	PLEISTOCENE		CLAY	2.5	24.5	SANDY; YELLOW
368.0	PLEISTOCENE		CLAY	40.0	27.0	BLUE
328.0	PLEISTOCENE		CLAY	8.0	67.0	SOFT; PINK
320.0	PLEISTOCENE		SAND	25.0	75.0	
295.0	MODESTO		SHALE	10.5	100.0	INTERBEDDED WITH LIMESTONE; DARK
284.5	MODESTO		SHALE	0.5	110.5	SANDY
284.0	MODESTO	DEGRAFF	COAL	1.5	111.0	WITH SOFT SHALE
282.5	MODESTO		UNDERCLAY	0.5	112.5	LIGHT
282.0	MODESTO	PIASA	LIMESTONE	1.8	113.0	DARK GRAY
280.2	MODESTO		UNDERCLAY	2.0	114.8	LIGHT
278.2	MODESTO		SHALE	2.0	116.8	BLACK
276.2	CARBONDALE	DANVILLE	COAL	2.3	118.8	
274.0	CARBONDALE		SANDSTONE	3.0	121.0	DARK
271.0	CARBONDALE		SHALE	4.5	124.0	BLUE
266.5	CARBONDALE		BLACK SHALE	1.0	128.5	BLACK
265.5	CARBONDALE		UNDERCLAY	3.5	129.5	DARK
262.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	133.0	DARK GRAY
257.5	CARBONDALE	BANKSTON FORK	LIMESTONE	12.5	137.5	SANDY
245.0	CARBONDALE		SANDSTONE	3.0	150.0	LIGHT
242.0	CARBONDALE		SANDSTONE	7.0	153.0	WITH SHALE PARTINGS; LIGHT
235.0	CARBONDALE		SHALE	2.0	160.0	SANDY; BLUE
233.0	CARBONDALE		SHALE	1.0	162.0	INTERBEDDED WITH LIMESTONE; DARK
232.0	CARBONDALE	BRERETON	LIMESTONE	5.0	163.0	HARD; DARK
227.0	CARBONDALE	ANNA	BLACK SHALE	1.0	168.0	BLACK
226.0	CARBONDALE	ENERGY	SANDSTONE	1.0	169.0	DARK
225.0	CARBONDALE	ENERGY	SANDSTONE	10.0	170.0	DARK
215.0	CARBONDALE	ENERGY	SHALE	49.0	180.0	INTERBEDDED WITH LIMESTONE; BLUE
166.0	CARBONDALE	HERRIN	COAL	8.3	229.0	
157.7	CARBONDALE		UNDERCLAY	1.0	237.3	LIGHT

MAPID: 19901935000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.031638 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.846924 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 388.0 **LOGGED (FT.):** 238.5 **LOG TYPE:** Electric Log
SOURCE: REHN, E E Zeigler 1 **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
228.0	CARBONDALE	ENERGY	GRAY SHALE	70.0	160.0	
158.0	CARBONDALE	HERRIN	COAL	8.5	230.0	

MAPID: 19901935000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.031638 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.846924 **DATE COLLECTED:** 9 / 0 / 1956
SURFACE ELEVATION (FT.): 388.0 **LOGGED (FT.):** 1410.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-102.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	490.0	
-172.0	SPOON	DAVIS	UNCLASSIFIED	-	560.0	
-1022.0	BASE OF PENN.		UNCLASSIFIED	-	1410.0	

MAPID: 19901944000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.989084 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.838739 **DATE COLLECTED:** 1 / 0 / 1957
SURFACE ELEVATION (FT.): 380.0 **LOGGED (FT.):** 1427.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1047.0	BASE OF PENN.		UNCLASSIFIED	-	1427.0	

MAPID: 19900129000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.976456 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.8452 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 385.0 **LOGGED (FT.):** 201.7 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL 4 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
385.0	PLEISTOCENE		UNCONSOLIDATED	2.0	0.0	
383.0	PLEISTOCENE		CLAY	20.0	2.0	YELLOW
363.0	PLEISTOCENE		SAND	8.4	22.0	YELLOW
354.6	PLEISTOCENE		SAND	15.7	30.4	GRAY
338.9	PLEISTOCENE		CLAY	7.3	46.1	BLUE
331.6	PLEISTOCENE		SAND	24.0	53.4	GRAY
307.6	CARBONDALE		SHALE	2.3	77.4	LIGHT BLUE
305.2	CARBONDALE		SANDSTONE	45.7	79.8	GRAY
259.6	CARBONDALE		SHALE	65.4	125.4	SANDY; LIGHT BLUE
194.2	CARBONDALE	HERRIN	COAL	10.2	190.8	
184.0	CARBONDALE		UNDERCLAY	0.7	201.0	

MAPID: 19901459000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NE NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.974241 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.837719 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 201.7 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 2 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
302.5	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	75.5	
298.5	CARBONDALE	LAWSON	CALCAREOUS SHALE	2.5	79.5	
296.0	CARBONDALE	LAWSON	SILTY SHALE	8.5	82.0	
287.5	CARBONDALE	JAMESTOWN	GRAY SHALE	2.8	90.5	
284.7	CARBONDALE	ENERGY	SANDSTONE	3.8	93.3	
280.8	CARBONDALE	ENERGY	SILTY SHALE	96.8	97.2	
184.0	CARBONDALE	HERRIN	COAL	7.7	194.0	

MAPID: 19902001000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 525' N line, 611' W line of NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981109 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.838165 **DATE COLLECTED:** 0 / 0 / 1946

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 226.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN COAL MINING CORP 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	15.0	0.0	
-	PLEISTOCENE		SAND	15.0	15.0	SATURATED WITH WATER; YELLOW
-	PLEISTOCENE		GLACIAL DRIFT	12.0	30.0	SANDY; GRAY
-	PLEISTOCENE		GLACIAL DRIFT	18.0	42.0	GRAY
-	PLEISTOCENE		SAND	7.0	60.0	GRAY
-	MODESTO		SHALE	9.0	67.0	SOFT; GRAY
-	MODESTO	PIASA	LIMESTONE	4.0	76.0	
-	CARBONDALE		SHALE	5.0	80.0	BLUE
-	CARBONDALE		SANDSTONE	10.0	85.0	SATURATED WITH WATER; BLUE
-	CARBONDALE		SHALE	5.0	95.0	SANDY; GRAY
-	CARBONDALE		SHALE	15.0	100.0	SANDY; GRAY
-	CARBONDALE		SANDSTONE	55.0	115.0	
-	CARBONDALE		SHALE	35.0	170.0	SANDY; GRAY
-	CARBONDALE		SHALE	12.0	205.0	GRAY
-	CARBONDALE	HERRIN	COAL	9.0	217.0	

MAPID: 19902002000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 10' S line, 611' W line of NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981109 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.839642 **DATE COLLECTED:** 5 / 0 / 1948

SURFACE ELEVATION (FT.): 388.0 **LOGGED (FT.):** 218.0 **LOG TYPE:** Drillers Log

SOURCE: FREEBURN COAL CO **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
388.0	PLEISTOCENE		SOIL	20.0	0.0	
368.0	PLEISTOCENE		SAND	20.0	20.0	MUDDY
348.0	PLEISTOCENE		SAND	5.0	40.0	GUMBO
343.0	PLEISTOCENE		GLACIAL DRIFT	5.0	45.0	BLUE
338.0	PLEISTOCENE		CLAY	5.0	50.0	YELLOW
333.0	PLEISTOCENE		GLACIAL DRIFT	8.0	55.0	
325.0	PLEISTOCENE		SAND	4.0	63.0	
321.0	PLEISTOCENE		GLACIAL DRIFT	2.0	67.0	WITH COAL STREAKS
319.0	MODESTO	DEGRAFF	COAL	1.5	69.0	
317.5	MODESTO		SHALE	4.5	70.5	SANDY
313.0	MODESTO	PIASA	LIMESTONE	3.0	75.0	HARD
310.0	CARBONDALE		CLAYSTONE	1.0	78.0	
309.0	CARBONDALE		CLAYSTONE	4.5	79.0	WITH COAL SMUT
304.5	CARBONDALE		SHALE	9.5	83.5	WITH SAND; BLUE
295.0	CARBONDALE		SANDSTONE	5.0	93.0	
290.0	CARBONDALE		SANDSTONE	3.0	98.0	
287.0	CARBONDALE		SHALE	7.0	101.0	
280.0	CARBONDALE		LIMESTONE	1.5	108.0	BLACK
278.5	CARBONDALE		SHALE	21.5	109.5	SAND
257.0	CARBONDALE		SHALE	1.0	131.0	MUDDY; BLUE
256.0	CARBONDALE		SANDSTONE	4.0	132.0	
252.0	CARBONDALE		SHALE	74.0	136.0	SANDY; BLUE
178.0	CARBONDALE	HERRIN	COAL	8.0	210.0	

MAPID: 19922656000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' N line, 2310' E line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.973277 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.838667 **DATE COLLECTED:** 2 / 0 / 1975

SURFACE ELEVATION (FT.): 394.0 **LOGGED (FT.):** 1420.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1026.0	BASE OF PENN.		UNCLASSIFIED	-	1420.0	

MAPID: 19900421000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.955934 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.839638 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 227.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
398.0	PLEISTOCENE		UNCONSOLIDATED	35.0	0.0	
363.0	PLEISTOCENE		CLAY	42.0	35.0	BLACK
321.0	PLEISTOCENE		SAND	6.5	77.0	LOOSE
314.5	CARBONDALE		LIMESTONE	2.6	83.5	BLUE
311.9	CARBONDALE		SANDSTONE	1.5	86.1	
310.4	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	87.6	BLUE
300.4	CARBONDALE		SHALE	54.0	97.6	CALCAREOUS
246.4	CARBONDALE	BRERETON	LIMESTONE	1.8	151.6	BLUE
244.6	CARBONDALE		SHALE	3.7	153.4	CALCAREOUS
240.9	CARBONDALE	ENERGY	SANDSTONE	49.3	157.1	
191.7	CARBONDALE	ENERGY	SHALE	10.5	206.3	
181.2	CARBONDALE	HERRIN	COAL	10.2	216.8	

MAPID: 19901455000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 50' S line, 35' W line of SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.965168 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.832344 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 216.8 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 8 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
290.7	CARBONDALE	LAWSON	GRAY SHALE	5.2	104.3	
285.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	5.2	109.5	
280.3	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	3.5	114.7	
276.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	3.2	118.2	
273.7	CARBONDALE	JAMESTOWN	BLACK SHALE	1.2	121.3	
272.5	CARBONDALE	ENERGY	SANDSTONE	9.0	122.5	
263.5	CARBONDALE	ENERGY	SANDSTONE	3.2	131.5	
260.3	CARBONDALE	ENERGY	SHALE & SANDSTONE	2.0	134.7	
258.3	CARBONDALE	ENERGY	GRAY SHALE	72.3	136.7	
186.0	CARBONDALE	HERRIN	COAL	7.8	209.0	

MAPID: 19902545000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 400' N line, 200' W line of SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.955243 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.838541 **DATE COLLECTED:** 5 / 0 / 1972
SURFACE ELEVATION (FT.): 402.0 **LOGGED (FT.):** 1361.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-959.0	BASE OF PENN.		UNCLASSIFIED	-	1361.0	

MAPID: 19902073000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 540' S line, 330' W line of SW SE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.931341 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.841305 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 230.5 **LOG TYPE:** Electric Log
SOURCE: REHN, E E OLD BEN3-A **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
291.5	CARBONDALE	BRERETON	LIMESTONE	6.5	154.5	
285.0	CARBONDALE	ANNA	BLACK SHALE	3.0	161.0	
282.0	CARBONDALE	ENERGY	SILTY SHALE	58.0	164.0	
224.0	CARBONDALE	HERRIN	COAL	8.5	222.0	

MAPID: 19902073000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 540' S line, 330' W line of SW SE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.931341 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.841305 **DATE COLLECTED:** 1 / 0 / 1957
SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 1400.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-954.0	BASE OF PENN.		UNCLASSIFIED	-	1400.0	

MAPID: 19900130000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.930214 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.827071 **DATE COLLECTED:** 12 / 15 / 1896

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 334.5 **LOG TYPE:** Drillers Log

SOURCE: WM. MCGUIRE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0	PLEISTOCENE		UNCONSOLIDATED	8.4	0.0	
451.6	PLEISTOCENE		CLAY	7.6	8.4	WITH GRAVEL; YELLOW
444.0	MODESTO		SANDSTONE	19.3	16.0	YELLOW
424.7	MODESTO		SANDSTONE	19.5	35.3	GRAY
405.2	MODESTO		SANDSTONE	54.4	54.8	
350.7	MODESTO		SHALE	10.5	109.3	LIGHT BLUE
340.2	MODESTO		BLACK SHALE	9.4	119.8	BLACK
330.8	MODESTO		SHALE	2.5	129.2	LIGHT BLUE
328.3	MODESTO	POND CREEK	COAL	1.2	131.7	
327.2	MODESTO		SHALE	2.3	132.8	LIGHT BLUE
324.9	MODESTO		SANDSTONE	15.3	135.1	GRAY
309.6	MODESTO		SANDSTONE	20.0	150.4	LIGHT BLUE
289.6	MODESTO	DEGRAFF	COAL	0.3	170.4	
289.2	MODESTO		SHALE	9.5	170.8	LIGHT BLUE
279.7	MODESTO	PIASA	LIMESTONE	2.3	180.3	GRAY
277.4	MODESTO		BLACK SHALE	3.5	182.6	BLACK
273.9	CARBONDALE	DANVILLE	COAL	1.8	186.1	
272.1	CARBONDALE		SHALE	4.4	187.9	LIGHT BLUE
267.7	CARBONDALE		SANDSTONE	2.3	192.3	GRAY
265.3	CARBONDALE		SHALE	6.7	194.7	DARK BLUE
258.7	CARBONDALE		LIMESTONE	12.5	201.3	GRAY
246.2	CARBONDALE		SANDSTONE	11.4	213.8	WITH SLATE; GRAY
234.7	CARBONDALE	ENERGY	SHALE	63.0	225.3	DARK BLUE
171.7	CARBONDALE	ENERGY	SHALE	30.0	288.3	DARK BLUE
141.7	CARBONDALE	ENERGY	SHALE	7.8	318.3	DARK BLUE
134.0	CARBONDALE	HERRIN	COAL	8.0	326.0	
126.0	CARBONDALE		SHALE	0.5	334.0	LIGHT BLUE

MAPID: 19901035000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** 385' N line, 310' E line of NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.938304 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.831439 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 434.0 **LOGGED (FT.):** 252.0 **LOG TYPE:** Electric Log

SOURCE: SUN OIL CO. OLD BEN 1 **WELL TYPE:** Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
287.0	CARBONDALE	BRERETON	LIMESTONE	6.5	147.0	
280.5	CARBONDALE	ANNA	BLACK SHALE	1.5	153.5	
279.0	CARBONDALE	ENERGY	SILTY SHALE	90.0	155.0	
189.0	CARBONDALE	HERRIN	COAL	7.0	245.0	

MAPID: 19901457000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** 650' N line, 450' W line of NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.959049 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.830501 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 399.0 **LOGGED (FT.):** 207.0 **LOG TYPE:** Drillers Log

SOURCE: SEYMOUR COAL MINING CORP 2 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
317.5	MODESTO	PIASA	NODULAR LIMESTONE	1.9	81.5	
315.6	MODESTO		BLACK SHALE	2.1	83.4	
313.5	CARBONDALE	DANVILLE	COAL	1.1	85.5	
312.4	CARBONDALE		SHALE & SILTSTONE	11.5	86.6	
300.9	CARBONDALE		SHALE & SANDSTONE	1.9	98.1	
299.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.2	100.0	
294.9	CARBONDALE	LAWSON	CLAYSTONE	4.3	104.1	
290.5	CARBONDALE	LAWSON	GRAY SHALE	14.0	108.5	
276.6	CARBONDALE	LAWSON	SANDSTONE	12.6	122.4	
264.0	CARBONDALE	LAWSON	SILTSTONE	5.7	135.0	
258.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	0.3	140.7	
258.0	CARBONDALE	ENERGY	SILTSTONE	2.3	141.0	
255.7	CARBONDALE	ENERGY	GRAY SHALE	13.5	143.3	
242.2	CARBONDALE	ENERGY	SILTSTONE	0.7	156.8	
241.6	CARBONDALE	ENERGY	GRAY SHALE	39.6	157.4	
202.0	CARBONDALE	HERRIN	COAL	10.0	197.0	

MAPID: 19900131000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.974271 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.832135 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 386.0 **LOGGED (FT.):** 205.7 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL CO 3 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
386.0	PLEISTOCENE		UNCONSOLIDATED	2.5	0.0	
383.5	PLEISTOCENE		CLAY	20.0	2.5	YELLOW
363.5	PLEISTOCENE		SAND	3.6	22.5	WITH GRAVEL; YELLOW
359.9	PLEISTOCENE		CLAY	7.5	26.1	BLUE
352.4	PLEISTOCENE		SAND	5.3	33.6	GRAY
347.1	PLEISTOCENE		CLAY	22.0	38.9	BLUE
325.1	PLEISTOCENE		SAND	15.3	60.9	BLUE
309.8	CARBONDALE		LIMESTONE	1.5	76.2	BLUE
308.3	CARBONDALE		SHALE	6.4	77.7	LIGHT BLUE
301.9	CARBONDALE		SANDSTONE	10.3	84.1	BLUE
291.6	CARBONDALE		LIMESTONE	5.7	94.4	GRAY
285.9	CARBONDALE	ENERGY	SHALE	6.3	100.1	LIGHT BLUE
279.6	CARBONDALE	ENERGY	SANDSTONE	34.4	106.4	GRAY
245.2	CARBONDALE	ENERGY	SHALE	56.2	140.8	SANDY; LIGHT BLUE
189.0	CARBONDALE	HERRIN	COAL	7.0	197.0	
182.0	CARBONDALE		UNDERCLAY	1.7	204.0	

MAPID: 19900131000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.974271 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.832135 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 386.0 **LOGGED (FT.):** 204.0 **LOG TYPE:** Drillers Log

SOURCE: IL STEEL CO. **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
309.8	CARBONDALE	BANKSTON FORK	LIMESTONE	1.5	76.2	
308.3	CARBONDALE	LAWSON	GRAY SHALE	6.4	77.7	
301.9	CARBONDALE	LAWSON	SANDSTONE	10.3	84.1	
291.6	CARBONDALE	BRERETON	LIMESTONE	5.7	94.4	
285.9	CARBONDALE	ENERGY	GRAY SHALE	6.3	100.1	
279.6	CARBONDALE	ENERGY	SANDSTONE	34.4	106.4	
245.2	CARBONDALE	ENERGY	SILTY SHALE	56.2	140.8	
189.0	CARBONDALE	HERRIN	COAL	7.0	197.0	

MAPID: 19900132000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.98103 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.819248 **DATE COLLECTED:** 7 / 0 / 1900

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 204.8 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL 1 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
-	PLEISTOCENE		CLAY	32.7	3.0	YELLOW
-	PLEISTOCENE		CLAY	6.0	35.7	BLUE
-	PLEISTOCENE		CLAY	8.4	41.7	RED
-	PLEISTOCENE		SAND	1.6	50.1	BLUE
-	PLEISTOCENE		CLAY	20.4	51.7	BLUE
-	MODESTO		BLACK SHALE	1.0	72.1	BLACK
-	MODESTO		SHALE	1.3	73.1	LIGHT BLUE
-	MODESTO	PIASA	LIMESTONE	10.4	74.4	GRAY
-	CARBONDALE		SANDSTONE/SILTSTONE	5.0	84.8	
-	CARBONDALE		SHALE	6.7	89.8	LIGHT BLUE
-	CARBONDALE		SANDSTONE/SILTSTONE	8.0	96.5	
-	CARBONDALE		LIMESTONE	1.3	104.5	BLUE
-	CARBONDALE		SHALE	5.7	105.8	LIGHT BLUE
-	CARBONDALE		SANDSTONE	21.4	111.5	WITH SHALE
-	CARBONDALE		SHALE	62.3	132.9	SANDY; LIGHT BLUE
-	CARBONDALE	HERRIN	COAL	8.7	195.3	
-	CARBONDALE		UNDERCLAY	0.8	203.9	

MAPID: 19901945000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 990' N line, 1650' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.971005 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829428 **DATE COLLECTED:** 1 / 0 / 1957

SURFACE ELEVATION (FT.): 389.0 **LOGGED (FT.):** 1374.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-85.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	474.0	
-156.0	SPOON	DAVIS	UNCLASSIFIED	-	545.0	
-985.0	BASE OF PENN.		UNCLASSIFIED	-	1374.0	

MAPID: 19900137000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.993818 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.831339 **DATE COLLECTED:** 0 / 0 / 1921

SURFACE ELEVATION (FT.): 379.0 **LOGGED (FT.):** 230.8 **LOG TYPE:** Drillers Log

SOURCE: IL STEEL CO. **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
297.0	MODESTO	PIASA	LIMESTONE	4.0	82.0	
293.0	MODESTO		BLACK SHALE	1.3	86.0	
291.7	CARBONDALE	DANVILLE	COAL	0.3	87.3	
291.3	CARBONDALE		SHALE & SANDSTONE	12.5	87.7	
278.8	CARBONDALE	ALLENBY	COAL	0.2	100.2	
278.7	CARBONDALE		CLAYSTONE	0.8	100.3	
277.8	CARBONDALE	BANKSTON FORK	LIMESTONE	1.2	101.2	UPPER BENCH
276.7	CARBONDALE	BANKSTON FORK	CLAYSTONE	2.2	102.3	SHALE PARTING
274.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	104.5	LOWER BENCH
269.5	CARBONDALE	LAWSON	SILTY SHALE	2.8	109.5	
266.7	CARBONDALE	LAWSON	SILTY SHALE	9.0	112.3	
257.7	CARBONDALE	BRERETON	LIMESTONE	1.2	121.3	
256.6	CARBONDALE	ENERGY	SILTY SHALE	2.3	122.4	
254.3	CARBONDALE	ENERGY	SILTY SHALE	48.0	124.7	
206.3	CARBONDALE	ENERGY	DARK GRAY SHALE	43.0	172.7	
157.0	CARBONDALE	HERRIN	COAL	8.8	222.0	

MAPID: 19900137000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.993818 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.831339 **DATE COLLECTED:** 7 / 15 / 1921

SURFACE ELEVATION (FT.): 379.0 **LOGGED (FT.):** 516.1 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
379.0			UNCONSOLIDATED	76.2	0.0	
302.8	MODESTO		SHALE	3.0	76.2	
299.8	MODESTO		COAL	0.3	79.2	
299.6	MODESTO		UNDERCLAY	2.6	79.4	
297.0	MODESTO		LIMESTONE	4.0	82.0	
293.0	MODESTO		BLACK SHALE	1.3	86.0	
291.7	MODESTO		COAL	0.3	87.3	
291.3	MODESTO		UNDERCLAY	4.0	87.7	
287.3	MODESTO		SANDSTONE	6.3	91.7	
281.0	MODESTO		BLACK SHALE	2.2	98.0	
278.8	MODESTO		COAL	0.2	100.2	
278.7	MODESTO		UNDERCLAY	0.8	100.3	
277.8	MODESTO		LIMESTONE	1.2	101.2	
276.7	MODESTO		UNDERCLAY	2.2	102.3	
274.5	MODESTO		LIMESTONE	5.0	104.5	
269.5	MODESTO		UNDERCLAY	6.0	109.5	
263.5	MODESTO		GRAY SHALE	2.8	115.5	
260.7	MODESTO		SHALE	9.0	118.3	
251.7	MODESTO	PIASA	LIMESTONE	1.2	127.3	UNCERTAIN CORRELATION
250.6	CARBONDALE		GRAY SHALE	2.3	128.4	
248.3	CARBONDALE	ENERGY	SHALE	48.0	130.7	
200.3	CARBONDALE	ENERGY	DARK SHALE	43.0	178.7	
157.3	CARBONDALE	HERRIN	COAL	8.8	221.7	
148.6	CARBONDALE		UNDERCLAY	4.4	230.4	
144.2	CARBONDALE		SANDSTONE	3.2	234.8	
141.0	CARBONDALE		LIMESTONE	11.0	238.0	
130.0	CARBONDALE		BLACK SHALE	8.0	249.0	
122.0	CARBONDALE		LIMESTONE	2.3	257.0	
119.7	CARBONDALE		BLACK SHALE	3.3	259.3	
116.3	CARBONDALE	BRIAR HILL	COAL	0.4	262.7	
115.9	CARBONDALE		BLACK SHALE	3.0	263.1	
112.9	CARBONDALE		DARK SHALE	8.8	266.1	
104.2	CARBONDALE	SPRINGFIELD	COAL	4.2	274.8	
100.0	CARBONDALE		UNDERCLAY	8.8	279.0	
91.2	CARBONDALE		SHALE	62.9	287.8	
28.3	CARBONDALE	EXCELLO	BLACK SHALE	6.0	350.7	
22.3	CARBONDALE	HOUCHIN CREEK	COAL	2.2	356.7	
20.2	CARBONDALE		UNDERCLAY	4.6	358.8	
15.6	CARBONDALE		GRAY SHALE	26.1	363.4	

-10.5	CARBONDALE	SURVANT	COAL	2.1	389.5	UNCERTAIN CORRELATION
-12.6	CARBONDALE		UNDERCLAY	1.2	391.6	
-13.8	CARBONDALE		SANDSTONE	2.7	392.8	
-16.4	CARBONDALE		SHALE	2.0	395.4	
-18.4	CARBONDALE		LIMESTONE	0.3	397.4	
-18.7	CARBONDALE		SHALE	24.9	397.7	
-43.6	CARBONDALE		BLACK SHALE	1.0	422.6	
-44.6	CARBONDALE		SHALE	46.6	423.6	
-91.2	CARBONDALE	MECCA QUARRY	BLACK SHALE	3.7	470.2	
-94.8	CARBONDALE	COLCHESTER	COAL	1.2	473.8	
-96.0	SPOON		UNDERCLAY	2.5	475.0	
-98.5			LIMESTONE	10.0	477.5	
-108.5			UNDERCLAY	2.0	487.5	
-110.5			LIMESTONE	0.8	489.5	
-111.3			GRAY SHALE	2.1	490.3	
-113.4			SANDSTONE	0.8	492.4	
-114.2	SPOON		DARK SHALE	15.3	493.2	
-129.4	SPOON		BLACK SHALE	3.0	508.4	
-132.4	SPOON	DEKOVEN	COAL	3.8	511.4	UNCERTAIN CORRELATION
-136.3	SPOON		UNDERCLAY	0.8	515.3	

MAPID: 19900137000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.993818 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.831339 **DATE COLLECTED:** 7 / 15 / 1921

SURFACE ELEVATION (FT.): 379.0 **LOGGED (FT.):** 516.1 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL CO 5 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS GIVEN IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
379.0	PLEISTOCENE		CLAY	5.0	0.0	
374.0	PLEISTOCENE		CLAY	17.0	5.0	YELLOW
357.0	PLEISTOCENE		CLAY	5.0	22.0	WITH SAND; YELLOW
352.0	PLEISTOCENE		CLAY	15.0	27.0	WITH SAND; BLUE
337.0	PLEISTOCENE		CLAY	9.0	42.0	BLUE
328.0	PLEISTOCENE		CLAY	7.0	51.0	YELLOW
321.0	PLEISTOCENE		CLAY	18.2	58.0	WITH SAND; YELLOW
302.8	MODESTO		SHALE	3.0	76.2	BLUE
299.8	MODESTO	DEGRAFF	COAL	0.3	79.2	
299.6	MODESTO		UNDERCLAY	2.6	79.4	
297.0	MODESTO	PIASA	LIMESTONE	4.0	82.0	BLUE
293.0	MODESTO		BLACK SHALE	1.3	86.0	BLACK
291.7	CARBONDALE	DANVILLE	COAL	0.3	87.3	
291.3	CARBONDALE		UNDERCLAY	4.0	87.7	
287.3	CARBONDALE		SANDSTONE	6.3	91.7	GRAY
281.0	CARBONDALE		BLACK SHALE	2.2	98.0	BLACK
278.8	CARBONDALE	ALLENBY	COAL	0.2	100.2	
278.7	CARBONDALE		UNDERCLAY	0.8	100.3	
277.8	CARBONDALE		LIMESTONE	1.2	101.2	
276.7	CARBONDALE		UNDERCLAY	2.2	102.3	
274.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	104.5	BUFF
269.5	CARBONDALE		UNDERCLAY	6.0	109.5	
263.5	CARBONDALE		SHALE	2.8	115.5	SANDY; GRAY
260.7	CARBONDALE		SHALE	9.0	118.3	SANDY
251.7	CARBONDALE		LIMESTONE	1.2	127.3	
250.6	CARBONDALE	ENERGY	SHALE	2.3	128.4	SANDY; GRAY
248.3	CARBONDALE	ENERGY	SHALE	48.0	130.7	SANDY
200.3	CARBONDALE	ENERGY	SHALE	43.0	178.7	SMOOTH; DARK
157.3	CARBONDALE	HERRIN	COAL	8.8	221.7	
148.6	CARBONDALE		UNDERCLAY	4.4	230.4	
144.2	CARBONDALE		SANDSTONE	3.2	234.8	GRAY
141.0	CARBONDALE		LIMESTONE	11.0	238.0	BUFF
130.0	CARBONDALE		SHALE	8.0	249.0	BITUMINOUS; BLACK
122.0	CARBONDALE		LIMESTONE	2.3	257.0	WITH COAL; DARK
119.7	CARBONDALE		SHALE	3.3	259.3	BITUMINOUS; BLACK
116.3	CARBONDALE	BRIAR HILL	COAL	0.4	262.7	SLATY
115.9	CARBONDALE		SHALE	3.0	263.1	BITUMINOUS; BLACK
112.9	CARBONDALE		SHALE	8.8	266.1	SMOOTH; DARK

104.2	CARBONDALE	SPRINGFIELD	COAL	4.2	274.8	
100.0	CARBONDALE		UNDERCLAY	8.8	279.0	
91.2	CARBONDALE		SHALE	22.3	287.8	SANDY
69.0	CARBONDALE		SHALE	14.0	310.0	SANDY; GRAY
55.0	CARBONDALE		SHALE	26.7	324.0	SMOOTH; DARK
28.3	CARBONDALE	EXCELLO	SHALE	6.0	350.7	BITUMINOUS; BLACK
22.3	CARBONDALE	HOUCHIN CREEK	COAL	2.2	356.7	
20.2	CARBONDALE		UNDERCLAY	4.6	358.8	
15.6	CARBONDALE		SHALE	26.1	363.4	SMOOTH; GRAY
-10.5	CARBONDALE	SURVANT	COAL	2.1	389.5	
-12.6	CARBONDALE		UNDERCLAY	1.2	391.6	
-13.8	CARBONDALE		SANDSTONE	2.7	392.8	GRAY
-16.4	CARBONDALE		SHALE	2.0	395.4	SMOOTH; DARK
-18.4	CARBONDALE		LIMESTONE	0.3	397.4	BLUE
-18.7	CARBONDALE		SHALE	0.6	397.7	BLUE
-19.3	CARBONDALE		SHALE	21.3	398.3	SANDY; GRAY
-40.6	CARBONDALE		SHALE	3.0	419.6	SANDY; GRAY
-43.6	CARBONDALE		SHALE	1.0	422.6	BITUMINOUS; BLACK
-44.6	CARBONDALE		SHALE	28.6	423.6	SANDY
-73.2	CARBONDALE		SHALE	10.0	452.2	SANDY; DARK
-83.2	CARBONDALE		SHALE	8.0	462.2	SMOOTH; DARK
-91.2	CARBONDALE	MECCA QUARRY	BLACK SHALE	1.2	470.2	BLACK
-92.3	CARBONDALE	MECCA QUARRY	SHALE	2.5	471.3	BITUMINOUS; BLACK
-94.8	CARBONDALE	COLCHESTER	COAL	1.2	473.8	
-96.0	CARBONDALE		UNDERCLAY	2.5	475.0	
-98.5	CARBONDALE		LIMESTONE	10.0	477.5	BLUE
-108.5	CARBONDALE		UNDERCLAY	2.0	487.5	
-110.5	CARBONDALE		LIMESTONE	0.8	489.5	BLUE
-111.3	CARBONDALE		SHALE	2.1	490.3	SANDY; GRAY
-113.4	CARBONDALE		SANDSTONE	0.8	492.4	GRAY
-114.2	CARBONDALE		SHALE	15.3	493.2	SMOOTH; DARK
-129.4	CARBONDALE		SHALE	3.0	508.4	BITUMINOUS; BLACK
-132.4	CARBONDALE	DAVIS	COAL	3.8	511.4	
-136.3	CARBONDALE		UNDERCLAY	0.8	515.3	

MAPID: 19901462000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of NW NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.987943 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.832152 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 376.0 **LOGGED (FT.):** 223.8 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 1 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
268.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	107.5	
266.5	CARBONDALE	LAWSON	GRAY SHALE	9.0	109.5	
257.5	CARBONDALE	LAWSON	CONGLOMERATE	3.0	118.5	
254.5	CARBONDALE	LAWSON	SILTY SHALE	3.5	121.5	
251.0	CARBONDALE	LAWSON	DARK GRAY SHALE	5.5	125.0	
245.5	CARBONDALE	JAMESTOWN	COAL WITH SHALE PARTINGS	18.0	130.5	
227.5	CARBONDALE	ENERGY	SILTY SHALE	10.0	148.5	
217.5	CARBONDALE	ENERGY	SILTY SHALE	56.5	158.5	
161.0	CARBONDALE	HERRIN	COAL	8.8	215.0	

MAPID: 19900423000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 17 **QUARTERS/FOOTAGES:** N2

QUADRANGLE: HERRIN **LONGITUDE:** -89.011428 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.829039 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 384.0 **LOGGED (FT.):** 257.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
384.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
369.0	PLEISTOCENE		SAND	12.0	15.0	
357.0	PLEISTOCENE		CLAY	40.0	27.0	SOFT; BLUE
317.0	PLEISTOCENE		CLAY	6.0	67.0	RED
311.0	PLEISTOCENE		SAND	19.0	73.0	
292.0	MODESTO		SHALE	7.0	92.0	SOFT; BLUE
285.0	MODESTO	PIASA	LIMESTONE	2.0	99.0	WHITE
283.0	MODESTO		SHALE	3.0	101.0	SOFT; WHITE
280.0	CARBONDALE	DANVILLE	COAL	2.0	104.0	
278.0	CARBONDALE		UNDERCLAY	1.0	106.0	
277.0	CARBONDALE		SANDSTONE	5.0	107.0	HARD
272.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	112.0	HARD; WHITE
267.5	CARBONDALE		SHALE	30.0	116.5	SANDY
237.5	CARBONDALE		BLACK SHALE	0.5	146.5	BLACK
237.0	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	147.0	HARD
231.0	CARBONDALE	BRERETON	LIMESTONE	4.0	153.0	HARD; GRAY
227.0	CARBONDALE	ENERGY	SHALE	91.0	157.0	
136.0	CARBONDALE	HERRIN	COAL	9.0	248.0	

MAPID: 19902039000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 17 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.011428 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.829044 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 384.0 **LOGGED (FT.):** 246.5 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CARTERVILLE COAL 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
384.0	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
370.0	PLEISTOCENE		SAND	6.0	14.0	WHITE/YELLOW
364.0	PLEISTOCENE		CLAY	42.0	20.0	BLUE
322.0	PLEISTOCENE		SAND	18.5	62.0	
303.5	MODESTO		SHALE	3.5	80.5	
300.0	MODESTO		SHALE	0.8	84.0	WITH COAL; DARK
299.2	MODESTO		UNDERCLAY	1.0	84.8	
298.2	MODESTO	PIASA	LIMESTONE	1.0	85.8	LIGHT GRAY
297.2	MODESTO		SHALE	1.3	86.8	DARK
296.0	MODESTO		BLACK SHALE	2.0	88.0	BLACK
294.0	CARBONDALE	DANVILLE	COAL	2.0	90.0	
292.0	CARBONDALE		UNDERCLAY	1.0	92.0	
291.0	CARBONDALE		SANDSTONE	4.0	93.0	DARK
287.0	CARBONDALE		SHALE	1.5	97.0	SANDY; BLUE
285.5	CARBONDALE		SHALE	1.5	98.5	SAND; DARK
284.0	CARBONDALE		SHALE	1.5	100.0	DARK
282.5	CARBONDALE	ALLENBY	COAL	0.5	101.5	MIXED
282.0	CARBONDALE		SHALE	3.0	102.0	
279.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	105.0	GRAY
274.5	CARBONDALE	ANVIL ROCK	SANDSTONE	8.5	109.5	SOFT; GRAY
266.0	CARBONDALE	ANVIL ROCK	SANDSTONE	2.0	118.0	DARK
264.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.5	120.0	WITH SHALE PARTINGS
255.5	CARBONDALE	BRERETON	LIMESTONE	4.0	128.5	DARK
251.5	CARBONDALE		UNDERCLAY	2.5	132.5	LIGHT
249.0	CARBONDALE	ENERGY	SHALE	31.0	135.0	SANDY; BLUE
218.0	CARBONDALE	ENERGY	SHALE	70.5	166.0	SANDY; BLUE
147.5	CARBONDALE	HERRIN	COAL	9.5	236.5	
138.0	CARBONDALE		UNDERCLAY	0.5	246.0	

MAPID: 19902039000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 17 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.011428 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829044 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 384.0 **LOGGED (FT.):** 246.5 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CRTRVL. COAL **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
298.0	MODESTO	PIASA	LIMESTONE	1.0	86.0	
297.0	MODESTO		BLACK SHALE	3.3	87.0	
293.7	CARBONDALE	DANVILLE	COAL	2.0	90.3	
291.7	CARBONDALE		SHALE & SANDSTONE	9.3	92.3	
282.4	CARBONDALE	ALLENBY	BONE COAL	0.5	101.6	
281.9	CARBONDALE		CLAYSTONE	3.0	102.1	
278.9	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	105.1	
274.4	CARBONDALE	LAWSON	SANDSTONE	8.5	109.6	
265.9	CARBONDALE	LAWSON	SANDSTONE	2.0	118.1	
263.9	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	8.5	120.1	
255.4	CARBONDALE	BRERETON	LIMESTONE	4.0	128.6	
251.4	CARBONDALE	ENERGY	GRAY SHALE	2.5	132.6	
248.9	CARBONDALE	ENERGY	SILTY SHALE	31.0	135.1	
217.9	CARBONDALE	ENERGY	SILTY SHALE	70.5	166.1	
147.0	CARBONDALE	HERRIN	COAL	9.5	237.0	

MAPID: 19900424000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 660' N line, 660' W line of NW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.037819 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.816742 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 179.9 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CARTERVILLE COAL A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
399.0	PLEISTOCENE		CLAY	7.3	1.0	YELLOW
391.7	PLEISTOCENE		CLAY	2.0	8.3	WITH SAND; YELLOW
389.7	PLEISTOCENE		SAND	3.5	10.3	WITH CLAY; YELLOW
386.2	PLEISTOCENE		CLAY	5.0	13.8	YELLOW
381.2	PLEISTOCENE		CLAY	8.6	18.8	BLUE
372.6	MODESTO		SANDSTONE	36.8	27.4	SOFT, COARSE GRAINED
335.7	MODESTO	PIASA	LIMESTONE	1.3	64.3	GRAY
334.4	MODESTO		SHALE	2.3	65.6	DARK BLUE
332.2	CARBONDALE	DANVILLE	COAL	2.5	67.8	
329.7	CARBONDALE		SHALE	12.6	70.3	SOFT; LIGHT BLUE
317.1	CARBONDALE	BANKSTON FORK	LIMESTONE	10.5	82.9	GRAY
306.6	CARBONDALE	ANVIL ROCK	SANDSTONE	1.2	93.4	GRAY
305.4	CARBONDALE	ANVIL ROCK	SHALE	18.7	94.6	DARK BLUE
286.7	CARBONDALE	ANVIL ROCK	SANDSTONE	12.3	113.3	WITH SHALE
274.4	CARBONDALE		SHALE	9.4	125.6	LIGHT BLUE
265.0	CARBONDALE	BRERETON	LIMESTONE	2.5	135.0	DARK BLUE
262.5	CARBONDALE	ANNA	BLACK SHALE	5.3	137.5	BLACK
257.2	CARBONDALE	ENERGY	SHALE	26.0	142.8	LIGHT BLUE
231.2	CARBONDALE	HERRIN	COAL	9.0	168.8	
222.1	CARBONDALE		SHALE	2.0	177.9	BLUE

MAPID: 19900424000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 660' N line, 660' W line of NW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.037819 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.816742 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 178.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO & CRTRVL. COAL **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
341.0	MODESTO	PIASA	LIMESTONE	1.3	64.0	
339.7	MODESTO		DARK GRAY SHALE	2.3	65.3	
337.4	CARBONDALE	DANVILLE	COAL	2.5	67.6	
334.9	CARBONDALE		GRAY SHALE	12.6	70.1	
322.3	CARBONDALE	BANKSTON FORK	LIMESTONE	10.5	82.7	
311.8	CARBONDALE	LAWSON	SANDSTONE	1.2	93.2	
310.7	CARBONDALE	LAWSON	DARK GRAY SHALE	18.7	94.3	
292.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	12.3	113.0	
279.7	CARBONDALE	LAWSON	GRAY SHALE	9.4	125.3	
270.2	CARBONDALE	BRERETON	LIMESTONE	2.5	134.8	
267.7	CARBONDALE	ANNA	BLACK SHALE	5.3	137.3	
262.4	CARBONDALE	ENERGY	GRAY SHALE	26.0	142.6	
236.0	CARBONDALE	HERRIN	COAL	9.0	169.0	

MAPID: 19901038000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 760' S line, 1790' E line

QUADRANGLE: HERRIN **LONGITUDE:** -89.026929 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.805288 **DATE COLLECTED:** 3 / 0 / 1940

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 170.0 **LOG TYPE:** Drillers Log

SOURCE: M./BRACKEN **WELL TYPE:** Coal Test

COMMENT: ELEV. IS ESTIMATE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
385.0	CARBONDALE		SANDSTONE	15.0	25.0	
370.0	CARBONDALE		SHALE	15.0	40.0	
355.0	CARBONDALE		LIMESTONE AND SANDSTONE	57.0	55.0	
298.0	CARBONDALE	BRERETON	LIMESTONE	5.0	112.0	
293.0	CARBONDALE	ANNA	BLACK SHALE	8.0	117.0	
285.0	CARBONDALE	ENERGY	SHALE	23.0	125.0	
262.0	CARBONDALE	HERRIN	COAL	10.0	148.0	BROKEN
252.0	CARBONDALE		LIMESTONE AND SANDSTONE	7.0	158.0	
245.0	CARBONDALE		SHALE	5.0	165.0	

MAPID: 19901039000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 550' S line, 850' W line of SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.027483 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.804711 **DATE COLLECTED:** 4 / 0 / 1940

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 180.0 **LOG TYPE:** Drillers Log

SOURCE: HARRY INGRAM **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	20.0	0.0	YELLOW
-	CARBONDALE		SANDSTONE	20.0	20.0	YELLOW
-	CARBONDALE		SHALE	6.0	40.0	SANDY; GRAY
-	CARBONDALE		SHALE	11.0	46.0	STICKY; BLUE
-	CARBONDALE		SHALE	4.0	57.0	BROWN
-	CARBONDALE		LIMESTONE	9.0	61.0	HARD; GRAY
-	CARBONDALE		SHALE	15.0	70.0	BROWN
-	CARBONDALE		SHALE	15.0	85.0	SANDY; GRAY
-	CARBONDALE		SHALE	10.0	100.0	BLUE
-	CARBONDALE		SHALE	5.0	110.0	SANDY; BLUE
-	CARBONDALE		LIMESTONE	3.0	115.0	HARD; BLACK
-	CARBONDALE		SHALE	4.0	118.0	BLACK
-	CARBONDALE		SHALE	8.0	122.0	SANDY; GRAY
-	CARBONDALE	BRERETON	LIMESTONE	5.0	130.0	SANDY; DARK GRAY
-	CARBONDALE	ENERGY	SHALE	15.0	135.0	GRAY
-	CARBONDALE	ENERGY	SHALE	3.0	150.0	BLACK
-	CARBONDALE	HERRIN	COAL	8.0	153.0	
-	CARBONDALE		SHALE	4.0	161.0	GRAY
-	CARBONDALE		LIMESTONE	15.0	165.0	HARD; BROWN

MAPID: 19900138000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.004553 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.808415 **DATE COLLECTED:** 0 / 0 / 1895

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 146.4 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 9 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
389.0	PLEISTOCENE		HARD PAN	9.0	6.0	
380.0	PLEISTOCENE		SAND	10.0	15.0	SOFT; YELLOW
370.0	PLEISTOCENE		SAND	10.0	25.0	WITH CLAY; YELLOW
360.0	CARBONDALE		SHALE	10.0	35.0	SOFT; DARK BLUE
350.0	CARBONDALE		SHALE	10.0	45.0	SANDY; LIGHT BLUE
340.0	CARBONDALE		UNCLASSIFIED	53.0	55.0	SANDY WITH SHALE
287.0	CARBONDALE		SHALE	29.0	108.0	LIGHT BLUE
258.0	CARBONDALE	HERRIN	COAL	0.7	137.0	WITH SLATE
257.3	CARBONDALE	HERRIN	COAL	8.0	137.7	
249.3	CARBONDALE		UNDERCLAY	0.8	145.7	

MAPID: 19901040000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** NW SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.010326 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.805762 **DATE COLLECTED:** 11 / 15 / 1897

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 359.3 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			UNCLASSIFIED	142.0	0.0	
-	CARBONDALE	HERRIN	COAL	8.0	142.0	THICKENESS APPROXIMATED
-	CARBONDALE		UNDERCLAY	3.0	150.0	
-	CARBONDALE		LIMESTONE	9.0	153.0	
-	CARBONDALE		SHALE	25.0	162.0	BITUMINOUS
-	CARBONDALE	ST. DAVID	LIMESTONE	2.0	187.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.5	189.0	"VEIN AT 60' BELOW NO. 5 AT FREDONIA"
-	CARBONDALE		UNDERCLAY	7.0	193.5	
-	CARBONDALE		COAL	6.0	200.5	
-	CARBONDALE		UNDERCLAY	10.0	206.5	
-	CARBONDALE		SHALE	45.0	216.5	
-	CARBONDALE		LIMESTONE	7.0	261.5	
-	CARBONDALE		SHALE	25.0	268.5	
-	CARBONDALE	EXCELLO	BLACK SHALE	7.0	293.5	HARD
-	CARBONDALE	HOUCHIN CREEK	COAL	4.8	300.5	
-	CARBONDALE		UNDERCLAY	14.0	305.3	
-	CARBONDALE		SHALE	40.0	319.3	LIGHT BLUE

MAPID: 19901813000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.009185 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.804769 **DATE COLLECTED:** 7 / 16 / 1895

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 129.5 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 11 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	10.0	0.0	YELLOW
-	PLEISTOCENE		SAND	8.0	10.0	WITH CLAY; YELLOW
-	PLEISTOCENE		SAND	8.0	18.0	YELLOW
-	CARBONDALE		BLACK SHALE	1.5	26.0	BLACK
-	CARBONDALE		SHALE	2.5	27.5	LIGHT BLUE
-	CARBONDALE		BLACK SHALE	1.7	30.0	WITH COAL
-	CARBONDALE		SHALE	5.3	31.7	LIGHT BLUE
-	CARBONDALE	ANVIL ROCK	SHALE	18.0	37.0	SANDY WITH COAL; GRAY
-	CARBONDALE	ANVIL ROCK	SANDSTONE	13.5	55.0	GRAY
-	CARBONDALE		SHALE	5.5	68.5	LIGHT BLUE
-	CARBONDALE		SHALE	7.5	74.0	SANDY; DARK BLUE
-	CARBONDALE	BRERETON	LIMESTONE	4.5	81.5	BLUE
-	CARBONDALE	ANNA	SHALE	5.0	86.0	BITUMINOUS
-	CARBONDALE	ENERGY	SHALE	29.0	91.0	LIGHT BLUE
-	CARBONDALE	HERRIN	COAL	8.3	120.0	
-	CARBONDALE		UNDERCLAY	1.3	128.3	

MAPID: 19901813000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.009185 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.804769 **DATE COLLECTED:** 0 / 0 / 1905

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 128.3 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
350.0	CARBONDALE	LAWSON	SANDSTONE	13.5	55.0	
336.5	CARBONDALE	LAWSON	GRAY SHALE	5.5	68.5	
331.0	CARBONDALE	LAWSON	SILTY SHALE	7.5	74.0	
323.5	CARBONDALE	BRERETON	LIMESTONE	4.5	81.5	
319.0	CARBONDALE	ANNA	BLACK SHALE	5.0	86.0	
314.0	CARBONDALE	ENERGY	GRAY SHALE	29.0	91.0	
285.0	CARBONDALE	HERRIN	COAL	8.3	120.0	

MAPID: 19902291000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.003403 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.805627 **DATE COLLECTED:** 11 / 0 / 1965

SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 1265.0 **LOG TYPE:** Electric Log

SOURCE: GALLAGHER, VICTOR R. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
15.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	392.0	
-48.0	SPOON	DAVIS	UNCLASSIFIED	-	455.0	
-858.0	BASE OF PENN.		UNCLASSIFIED	-	1265.0	

MAPID: 19900133000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.988089 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.802899 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 397.0 **LOGGED (FT.):** 277.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
397.0	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
396.0	PLEISTOCENE		SAND/CLAY	5.0	1.0	
391.0	PLEISTOCENE		SAND	13.0	6.0	YELLOW
378.0	PLEISTOCENE		SAND	12.0	19.0	WITH CLAY; GRAY
366.0	PLEISTOCENE		CLAY	4.0	31.0	SOFT
362.0	PLEISTOCENE		SAND	4.0	35.0	YELLOW
358.0	PLEISTOCENE		SAND	10.0	39.0	GRAY
348.0	PLEISTOCENE		CLAY	4.0	49.0	
344.0	CARBONDALE		LIMESTONE	1.0	53.0	
343.0	CARBONDALE		SANDSTONE	14.0	54.0	
329.0	CARBONDALE		SHALE	50.0	68.0	
279.0	CARBONDALE		SHALE	5.0	118.0	SOFT
274.0	CARBONDALE	HERRIN	COAL	8.5	123.0	
265.5	CARBONDALE		UNDERCLAY	3.0	131.5	
262.5	CARBONDALE		CLAYSTONE	1.0	134.5	BLUE
261.5	CARBONDALE		LIMESTONE	10.0	135.5	
251.5	CARBONDALE		SHALE	17.0	145.5	
234.5	CARBONDALE		SHALE	3.5	162.5	BLUE
231.0	CARBONDALE		SANDSTONE	1.0	166.0	
230.0	CARBONDALE		SHALE	1.0	167.0	BLUE
229.0	CARBONDALE		SHALE	5.5	168.0	
223.5	CARBONDALE	SPRINGFIELD	COAL	4.0	173.5	
219.5	CARBONDALE		UNDERCLAY	2.5	177.5	
217.0	CARBONDALE		LIMESTONE	1.0	180.0	
216.0	CARBONDALE		SHALE	3.3	181.0	
212.7	CARBONDALE		UNDERCLAY	0.7	184.3	
212.0	CARBONDALE		SHALE	2.0	185.0	
210.0	CARBONDALE		SANDSTONE	0.8	187.0	
209.2	CARBONDALE		CLAYSTONE	0.2	187.8	
209.0	CARBONDALE		SANDSTONE	9.0	188.0	
200.0	CARBONDALE		CLAYSTONE	40.0	197.0	
160.0	CARBONDALE		SHALE	1.0	237.0	BLUE
159.0	CARBONDALE		SHALE	5.0	238.0	
154.0	CARBONDALE		CLAYSTONE	2.0	243.0	
152.0	CARBONDALE		SHALE	6.0	245.0	
146.0	CARBONDALE		SHALE	4.3	251.0	
141.7	CARBONDALE	HOUCHIN CREEK	COAL	2.8	255.3	
139.0	CARBONDALE		SHALE	3.0	258.0	
136.0	CARBONDALE		SHALE	4.0	261.0	WITH COAL

132.0	CARBONDALE	SHALE	12.0	265.0

MAPID: 19900133000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.988089 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.802899 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 397.0 **LOGGED (FT.):** 131.5 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
344.0	CARBONDALE	BRERETON	LIMESTONE	1.0	53.0	
343.0	CARBONDALE	ENERGY	SILTY SHALE	14.0	54.0	
329.0	CARBONDALE	ENERGY	GRAY SHALE	50.0	68.0	
279.0	CARBONDALE	ENERGY	GRAY SHALE	5.0	118.0	
274.0	CARBONDALE	HERRIN	COAL	8.5	123.0	

MAPID: 19900141000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995155 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.808357 **DATE COLLECTED:** 7 / 26 / 1895

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 166.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
397.0	PLEISTOCENE		CLAY	15.0	3.0	YELLOW
382.0	PLEISTOCENE		SAND	7.0	18.0	YELLOW
375.0	CARBONDALE		CHERT	6.0	25.0	WITH LIMESTONE
369.0	CARBONDALE		CHERT	9.5	31.0	WITH LIMESTONE
359.5	CARBONDALE	ENERGY	SHALE	15.5	40.5	LIGHT BLUE
344.0	CARBONDALE	ENERGY	SHALE	62.0	56.0	SANDY; LIGHT BLUE
282.0	CARBONDALE	ENERGY	SHALE	20.0	118.0	
262.0	CARBONDALE	ENERGY	SHALE	19.0	138.0	LIGHT BLUE
243.0	CARBONDALE	HERRIN	COAL	9.0	157.0	

MAPID: 19902283000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.998648 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.812961 **DATE COLLECTED:** 2 / 0 / 1965

SURFACE ELEVATION (FT.): 390.5 **LOGGED (FT.):** 1292.0 **LOG TYPE:** Electric Log

SOURCE: GALLAGHER, VICTOR R. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-901.5	BASE OF PENN.		UNCLASSIFIED	-	1292.0	

MAPID: 19901463000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.97407 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.802959 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 140.1 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 6 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION, DEPTHS CORRECTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
396.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	21.0	14.0	
375.0	CARBONDALE	LAWSON	GRAY SHALE	7.5	35.0	
367.5	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	11.5	42.5	
356.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	29.8	54.0	
326.2	CARBONDALE	ENERGY	GRAY SHALE	47.7	83.8	
278.5	CARBONDALE	HERRIN	COAL	9.1	131.5	

MAPID: 19900142000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962526 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.804819 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 404.0 **LOGGED (FT.):** 160.5 **LOG TYPE:** Drillers Log

SOURCE: ILLINOIS STEEL CO 2 **WELL TYPE:** Coal Test

COMMENT: CHEM ANALYS. IN RECORD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
404.0	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
403.0	PLEISTOCENE		CLAY	15.7	1.0	YELLOW
387.3	PLEISTOCENE		SAND	10.4	16.7	YELLOW
376.9	PLEISTOCENE		SAND	7.3	27.1	BLUE
369.7	PLEISTOCENE		CLAY	17.3	34.3	BLUE
352.3	CARBONDALE		SANDSTONE	48.0	51.7	GRAY
304.3	CARBONDALE		SHALE	53.5	99.7	SANDY; LIGHT BLUE
250.9	CARBONDALE	HERRIN	COAL	6.9	153.1	
244.0	CARBONDALE		UNDERCLAY	0.5	160.0	

MAPID: 19900142000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962526 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.804819 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 395.0 **LOGGED (FT.):** 159.9 **LOG TYPE:** Drillers Log

SOURCE: IL STEEL CO. **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
367.2	CARBONDALE	ENERGY	SANDSTONE	7.3	27.8	
360.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	35.0	
343.0	CARBONDALE	ENERGY	SANDSTONE	48.0	52.0	
295.0	CARBONDALE	ENERGY	GRAY SHALE	53.0	100.0	
242.0	CARBONDALE	HERRIN	COAL	6.9	153.0	

MAPID: 19901814000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937322 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.799386 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 120.8 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COUNTY COAL 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
406.0	PLEISTOCENE		CLAY	9.5	4.0	WITH GRAVEL
396.5	PLEISTOCENE		CLAY	10.7	13.5	YELLOW
385.8	PLEISTOCENE		CLAY	8.0	24.2	WITH SAND; YELLOW
377.8	PLEISTOCENE		CLAY	8.3	32.2	LIGHT BLUE
369.5	CARBONDALE		SANDSTONE	3.5	40.5	YELLOW
366.0	CARBONDALE		SHALE	8.0	44.0	LIGHT BLUE
358.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	52.0	LIGHT GRAY
350.0	CARBONDALE	ANVIL ROCK	SANDSTONE	28.5	60.0	WITH COAL; LIGHT GRAY
321.5	CARBONDALE		LIMESTONE	26.5	88.5	DARK BLUE
295.0	CARBONDALE	HERRIN	COAL	5.5	115.0	
289.5	CARBONDALE		UNDERCLAY	0.3	120.5	

MAPID: 19901814000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937322 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.799386 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 150.5 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COUNTY COAL 3 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
339.0	CARBONDALE	LAWSON	SANDSTONE	3.5	71.0	
335.5	CARBONDALE	LAWSON	GRAY SHALE	8.0	74.5	
327.5	CARBONDALE	LAWSON	SANDSTONE	8.0	82.5	
319.5	CARBONDALE	LAWSON	SANDSTONE	28.5	90.5	
291.0	CARBONDALE	BRERETON	LIMESTONE	4.0	119.0	
287.0	CARBONDALE	ENERGY	GRAY SHALE	22.0	123.0	
265.0	CARBONDALE	HERRIN	COAL	5.5	145.0	

MAPID: 19922662000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.93615 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.79305 **DATE COLLECTED:** 10 / 0 / 1975

SURFACE ELEVATION (FT.): 416.0 **LOGGED (FT.):** 1306.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-890.0	BASE OF PENN.		UNCLASSIFIED	-	1306.0	

MAPID: 19902551000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' S line, 400' W line of SE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958888 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.789389 **DATE COLLECTED:** 11 / 0 / 1972

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 1300.0 **LOG TYPE:** Electric Log

SOURCE: AUSTIN ENGINEERING CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
93.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	375.0	
-2.0	SPOON	DAVIS	UNCLASSIFIED	-	470.0	
-832.0	BASE OF PENN.		UNCLASSIFIED	-	1300.0	

MAPID: 19900146000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 27 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981159 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.790141 **DATE COLLECTED:** 5 / 7 / 1895

SURFACE ELEVATION (FT.): 427.0 **LOGGED (FT.):** 104.9 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
427.0	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
421.0	PLEISTOCENE		CLAY	12.0	6.0	YELLOW
409.0	PLEISTOCENE		SAND	11.0	18.0	YELLOW
398.0	PLEISTOCENE		SAND	6.0	29.0	BLUE
392.0	PLEISTOCENE		CLAY	5.0	35.0	SANDY
387.0	PLEISTOCENE		SAND	5.0	40.0	WITH GRAVEL
382.0	PLEISTOCENE		CLAY	9.0	45.0	SANDY; LIGHT BLUE
373.0	PLEISTOCENE		SAND	3.0	54.0	GRAY
370.0	PLEISTOCENE		GLACIAL DRIFT	8.0	57.0	WITH CLAY
362.0	CARBONDALE		SANDSTONE	3.0	65.0	
359.0	CARBONDALE		SHALE	13.0	68.0	SANDY; LIGHT BLUE
346.0	CARBONDALE		SHALE	6.0	81.0	SANDY; DARK BLUE
340.0	CARBONDALE		SHALE	1.5	87.0	SANDY; LIGHT BLUE
338.5	CARBONDALE		SHALE	3.1	88.5	BITUMINOUS
335.4	CARBONDALE		SHALE	8.0	91.6	LIGHT BLUE
327.4	CARBONDALE	HERRIN	COAL	4.1	99.6	
323.3	CARBONDALE		UNDERCLAY	1.3	103.7	

MAPID: 19901820000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 27 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of NW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981084 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.8011 **DATE COLLECTED:** 5 / 1 / 1895

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 135.5 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
405.0	PLEISTOCENE		CLAY	11.0	5.0	
394.0	PLEISTOCENE		SAND	9.0	16.0	
385.0	CARBONDALE	ANVIL ROCK	SANDSTONE	5.0	25.0	BROWN
380.0	CARBONDALE	ANVIL ROCK	SHALE	4.5	30.0	LIGHT BLUE
375.5	CARBONDALE	ANVIL ROCK	SANDSTONE	2.5	34.5	YELLOW/BROWN
373.0	CARBONDALE		SHALE	15.0	37.0	DARK BLUE
358.0	CARBONDALE	BRERETON	LIMESTONE	9.0	52.0	
349.0	CARBONDALE	ANNA	SHALE	3.3	61.0	BITUMINOUS
345.7	CARBONDALE	ENERGY	SHALE	56.8	64.3	SANDY; LIGHT BLUE
289.0	CARBONDALE	HERRIN	COAL	9.5	121.0	
279.5	CARBONDALE		UNDERCLAY	4.0	130.5	
275.5	CARBONDALE		SHALE	0.5	134.5	BLUE
275.0	CARBONDALE		ROCK	0.5	135.0	HARD

MAPID: 19901820000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 27 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of NW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981084 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.8011 **DATE COLLECTED:** 0 / 0 / 1905

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 130.5 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 1 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
385.0	CARBONDALE	LAWSON	SANDSTONE	5.0	25.0	
380.0	CARBONDALE	LAWSON	GRAY SHALE	4.5	30.0	
375.5	CARBONDALE	LAWSON	SANDSTONE	2.5	34.5	
373.0	CARBONDALE	LAWSON	DARK GRAY SHALE	15.0	37.0	
358.0	CARBONDALE	BRERETON	LIMESTONE	9.0	52.0	
349.0	CARBONDALE	ANNA	BLACK SHALE	3.3	61.0	
345.7	CARBONDALE	ENERGY	SILTY SHALE	56.8	64.3	
289.0	CARBONDALE	HERRIN	COAL	9.5	121.0	

MAPID: 19900150000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985849 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.790112 **DATE COLLECTED:** 5 / 26 / 1895

SURFACE ELEVATION (FT.): 426.0 **LOGGED (FT.):** 110.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
426.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
421.0	PLEISTOCENE		GLACIAL DRIFT	15.0	5.0	BLUE
406.0	PLEISTOCENE		SAND	10.0	20.0	YELLOW
396.0	PLEISTOCENE		SAND	30.0	30.0	GRAY
366.0	PLEISTOCENE		MUD	0.2	60.0	BLACK
365.8	CARBONDALE	HERRIN	COAL	1.8	60.2	TOP ERODED, INCOMPLETE THICKNESS
364.0	CARBONDALE		UNDERCLAY	3.5	62.0	
360.5	CARBONDALE		CHERT	14.0	65.5	
346.5	CARBONDALE		SHALE	6.5	79.5	SOFT; LIGHT BLUE
340.0	CARBONDALE		SANDSTONE	6.0	86.0	GRAY
334.0	CARBONDALE		SHALE	0.8	92.0	SANDY; LIGHT BLUE
333.2	CARBONDALE		SHALE	3.3	92.8	BITUMINOUS
330.0	CARBONDALE		SHALE	9.8	96.0	LIGHT BLUE
320.2	CARBONDALE	SPRINGFIELD	COAL	3.9	105.8	
316.3	CARBONDALE		UNDERCLAY	0.3	109.7	

MAPID: 19901775000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995259 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.790083 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 148.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-	CARBONDALE		SHALE	16.0	30.0	BLACK
-	CARBONDALE	BRERETON	LIMESTONE	0.5	46.0	BLUE
-	CARBONDALE	ANNA	SHALE	5.5	46.5	BLACK
-	CARBONDALE	ENERGY	SHALE	6.5	52.0	BLUE
-	CARBONDALE	HERRIN	COAL	3.8	58.5	
-	CARBONDALE		UNDERCLAY	1.7	62.3	
-	CARBONDALE		SHALE	74.0	64.0	SAND; BLUE
-	CARBONDALE	ST. DAVID	LIMESTONE	1.5	138.0	BLUE
-	CARBONDALE	TURNER MINE	SHALE	3.5	139.5	BLACK
-	CARBONDALE	SPRINGFIELD	COAL	2.2	143.0	
-	CARBONDALE		UNDERCLAY	2.8	145.2	

MAPID: 19901816000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW SE SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.987018 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.791023 **DATE COLLECTED:** 5 / 10 / 1895
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 108.1 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & IRON 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
415.0	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
408.0	PLEISTOCENE		CLAY	7.0	7.0	YELLOW
401.0	PLEISTOCENE		SAND	3.0	14.0	YELLOW
398.0	PLEISTOCENE		GRAVEL	7.0	17.0	WITH SAND AND CLAY
391.0	PLEISTOCENE		SAND	25.0	24.0	BLUE
366.0	PLEISTOCENE		CLAY	8.5	49.0	WITH PEBBLES
357.5	CARBONDALE		SANDSTONE	3.5	57.5	SOFT; GRAY
354.0	CARBONDALE		SHALE	4.5	61.0	BITUMINOUS
349.6	CARBONDALE	ENERGY	SHALE	34.6	65.4	SANDY; LIGHT BLUE
315.0	CARBONDALE	HERRIN	COAL	8.1	100.0	

MAPID: 19901817000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999947 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.793714 **DATE COLLECTED:** 5 / 28 / 1895

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
402.0	PLEISTOCENE		SAND	27.0	8.0	YELLOW
375.0	PLEISTOCENE		SAND	15.0	35.0	GRAY
360.0	PLEISTOCENE		MUD	1.5	50.0	BLACK
358.5	CARBONDALE	ANNA	SHALE	2.8	51.5	BITUMINOUS
355.7	CARBONDALE	ENERGY	SHALE	3.2	54.3	DARK BLUE
352.5	CARBONDALE	ENERGY	SHALE	12.5	57.5	LIGHT BLUE
340.0	CARBONDALE	ENERGY	SHALE	11.0	70.0	SANDY; LIGHT BLUE
329.0	CARBONDALE	HERRIN	COAL	8.6	81.0	
320.4	CARBONDALE		UNDERCLAY	0.4	89.6	

MAPID: 19901818000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995189 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.801036 **DATE COLLECTED:** 6 / 1 / 1895

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 123.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
400.0	PLEISTOCENE		CLAY	10.0	10.0	WITH SAND; YELLOW
390.0	PLEISTOCENE		SAND	5.0	20.0	YELLOW
385.0	PLEISTOCENE		HARD PAN	9.0	25.0	
376.0	PLEISTOCENE		SAND	2.0	34.0	WITH GRAVEL; GRAY
374.0	CARBONDALE		SHALE	3.0	36.0	DARK BLUE
371.0	CARBONDALE	ANVIL ROCK	SANDSTONE	31.0	39.0	WITH COAL; GRAY
340.0	CARBONDALE	BRERETON	LIMESTONE	6.0	70.0	BLUE
334.0	CARBONDALE	ANNA	SHALE	4.5	76.0	BITUMINOUS
329.5	CARBONDALE	ENERGY	SHALE	5.5	80.5	LIGHT BLUE
324.0	CARBONDALE	ENERGY	SHALE	14.4	86.0	SANDY; DARK BLUE
309.7	CARBONDALE	ENERGY	SHALE	3.7	100.3	LIGHT BLUE
306.0	CARBONDALE	ENERGY	SHALE	9.2	104.0	SANDY; DARK BLUE
296.8	CARBONDALE	HERRIN	COAL	9.2	113.2	
287.7	CARBONDALE		UNDERCLAY	0.7	122.3	

MAPID: 19902015000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** SW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990556 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.790098 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
425.0	PLEISTOCENE		CLAY	19.0	0.0	YELLOW
406.0	CARBONDALE		SANDSTONE	5.0	19.0	SHALEY
401.0	CARBONDALE		LIMESTONE	32.5	24.0	BLUE
368.5	CARBONDALE		SHALE	5.5	56.5	BLACK
363.0	CARBONDALE	HERRIN	COAL	7.7	62.0	
355.3	CARBONDALE		UNDERCLAY	1.3	69.7	
354.0	CARBONDALE		LIMESTONE	7.0	71.0	WITH SHALE PARTINGS; GRAY
347.0	CARBONDALE		SHALE	12.0	78.0	SANDY
335.0	CARBONDALE		SHALE	3.0	90.0	DARK BLUE
332.0	CARBONDALE		SHALE	2.0	93.0	BLACK
330.0	CARBONDALE	ST. DAVID	LIMESTONE	0.5	95.0	BLUE
329.5	CARBONDALE	TURNER MINE	SHALE	1.5	95.5	BLACK
328.0	CARBONDALE	DYKERSBURG	SHALE	13.6	97.0	BLUE
314.4	CARBONDALE	SPRINGFIELD	COAL	4.0	110.6	
310.4	CARBONDALE		UNDERCLAY	2.4	114.6	

MAPID: 19902016000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995259 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.790083 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	CARBONDALE		SHALE	1.0	25.0	SOFT; GRAY
-	CARBONDALE	HERRIN	COAL	6.3	26.0	
-	CARBONDALE	HERRIN	COAL	1.3	32.3	
-	CARBONDALE		UNDERCLAY	1.3	33.7	
-	CARBONDALE		LIMESTONE	10.0	35.0	GRAY
-	CARBONDALE		SHALE	12.0	45.0	SANDY
-	CARBONDALE		SHALE	11.0	57.0	BLUE

MAPID: 19902017000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990556 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.790098 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 69.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
-	CARBONDALE		LIMESTONE	1.0	23.0	BROKEN
-	CARBONDALE		SHALE	2.5	24.0	BLACK
-	CARBONDALE		SHALE	0.5	26.5	SOFT; GRAY
-	CARBONDALE		SHALE	28.0	27.0	BLUE
-	CARBONDALE		SHALE	5.0	55.0	GRAY
-	CARBONDALE	HERRIN	COAL	8.3	60.0	
-	CARBONDALE		UNDERCLAY	0.7	68.3	

MAPID: 19902018000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
-	CARBONDALE	ENERGY	SHALE	8.8	11.0	
-	CARBONDALE	HERRIN	COAL	8.3	19.8	

MAPID: 19902019000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 31.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 6 **WELL TYPE:** Coal Test
COMMENT: 20+ LOGS IN SEC/NO GOOD LOC/AREA STRP'D

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
-	CARBONDALE		SANDSTONE	2.0	15.0	SHALEY
-	CARBONDALE		SHALE	5.0	17.0	SOFT; GRAY
-	CARBONDALE	HERRIN	COAL	8.6	22.0	
-	CARBONDALE		UNDERCLAY	0.4	30.6	

MAPID: 19902020000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 20.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
-	PLEISTOCENE		SAND	3.0	8.0	
-	CARBONDALE	HERRIN	COAL	7.0	11.0	TOP ERODED
-	CARBONDALE		UNDERCLAY	1.0	18.0	
-	CARBONDALE		SHALE	1.0	19.0	

MAPID: 19902021000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
-	PLEISTOCENE		SAND	16.0	9.0	
-			BLACK SHALE	1.0	25.0	
-			SANDSTONE	1.0	26.0	
-			LIMESTONE	1.0	27.0	

MAPID: 19902021000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:** 0 / 0 / 1900
SURFACE ELEVATION (FT.): 590.0 **LOGGED (FT.):** 1554.0 **LOG TYPE:** Electric Log
SOURCE: SOUTHERN GEM COAL CORP. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-964.0	BASE OF PENN.		UNCLASSIFIED	-	1554.0	

MAPID: 19902022000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	39.0	0.0	
-	CARBONDALE		SANDSTONE	6.0	39.0	
-	CARBONDALE		SHALE	10.0	45.0	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.5	55.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	56.5	
-	CARBONDALE	TURNER MINE	LIMESTONE	1.0	62.5	
-	CARBONDALE	SPRINGFIELD	COAL	3.7	63.5	
-	CARBONDALE		UNDERCLAY	0.8	67.2	

MAPID: 19902023000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 10 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	36.0	0.0	
-	CARBONDALE		LIMESTONE	4.0	36.0	BROKEN
-	CARBONDALE		SHALE	20.0	40.0	
-	CARBONDALE	ST. DAVID	LIMESTONE	2.0	60.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	62.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.0	68.0	

MAPID: 19902024000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 35.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-			COAL	0.5	30.0	BONE
-			UNDERCLAY	4.5	30.5	

MAPID: 19902025000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 53.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 12 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	42.0	0.0	
-			COAL	0.5	42.0	TOP ERODED
-			SHALE	1.5	42.5	
-			LIMESTONE	9.0	44.0	

MAPID: 19902026000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 13 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	39.0	0.0	
-	CARBONDALE	ENERGY	SHALE	0.5	39.0	
-	CARBONDALE	HERRIN	COAL	8.1	39.5	
-	CARBONDALE		UNDERCLAY	0.4	47.6	

MAPID: 19902027000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 59.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 14 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
-	CARBONDALE		LIMESTONE	28.0	16.0	
-	CARBONDALE	ANNA	BLACK SHALE	6.0	44.0	
-	CARBONDALE	HERRIN	COAL	8.3	50.0	
-	CARBONDALE		UNDERCLAY	0.8	58.3	

MAPID: 19902028000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 15 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.0	17.0	
-	CARBONDALE	ANNA	BLACK SHALE	6.5	18.0	
-	CARBONDALE	ENERGY	SHALE	4.0	24.5	
-	CARBONDALE	HERRIN	COAL	8.3	28.5	
-	CARBONDALE		UNDERCLAY	0.3	36.8	

MAPID: 19902029000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 16 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.5	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	8.0	14.5	
-	CARBONDALE	ANNA	BLACK SHALE	2.5	22.5	
-	CARBONDALE	ENERGY	SHALE	3.8	25.0	
-	CARBONDALE	HERRIN	COAL	8.2	28.8	

MAPID: 19902030000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 27.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 17 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
-	CARBONDALE	HERRIN	COAL	0.5	23.0	TOP ERODED
-	CARBONDALE		SANDSTONE	3.5	23.5	

MAPID: 19902031000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 35.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 18 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
-	PLEISTOCENE		SAND	5.0	17.0	
-	PLEISTOCENE		SAND	2.0	22.0	WITH SOFT COAL
-	PLEISTOCENE		SAND	11.0	24.0	

MAPID: 19902032000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 39.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 19 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	29.8	0.0	
-	CARBONDALE	HERRIN	COAL	8.5	29.8	TOP ERODED
-	CARBONDALE		UNDERCLAY	0.8	38.3	

MAPID: 19902033000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 20 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-	CARBONDALE	HERRIN	COAL	1.3	30.0	TOP ERODED
-	CARBONDALE		UNDERCLAY	0.8	31.3	

MAPID: 19902034000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 22.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN GEM COAL CORP. 21 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	19.5	0.0	
-	CARBONDALE	HERRIN	COAL	0.5	19.5	TOP ERODED
-	CARBONDALE		UNDERCLAY	2.0	20.0	

MAPID: 19902035000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 26.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 22 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	CARBONDALE	ENERGY	SHALE	3.8	14.0	
-	CARBONDALE	HERRIN	COAL	8.0	17.8	
-	CARBONDALE		UNDERCLAY	0.3	25.8	

MAPID: 19902036000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 15.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 23 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	CARBONDALE	HERRIN	COAL	3.1	10.0	TOP ERODED
-			SHALE	1.9	13.1	COAL PARTINGS

MAPID: 19902037000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992869 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.795568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. 24 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
-	CARBONDALE		SHALE	19.0	27.0	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.0	46.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.5	47.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	52.5	
-	CARBONDALE		UNDERCLAY	0.7	56.3	

MAPID: 19902357000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.9834 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.799267 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 401.0 **LOGGED (FT.):** 119.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 2670C **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
365.0	CARBONDALE	LAWSON	GRAY SHALE	22.5	36.0	
342.5	CARBONDALE	CONANT	LIMESTONE	18.3	58.5	
324.2	CARBONDALE		BLACK SHALE	3.0	76.8	
321.2	CARBONDALE	BRERETON	GRAY SHALE	15.6	79.8	
305.6	CARBONDALE	ENERGY	SILTY SHALE	13.8	95.4	
291.8	CARBONDALE	ENERGY	GRAY SHALE	1.8	109.2	
290.0	CARBONDALE	HERRIN	COAL	8.8	111.0	

MAPID: 19902570000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.989358 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.789187 **DATE COLLECTED:** 4 / 0 / 1973

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 1230.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-800.0	BASE OF PENN.		UNCLASSIFIED	-	1230.0	

MAPID: 19901819000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** SW NE SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.015004 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.793053 **DATE COLLECTED:** 7 / 10 / 1895

SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 134.7 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 10 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
431.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
421.0	PLEISTOCENE		CLAY	9.0	10.0	YELLOW
412.0	PLEISTOCENE		SAND	8.0	19.0	WITH CLAY; YELLOW
404.0	CARBONDALE		SHALE	2.0	27.0	LIGHT BLUE
402.0	CARBONDALE		BLACK SHALE	4.0	29.0	BLACK
398.0	CARBONDALE		CHERT	14.0	33.0	WITH LIMESTONE
384.0	CARBONDALE		SHALE	12.0	47.0	DARK BLUE
372.0	CARBONDALE		ROCK	18.0	59.0	SANDY WITH SHALE
354.0	CARBONDALE		SHALE	4.0	77.0	DARK BLUE
350.0	CARBONDALE		LIMESTONE	2.0	81.0	
348.0	CARBONDALE		SHALE	3.0	83.0	DARK BLUE
345.0	CARBONDALE	BRERETON	LIMESTONE	4.0	86.0	
341.0	CARBONDALE	ANNA	BLACK SHALE	4.2	90.0	BLACK
336.8	CARBONDALE	ENERGY	SHALE	31.5	94.2	LIGHT BLUE
305.3	CARBONDALE	HERRIN	COAL	8.5	125.7	
296.8	CARBONDALE		UNDERCLAY	0.5	134.2	

MAPID: 19901819000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** SW NE SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.015004 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.793053 **DATE COLLECTED:** 7 / 10 / 1895

SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 134.7 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 10 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
431.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
404.0			SHALE	2.0	27.0	
402.0	CARBONDALE		BLACK SHALE	4.0	29.0	
398.0	CARBONDALE		ROCK	14.0	33.0	FLINT & LS MXED
384.0	CARBONDALE		SHALE	12.0	47.0	
372.0	CARBONDALE		SHALE & SANDSTONE	18.0	59.0	INTERFINGERED
354.0	CARBONDALE		SHALE	4.0	77.0	
350.0	CARBONDALE		LIMESTONE	2.0	81.0	
348.0	CARBONDALE		SHALE	3.0	83.0	
345.0	CARBONDALE	BRERETON	LIMESTONE	4.0	86.0	
341.0	CARBONDALE	ANNA	BLACK SHALE	4.2	90.0	
336.8	CARBONDALE	ENERGY	SHALE	31.5	94.2	
305.3	CARBONDALE	HERRIN	COAL	8.5	125.7	
296.8	CARBONDALE		UNDERCLAY	0.5	134.2	

MAPID: 19902014000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.006895 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.799263 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 137.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	17.0	0.0	
-			SANDSTONE	15.0	17.0	
-			COAL	5.0	32.0	
-			SHALE	15.0	37.0	SOFT
-			LIMESTONE	5.0	52.0	HARD; WHITE
-			SHALE	40.0	57.0	SOFT; BLUE
-			LIMESTONE	3.0	97.0	HARD; BLUE
-			COAL	1.0	100.0	
-			SHALE	11.0	101.0	BLUE
-			BLACK SHALE	12.0	112.0	BLACK
-			SHALE	6.0	124.0	IN ROCK; WHITE
-			BLACK SHALE	7.0	130.0	BLACK

MAPID: 19902014000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.006895 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.799263 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 137.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
-			SANDSTONE	15.0	17.0	
-			COAL	5.0	32.0	APPROXIMATE THICKNESS
-			CLAYSTONE & SILTSTONE	15.0	37.0	
-			LIMESTONE	5.0	52.0	
-			CLAYSTONE & SILTSTONE	40.0	57.0	
-			LIMESTONE	3.0	97.0	
-			COAL	1.0	100.0	
-			CLAYSTONE & SILTSTONE	11.0	101.0	
-	CARBONDALE		BLACK SHALE	12.0	112.0	
-	CARBONDALE		CLAYSTONE & SILTSTONE	6.0	124.0	
-	CARBONDALE		BLACK SHALE	7.0	130.0	

MAPID: 19902040000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:**

QUADRANGLE: HERRIN **LONGITUDE:** -89.011525 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.79571 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 103.0 **LOG TYPE:** Drillers Log

SOURCE: ST. LOUIS CARTERVILLE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
405.0	CARBONDALE		SHALE	34.0	25.0	
371.0	CARBONDALE	BRERETON	LIMESTONE	5.0	59.0	
366.0	CARBONDALE	ENERGY	SHALE	27.0	64.0	
339.0	CARBONDALE	HERRIN	COAL	9.0	91.0	
330.0	CARBONDALE		UNDERCLAY	3.0	100.0	

MAPID: 19900153000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.028016 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.801367 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 1707.0 **LOG TYPE:** Drillers Log

SOURCE: E.L. GEER **WELL TYPE:** Stratigraphic Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
418.0	PLEISTOCENE		UNCONSOLIDATED	33.0	0.0	
385.0	CARBONDALE		SHALE	32.0	33.0	
353.0	CARBONDALE		SANDSTONE	43.0	65.0	
310.0	CARBONDALE		SHALE	10.0	108.0	
300.0	CARBONDALE	BRERETON	LIMESTONE	3.0	118.0	
297.0	CARBONDALE	ANNA	DARK SHALE	8.0	121.0	
289.0	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	15.0	129.0	
274.0	CARBONDALE	HERRIN	COAL	9.0	144.0	APPROXIMATE THICKNESS
265.0	CARBONDALE		UNDERCLAY	3.0	153.0	
262.0	CARBONDALE		LIMESTONE	15.0	156.0	
247.0	CARBONDALE		SHALE	10.0	171.0	
237.0	CARBONDALE		DARK SHALE	5.0	181.0	
232.0	CARBONDALE		CLAYSTONE & SILTSTONE	6.0	186.0	
226.0	CARBONDALE	SPRINGFIELD	COAL	2.0	192.0	APPROXIMATE THICKNESS
224.0	CARBONDALE		CLAYSTONE & SILTSTONE	6.0	194.0	
218.0	CARBONDALE		SHALE	7.0	200.0	
211.0	CARBONDALE		SANDSTONE	12.0	207.0	
199.0	CARBONDALE		CLAYSTONE & SILTSTONE	6.0	219.0	
193.0	CARBONDALE		SHALE	90.0	225.0	
103.0	CARBONDALE		COAL	5.0	315.0	APPROXIMATE THICKNESS
98.0			SANDSTONE	10.0	320.0	
88.0			SHALE	55.0	330.0	
33.0			DARK SHALE	80.0	385.0	
-47.0			SANDSTONE	11.0	465.0	
-58.0			CLAYSTONE & SILTSTONE	6.0	476.0	NO DEEPER COAL RECORDED

MAPID: 19900153000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** NW NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.028016 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.801367 **DATE COLLECTED:** 0 / 0 / 1900

SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 1318.0 **LOG TYPE:** Drillers Log

SOURCE: HERRIN, CITY OF **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-900.0	BASE OF PENN.		UNCLASSIFIED	-	1318.0	

MAPID: 19902041000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.039043 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.802323 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 175.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO HERRIN COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	50.0	0.0	
380.0	MODESTO	PIASA	LIMESTONE	1.7	50.0	
378.3	MODESTO		SHALE	6.3	51.7	
372.0	CARBONDALE	DANVILLE	COAL	2.0	58.0	APPROXIMATE THICKNESS
370.0	CARBONDALE		SHALE	13.0	60.0	
357.0	CARBONDALE		LIMESTONE	11.0	73.0	
346.0	CARBONDALE		SANDSTONE	8.0	84.0	WITH FLINT
338.0	CARBONDALE		SHALE	36.5	92.0	
301.5	CARBONDALE		ROCK	2.5	128.5	
299.0	CARBONDALE	ENERGY	SHALE	28.5	131.0	
270.5	CARBONDALE	HERRIN	COAL	9.5	159.5	
261.0	CARBONDALE		UNKNOWN	6.0	169.0	

MAPID: 19902041000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.039043 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.802323 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 170.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO-HERRIN COAL **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
380.0	MODESTO	PIASA	LIMESTONE	1.7	50.0	
378.3	MODESTO		DARK GRAY SHALE	6.3	51.7	
372.0	CARBONDALE	DANVILLE	COAL	2.0	58.0	
370.0	CARBONDALE		GRAY SHALE	13.0	60.0	
357.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	73.0	
346.0	CARBONDALE	LAWSON	SANDSTONE	8.0	84.0	
338.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	36.5	92.0	
301.5	CARBONDALE	BRERETON	LIMESTONE	2.5	128.5	
299.0	CARBONDALE	ENERGY	GRAY SHALE	28.5	131.0	
270.0	CARBONDALE	HERRIN	COAL	10.0	160.0	

MAPID: 19900154000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.025651 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.784901 **DATE COLLECTED:** 0 / 0 / 1891

SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 187.0 **LOG TYPE:** Drillers Log

SOURCE: POPE, STOETLER & HARRISON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
458.0			SANDSTONE	13.0	15.0	
445.0			SHALE	17.0	28.0	
428.0			LIMESTONE	12.0	45.0	
416.0			SHALE	1.0	57.0	
415.0			BLACK SHALE	3.0	58.0	COALY
412.0			SHALE	46.0	61.0	
366.0			BLACK SHALE	26.0	107.0	COALY
340.0	CARBONDALE		LIMESTONE	26.0	133.0	
314.0	CARBONDALE	ANNA	BLACK SHALE	6.0	159.0	COALY
308.0	CARBONDALE	ENERGY	SHALE	12.8	165.0	
295.2	CARBONDALE	HERRIN	COAL	8.2	177.8	
287.0	CARBONDALE		UNDERCLAY	1.0	186.0	

MAPID: 19900154000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.025651 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.784901 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 186.2 **LOG TYPE:** Drillers Log

SOURCE: POPE & STOETLER, ETAL **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
428.0	MODESTO	PIASA	LIMESTONE	12.0	45.0	
416.0	MODESTO		SILTY SHALE	1.0	57.0	
415.0	CARBONDALE	DANVILLE	BLACK SHALE	3.0	58.0	
412.0	CARBONDALE	LAWSON	SILTY SHALE	45.0	61.0	
367.0	CARBONDALE	LAWSON	DARK GRAY SHALE	27.0	106.0	
340.0	CARBONDALE	LAWSON	DARK GRAY SHALE	22.0	133.0	
318.0	CARBONDALE	BRERETON	LIMESTONE	4.0	155.0	
314.0	CARBONDALE	ANNA	BLACK SHALE	6.0	159.0	
308.0	CARBONDALE	ENERGY	DARK GRAY SHALE	2.0	165.0	
306.0	CARBONDALE	ENERGY	SILTY SHALE	10.8	167.0	
295.0	CARBONDALE	HERRIN	COAL	8.2	178.0	

MAPID: 19900154000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE

QUADRANGLE: HERRIN **LONGITUDE:** -89.025651 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.784901 **DATE COLLECTED:** 0 / 0 / 1891

SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 187.0 **LOG TYPE:** Drillers Log

SOURCE: POPE, STOETLER & HARRISON **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.0	PLEISTOCENE		CLAY	14.0	0.0	YELLOW
459.0	PLEISTOCENE		SAND	1.0	14.0	YELLOW
458.0	MODESTO		SANDSTONE	13.0	15.0	YELLOW
445.0	MODESTO		SHALE	4.0	28.0	WITH CLAY; DARK
441.0	MODESTO		SHALE	13.0	32.0	SANDY; BLUE
428.0	MODESTO		LIMESTONE	12.0	45.0	
416.0	MODESTO		SHALE	1.0	57.0	SANDY; GRAY
415.0	MODESTO		SHALE	3.0	58.0	BITUMINOUS
412.0	MODESTO		SHALE	45.0	61.0	SANDY; BLUE
367.0	CARBONDALE		SHALE	1.0	106.0	DARK
366.0	CARBONDALE		SHALE	26.0	107.0	BITUMINOUS
340.0	CARBONDALE		LIMESTONE	26.0	133.0	
314.0	CARBONDALE		SHALE	6.0	159.0	BITUMINOUS
308.0	CARBONDALE		SHALE	2.0	165.0	DARK BLUE
306.0	CARBONDALE		SHALE	10.8	167.0	SANDY; GRAY
295.2	CARBONDALE	HERRIN	COAL	8.2	177.8	
287.0	CARBONDALE		UNDERCLAY	1.0	186.0	

MAPID: 19900673000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** NW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.037769 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.786632 **DATE COLLECTED:** 0 / 0 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 268.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	34.5	0.0	WITH GRAVEL
-	CARBONDALE	ANVIL ROCK	SANDSTONE	25.5	34.5	
-	CARBONDALE		SHALE	14.0	60.0	DECOMPOSED, SAND
-	CARBONDALE		SHALE	9.0	74.0	DARK
-	CARBONDALE	BRERETON	LIMESTONE	2.0	83.0	
-	CARBONDALE	ANNA	SHALE	2.0	85.0	DARK
-	CARBONDALE	ANNA	BLACK SHALE	1.8	87.0	BLACK
-	CARBONDALE	HERRIN	COAL	9.3	88.8	
-	CARBONDALE		UNDERCLAY	2.8	98.2	
-	CARBONDALE		LIMESTONE	10.0	101.0	BROKEN
-	CARBONDALE		LIMESTONE	3.0	111.0	GRAY
-	CARBONDALE		SHALE	9.0	114.0	GRAY
-	CARBONDALE		SHALE	2.0	123.0	GRAY
-	CARBONDALE		SHALE	1.5	125.0	LIGHT
-	CARBONDALE	TURNER MINE	SHALE	5.5	126.5	BLACK
-	CARBONDALE	TURNER MINE	SHALE	6.1	132.0	HARD; DARK
-	CARBONDALE	SPRINGFIELD	COAL	0.3	138.1	
-	CARBONDALE	SPRINGFIELD	COAL	3.5	138.3	
-	CARBONDALE		UNDERCLAY	4.2	141.8	
-	CARBONDALE		SHALE	7.0	146.0	LIGHT
-	CARBONDALE		SHALE	10.0	153.0	SAND
-	CARBONDALE		SHALE	10.0	163.0	GRAY
-	CARBONDALE		SHALE	29.0	173.0	HARD; GRAY
-	CARBONDALE		SHALE	21.0	202.0	DARK GRAY
-	CARBONDALE		SHALE	2.5	223.0	HARD; GRAY
-	CARBONDALE	EXCELLO	SHALE	2.8	225.5	BLACK
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	228.3	
-	CARBONDALE		UNDERCLAY	0.6	230.4	
-	CARBONDALE		SHALE	19.0	231.0	HARD; GRAY
-	CARBONDALE		SHALE	11.8	250.0	GRAY
-	CARBONDALE	SURVANT	COAL	1.9	261.8	
-	CARBONDALE		SHALE	4.3	263.8	GRAY

MAPID: 19900673000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** NW NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.037769 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.786632 **DATE COLLECTED:** 0 / 0 / 1920
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 268.0 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. **WELL TYPE:** Coal Test
COMMENT: EXACT LOCATION QUESTIONABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	34.5	0.0	
-	CARBONDALE		SANDSTONE	25.5	34.5	
-	CARBONDALE		SHALE	23.0	60.0	
-	CARBONDALE	BRERETON	LIMESTONE	2.0	83.0	
-	CARBONDALE		SHALE	2.0	85.0	
-	CARBONDALE	ANNA	BLACK SHALE	1.8	87.0	
-	CARBONDALE	HERRIN	COAL	9.3	88.8	
-	CARBONDALE		UNDERCLAY	2.8	98.2	
-	CARBONDALE		LIMESTONE	13.0	101.0	
-	CARBONDALE		SHALE	12.5	114.0	
-	CARBONDALE		BLACK SHALE	5.5	126.5	
-	CARBONDALE		SHALE	6.1	132.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	138.1	
-	CARBONDALE		UNDERCLAY	4.2	141.8	
-	CARBONDALE		SHALE	79.5	146.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	2.8	225.5	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	228.3	
-	CARBONDALE		UNDERCLAY	0.6	230.4	
-	CARBONDALE		SHALE	30.8	231.0	
-	CARBONDALE	SURVANT	COAL	1.9	261.8	
-	CARBONDALE		SHALE	4.3	263.8	

MAPID: 19900134000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.003422 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.776605 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 38.8 **LOG TYPE:** Drillers Log
SOURCE: CADY N.B. 79 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
428.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	LITTLE COAL NEAR SURFACE
394.0			COAL	4.8	34.0	TOP ERODED

MAPID: 19900135000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE SE SE

QUADRANGLE: HERRIN **LONGITUDE:** -89.003422 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.776605 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 77.0 **LOG TYPE:** Drillers Log

SOURCE: CADY N.B. 79 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0			UNKNOWN	13.0	0.0	
427.0	CARBONDALE	HERRIN	COAL	9.0	13.0	
418.0			UNKNOWN	51.0	22.0	
367.0	CARBONDALE	SPRINGFIELD	COAL	4.0	73.0	

MAPID: 19900674000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' N line, 0' W line of SW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.020801 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.784031 **DATE COLLECTED:** 0 / 0 / 1920

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 933.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. **WELL TYPE:** Coal Test

COMMENT: MAYBE IN SEC. 31

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
467.0	CARBONDALE	BANKSTON FORK	LIMESTONE	0.7	13.0	
466.3	CARBONDALE		SANDSTONE	11.7	13.7	
454.7	CARBONDALE		SHALE	39.2	25.3	
415.5	CARBONDALE		BLACK SHALE	15.5	64.5	
400.0	CARBONDALE	BRERETON	LIMESTONE	3.5	80.0	
396.5	CARBONDALE		SHALE	2.5	83.5	
394.0	CARBONDALE	HERRIN	COAL	9.8	86.0	
384.2	CARBONDALE		LIMESTONE	7.2	95.8	
377.0	CARBONDALE		SHALE	17.0	103.0	
360.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	120.0	
354.0	CARBONDALE	SPRINGFIELD	COAL	3.5	126.0	
350.5	CARBONDALE		UNDERCLAY	2.5	129.5	
348.0	CARBONDALE		LIMESTONE	8.0	132.0	
340.0	CARBONDALE		SANDSTONE	26.3	140.0	
313.7	CARBONDALE		SHALE	48.7	166.3	
265.0	CARBONDALE	HOUCHIN CREEK	COAL	1.9	215.0	
263.1	CARBONDALE		UNDERCLAY	2.1	216.9	
261.0	CARBONDALE		SHALE	30.8	219.0	
230.2	CARBONDALE	SURVANT	COAL	1.9	249.8	
228.2	CARBONDALE		UNDERCLAY	0.3	251.8	
228.0	CARBONDALE		SHALE	71.0	252.0	
157.0	CARBONDALE	COLCHESTER	COAL	0.5	323.0	
156.5	SPOON		UNDERCLAY	1.5	323.5	
155.0	SPOON		SHALE	46.0	325.0	
109.0	SPOON		SANDSTONE	29.0	371.0	
80.0	SPOON	DEKOVEN	COAL	0.9	400.0	
79.1	SPOON		UNDERCLAY	2.1	400.9	
77.0	SPOON		SHALE	12.0	403.0	
65.0	SPOON	DAVIS	COAL	1.0	415.0	
64.0	SPOON		UNDERCLAY	3.0	416.0	
61.0	SPOON	STONEFORT	LIMESTONE	11.0	419.0	
50.0			SHALE	5.3	430.0	
44.7			SANDSTONE	3.7	435.3	
41.0			SHALE	20.0	439.0	
21.0			BLACK SHALE	10.5	459.0	
10.5			SHALE	7.3	469.5	
3.2			SANDSTONE	1.2	476.8	
2.0			SHALE	30.3	478.0	

-28.3	COAL	0.8	508.3
-29.0	SHALE	16.5	509.0
-45.5	LIMESTONE	0.5	525.5
-46.0	SHALE	94.3	526.0
-140.3	SANDSTONE	25.7	620.3
-166.0	SHALE	60.5	646.0
-226.5	SANDSTONE	68.8	706.5
-295.3	SHALE	12.7	775.3
-308.0	SANDSTONE	7.0	788.0
-315.0	SHALE	46.7	795.0
-361.7	SANDSTONE	7.3	841.7
-369.0	SHALE	28.0	849.0
-397.0	SANDSTONE	56.0	877.0

MAPID: 19900674000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' N line, 0' W line of SW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.020801 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.784031 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 104.8 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
438.0	CARBONDALE	BANKSTON FORK	LIMESTONE	0.7	22.0	LOWER BENCH
437.3	CARBONDALE	LAWSON	SANDSTONE	9.3	22.7	
428.0	CARBONDALE	LAWSON	SANDSTONE	2.3	32.0	
425.7	CARBONDALE	LAWSON	GRAY SHALE	1.8	34.3	
423.8	CARBONDALE	LAWSON	SILTY SHALE	37.3	36.2	
386.5	CARBONDALE		BLACK SHALE	15.5	73.5	
371.0	CARBONDALE	BRERETON	LIMESTONE	3.5	89.0	
367.5	CARBONDALE	ANNA	BLACK SHALE	2.5	92.5	
365.0	CARBONDALE	HERRIN	COAL	9.8	95.0	

MAPID: 19900674000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' N line, 0' W line of SW NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.020801 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.784031 **DATE COLLECTED:** 0 / 0 / 1920

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 620.3 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: ON LINE BETWEEN SEC. 31 & 32

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SAND/CLAY	13.0	0.0	
467.0	CARBONDALE	BANKSTON FORK	LIMESTONE	0.7	13.0	
466.3	CARBONDALE	ANVIL ROCK	SANDSTONE	9.3	13.7	
457.0	CARBONDALE	ANVIL ROCK	SANDSTONE	2.3	23.0	
454.7	CARBONDALE	ANVIL ROCK	SHALE	1.8	25.3	GRAY
452.8	CARBONDALE	ANVIL ROCK	SHALE	37.3	27.2	SANDY
415.5	CARBONDALE		SHALE	15.5	64.5	BLACK
400.0	CARBONDALE	BRERETON	LIMESTONE	3.5	80.0	
396.5	CARBONDALE	ANNA	SHALE	2.5	83.5	DARK
394.0	CARBONDALE	HERRIN	COAL	9.8	86.0	
384.2	CARBONDALE		LIMESTONE	7.2	95.8	
377.0	CARBONDALE		SHALE	17.0	103.0	SANDY
360.0	CARBONDALE	TURNER MINE	SHALE	6.0	120.0	BLACK
354.0	CARBONDALE	SPRINGFIELD	COAL	3.5	126.0	
350.5	CARBONDALE		UNDERCLAY	2.5	129.5	
348.0	CARBONDALE		LIMESTONE	8.0	132.0	
340.0	CARBONDALE		SANDSTONE	26.3	140.0	
313.7	CARBONDALE		SHALE	44.0	166.3	SAND
269.7	CARBONDALE	EXCELLO	SHALE	4.7	210.3	DARK
265.0	CARBONDALE	HOUCHIN CREEK	COAL	1.9	215.0	
263.1	CARBONDALE		UNDERCLAY	2.9	216.9	
260.2	CARBONDALE		SHALE	29.8	219.8	GRAY
230.3	CARBONDALE	SURVANT	COAL	2.1	249.7	
228.2	CARBONDALE		UNDERCLAY	0.3	251.8	
228.0	CARBONDALE		SHALE	8.0	252.0	SANDY
220.0	CARBONDALE		SHALE	59.0	260.0	GRAY
161.0	CARBONDALE		SHALE	4.0	319.0	DARK
157.0	CARBONDALE	COLCHESTER	COAL	0.5	323.0	
156.5	CARBONDALE		UNDERCLAY	1.5	323.5	
155.0	CARBONDALE		SHALE	46.0	325.0	SANDY
109.0	CARBONDALE		SANDSTONE	29.0	371.0	
80.0	CARBONDALE	DEKOVEN	COAL	0.9	400.0	
79.1	CARBONDALE		UNDERCLAY	2.1	400.9	
77.0	CARBONDALE		SHALE	3.0	403.0	GRAY
74.0	CARBONDALE		SHALE	9.0	406.0	DARK
65.0	CARBONDALE	DAVIS	COAL	1.2	415.0	
63.8	TRADEWATER		UNDERCLAY	2.8	416.2	
61.0	TRADEWATER		LIMESTONE	11.0	419.0	
50.0	TRADEWATER		SHALE	5.3	430.0	GRAY

44.7	TRADEWATER	SANDSTONE	3.7	435.3	
41.0	TRADEWATER	SHALE	2.0	439.0	GRAY
39.0	TRADEWATER	SHALE	18.0	441.0	BLUE
21.0	TRADEWATER	SHALE	5.5	459.0	BLACK
15.5	TRADEWATER	SHALE	5.5	464.5	
10.0	TRADEWATER	SHALE	6.8	470.0	DARK
3.2	TRADEWATER	SANDSTONE	1.2	476.8	
2.0	TRADEWATER	SHALE	7.0	478.0	DARK
-5.0	TRADEWATER	SHALE	15.0	485.0	BLUE
-20.0	TRADEWATER	SHALE	8.3	500.0	SANDY
-28.3	TRADEWATER	COAL	0.8	508.3	
-29.0	TRADEWATER	SHALE	11.0	509.0	
-40.0	TRADEWATER	SHALE	5.5	520.0	DARK
-45.5	TRADEWATER	LIMESTONE	0.5	525.5	HARD
-46.0	TRADEWATER	SHALE	4.0	526.0	BANDED; BROWN
-50.0	TRADEWATER	SHALE	14.0	530.0	GRAY
-64.0	TRADEWATER	SHALE	4.0	544.0	ROTTEN
-68.0	TRADEWATER	SHALE	72.3	548.0	SANDY

MAPID: 19900145000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.991754 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.787373 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 106.0 **LOG TYPE:** Drillers Log

SOURCE: STERNS TE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
425.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
413.0	CARBONDALE		SANDSTONE	23.0	12.0	
390.0	CARBONDALE		GRAY SHALE	21.0	35.0	
369.0	CARBONDALE	HERRIN	COAL	7.5	56.0	
361.5	CARBONDALE		CLAYSTONE	1.0	63.5	
360.5	CARBONDALE		SHALE & SILTSTONE	19.5	64.5	WHITE
341.0	CARBONDALE		DARK SHALE	10.0	84.0	
331.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	94.0	
330.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	95.0	
325.0	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	100.0	
324.0	CARBONDALE	SPRINGFIELD	COAL	4.0	101.0	
320.0	CARBONDALE		CLAYSTONE	1.0	105.0	

MAPID: 19900145000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.991754 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.787373 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 106.0 **LOG TYPE:** Drillers Log

SOURCE: GHC N.B. 79 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
413.0	CARBONDALE	ENERGY	SANDSTONE	23.0	12.0	
390.0	CARBONDALE	ENERGY	SHALE	21.0	35.0	
369.0	CARBONDALE	HERRIN	COAL	7.5	56.0	
361.5	CARBONDALE		UNDERCLAY	1.0	63.5	
360.5	CARBONDALE		SHALE	19.5	64.5	
341.0	CARBONDALE		CLAYSTONE & SILTSTONE	10.0	84.0	
331.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	94.0	
330.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	95.0	
325.0	CARBONDALE		SHALE	1.0	100.0	
324.0	CARBONDALE	SPRINGFIELD	COAL	4.0	101.0	
320.0	CARBONDALE		UNDERCLAY	1.0	105.0	

MAPID: 19900147000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.991848 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.778429 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 444.3 **LOG TYPE:** Drillers Log

SOURCE: DONOHUE & WALKER **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0	PLEISTOCENE		CLAY	30.5	0.0	
409.5	CARBONDALE		LIMESTONE	7.0	30.5	
402.5	CARBONDALE		SHALE	12.5	37.5	GRAY
390.0	CARBONDALE		SHALE	6.0	50.0	BLUE
384.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	56.0	
382.0	CARBONDALE		SHALE	5.0	58.0	BLUE
377.0	CARBONDALE	SPRINGFIELD	COAL	4.5	63.0	
372.5	CARBONDALE		UNDERCLAY	1.5	67.5	
371.0	CARBONDALE		SANDSTONE	2.0	69.0	
369.0	CARBONDALE		SHALE	66.0	71.0	WHITE
303.0	CARBONDALE		SHALE	3.0	137.0	BLUE
300.0	CARBONDALE	HOUCHIN CREEK	COAL	3.0	140.0	
297.0	CARBONDALE		UNDERCLAY	1.0	143.0	
296.0	CARBONDALE		SHALE	2.0	144.0	GRAY
294.0	CARBONDALE		SANDSTONE	5.0	146.0	
289.0	CARBONDALE		SHALE	35.0	151.0	GRAY
254.0	CARBONDALE	SURVANT	COAL	1.5	186.0	
252.5	CARBONDALE		SHALE	32.5	187.5	GRAY
220.0	CARBONDALE		SANDSTONE	4.0	220.0	
216.0	CARBONDALE		SHALE	6.0	224.0	
210.0	CARBONDALE		SANDSTONE	5.0	230.0	
205.0	CARBONDALE		SHALE	3.0	235.0	
202.0	CARBONDALE		SANDSTONE	26.0	238.0	
176.0	CARBONDALE	COLCHESTER	COAL	1.0	264.0	
175.0	CARBONDALE		UNDERCLAY	2.0	265.0	
173.0	CARBONDALE		SHALE	2.0	267.0	GRAY
171.0	CARBONDALE		SANDSTONE	11.0	269.0	
160.0	CARBONDALE		SANDSTONE	14.0	280.0	
146.0	CARBONDALE		SHALE	4.0	294.0	BLUE
142.0	CARBONDALE		SANDSTONE	10.0	298.0	
132.0	CARBONDALE		SHALE	16.0	308.0	LIGHT
116.0	CARBONDALE		BLACK SHALE	8.0	324.0	BLACK
108.0	CARBONDALE	DAVIS	COAL	5.3	332.0	
102.7	TRADEWATER		UNDERCLAY	1.0	337.3	
101.7	TRADEWATER		SHALE	6.0	338.3	LIGHT
95.7	TRADEWATER		SANDSTONE	8.0	344.3	
87.7	TRADEWATER		SHALE	12.0	352.3	LIGHT
75.7	TRADEWATER		SANDSTONE	6.0	364.3	
69.7	TRADEWATER		SHALE	26.0	370.3	CALCAREOUS

43.7	TRADEWATER		SHALE	6.0	396.3	BLUE
37.7	TRADEWATER	STONEFORT	LIMESTONE	5.0	402.3	
32.7	TRADEWATER		BLACK SHALE	1.0	407.3	BLACK
31.7	TRADEWATER		LIMESTONE	1.0	408.3	
30.7	TRADEWATER		BLACK SHALE	4.0	409.3	BLACK
26.7	TRADEWATER	WISE RIDGE	COAL	1.0	413.3	
25.7	TRADEWATER		BLACK SHALE	3.0	414.3	BLACK
22.7	TRADEWATER		SHALE	2.3	417.3	BLUE
20.4	TRADEWATER	MT. RORAH	COAL	2.7	419.6	
17.7	TRADEWATER		UNDERCLAY	1.0	422.3	
16.7	TRADEWATER		SHALE	9.0	423.3	LIGHT
7.7	TRADEWATER		SANDSTONE	5.0	432.3	
2.7	TRADEWATER		SHALE	7.0	437.3	LIGHT

MAPID: 19900147000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.991848 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.778429 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 444.3 **LOG TYPE:** Drillers Log

SOURCE: DONOHUE & WALKER **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0	PLEISTOCENE		UNCONSOLIDATED	30.5	0.0	
409.5	CARBONDALE		LIMESTONE	7.0	30.5	
402.5	CARBONDALE		SHALE	18.5	37.5	
384.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	56.0	
382.0	CARBONDALE		SHALE	5.0	58.0	
377.0	CARBONDALE	SPRINGFIELD	COAL	4.5	63.0	
372.5	CARBONDALE		UNDERCLAY	1.5	67.5	
371.0	CARBONDALE		SANDSTONE	2.0	69.0	
369.0	CARBONDALE		SHALE	69.0	71.0	
300.0	CARBONDALE	HOUCHIN CREEK	COAL	3.0	140.0	
297.0	CARBONDALE		UNDERCLAY	1.0	143.0	
296.0	CARBONDALE		SHALE	2.0	144.0	
294.0	CARBONDALE		SANDSTONE	5.0	146.0	
289.0	CARBONDALE		SHALE	35.0	151.0	
254.0	CARBONDALE	COLCHESTER	COAL	1.5	186.0	
252.5	SPOON		SHALE	32.5	187.5	
220.0	SPOON		SANDSTONE	4.0	220.0	
216.0	SPOON		CLAYSTONE & SILTSTONE	6.0	224.0	
210.0	SPOON		SANDSTONE	5.0	230.0	
205.0	SPOON		CLAYSTONE & SILTSTONE	3.0	235.0	
202.0	SPOON		SANDSTONE	26.0	238.0	
176.0	SPOON	DEKOVEN	COAL	1.0	264.0	
175.0	SPOON		UNDERCLAY	2.0	265.0	
173.0	SPOON		SHALE	2.0	267.0	
171.0	SPOON		SANDSTONE	25.0	269.0	
146.0	SPOON		SHALE	4.0	294.0	
142.0	SPOON		SANDSTONE	10.0	298.0	
132.0	SPOON		SHALE	16.0	308.0	
116.0	SPOON		BLACK SHALE	8.0	324.0	
108.0	SPOON	DAVIS	COAL	5.3	332.0	
102.7	SPOON		UNDERCLAY	1.0	337.3	
101.7	SPOON		SHALE	6.0	338.3	
95.7	SPOON		SANDSTONE	8.0	344.3	
87.7	SPOON		SHALE	12.0	352.3	
75.7	SPOON		SANDSTONE	6.0	364.3	
69.7	SPOON		SHALE	32.0	370.3	
37.7	SPOON	STONEFORT	LIMESTONE	5.0	402.3	
32.7	SPOON		BLACK SHALE	1.0	407.3	
31.7	SPOON		LIMESTONE	1.0	408.3	

30.7	SPOON		BLACK SHALE	4.0	409.3
26.7	SPOON	WISE RIDGE	COAL	1.0	413.3
25.7	SPOON		BLACK SHALE	3.0	414.3
22.7	SPOON		SHALE	2.3	417.3
20.4	SPOON	MT. RORAH	COAL	2.7	419.6
17.7	SPOON		UNDERCLAY	1.0	422.3
16.7	SPOON		SHALE	9.0	423.3
7.7	SPOON		SANDSTONE	5.0	432.3
2.7	SPOON		SHALE	7.0	437.3

MAPID: 19900157000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985902 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.786496 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 100.5 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR OIL CO 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.0	0.0	
-	PLEISTOCENE		MUD	33.0	25.0	BLUE
-	CARBONDALE		SHALE	37.0	58.0	WHITE
-	CARBONDALE		SHALE	5.5	95.0	BLUE

MAPID: 19900157000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985902 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.786496 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 100.5 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	58.0	0.0	
-			SHALE	42.5	58.0	

MAPID: 19900158000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985902 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.786496 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 424.0 **LOGGED (FT.):** 51.5 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
424.0	PLEISTOCENE		CLAY	18.0	0.0	
406.0	PLEISTOCENE		SAND/CLAY	27.0	18.0	
379.0	CARBONDALE	HERRIN	COAL	5.5	45.0	TOP ERODED, INCOMPLETE THICKNESS
373.5	CARBONDALE		UNDERCLAY	1.0	50.5	

MAPID: 19900158000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.985902 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.786496 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 424.0 **LOGGED (FT.):** 51.4 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
424.0	PLEISTOCENE		CLAY	18.0	0.0	
406.0			SANDSTONE	27.0	18.0	
379.0	CARBONDALE	HERRIN	COAL	5.5	45.0	TOP ERODED
373.5			UNDERCLAY	1.0	50.5	

MAPID: 19900159000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 62.3 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	PLEISTOCENE		CLAY	24.0	0.0	
396.0	PLEISTOCENE		SAND	22.0	24.0	
374.0	CARBONDALE		SHALE	8.0	46.0	WHITE
366.0	CARBONDALE	HERRIN	COAL	8.3	54.0	

MAPID: 19900159000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 62.3 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	46.0	0.0	
374.0	CARBONDALE		SHALE	8.0	46.0	
366.0	CARBONDALE	HERRIN	COAL	8.3	54.0	

MAPID: 19900160000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990592 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.786481 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		CLAY	26.0	0.0	
394.0	CARBONDALE		SANDSTONE	7.0	26.0	
387.0	CARBONDALE		SHALE	11.0	33.0	WHITE
376.0	CARBONDALE	ST. DAVID	LIMESTONE	2.5	44.0	
373.5	CARBONDALE	TURNER MINE	BLACK SHALE	5.5	46.5	BLACK
368.0	CARBONDALE	SPRINGFIELD	COAL	4.0	52.0	

MAPID: 19900160000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990592 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.786481 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	26.0	0.0	
394.0	CARBONDALE		SANDSTONE	7.0	26.0	
387.0	CARBONDALE		SHALE	11.0	33.0	
376.0	CARBONDALE	ST. DAVID	LIMESTONE	2.5	44.0	
373.5	CARBONDALE	TURNER MINE	BLACK SHALE	5.5	46.5	
368.0	CARBONDALE	SPRINGFIELD	COAL	4.0	52.0	

MAPID: 19900161000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 71.8 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.0	PLEISTOCENE		CLAY	32.5	0.0	
372.5	CARBONDALE		LIMESTONE	6.5	32.5	
366.0	CARBONDALE		SHALE	2.0	39.0	BLUE
364.0	CARBONDALE	ST. DAVID	LIMESTONE	17.0	41.0	
347.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	58.0	BLACK
342.0	CARBONDALE		SHALE	3.0	63.0	WHITE
339.0	CARBONDALE	SPRINGFIELD	COAL	5.8	66.0	

MAPID: 19900161000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 71.8 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.0	PLEISTOCENE		UNCONSOLIDATED	32.5	0.0	
372.5	CARBONDALE		LIMESTONE	6.5	32.5	
366.0	CARBONDALE		SHALE	2.0	39.0	
364.0	CARBONDALE		LIMESTONE	17.0	41.0	
347.0	CARBONDALE	ANNA	BLACK SHALE	5.0	58.0	
342.0	CARBONDALE	ENERGY	SHALE	3.0	63.0	
339.0	CARBONDALE	HERRIN	COAL	5.8	66.0	

MAPID: 19900162000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 90.5 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	PLEISTOCENE		CLAY	18.0	0.0	
402.0	PLEISTOCENE		SAND	6.0	18.0	
396.0	PLEISTOCENE		CLAY	10.0	24.0	
386.0	CARBONDALE		SHALE	14.0	34.0	BLUE
372.0	CARBONDALE		SHALE	34.0	48.0	WHITE
338.0	CARBONDALE	HERRIN	COAL	8.5	82.0	

MAPID: 19900162000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995281 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.786469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 90.5 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
386.0	CARBONDALE		SHALE	48.0	34.0	
338.0	CARBONDALE	HERRIN	COAL	8.5	82.0	

MAPID: 19900163000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999973 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.786454 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 76.0 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		CLAY	42.0	0.0	
378.0	CARBONDALE		LIMESTONE	4.0	42.0	
374.0	CARBONDALE		SHALE	2.0	46.0	WHITE
372.0	CARBONDALE		LIMESTONE	12.0	48.0	
360.0	CARBONDALE		SHALE	3.5	60.0	BLUE
356.5	CARBONDALE	BRERETON	LIMESTONE	1.5	63.5	BLUE
355.0	CARBONDALE	ANNA	BLACK SHALE	5.0	65.0	BLACK
350.0	CARBONDALE	HERRIN	COAL	6.0	70.0	

MAPID: 19900163000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999973 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.786454 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 76.0 **LOG TYPE:** Drillers Log
SOURCE: TAYLOR COAL CO. 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	42.0	0.0	
378.0	CARBONDALE		LIMESTONE	4.0	42.0	
374.0	CARBONDALE		SHALE	2.0	46.0	
372.0	CARBONDALE		LIMESTONE	12.0	48.0	
360.0	CARBONDALE		SHALE	3.5	60.0	
356.5	CARBONDALE	BRERETON	LIMESTONE	1.5	63.5	
355.0	CARBONDALE	ANNA	BLACK SHALE	5.0	65.0	
350.0	CARBONDALE	HERRIN	COAL	6.0	70.0	

MAPID: 19900164000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.98597 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.782922 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.0	PLEISTOCENE		CLAY	12.0	0.0	
413.0	PLEISTOCENE		SAND & GRAVEL	23.0	12.0	
390.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	35.0	
388.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	37.0	BLACK
382.0	CARBONDALE	SPRINGFIELD	COAL	4.0	43.0	
378.0	CARBONDALE		UNDERCLAY	1.0	47.0	

MAPID: 19900164000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.98597 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.782922 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.0	PLEISTOCENE		UNCONSOLIDATED	35.0	0.0	
390.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	35.0	
388.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	37.0	
382.0	CARBONDALE	SPRINGFIELD	COAL	4.0	43.0	
378.0	CARBONDALE		UNDERCLAY	1.0	47.0	

MAPID: 19900165000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999967 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.782873 **DATE COLLECTED:** 5 / 26 / 1895

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 48.4 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
411.0	PLEISTOCENE		SAND	10.0	9.0	YELLOW
401.0	PLEISTOCENE		MUD	1.0	19.0	BLUE
400.0	CARBONDALE		SHALE	15.0	20.0	SOFT
385.0	CARBONDALE		SHALE	5.0	35.0	LIGHT BLUE
380.0	CARBONDALE	HERRIN	COAL	8.2	40.0	
371.8	CARBONDALE		UNDERCLAY	0.3	48.2	

MAPID: 19900165000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999967 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.782873 **DATE COLLECTED:** 5 / 26 / 1895

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 48.4 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
400.0	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	15.0	20.0	
385.0	CARBONDALE	ENERGY	SHALE	5.0	35.0	
380.0	CARBONDALE	HERRIN	COAL	8.2	40.0	
371.8	CARBONDALE		UNDERCLAY	0.3	48.2	

MAPID: 19900672000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE NE SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.998214 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.783327 **DATE COLLECTED:** 0 / 0 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 232.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	11.7	0.0	
-	PLEISTOCENE		BOULDER	0.5	11.7	BROKEN, LS
-	PLEISTOCENE		CLAY & GRAVEL	2.8	12.2	
-	CARBONDALE	BRERETON	LIMESTONE	2.0	15.0	HARD
-	CARBONDALE	HERRIN	COAL	1.0	17.0	SOFT AND DIRTY
-	CARBONDALE	HERRIN	COAL	8.7	18.0	
-	CARBONDALE		UNDERCLAY	4.3	26.7	
-	CARBONDALE		LIMESTONE	6.0	31.0	
-	CARBONDALE		SHALE	16.8	37.0	GRAY
-	CARBONDALE		SHALE	2.8	53.8	BLACK
-	CARBONDALE	ST. DAVID	LIMESTONE	0.8	56.7	
-	CARBONDALE	TURNER MINE	SHALE	1.6	57.4	BLACK
-	CARBONDALE	DYKERSBURG	SHALE	6.6	59.0	GRAY
-	CARBONDALE	SPRINGFIELD	COAL	3.8	65.6	
-	CARBONDALE		SHALE	25.7	69.3	GRAY
-	CARBONDALE		SHALE	20.0	95.0	SAND
-	CARBONDALE		SHALE	32.6	115.0	GRAY
-	CARBONDALE	EXCELLO	BLACK SHALE	3.0	147.6	BLACK
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	150.6	
-	CARBONDALE		UNDERCLAY	3.3	152.7	
-	CARBONDALE		SHALE	7.0	156.0	CALCAREOUS
-	CARBONDALE		SHALE	62.0	163.0	GRAY
-	CARBONDALE		SHALE	7.0	225.0	DARK GRAY

MAPID: 19900672000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE NE SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.998214 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.783327 **DATE COLLECTED:** 0 / 0 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 232.0 **LOG TYPE:** Drillers Log

SOURCE: TAYLOR COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	2.0	15.0	
-	CARBONDALE	HERRIN	COAL	9.7	17.0	
-	CARBONDALE		UNDERCLAY	4.3	26.7	
-	CARBONDALE		LIMESTONE	6.0	31.0	
-	CARBONDALE		SHALE	16.8	37.0	
-	CARBONDALE		BLACK SHALE	2.8	53.8	
-	CARBONDALE	ST. DAVID	LIMESTONE	0.8	56.7	
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.6	57.4	
-	CARBONDALE	DYKERSBURG	SHALE	6.6	59.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	65.6	
-	CARBONDALE		SHALE	78.3	69.3	
-	CARBONDALE	EXCELLO	BLACK SHALE	3.0	147.6	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	150.6	
-	CARBONDALE		UNDERCLAY	3.3	152.7	
-	CARBONDALE		SHALE	76.0	156.0	

MAPID: 19923559000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** 2600' N line, 2100' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.990984 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.781092 **DATE COLLECTED:** 1 / 29 / 1982

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.0 **LOG TYPE:** Drillers Log

SOURCE: CRENSHAW COAL CO. S2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 213; COTTONWOOD COAL #1 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	BROWN CLAY
-	CARBONDALE		ARGILLACEOUS LIMESTONE	2.5	22.0	
-	CARBONDALE		CALCAREOUS SHALE	17.5	24.5	
-	CARBONDALE		BLACK SHALE	5.0	42.0	
-	CARBONDALE		GRAY SHALE	7.0	47.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.5	54.0	WITH COAL
-	CARBONDALE	SPRINGFIELD	COAL	3.5	55.5	
-	CARBONDALE		UNDERCLAY	1.0	59.0	WITH COAL
-	CARBONDALE		SHALE	8.0	60.0	

MAPID: 19900151000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 34 **QUARTERS/FOOTAGES:** 660' N line, 0' E line of SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.97443 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.779352 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 92.2 **LOG TYPE:** Drillers Log

SOURCE: F. M. ANDREWS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
457.0	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
429.0	CARBONDALE	ENERGY	SANDSTONE	5.0	28.0	
424.0	CARBONDALE	HERRIN	COAL	8.0	33.0	
416.0	CARBONDALE		UNDERCLAY	2.0	41.0	
414.0	CARBONDALE		SANDSTONE	14.0	43.0	
400.0	CARBONDALE		SHALE	15.0	57.0	
385.0	CARBONDALE		SHALE	4.0	72.0	FLAKE SLATE
381.0	CARBONDALE		SHALE	9.0	76.0	
372.0	CARBONDALE	SPRINGFIELD	COAL	4.5	85.0	
367.5	CARBONDALE		UNDERCLAY	2.7	89.5	

MAPID: 19900151000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 34 **QUARTERS/FOOTAGES:** 660' N line, 0' E line of SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.97443 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.779352 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 41.0 **LOG TYPE:** Electric Log

SOURCE: NO COMPANY **WELL TYPE:** Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
424.0	CARBONDALE	HERRIN	COAL	8.0	33.0	

MAPID: 19900151000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 34 **QUARTERS/FOOTAGES:** 660' N line, 0' E line of SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.97443 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.779352 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 92.2 **LOG TYPE:** Drillers Log

SOURCE: C.C. REED **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
457.0	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
429.0	CARBONDALE		SANDSTONE	5.0	28.0	
424.0	CARBONDALE	HERRIN	COAL	8.0	33.0	
416.0	CARBONDALE		UNDERCLAY	2.0	41.0	
414.0	CARBONDALE		SANDSTONE	14.0	43.0	
400.0	CARBONDALE		SHALE	15.0	57.0	BLUE
385.0	CARBONDALE		SHALE	4.0	72.0	FLAKE
381.0	CARBONDALE		SHALE	9.0	76.0	BLUE
372.0	CARBONDALE	SPRINGFIELD	COAL	4.5	85.0	
367.5	CARBONDALE		UNDERCLAY	2.7	89.5	

MAPID: 19900168000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962848 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.779403 **DATE COLLECTED:** 10 / 0 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 500.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & IRON 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	2.0	0.0	
-	PLEISTOCENE		HARD PAN	11.0	2.0	
-	PLEISTOCENE		CLAY	5.0	13.0	SANDY
-	CARBONDALE		SHALE	46.0	18.0	GRAY
-	CARBONDALE		SHALE	3.1	64.0	GRAY
-	CARBONDALE	HERRIN	COAL	6.8	67.1	
-	CARBONDALE	HERRIN	COAL	0.1	73.8	"BONE"
-	CARBONDALE	HERRIN	COAL	1.8	73.9	
-	CARBONDALE		UNDERCLAY	3.3	75.8	
-	CARBONDALE		LIMESTONE	8.6	79.1	
-	CARBONDALE		SHALE	0.3	87.7	DARK
-	CARBONDALE		SHALE	4.4	88.0	SANDY
-	CARBONDALE		SHALE	12.6	92.4	DARK GRAY
-	CARBONDALE		SHALE	3.0	105.0	GRAY
-	CARBONDALE	ST. DAVID	LIMESTONE	2.0	108.0	
-	CARBONDALE	TURNER MINE	SHALE	5.8	110.0	BLACK
-	CARBONDALE	SPRINGFIELD	COAL	3.8	115.8	
-	CARBONDALE		UNDERCLAY	3.3	119.7	
-	CARBONDALE		SHALE	32.0	123.0	SANDY
-	CARBONDALE		SHALE	40.0	155.0	BLUE
-	CARBONDALE	EXCELLO	SHALE	2.6	195.0	BLACK
-	CARBONDALE	HOUCHIN CREEK	COAL	1.8	197.6	
-	CARBONDALE		UNDERCLAY	2.2	199.4	
-	CARBONDALE		SHALE	25.4	201.6	SANDY
-	CARBONDALE		SHALE	18.2	227.0	HARD; BLUE
-	CARBONDALE	SURVANT	COAL	2.6	245.2	
-	CARBONDALE		UNDERCLAY	2.9	247.8	
-	CARBONDALE		SHALE	30.6	250.7	SANDY
-	CARBONDALE		SANDSTONE	28.8	281.3	
-	CARBONDALE		SHALE	10.0	310.0	BLUE
-	CARBONDALE	MECCA QUARRY	SHALE	1.8	320.0	BLACK
-	CARBONDALE	COLCHESTER	COAL	0.6	321.8	
-	CARBONDALE		UNDERCLAY	2.9	322.4	
-	CARBONDALE		LIMESTONE	1.7	325.3	
-	CARBONDALE		LIMESTONE	6.2	327.0	WITH SANDSTONE
-	CARBONDALE		SHALE	4.8	333.2	BLUE
-	CARBONDALE		SHALE	9.0	338.0	WITH LIMESTONE BEDS; BLUE
-	CARBONDALE		SHALE	10.0	347.0	BLUE
-	CARBONDALE	DEKOVEN	COAL	2.3	357.0	BONEY

-	CARBONDALE		SANDSTONE	11.6	359.3	
-	CARBONDALE		SHALE	6.2	370.8	SANDY
-	CARBONDALE		SHALE	5.3	377.0	BLUE
-	CARBONDALE	LOWER DEKOVEN	COAL	1.3	382.3	
-	CARBONDALE		UNDERCLAY	1.5	383.5	
-	CARBONDALE		SHALE	10.0	385.0	DARK BLUE
-	CARBONDALE		SHALE	14.3	395.0	DARK
-	CARBONDALE	DAVIS	COAL	0.8	409.3	
-	CARBONDALE	DAVIS	UNCLASSIFIED	0.1	410.1	"BONE"
-	CARBONDALE	DAVIS	COAL	3.0	410.2	
-	CARBONDALE	DAVIS	UNCLASSIFIED	0.3	413.2	"BONE"
-	CARBONDALE	DAVIS	COAL	1.1	413.4	BONEY
-	TRADEWATER		LIMESTONE	7.5	414.5	GRAY
-	TRADEWATER		LIMESTONE	11.0	422.0	WITH SAND
-	TRADEWATER		SHALE	8.0	433.0	WITH LIMESTONE BEDS; BLUE
-	TRADEWATER		SHALE	3.0	441.0	BLACK
-	TRADEWATER		SHALE	4.0	444.0	BLUE
-	TRADEWATER		LIMESTONE	1.0	448.0	
-	TRADEWATER		SHALE	2.8	449.0	BLACK
-	TRADEWATER		COAL	1.3	451.8	
-	TRADEWATER		UNDERCLAY	1.3	453.2	
-	TRADEWATER		LIMESTONE	6.1	454.5	WITH SANDSTONE
-	TRADEWATER		SHALE	8.0	460.6	DARK GRAY
-	TRADEWATER		SHALE	5.4	468.6	BLACK
-	TRADEWATER		SHALE	5.8	474.0	DARK BLUE
-	TRADEWATER		COAL	1.8	479.8	
-	TRADEWATER		UNDERCLAY	0.2	481.6	
-	TRADEWATER		COAL	0.7	481.8	
-	TRADEWATER		UNDERCLAY	0.7	482.4	
-	TRADEWATER		COAL	0.6	483.1	
-	TRADEWATER		UNDERCLAY	4.3	483.7	
-	TRADEWATER		LIMESTONE	1.0	488.0	
-	TRADEWATER		SHALE	11.0	489.0	BLUE

MAPID: 19900168000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962848 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.779403 **DATE COLLECTED:** 10 / 0 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 500.0 **LOG TYPE:** Drillers Log

SOURCE: CHIC BIG MUDDY COAL & IRON CO 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
-	CARBONDALE	ENERGY	SHALE	49.1	18.0	
-	CARBONDALE	HERRIN	COAL	8.7	67.1	
-	CARBONDALE		UNDERCLAY	3.3	75.8	
-	CARBONDALE		LIMESTONE	8.6	79.1	
-	CARBONDALE		SHALE	20.3	87.7	
-	CARBONDALE	ST. DAVID	LIMESTONE	2.0	108.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.8	110.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	115.8	
-	CARBONDALE		UNDERCLAY	3.3	119.7	
-	CARBONDALE		SHALE	72.0	123.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	2.6	195.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	1.8	197.6	
-	CARBONDALE		UNDERCLAY	2.2	199.4	
-	CARBONDALE		SHALE	43.6	201.6	
-	CARBONDALE	SURVANT	COAL	2.6	245.2	
-	CARBONDALE		UNDERCLAY	2.9	247.8	
-	CARBONDALE		SHALE	30.6	250.7	
-	CARBONDALE		SANDSTONE	28.8	281.3	
-	CARBONDALE		SHALE	10.0	310.0	
-	CARBONDALE	MECCA QUARRY	BLACK SHALE	1.8	320.0	
-	CARBONDALE	COLCHESTER	COAL	0.6	321.8	
-	SPOON		UNDERCLAY	2.9	322.4	
-	SPOON		LIMESTONE	1.7	325.3	
-	SPOON		LIMESTONE AND SANDSTONE	6.2	327.0	
-	SPOON		SHALE	23.8	333.2	
-	SPOON	DEKOVEN	COAL	2.3	357.0	BONEY
-	SPOON		SANDSTONE	11.6	359.3	
-	SPOON		SHALE	11.4	370.8	
-	SPOON	LOWER DEKOVEN	COAL	1.3	382.3	
-	SPOON		UNDERCLAY	1.5	383.5	
-	SPOON		SHALE	24.3	385.0	
-	SPOON	DAVIS	COAL	3.2	409.3	WITH BONE LAYERS
-	SPOON		LIMESTONE	9.5	412.5	
-	SPOON		LIMESTONE AND SANDSTONE	11.0	422.0	
-	SPOON		SHALE	8.0	433.0	
-	SPOON		BLACK SHALE	3.0	441.0	
-	SPOON		SHALE	4.0	444.0	

-	SPOON	STONEFORT	LIMESTONE	1.0	448.0
-	SPOON		BLACK SHALE	2.8	449.0
-	SPOON	WISE RIDGE	COAL	1.3	451.8
-			UNDERCLAY	1.3	453.2
-			LIMESTONE AND SANDSTONE	6.1	454.5
-			SHALE	8.0	460.6
-			BLACK SHALE	5.4	468.6
-			SHALE	5.8	474.0
-			COAL	1.8	479.8
-			CLAYSTONE & SILTSTONE	0.2	481.6
-			COAL	0.7	481.8
-			CLAYSTONE & SILTSTONE	0.7	482.4
-			COAL	0.6	483.1
-			UNDERCLAY	4.3	483.7
-			LIMESTONE	1.0	488.0
-			SHALE	11.0	489.0

MAPID: 19900170000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.951411 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.777643 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 107.6 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 26 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
452.0	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
429.0	CARBONDALE	ANVIL ROCK	SANDSTONE	29.0	23.0	
400.0	CARBONDALE	BRERETON	LIMESTONE	8.5	52.0	
391.5	CARBONDALE	ANNA	BLACK SHALE	3.5	60.5	BLACK
388.0	CARBONDALE	ENERGY	SHALE	36.0	64.0	LIGHT
352.0	CARBONDALE	HERRIN	COAL	7.6	100.0	

MAPID: 19900170000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.951411 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.777643 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 130.7 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 26 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
452.0	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
429.0	CARBONDALE		SANDSTONE	52.0	23.0	
377.0	CARBONDALE	BRERETON	LIMESTONE	8.5	75.0	
368.5	CARBONDALE	ANNA	BLACK SHALE	3.5	83.5	
365.0	CARBONDALE	ENERGY	SHALE	36.0	87.0	
329.0	CARBONDALE	HERRIN	COAL	7.7	123.0	

MAPID: 19900171000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NE SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961202 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.777146 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 133.0 **LOG TYPE:** Drillers Log

SOURCE: CHI BIG MUDDY COAL CO **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
454.0			UNKNOWN	129.0	0.0	
325.0	CARBONDALE	SPRINGFIELD	COAL	4.0	129.0	

MAPID: 19900180000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3615' S line, 430' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963471 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.783942 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 425.4 **LOGGED (FT.):** 100.5 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.4	PLEISTOCENE		UNCONSOLIDATED	43.0	0.0	
382.4	PLEISTOCENE		SAND	20.0	43.0	
362.4	CARBONDALE	HERRIN	COAL	4.0	63.0	SOFT, TOP ERODED, INCOMPLETE THICKNESS
358.4	CARBONDALE		LIMESTONE	4.0	67.0	GRAY
354.4	CARBONDALE		LIMESTONE	9.0	71.0	WITH SLATE
345.4	CARBONDALE		UNDERCLAY	1.0	80.0	
344.4	CARBONDALE		SHALE	8.0	81.0	DARK
336.4	CARBONDALE		SHALE	7.0	89.0	SOFT
329.4	CARBONDALE	SPRINGFIELD	COAL	4.5	96.0	

MAPID: 19900180000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3615' S line, 430' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963471 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.783942 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 425.4 **LOGGED (FT.):** 100.5 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 10 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.4	PLEISTOCENE		UNCONSOLIDATED	63.0	0.0	
362.4	CARBONDALE	HERRIN	COAL	4.0	63.0	TOP ERODED
358.4	CARBONDALE		LIMESTONE	4.0	67.0	
354.4	CARBONDALE		LIMESTONE & SHALE	9.0	71.0	
345.4	CARBONDALE		CLAYSTONE & SHALE	1.0	80.0	
344.4	CARBONDALE		SHALE	15.0	81.0	
329.4	CARBONDALE	SPRINGFIELD	COAL	4.5	96.0	

MAPID: 19900188000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3205' S line, 460' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963414 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.78281 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 426.8 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
426.8	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
386.8	CARBONDALE		SHALE	13.0	40.0	
373.8	CARBONDALE	HERRIN	COAL	8.0	53.0	
365.8	CARBONDALE		CLAYSTONE	1.0	61.0	

MAPID: 19900188000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3205' S line, 460' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963414 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.78281 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 426.7 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
426.7	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
386.7	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	13.0	40.0	
373.7	CARBONDALE	HERRIN	COAL	8.0	53.0	
365.7	CARBONDALE		UNDERCLAY	1.0	61.0	

MAPID: 19900189000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3420' S line, 950' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961684 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.783414 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.4 **LOGGED (FT.):** 87.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
433.4	PLEISTOCENE		UNCONSOLIDATED	63.0	0.0	
370.4	CARBONDALE		SANDSTONE	4.0	63.0	
366.4	CARBONDALE	ENERGY	SHALE	10.0	67.0	
356.4	CARBONDALE	HERRIN	COAL	8.0	77.0	
348.4	CARBONDALE		CLAYSTONE	2.0	85.0	

MAPID: 19900189000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3420' S line, 950' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961684 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.783414 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.4 **LOGGED (FT.):** 87.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CORP8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
433.4	PLEISTOCENE		UNCONSOLIDATED	63.0	0.0	
370.4	CARBONDALE	ENERGY	SANDSTONE	4.0	63.0	
366.4	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	10.0	67.0	
356.4	CARBONDALE	HERRIN	COAL	8.0	77.0	
348.4	CARBONDALE		UNDERCLAY	2.0	85.0	

MAPID: 19900190000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2920' S line, 1060' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961353 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.782035 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.3 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
428.3	PLEISTOCENE		UNCONSOLIDATED	43.0	0.0	
385.3	CARBONDALE	ENERGY	SANDSTONE	10.0	43.0	
375.3	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	14.0	53.0	
361.3	CARBONDALE	HERRIN	COAL	9.0	67.0	
352.3	CARBONDALE		UNDERCLAY	2.0	76.0	

MAPID: 19900193000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1630' S line, 1225' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.960917 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.778475 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 385.0 **LOGGED (FT.):** 119.6 **LOG TYPE:** Drillers Log

SOURCE: MAIDSON COAL CORP 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
385.0	PLEISTOCENE		UNCONSOLIDATED	69.0	0.0	
316.0	CARBONDALE		SANDSTONE	1.0	69.0	SOFT
315.0	CARBONDALE		LIMESTONE	2.0	70.0	
313.0	CARBONDALE		CLAYSTONE	6.8	72.0	
306.2	CARBONDALE		SHALE	8.2	78.8	BLUE
298.1	CARBONDALE	ST. DAVID	LIMESTONE	2.1	86.9	BLUE
296.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.3	89.0	BLACK
290.7	CARBONDALE	DYKERSBURG	SHALE	4.8	94.3	BLUE
286.0	CARBONDALE	SPRINGFIELD	COAL	4.4	99.0	
281.6	CARBONDALE		UNDERCLAY	1.0	103.4	
280.6	CARBONDALE		SHALE	8.0	104.4	GRAY
272.6	CARBONDALE		LIMESTONE	2.0	112.4	SANDY WITH SHALE PARTINGS
270.6	CARBONDALE		SHALE	5.2	114.4	GRAY

MAPID: 19900199000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1630' S line, 1225' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.960917 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.778475 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.2 **LOGGED (FT.):** 76.0 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.2	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
427.2	CARBONDALE	ANVIL ROCK	SANDSTONE	14.0	13.0	
413.2	CARBONDALE	BRERETON	LIMESTONE	5.0	27.0	
408.2	CARBONDALE	HERRIN	CAVITY	4.0	32.0	
404.2	CARBONDALE		LIMESTONE	4.0	36.0	
400.2	CARBONDALE		BLACK SHALE	6.0	40.0	
394.2	CARBONDALE		SHALE	30.0	46.0	COAL AT BASE NO THICKNESS
364.2	CARBONDALE	HERRIN	COAL	-	76.0	

MAPID: 19900220000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2965' S line, 1845' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958618 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.782174 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.4 **LOGGED (FT.):** 114.0 **LOG TYPE:** Drillers Log

SOURCE: CHI BIG MUDDY COAL & COKE CO 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
452.4	PLEISTOCENE		UNCONSOLIDATED	56.0	0.0	
396.4	CARBONDALE	BRERETON	LIMESTONE	8.0	56.0	
388.4	CARBONDALE	ANNA	BLACK SHALE	6.0	64.0	
382.4	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	36.0	70.0	
346.4	CARBONDALE	HERRIN	COAL	6.0	106.0	
340.4	CARBONDALE		UNDERCLAY	2.0	112.0	

MAPID: 19900220000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2965' S line, 1845' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958618 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.782174 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 112.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 7 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
396.0	CARBONDALE	BRERETON	LIMESTONE	8.0	56.0	
388.0	CARBONDALE	ANNA	BLACK SHALE	6.0	64.0	
382.0	CARBONDALE	ENERGY	GRAY SHALE	33.0	70.0	
349.0	CARBONDALE	HERRIN	COAL	9.0	103.0	

MAPID: 19900220000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2965' S line, 1845' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958618 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.782174 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 452.4 **LOGGED (FT.):** 114.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
452.4	PLEISTOCENE		UNCONSOLIDATED	56.0	0.0	
396.4	CARBONDALE	BRERETON	LIMESTONE	8.0	56.0	
388.4	CARBONDALE	ANNA	BLACK SHALE	6.0	64.0	BLACK
382.4	CARBONDALE	ENERGY	SHALE	33.0	70.0	
349.4	CARBONDALE	HERRIN	COAL	9.0	103.0	
340.4	CARBONDALE		UNDERCLAY	2.0	112.0	

MAPID: 19900221000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2140' S line, 1790' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958896 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.779895 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.6 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
433.6	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
403.6	PLEISTOCENE		MUD	34.0	30.0	
369.6	CARBONDALE	HERRIN	COAL	8.0	64.0	

MAPID: 19900221000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2140' S line, 1790' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958896 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.779895 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.6 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 13 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
433.6	PLEISTOCENE		UNCONSOLIDATED	64.0	0.0	
369.6	CARBONDALE	HERRIN	COAL	8.0	64.0	TOP ERODED

MAPID: 19900222000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1680' S line, 2030' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958109 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.77863 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 434.9 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
434.9	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
409.9	PLEISTOCENE		MUD	38.0	25.0	
371.9	CARBONDALE		SANDSTONE	3.0	63.0	
368.9	CARBONDALE	HERRIN	COAL	8.0	66.0	

MAPID: 19900222000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1680' S line, 2030' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958109 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.77863 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 434.9 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 12 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
434.9	PLEISTOCENE		UNCONSOLIDATED	63.0	0.0	
371.9	CARBONDALE	ENERGY	SANDSTONE	3.0	63.0	
368.9	CARBONDALE	HERRIN	COAL	8.0	66.0	

MAPID: 19900830000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 30' S line, 1890' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958773 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.774073 **DATE COLLECTED:** 1 / 2 / 1911
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	14.0	0.0	
-	CARBONDALE		ROCK	4.0	14.0	BOULDER
-	CARBONDALE	ANNA	BLACK SHALE	4.0	18.0	BLACK
-	CARBONDALE	ENERGY	SHALE	18.0	22.0	
-	CARBONDALE	HERRIN	COAL	8.0	40.0	

MAPID: 19900830000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 30' S line, 1890' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958773 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.774073 **DATE COLLECTED:** 1 / 2 / 1911
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: CHI, BIG MUDDY COAL & COKE CO **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-			ROCK	4.0	14.0	BOULDER
-	CARBONDALE	ANNA	BLACK SHALE	4.0	18.0	
-	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	18.0	22.0	
-	CARBONDALE	HERRIN	COAL	8.0	40.0	

MAPID: 19900831000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1645' S line, 920' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961974 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.778513 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 92.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE		SANDSTONE	10.0	20.0	
-	CARBONDALE		SANDSTONE	10.0	30.0	SOFT
-	CARBONDALE	BRERETON	LIMESTONE	12.0	40.0	
-	CARBONDALE	ANNA	BLACK SHALE	7.0	52.0	BLACK
-	CARBONDALE	ENERGY	SHALE	25.0	59.0	
-	CARBONDALE	HERRIN	COAL	8.0	84.0	

MAPID: 19900831000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1645' S line, 920' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961974 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.778513 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 92.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE		SANDSTONE	20.0	20.0	
-	CARBONDALE	BRERETON	LIMESTONE	12.0	40.0	
-	CARBONDALE	ANNA	BLACK SHALE	7.0	52.0	
-	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	25.0	59.0	
-	CARBONDALE	HERRIN	COAL	8.0	84.0	

MAPID: 19900832000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2400' S line, 415' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963653 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.780586 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 81.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.0	27.0	
-	CARBONDALE	ANNA	BLACK SHALE	6.0	28.0	BLACK
-	CARBONDALE	ENERGY	SHALE	40.0	34.0	
-	CARBONDALE	HERRIN	COAL	7.0	74.0	

MAPID: 19900832000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2400' S line, 415' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963653 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.780586 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 81.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.0	27.0	
-	CARBONDALE	ANNA	BLACK SHALE	6.0	28.0	
-	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	40.0	34.0	
-	CARBONDALE	HERRIN	COAL	7.0	74.0	

MAPID: 19900833000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2355' S line, 1125' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961188 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.780475 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 430.7 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.7	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
405.7	CARBONDALE		SHALE	25.0	25.0	
380.7	CARBONDALE		SHALE	7.0	50.0	SANDY/SOFT
373.7	CARBONDALE		SHALE	6.0	57.0	SOLID
367.7	CARBONDALE	HERRIN	COAL	9.0	63.0	

MAPID: 19900833000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2355' S line, 1125' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.961188 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.780475 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 430.7 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.7	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
405.7	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	25.0	25.0	
380.7	CARBONDALE	ENERGY	SHALE	7.0	50.0	
373.7	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	6.0	57.0	
367.7	CARBONDALE	HERRIN	COAL	9.0	63.0	

MAPID: 19900834000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW SW SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.964756 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.77441 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.3 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE 14 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	CARBONDALE	ENERGY	SHALE	15.3	25.0	GRAY
-	CARBONDALE	HERRIN	COAL	8.0	40.3	

MAPID: 19900834000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW SW SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.964756 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.77441 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.3 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG MUDDY COAL & COKE CO 14 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	CARBONDALE	ENERGY	SHALE	15.3	25.0	
-	CARBONDALE	HERRIN	COAL	8.0	40.3	

MAPID: 19900835000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2430' S line, 1910' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958448 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.780699 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 93.5 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	37.0	0.0	
-	PLEISTOCENE		CLAY	28.0	37.0	
-	PLEISTOCENE		SAND	8.0	65.0	
-	CARBONDALE		SHALE	11.0	73.0	
-	CARBONDALE	HERRIN	COAL	8.5	84.0	
-	CARBONDALE		UNDERCLAY	1.0	92.5	

MAPID: 19900835000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2430' S line, 1910' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958448 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.780699 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 93.5 **LOG TYPE:** Drillers Log
SOURCE: CHI BIG BUDDY COAL & COKE CO 15 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	37.0	0.0	
-	CARBONDALE	ENERGY	SHALE	28.0	37.0	
-	CARBONDALE	ENERGY	SANDSTONE	8.0	65.0	
-	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	11.0	73.0	
-	CARBONDALE	HERRIN	COAL	8.5	84.0	
-	CARBONDALE		UNDERCLAY	1.0	92.5	

MAPID: 19900836000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3145' S line, 2440' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.956527 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.782683 **DATE COLLECTED:** 5 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	51.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	51.0	
-	CARBONDALE		BLACK SHALE	4.0	57.0	BLACK
-	CARBONDALE	BRERETON	LIMESTONE	2.0	61.0	
-	CARBONDALE		CORE LOSS	5.0	63.0	OPENING
-	CARBONDALE	ANNA	BLACK SHALE	3.0	68.0	BLACK
-	CARBONDALE	ENERGY	SHALE	36.5	71.0	
-	CARBONDALE	HERRIN	COAL	9.0	107.5	
-	CARBONDALE		UNDERCLAY	0.5	116.5	

MAPID: 19900836000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 3145' S line, 2440' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.956527 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.782683 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log
SOURCE: CHICAGO BIG MUDDY COAL & COKE 16 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	51.0	0.0	
-	CARBONDALE		SANDSTONE	6.0	51.0	
-	CARBONDALE		BLACK SHALE	4.0	57.0	
-	CARBONDALE		LIMESTONE	2.0	61.0	
-	CARBONDALE		UNKNOWN	5.0	63.0	OPENING
-	CARBONDALE	ANNA	BLACK SHALE	3.0	68.0	
-	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	36.5	71.0	
-	CARBONDALE	HERRIN	COAL	9.0	107.5	
-	CARBONDALE		UNDERCLAY	0.5	116.5	

MAPID: 19902216000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 570' S line, 100' W line of NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.955456 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.786438 **DATE COLLECTED:** 4 / 0 / 1962
SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 1285.0 **LOG TYPE:** Electric Log
SOURCE: CASTELLANO PHILIP A **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-824.0	BASE OF PENN.		UNCLASSIFIED	-	1285.0	

MAPID: 19900172000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** 660' N line, 660' E line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.934878 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.786697 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 144.0 **LOG TYPE:** Drillers Log

SOURCE: CARTERVILLE DISTRICT COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	13.5	0.0	
436.5	CARBONDALE		SANDSTONE	71.5	13.5	
365.0	CARBONDALE		SHALE	6.0	85.0	
359.0	CARBONDALE	BRERETON	LIMESTONE	18.0	91.0	
341.0	CARBONDALE	ANNA	BLACK SHALE	3.0	109.0	
338.0	CARBONDALE	ENERGY	SHALE	23.2	112.0	
314.8	CARBONDALE	HERRIN	COAL	8.8	135.2	

MAPID: 19900172000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** 660' N line, 660' E line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.934878 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.786697 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 143.8 **LOG TYPE:** Drillers Log

SOURCE: CARTERVL DIST COAL 2 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
432.2	CARBONDALE	LAWSON	SANDSTONE	71.0	13.8	
361.2	CARBONDALE	LAWSON	DARK GRAY SHALE	6.0	84.8	
355.2	CARBONDALE	BRERETON	LIMESTONE	18.0	90.8	
337.2	CARBONDALE	ANNA	BLACK SHALE	3.0	108.8	
334.2	CARBONDALE	ENERGY	GRAY SHALE	23.2	111.8	
311.0	CARBONDALE	HERRIN	COAL	8.8	135.0	

MAPID: 19900172000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** 660' N line, 660' E line of NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.934878 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.786697 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 144.0 **LOG TYPE:** Drillers Log
SOURCE: CARTERVILLE DIST. COAL 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		SOIL	13.5	0.0	
436.5	CARBONDALE	ANVIL ROCK	SANDSTONE	53.5	13.5	RED
383.0	CARBONDALE	ANVIL ROCK	SANDSTONE	18.0	67.0	GRAY
365.0	CARBONDALE		SHALE	6.0	85.0	DARK
359.0	CARBONDALE	BRERETON	LIMESTONE	18.0	91.0	
341.0	CARBONDALE	ANNA	BLACK SHALE	3.0	109.0	BLACK
338.0	CARBONDALE	ENERGY	SHALE	23.2	112.0	GRAY
314.8	CARBONDALE	HERRIN	COAL	8.8	135.2	

MAPID: 19900173000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.934941 **GEOLOGIST:** WISCOMBE
CONFIDENTIAL: N **LATITUDE:** 37.7867 **DATE COLLECTED:** 0 / 0 / 1900
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 128.5 **LOG TYPE:** Drillers Log
SOURCE: CARTERVILLE COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		SOIL	5.0	0.0	
445.0	CARBONDALE	ANVIL ROCK	SANDSTONE	35.0	5.0	BROWN
410.0	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	40.0	WHITE
407.0	CARBONDALE	ANVIL ROCK	SANDSTONE	34.5	43.0	
372.5	CARBONDALE		SHALE	7.0	77.5	WHITE
365.5	CARBONDALE	BRERETON	LIMESTONE	7.0	84.5	HARD
358.5	CARBONDALE	ANNA	BLACK SHALE	3.5	91.5	HARD
355.0	CARBONDALE	ENERGY	SHALE	25.0	95.0	HARD; WHITE
330.0	CARBONDALE	HERRIN	COAL	8.5	120.0	

MAPID: 19900173000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.934941 **GEOLOGIST:** MCCRACKEN
CONFIDENTIAL: N **LATITUDE:** 37.7867 **DATE COLLECTED:** 0 / 0 / 1900
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 128.5 **LOG TYPE:** Drillers Log
SOURCE: CARTERVILLE DISTRICT COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
445.0	CARBONDALE		SANDSTONE	72.5	5.0	
372.5	CARBONDALE		SHALE	7.0	77.5	
365.5	CARBONDALE	BRERETON	LIMESTONE	7.0	84.5	
358.5	CARBONDALE	ANNA	BLACK SHALE	3.5	91.5	
355.0	CARBONDALE	ENERGY	SHALE	25.0	95.0	
330.0	CARBONDALE	HERRIN	COAL	8.5	120.0	

MAPID: 19902130000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.818227 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.854957 **DATE COLLECTED:** 3 / 0 / 1958
SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 1790.0 **LOG TYPE:** Electric Log
SOURCE: KUZMICH, R. W. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-303.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	740.0	
-375.0	SPOON	DAVIS	UNCLASSIFIED	-	812.0	
-1353.0	BASE OF PENN.		UNCLASSIFIED	-	1790.0	

MAPID: 19902130000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.818227 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.854957 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 3075.0 **LOG TYPE:** Electric Log
SOURCE: KUZMICH, R. W. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-45.0	CARBONDALE	HERRIN	COAL	-	482.0	
-120.0	CARBONDALE	SPRINGFIELD	COAL	4.0	557.0	
-190.0	CARBONDALE	HOUCHIN CREEK	COAL	-	627.0	

MAPID: 19902130000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.818227 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854957 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 486.0 **LOG TYPE:** Electric Log

SOURCE: KUZMICH, R W Williams 1 **WELL TYPE:** Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
77.0	MODESTO	PIASA	LIMESTONE	6.0	360.0	
71.0	MODESTO		DARK GRAY SHALE	12.0	366.0	
59.0	CARBONDALE	DANVILLE	COAL	2.5	378.0	
56.5	CARBONDALE		GRAY SHALE	17.0	380.5	
39.5	CARBONDALE	ALLENBY	COAL	1.0	397.5	
38.5	CARBONDALE		SHALE & SANDSTONE	7.5	398.5	
31.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.1	406.0	
25.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	23.0	411.1	
2.9	CARBONDALE	LAWSON	GRAY SHALE	9.0	434.1	
-6.1	CARBONDALE	LAWSON	SHALE & SANDSTONE	16.0	443.1	
-22.1	CARBONDALE	LAWSON	GRAY SHALE	10.0	459.1	
-32.1	CARBONDALE	BRERETON	LIMESTONE	5.0	469.1	
-37.1	CARBONDALE	ANNA	BLACK SHALE	5.0	474.1	
-43.0	CARBONDALE	HERRIN	COAL	6.0	480.0	

MAPID: 19900066000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 338' N line, 108' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845455 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.86186 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 419.0 **LOGGED (FT.):** 522.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 18 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
419.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
392.0			SANDSTONE/SHALE	29.0	27.0	
363.0			SANDSTONE	17.2	56.0	
345.8			SILTSTONE	3.8	73.2	
342.0			SHALE	60.5	77.0	
281.5			BLACK LIMESTONE	0.3	137.5	
281.2			BLACK SHALE	0.5	137.8	
280.7			LIMESTONE	0.7	138.3	
280.1			SHALE	9.8	138.9	
270.3			COAL	0.6	148.7	
269.7			UNDERCLAY	4.8	149.3	
265.0			SHALE	16.9	154.0	WITH SILTSTONE
248.1			SANDSTONE/SHALE	6.2	170.9	INTERLAMINATED
241.9			SILTSTONE	19.2	177.1	
222.7			LIMESTONE	0.4	196.3	
222.3			SILTSTONE	25.8	196.7	
196.5			SHALE	54.8	222.5	
141.7			COAL	0.1	277.3	
141.7			SHALE	1.0	277.3	
140.7			SILTSTONE	2.6	278.3	
138.1			SHALE	27.3	280.9	
110.8			BLACK SHALE	3.7	308.2	COAL PARTINGS AT BASE
107.2			COAL	0.5	311.8	BONEY AT BOTTOM
106.7			UNDERCLAY	3.7	312.3	
103.0			SHALE	6.0	316.0	
97.0			LIMESTONE	1.3	322.0	
95.7	MODESTO		SHALE	29.1	323.3	WITH SANDSTONE LAMINAE, COAL AT BASE
66.7	MODESTO	DEGRAFF	COAL	0.5	352.3	BONEY
66.2	MODESTO		SHALE	3.8	352.8	
62.3	MODESTO	PIASA	LIMESTONE	3.8	356.7	
58.6	MODESTO		SHALE	0.3	360.4	
58.2	MODESTO		BLACK SHALE	1.4	360.8	
56.8	MODESTO		SHALE	2.8	362.2	COAL PARTINGS AT BASE
54.0	CARBONDALE	DANVILLE	COAL	1.2	365.0	
52.8	CARBONDALE		SILTSTONE	2.3	366.2	
50.5	CARBONDALE		SHALE	5.5	368.5	
45.0	CARBONDALE		SANDSTONE	2.0	374.0	
43.0	CARBONDALE		SHALE & SANDSTONE	1.7	376.0	
41.3	CARBONDALE		SHALE	4.3	377.7	

37.0	CARBONDALE	ALLENBY	COAL	0.3	382.0	BONEY
36.7	CARBONDALE		SHALE	4.7	382.3	
32.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.6	387.0	
28.4	CARBONDALE		SILTSTONE	6.4	390.6	
22.0	CARBONDALE		SHALE	1.5	397.0	
20.5	CARBONDALE		SANDSTONE	6.7	398.5	WITH BLACK SHALE PARTINGS
13.8	CARBONDALE		SHALE	20.5	405.2	
-6.7	CARBONDALE	JAMESTOWN	COAL	0.2	425.7	BONEY
-6.8	CARBONDALE		BLACK SHALE	1.4	425.8	
-8.3	CARBONDALE	BRERETON	LIMESTONE	5.5	427.3	
-13.8	CARBONDALE	ANNA	BLACK SHALE	3.5	432.8	
-17.3	CARBONDALE	ENERGY	SHALE	14.8	436.3	
-32.0	CARBONDALE	HERRIN	COAL	8.0	451.0	
-40.0	CARBONDALE		UNDERCLAY	4.5	459.0	
-44.5	CARBONDALE		SILTSTONE	6.5	463.5	
-51.0	CARBONDALE		LIMESTONE	6.3	470.0	
-57.3	CARBONDALE		SHALE	8.0	476.3	
-65.3	CARBONDALE		LIMESTONE	6.3	484.3	WITH BLACK SHALE
-71.5	CARBONDALE	DYKERSBURG	SHALE	20.5	490.5	
-92.0	CARBONDALE	SPRINGFIELD	COAL	4.5	511.0	
-96.5	CARBONDALE		UNDERCLAY	3.0	515.5	
-99.5	CARBONDALE		SHALE	3.5	518.5	

MAPID: 19900066000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 338' N line, 108' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845455 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.86186 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 419.0 **LOGGED (FT.):** 522.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-32.0	CARBONDALE	HERRIN	COAL	8.0	451.0	
-92.0	CARBONDALE	SPRINGFIELD	COAL	4.5	511.0	

MAPID: 19900067000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 22' S line, 42' W line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.844976 **GEOLOGIST:** WISCOMBE

CONFIDENTIAL: N **LATITUDE:** 37.84952 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 439.9 **LOGGED (FT.):** 510.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 24 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
439.9	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
409.9	MODESTO		SANDSTONE/SHALE	3.8	30.0	
406.1	MODESTO		SANDSTONE	1.3	33.8	SHALEY; LIGHT GRAY
404.9	MODESTO		SHALE	23.7	35.0	SANDY
381.2	MODESTO		SANDSTONE	0.2	58.7	WITH SHALE PARTINGS
381.1	MODESTO		SHALE	0.6	58.8	SANDY; GRAY
380.5	MODESTO		SANDSTONE	0.3	59.4	SHALEY; GRAY
380.1	MODESTO		SHALE	7.8	59.8	SOFT; GRAY
372.4	MODESTO		SHALE	16.8	67.5	LAMINATED; GRAY
355.6	MODESTO		SHALE	28.7	84.3	LAMINATED; GRAY
326.9	MODESTO		LIMESTONE	0.1	113.0	BROWN
326.8	MODESTO		SHALE	2.4	113.1	SOFT; GRAY
324.4	MODESTO		SHALE	1.8	115.5	CALCAREOUS; DARK
322.6	MODESTO		SHALE	1.2	117.3	LAMINATED; BLACK
321.4	MODESTO		LIMESTONE	1.3	118.5	SHALEY; GRAY
320.1	MODESTO		SHALE	2.4	119.8	LAMINATED; GRAY
317.7	MODESTO		SHALE	2.8	122.2	WITH COAL PARTINGS; DARK GRAY
314.9	MODESTO		COAL	0.5	125.0	2; BONE/SHALY
314.4	MODESTO		SHALE	2.8	125.5	WITH COAL PARTINGS; GRAY
311.6	MODESTO		SHALE	15.0	128.3	SANDY
296.6	MODESTO		SHALE	7.6	143.3	LAMINATED; GRAY
289.0	MODESTO		SHALE	4.1	150.9	SOFT; GRAY
284.9	MODESTO		SANDSTONE	17.0	155.0	LIGHT GRAY
267.9	MODESTO		SHALE & SANDSTONE	6.0	172.0	
261.9	MODESTO		SHALE & SANDSTONE	12.0	178.0	GRAY
249.9	MODESTO		SANDSTONE	9.4	190.0	GRAY
240.5	MODESTO		SHALE	3.6	199.4	SANDY; GRAY
236.9	MODESTO		SHALE & SANDSTONE	2.9	203.0	
234.0	MODESTO		SANDSTONE	6.6	205.9	COARSE
227.4	MODESTO		SHALE	14.5	212.5	HARD; GRAY
212.9	MODESTO		SHALE	18.0	227.0	WITH SANDSTONE; GRAY
194.9	MODESTO		SHALE	8.8	245.0	GRAY
186.1	MODESTO		SHALE	0.4	253.8	CALCAREOUS; GRAY
185.6	MODESTO		LIMESTONE	0.2	254.3	DARK GRAY
185.5	MODESTO		SHALE	2.7	254.4	GRAY
182.8	MODESTO		SHALE	4.0	257.1	SANDY; LIGHT GRAY
178.8	MODESTO		SHALE	12.9	261.1	SANDY; GREEN GRAY
165.9	MODESTO		SHALE	5.7	274.0	WITH SANDSTONE

160.2	MODESTO		SHALE	7.3	279.7	LAMINATED; DARK GRAY
152.9	MODESTO		BLACK SHALE	2.0	287.0	BLACK
150.9	MODESTO		SHALE	3.0	289.0	SLATY
147.9	MODESTO		COAL	0.6	292.0	
147.3	MODESTO		UNDERCLAY	3.9	292.6	
143.4	MODESTO		SHALE	1.5	296.5	SANDY; GRAY
141.9	MODESTO		SHALE	7.8	298.0	SANDY; BLACK
134.1	MODESTO		SHALE	2.6	305.8	WITH SANDSTONE PARTINGS; GRAY
131.5	MODESTO		SANDSTONE	1.7	308.4	COARSE
129.8	MODESTO		SANDSTONE/SHALE	1.5	310.1	
128.3	MODESTO		SANDSTONE	1.0	311.6	COARSE
127.3	MODESTO		SHALE & SANDSTONE	2.3	312.6	
125.0	MODESTO		SHALE	3.3	314.9	SANDY; GRAY
121.7	MODESTO		SHALE	6.4	318.2	SANDY; GRAY
115.3	MODESTO		SANDSTONE/SHALE	1.2	324.6	GRAY
114.1	MODESTO		SHALE	3.5	325.8	GRAY
110.6	MODESTO		SHALE	11.1	329.3	DARK GRAY
99.6	MODESTO	DEGRAFF	COAL	0.7	340.3	BONE
98.9	MODESTO		SHALE	0.5	341.0	LIGHT GRAY
98.4	MODESTO		SHALE	1.1	341.5	CALCAREOUS; GRAY
97.3	MODESTO	PIASA	LIMESTONE	2.9	342.6	SHALEY
94.4	MODESTO	PIASA	LIMESTONE	0.2	345.5	SHALEY
94.2	MODESTO		SHALE	3.3	345.7	SOFT; BLACK
90.9	CARBONDALE	DANVILLE	COAL	1.7	349.0	
89.2	CARBONDALE		SHALE	1.0	350.7	SOFT; LIGHT GRAY
88.2	CARBONDALE		SHALE	2.6	351.7	SOFT; DARK GRAY
85.6	CARBONDALE		SHALE	0.5	354.3	SANDY; GRAY
85.1	CARBONDALE		SHALE & SANDSTONE	3.8	354.8	GRAY
81.4	CARBONDALE		SANDSTONE	1.1	358.5	MICACEOUS
80.3	CARBONDALE		SHALE	1.3	359.6	WITH COAL PARTINGS; LIGHT GRAY
79.1	CARBONDALE		SANDSTONE/SHALE	3.0	360.8	
76.1	CARBONDALE		SHALE	2.1	363.8	GRAY
74.0	CARBONDALE		SHALE	0.3	365.9	SOFT; BLACK
73.6	CARBONDALE		SHALE	0.6	366.3	WITH COAL PARTINGS; BLACK
73.1	CARBONDALE		SHALE	3.2	366.8	GRAY
69.9	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	370.0	LIGHT GRAY
65.6	CARBONDALE	ANVIL ROCK	SANDSTONE	8.7	374.3	COARSE
56.9	CARBONDALE	ANVIL ROCK	SANDSTONE	1.0	383.0	SHALEY
55.9	CARBONDALE	ANVIL ROCK	SHALE	6.0	384.0	SOFT; GRAY
49.9	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	1.0	390.0	
48.9	CARBONDALE	ANVIL ROCK	SANDSTONE	1.1	391.0	WITH SHALE PARTINGS
47.8	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	3.7	392.1	GRAY
44.1	CARBONDALE	ANVIL ROCK	SHALE	12.3	395.8	GRAY
31.9	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	408.0	COARSE
28.9	CARBONDALE	ANVIL ROCK	SHALE	0.5	411.0	SANDY; LIGHT GRAY
28.4	CARBONDALE	ANVIL ROCK	SHALE	11.0	411.5	WITH SANDSTONE; GRAY
17.4	CARBONDALE		SHALE	0.4	422.5	WITH COAL PARTINGS; BLACK

17.0	CARBONDALE	JAMESTOWN	COAL	0.2	422.9	BONE
16.8	CARBONDALE		SHALE	1.2	423.1	BLACK
15.6	CARBONDALE		SHALE	1.0	424.3	SANDY; DARK GRAY
14.6	CARBONDALE	BRERETON	LIMESTONE	3.4	425.3	GRAY
11.1	CARBONDALE	ANNA	SHALE	1.1	428.8	CALCAREOUS; LIGHT GRAY
10.1	CARBONDALE	ANNA	SHALE	4.8	429.8	LAMINATED; BLACK
5.3	CARBONDALE	ENERGY	SHALE	9.4	434.6	LAMINATED; GRAY
-4.1	CARBONDALE	HERRIN	COAL	8.6	444.0	BROKEN
-12.7	CARBONDALE		UNDERCLAY	2.4	452.6	GRAY
-15.1	CARBONDALE		SHALE	0.8	455.0	CALCAREOUS; GREEN GRAY
-15.9	CARBONDALE		LIMESTONE	6.2	455.8	SHALEY; GRAY
-22.1	CARBONDALE		SHALE	3.2	462.0	CALCAREOUS; GRAY
-25.3	CARBONDALE		SHALE	3.5	465.2	CALCAREOUS; GRAY
-28.8	CARBONDALE		SHALE	5.4	468.7	HARD; DARK GRAY
-34.2	CARBONDALE		LIMESTONE	2.0	474.1	GRAY
-36.2	CARBONDALE		SHALE	2.3	476.1	DARK GRAY
-38.4	CARBONDALE		SHALE	11.7	478.3	HARD; GRAY
-50.1	CARBONDALE		SHALE	10.0	490.0	SANDY; LIGHT GRAY
-60.1	CARBONDALE	SPRINGFIELD	COAL	4.1	500.0	BROKEN
-64.2	CARBONDALE		SHALE	2.8	504.1	FIRE CLAY; GRAY
-67.0	CARBONDALE		SHALE	3.1	506.9	CALCAREOUS; LIGHT GRAY

MAPID: 19900067000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 22' S line, 42' W line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.844976 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.84952 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 510.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-4.0	CARBONDALE	HERRIN	COAL	8.6	444.0	
-60.0	CARBONDALE	SPRINGFIELD	COAL	4.1	500.0	

MAPID: 19902208000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 98' S line, 518' W line of SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.852731 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.857079 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 429.0 **LOGGED (FT.):** 452.3 **LOG TYPE:** Survey Core Study

SOURCE: OLD BEN COAL CORP. 138 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
69.5	MODESTO	PIASA	NODULAR LIMESTONE	1.3	359.5	
68.2	CARBONDALE		GRAY SHALE	4.6	360.8	
63.7	CARBONDALE	BANKSTON FORK	LIMESTONE	4.2	365.3	LOWER BENCH
59.5	CARBONDALE	LAWSON	GRAY SHALE	10.6	369.5	
48.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.8	380.1	
38.1	CARBONDALE	LAWSON	SHALE & SANDSTONE	7.2	390.9	
30.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	4.6	398.1	
26.3	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	8.2	402.7	
18.2	CARBONDALE	CONANT	LIMESTONE AND SANDSTONE	0.3	410.8	
17.8	CARBONDALE	JAMESTOWN	BONE COAL	3.3	411.2	
14.6	CARBONDALE		CALCAREOUS SHALE	1.5	414.4	
13.1	CARBONDALE	BRERETON	LIMESTONE	3.1	415.9	
10.0	CARBONDALE	ANNA	BLACK SHALE	6.5	419.0	
3.5	CARBONDALE	ENERGY	GRAY SHALE	18.5	425.5	
-15.0	CARBONDALE	HERRIN	COAL	8.3	444.0	

MAPID: 19900068000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862487 **GEOLOGIST:** MCCRACKIN

CONFIDENTIAL: N **LATITUDE:** 37.861796 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 510.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 17 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
412.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
382.0			SHALE & SANDSTONE	23.7	30.0	
358.3			SILTSTONE	44.3	53.7	
314.0			SHALE	25.2	98.0	
288.8			LIMESTONE	0.8	123.2	
288.1			SHALE	0.9	123.9	
287.2			BLACK SHALE	1.9	124.8	
285.2			LIMESTONE	0.5	126.8	
284.7			SHALE	12.8	127.3	
272.0			COAL	0.2	140.0	BONEY
271.8			UNDERCLAY	1.4	140.2	
270.4			SILTY SHALE	22.3	141.6	
248.2			SANDSTONE	1.1	163.8	
247.1			LIMESTONE	0.3	164.9	
246.7			SANDSTONE	7.1	165.3	
239.7			SILTSTONE	28.3	172.3	
211.4			SILTY SHALE	65.3	200.6	
146.2			BLACK SHALE	2.7	265.8	
143.5			COAL	0.1	268.5	BONEY
143.4			UNDERCLAY	0.6	268.6	
142.8			LIMESTONE	2.8	269.2	
140.0			SANDSTONE/SHALE	28.3	272.0	INTERLAMINATED
111.7			BLACK SHALE	1.4	300.3	
110.3			COAL	1.1	301.7	
109.2			UNDERCLAY	6.0	302.8	
103.2			SILTSTONE	2.9	308.8	
100.3	MODESTO		SANDSTONE/SHALE	21.3	311.7	
79.0	MODESTO		SHALE	12.0	333.0	
67.0	MODESTO	DEGRAFF	COAL	0.8	345.0	BONEY AT TOP
66.2	MODESTO		UNDERCLAY	1.1	345.8	
65.2	MODESTO	PIASA	LIMESTONE	3.8	346.8	
61.3	MODESTO		SHALE	0.3	350.7	
61.1	MODESTO		BLACK SHALE	1.1	350.9	
60.0	MODESTO		SHALE	4.2	352.0	
55.8	MODESTO		BLACK LIMESTONE	0.3	356.2	BLACK LS FAULTED AGAINST BLACK SHALE
55.6	MODESTO		BLACK SHALE	0.3	356.4	
55.3	CARBONDALE	DANVILLE	COAL	1.7	356.7	
53.7	CARBONDALE		SHALE	5.2	358.3	
48.5	CARBONDALE		SHALE	0.3	363.5	

48.2	CARBONDALE		SANDSTONE	6.7	363.8	
41.5	CARBONDALE		SHALE	1.5	370.5	
40.0	CARBONDALE	ALLENBY	COAL	0.4	372.0	BONE
39.6	CARBONDALE		SHALE	6.0	372.4	
33.6	CARBONDALE	BANKSTON FORK	LIMESTONE	4.8	378.4	
28.8	CARBONDALE		SHALE	10.3	383.2	
18.5	CARBONDALE		SANDSTONE/SHALE	31.2	393.5	
-12.7	CARBONDALE	JAMESTOWN	COAL	0.4	424.7	
-13.1	CARBONDALE		BLACK SHALE	1.9	425.1	
-15.0	CARBONDALE	BRERETON	LIMESTONE	6.3	427.0	
-21.3	CARBONDALE	ANNA	BLACK SHALE	2.9	433.3	
-24.2	CARBONDALE	ENERGY	SHALE	11.8	436.2	
-36.0	CARBONDALE	HERRIN	COAL	8.3	448.0	
-44.3	CARBONDALE		UNDERCLAY	2.1	456.3	
-46.4	CARBONDALE		LIMESTONE	2.5	458.4	
-48.9	CARBONDALE		SHALE	22.4	460.9	
-71.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	483.3	
-74.5	CARBONDALE	TURNER MINE	LIMESTONE	0.9	486.5	
-75.4	CARBONDALE	TURNER MINE	BLACK SHALE	0.5	487.4	
-75.9	CARBONDALE	DYKERSBURG	SHALE	11.1	487.9	
-87.0	CARBONDALE	SPRINGFIELD	COAL	4.2	499.0	
-91.2	CARBONDALE		UNDERCLAY	3.4	503.2	
-94.6	CARBONDALE		SHALE	3.4	506.6	

MAPID: 19900068000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862487 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.861796 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 510.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-36.0	CARBONDALE	HERRIN	COAL	8.3	448.0	
-87.0	CARBONDALE	SPRINGFIELD	COAL	4.2	499.0	

MAPID: 19900068000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862487 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.861796 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 510.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 17 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
412.0	PLEISTOCENE		UNCLASSIFIED	30.0	0.0	CORE MISSING
382.0	MODESTO		SILTY SHALE	11.5	30.0	
370.5	MODESTO		SHALE & SANDSTONE	12.2	41.5	
358.3	MODESTO		GRAY SILTSTONE	17.4	53.7	
340.9	MODESTO		SILTSTONE	26.9	71.1	
314.0	MODESTO		SILTY SHALE	8.1	98.0	
305.9	MODESTO		SHALE	16.1	106.1	
289.8	MODESTO		CALCAREOUS SHALE	1.0	122.2	
288.8	MODESTO		GRAY LIMESTONE	0.8	123.2	
288.1	MODESTO		LAMINATED SHALE	0.9	123.9	
287.2	MODESTO		BLACK SHALE	1.9	124.8	
285.2	MODESTO		GRAY LIMESTONE	0.5	126.8	
284.7	MODESTO		LAMINATED SHALE	12.8	127.3	
272.0	MODESTO		BONE COAL	0.2	140.0	
271.8	MODESTO		UNDERCLAY	1.4	140.2	GRAY
270.4	MODESTO		GRAY SILTSTONE	3.2	141.6	
267.2	MODESTO		GRAY SHALE	2.3	144.8	
265.0	MODESTO		SHALE	5.9	147.0	
259.1	MODESTO		LAMINATED SHALE	5.8	152.9	
253.3	MODESTO		CALCAREOUS SILTSTONE	5.2	158.7	GRAY
248.2	MODESTO		GRAY SANDSTONE	1.1	163.8	
247.1	MODESTO		SANDY LIMESTONE	0.3	164.9	GREEN-GRAY
246.7	MODESTO		GRAY SANDSTONE	7.1	165.3	
239.7	MODESTO		GRAY SILTSTONE	10.0	172.3	
229.7	MODESTO		SILTSTONE	18.3	182.3	
211.4	MODESTO		SILTY SHALE	17.0	200.6	
194.4	MODESTO		SHALE	3.4	217.6	
191.0	MODESTO		GRAY SILTSTONE	0.5	221.0	
190.5	MODESTO		LAMINATED SHALE	1.5	221.5	
189.0	MODESTO		GRAY SILTSTONE	0.7	223.0	
188.3	MODESTO		GRAY SHALE	30.1	223.7	
158.2	MODESTO		SHALE	12.1	253.8	
146.2	MODESTO		CALCAREOUS SHALE	2.7	265.8	
143.5	MODESTO		BONE COAL	0.1	268.5	
143.4	MODESTO		UNDERCLAY	0.6	268.6	LIGHT GRAY
142.8	MODESTO		GRAY LIMESTONE	2.9	269.2	
140.0	MODESTO		GRAY SANDSTONE	5.4	272.0	
134.6	MODESTO		SHALE & SANDSTONE	10.6	277.4	
124.0	MODESTO		DARK GRAY SHALE	1.3	288.0	

122.7	MODESTO		SHALE	11.0	289.3	
111.7	MODESTO		BLACK SHALE	1.4	300.3	
110.3	MODESTO	POND CREEK	COAL	1.1	301.7	
109.2	MODESTO		UNDERCLAY	6.0	302.8	LIGHT GRAY
103.2	MODESTO		GRAY SILTSTONE	2.9	308.8	
100.3	MODESTO		GRAY SANDSTONE	5.6	311.7	
94.7	MODESTO		SILTY SHALE	9.8	317.3	
85.0	MODESTO		SHALE	6.0	327.0	
79.0	MODESTO		SILTY SHALE	7.0	333.0	
72.0	MODESTO		DARK GRAY SHALE	5.0	340.0	
67.0	MODESTO		COAL	0.8	345.0	BONEY AT TOP
66.2	MODESTO		UNDERCLAY	1.1	345.8	LIGHT GRAY
65.2	MODESTO	PIASA	GRAY LIMESTONE	3.8	346.8	
61.3	MODESTO		GREEN SHALE	0.3	350.7	
61.1	MODESTO		BLACK SHALE	1.1	350.9	
60.0	MODESTO		GRAY SHALE	4.2	352.0	
55.8	MODESTO		BLACK LIMESTONE	0.3	356.2	
55.6	MODESTO		BLACK SHALE	0.3	356.4	
55.3	CARBONDALE	DANVILLE	COAL	1.7	356.7	
53.7	CARBONDALE		SILTY SHALE	2.0	358.3	
51.7	CARBONDALE		SOFT SHALE	3.5	360.3	
48.2	CARBONDALE		GRAY SANDSTONE	0.8	363.8	
47.3	CARBONDALE		UNCLASSIFIED	37.3	364.7	CORE MISSING
10.0	CARBONDALE		SILTY SHALE	6.0	402.0	
4.0	CARBONDALE		DARK GRAY SHALE	6.3	408.0	
-2.3	CARBONDALE		SHALE & SANDSTONE	2.8	414.3	
-5.0	CARBONDALE		GRAY SANDSTONE	7.7	417.0	
-12.7	CARBONDALE	JAMESTOWN	BONE COAL	0.4	424.7	
-13.1	CARBONDALE		CALCAREOUS SHALE	1.9	425.1	
-15.0	CARBONDALE	BRERETON	GRAY LIMESTONE	6.3	427.0	
-21.3	CARBONDALE	ANNA	BLACK SHALE	2.9	433.3	
-24.2	CARBONDALE		SHALE	1.8	436.2	
-26.0	CARBONDALE		UNCLASSIFIED	72.0	438.0	CORE MISSING

MAPID: 19900069000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862796 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.850487 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 432.3 **LOGGED (FT.):** 500.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 23 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
432.3	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
407.3			SANDSTONE	4.3	25.0	
403.0			SILTSTONE	3.6	29.3	
399.5			SHALE	54.9	32.8	
344.5			LIMESTONE	0.6	87.8	
344.0			SHALE	10.3	88.3	
333.6			LIMESTONE	0.5	98.7	
333.1			DARK SHALE	2.3	99.2	
330.9			SHALE	1.6	101.4	
329.3			COAL	0.8	103.0	BONEY
328.5			SHALE	2.1	103.8	THIN COAL PARTINGS
326.5			SHALE	10.2	105.8	
316.3			SANDSTONE	57.8	116.0	WITH SHALE
258.5			SANDSTONE	22.9	173.8	
235.6			SHALE	45.3	196.7	
190.3			BLACK SHALE	1.7	242.0	
188.6			COAL	0.1	243.7	
188.5			UNDERCLAY	2.3	243.8	
186.3			SHALE	31.4	246.0	
154.9			BLACK SHALE	2.6	277.4	
152.3			COAL	0.8	280.0	
151.5			UNDERCLAY	4.3	280.8	
147.3			SHALE	34.3	285.0	WITH SILTSTONE
113.0	MODESTO	DEGRAFF	COAL	0.3	319.3	
112.8	MODESTO		SHALE	3.5	319.5	
109.3	MODESTO		CALCAREOUS SHALE	8.0	323.0	
101.3	MODESTO		BLACK SHALE	0.5	331.0	
100.8	CARBONDALE	DANVILLE	COAL	1.5	331.5	
99.3	CARBONDALE		SILTSTONE	12.0	333.0	WITH SHALE
87.3	CARBONDALE		SANDSTONE	5.2	345.0	
82.1	CARBONDALE		SHALE	2.3	350.2	
79.8	CARBONDALE	ALLENBY	COAL	0.2	352.5	
79.6	CARBONDALE		UNDERCLAY	3.7	352.7	
76.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	356.3	
71.6	CARBONDALE		SILTY SHALE	5.8	360.7	
65.9	CARBONDALE		SANDSTONE	5.6	366.4	WITH INTERLAMINATED SILTSTONE
60.3	CARBONDALE		SANDSTONE	5.3	372.0	
55.0	CARBONDALE		SHALE	10.8	377.3	
44.3	CARBONDALE		SANDSTONE/SHALE	3.2	388.0	

41.1	CARBONDALE	ANVIL ROCK	SANDSTONE	8.8	391.2
32.3	CARBONDALE	BRERETON	LIMESTONE	4.3	400.0
28.0	CARBONDALE	ANNA	BLACK SHALE	4.2	404.3
23.9	CARBONDALE	ENERGY	SHALE	27.6	408.4
-3.7	CARBONDALE	HERRIN	COAL	8.7	436.0
-12.4	CARBONDALE		UNDERCLAY	3.8	444.7
-16.2	CARBONDALE		SHALE	5.0	448.5
-21.2	CARBONDALE		DARK SHALE	11.5	453.5
-32.7	CARBONDALE		SHALE	4.7	465.0
-37.4	CARBONDALE	ST. DAVID	LIMESTONE	0.8	469.7
-38.2	CARBONDALE	TURNER MINE	BLACK SHALE	3.4	470.5
-41.6	CARBONDALE	DYKERSBURG	SHALE	14.4	473.9
-56.0	CARBONDALE	SPRINGFIELD	COAL	4.3	488.3
-60.3	CARBONDALE		UNDERCLAY	7.4	492.6

MAPID: 19900069000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862796 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.850487 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 500.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-4.0	CARBONDALE	HERRIN	COAL	8.7	436.0	
-56.0	CARBONDALE	SPRINGFIELD	COAL	4.3	488.0	

MAPID: 19900069000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862796 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.850487 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 432.3 **LOGGED (FT.):** 500.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 23 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
432.3	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
407.3	MODESTO		BROWN SANDSTONE	2.4	25.0	
404.9	MODESTO		CALCAREOUS SANDSTONE	1.8	27.4	GRAY
403.0	MODESTO		GRAY SILTSTONE	3.6	29.3	
399.5	MODESTO		SILTY SHALE	27.7	32.8	
371.8	MODESTO		GRAY SHALE	5.8	60.5	
366.0	MODESTO		SILTY SHALE	21.4	66.3	
344.5	MODESTO		GRAY LIMESTONE	0.6	87.8	
344.0	MODESTO		SILTY SHALE	1.0	88.3	
343.0	MODESTO		SILTY SHALE	6.7	89.3	
336.3	MODESTO		GRAY SHALE	2.3	96.0	
334.0	MODESTO		CALCAREOUS SHALE	0.4	98.3	
333.6	MODESTO		GRAY LIMESTONE	0.5	98.7	
333.1	MODESTO		SILTY SHALE	2.3	99.2	
330.9	MODESTO		GRAY SHALE	1.6	101.4	
329.3	MODESTO		BONE COAL	0.8	103.0	
328.5	MODESTO		SOFT SHALE	2.1	103.8	
326.5	MODESTO		GRAY SHALE	0.8	105.8	
325.6	MODESTO		GRAY SHALE	9.3	106.7	
316.3	MODESTO		GRAY SANDSTONE	18.0	116.0	
298.3	MODESTO		SANDSTONE	39.8	134.0	
258.5	MODESTO		SANDSTONE	22.9	173.8	
235.6	MODESTO		SILTY SHALE	12.3	196.7	
223.3	MODESTO		HARD SHALE	30.7	209.0	
192.6	MODESTO		SHALE	2.3	239.7	
190.3	MODESTO		SLATY SHALE	1.7	242.0	
188.6	MODESTO		COAL	0.1	243.7	
188.5	MODESTO		SOFT SHALE	2.3	243.8	
186.3	MODESTO		SANDY SHALE	6.5	246.0	
179.8	MODESTO		SANDY SHALE	24.9	252.5	
154.9	MODESTO		LAMINATED SHALE	2.5	277.4	
152.4	MODESTO		BLACK SHALE	0.1	279.9	
152.3	MODESTO	POND CREEK	COAL	0.8	280.0	
151.5	MODESTO		UNDERCLAY	4.3	280.8	
147.3	MODESTO		SILTY SHALE	2.4	285.0	
144.9	MODESTO		GRAY SILTSTONE	2.6	287.4	
142.3	MODESTO		GREEN SHALE	0.5	290.0	
141.8	MODESTO		GRAY SHALE	0.4	290.5	

141.4	MODESTO		SOFT SHALE	1.8	290.9
139.6	MODESTO		GRAY SILTSTONE	2.7	292.7
137.0	MODESTO		GRAY SANDSTONE	0.8	295.3
136.1	MODESTO		GREEN SHALE	11.8	296.2
124.3	MODESTO		SILTY SHALE	8.7	308.0
115.6	MODESTO		SHALE	2.6	316.7
113.0	MODESTO		BONE COAL	0.3	319.3
112.8	MODESTO		SILTY SHALE	3.5	319.5
109.3	MODESTO	PIASA	GRAY LIMESTONE	2.3	323.0
107.0	MODESTO	PIASA	CALCAREOUS SHALE	0.3	325.3
106.7	MODESTO	PIASA	GRAY LIMESTONE	0.5	325.6
106.2	MODESTO	PIASA	SOFT SHALE	1.2	326.1
105.0	MODESTO	PIASA	LIMESTONE	0.2	327.3
104.9	MODESTO		HARD SHALE	3.6	327.4
101.3	MODESTO		SOFT SHALE	0.5	331.0
100.8	CARBONDALE	DANVILLE	COAL	1.5	331.5
99.3	CARBONDALE		GRAY SILTSTONE	2.0	333.0
97.3	CARBONDALE		SILTY SHALE	3.2	335.0
94.1	CARBONDALE		GRAY SILTSTONE	6.8	338.2
87.3	CARBONDALE		GRAY SANDSTONE	5.2	345.0
82.1	CARBONDALE		SOFT SHALE	2.3	350.2
79.8	CARBONDALE	ALLENBY	COAL	0.2	352.5
79.6	CARBONDALE		UNDERCLAY	2.8	352.7
76.8	CARBONDALE		UNDERCLAY	0.8	355.5
76.0	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	4.3	356.3
71.6	CARBONDALE		GRAY SILTSTONE	0.5	360.7
71.1	CARBONDALE		SILTY SHALE	4.3	361.2
66.9	CARBONDALE		DARK GRAY SHALE	1.0	365.4
65.9	CARBONDALE	ANVIL ROCK	SILTSTONE	5.6	366.4
60.3	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	5.3	372.0
55.0	CARBONDALE	ANVIL ROCK	SILTY SHALE	10.8	377.3
44.3	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	1.0	388.0
43.3	CARBONDALE	ANVIL ROCK	SHALE	1.6	389.0
41.7	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	0.6	390.6
41.1	CARBONDALE	ANVIL ROCK	SANDSTONE	8.8	391.2
32.3	CARBONDALE	BRERETON	GRAY LIMESTONE	4.3	400.0
28.0	CARBONDALE	ANNA	LAMINATED SHALE	1.7	404.3
26.4	CARBONDALE	ANNA	BLACK SHALE	2.5	405.9
23.9	CARBONDALE	ENERGY	SILTY SHALE	22.2	408.4
1.7	CARBONDALE	ENERGY	LAMINATED SHALE	5.4	430.6
-3.7	CARBONDALE	HERRIN	COAL	8.7	436.0
-12.4	CARBONDALE		DARK GRAY SHALE	3.8	444.7
-16.2	CARBONDALE		CALCAREOUS SHALE	5.0	448.5
-21.2	CARBONDALE		DARK SHALE	11.5	453.5
-32.7	CARBONDALE		DARK GRAY SHALE	4.7	465.0
-37.4	CARBONDALE	ST. DAVID	GRAY LIMESTONE	0.8	469.7
-38.2	CARBONDALE	TURNER MINE	BLACK SHALE	3.4	470.5
-41.6	CARBONDALE	DYKERSBURG	SILTY SHALE	14.4	473.9

-56.0	CARBONDALE	SPRINGFIELD	COAL	4.3	488.3
-60.3	CARBONDALE		UNDERCLAY	4.4	492.6
-64.7	CARBONDALE		UNDERCLAY	3.0	497.0

MAPID: 19902372000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 371' S line, 330' W line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.871857 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.857097 **DATE COLLECTED:** 6 / 0 / 1969

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 1625.0 **LOG TYPE:** Electric Log

SOURCE: BUFAY OIL COMPANY **WELL TYPE:** Structure Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-255.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	690.0	
-331.0	SPOON	DAVIS	UNCLASSIFIED	-	766.0	
-1190.0	BASE OF PENN.		UNCLASSIFIED	-	1625.0	

MAPID: 19900061000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 34' N line, 2453' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883442 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.862231 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 416.6 **LOGGED (FT.):** 470.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 46 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
416.6	PLEISTOCENE		BROWN SANDSTONE	25.0	0.0	
391.6	MODESTO		SOFT SHALE	9.0	25.0	"NO CORE RECOVERED"
382.6	MODESTO		COAL	0.3	34.0	
382.3	MODESTO		SILTY SHALE	2.9	34.3	
379.3	MODESTO		GRAY SILTSTONE	3.6	37.3	
375.8	MODESTO		CALCAREOUS SANDSTONE	6.2	40.8	LIGHT GRAY
369.6	MODESTO		SHALE & SANDSTONE	4.2	47.0	
365.4	MODESTO		GRAY SILTSTONE	18.8	51.2	
346.6	MODESTO		HARD SHALE	41.5	70.0	
305.1	MODESTO		SILTY SHALE	0.5	111.5	
304.6	MODESTO		GRAY SHALE	10.5	112.0	
294.1	MODESTO		BLACK SHALE	3.5	122.5	
290.6	MODESTO		GRAY LIMESTONE	0.5	126.0	
290.1	MODESTO		SILTY SHALE	0.6	126.5	
289.5	MODESTO		SILTY SHALE	4.5	127.1	
285.0	MODESTO		BONE COAL	0.1	131.6	
284.9	MODESTO		GRAY SHALE	3.3	131.7	
281.6	MODESTO		COAL	0.3	135.0	
281.3	MODESTO		SILTY SHALE	1.8	135.3	
279.6	MODESTO		GRAY SILTSTONE	2.0	137.0	
277.6	MODESTO		GRAY SANDSTONE	0.8	139.0	
276.8	MODESTO		SHALE & SANDSTONE	2.2	139.8	
274.6	MODESTO		SHALE & SANDSTONE	1.3	142.0	
273.3	MODESTO		SILTY SHALE	9.2	143.3	
264.1	MODESTO		BROWN LIMESTONE	0.5	152.5	
263.6	MODESTO		GRAY SILTSTONE	5.8	153.0	
257.8	MODESTO		DARK GRAY SHALE	0.7	158.8	
257.1	MODESTO		GRAY SANDSTONE	2.7	159.5	
254.4	MODESTO		SHALE & SANDSTONE	8.8	162.2	
245.6	MODESTO		GRAY SILTSTONE	4.0	171.0	
241.6	MODESTO		GRAY SILTSTONE	1.7	175.0	
239.9	MODESTO		SILTY SHALE	1.3	176.7	
238.6	MODESTO		HARD SHALE	6.2	178.0	
232.4	MODESTO		CALCAREOUS SHALE	1.3	184.2	
231.1	MODESTO		LAMINATED SHALE	2.0	185.5	
229.1	MODESTO		CALCAREOUS SHALE	13.5	187.5	
215.6	MODESTO		HARD SHALE	7.8	201.0	
207.8	MODESTO		CALCAREOUS SHALE	26.9	208.8	

180.8	MODESTO		CALCAREOUS SHALE	19.3	235.8	
161.6			UNCLASSIFIED	203.4	255.0	SECTION MISSING FROM RECORD
-41.8	CARBONDALE		DARK GRAY SHALE	0.3	458.4	
-42.1	CARBONDALE	HERRIN	COAL	8.6	458.7	
-50.7	CARBONDALE		CLAYSTONE	2.8	467.3	

MAPID: 19900061000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 34' N line, 2453' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883442 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.862231 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 416.6 **LOGGED (FT.):** 470.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 46 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
416.6	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
391.6			SHALE	9.0	25.0	
382.6			COAL	0.3	34.0	
382.3			SHALE	2.9	34.3	
379.3			SILTSTONE	3.6	37.3	
375.8			SANDSTONE	6.2	40.8	
369.6			SANDSTONE/SHALE	4.2	47.0	
365.4			SILTSTONE	18.8	51.2	
346.6			SHALE	52.5	70.0	
294.1			BLACK SHALE	3.5	122.5	
290.6			LIMESTONE	0.5	126.0	
290.1			SHALE	5.1	126.5	
285.0			COAL	0.1	131.6	BONEY
284.9			SHALE	3.3	131.7	COALY
281.6			COAL	0.3	135.0	
281.3			SHALE	1.8	135.3	
279.6			SILTSTONE	2.8	137.0	
276.8			SHALY SANDSTONE	3.5	139.8	
273.3			SHALE	9.2	143.3	
264.1			LIMESTONE	0.5	152.5	
263.6			SILTSTONE	6.5	153.0	
257.1			SANDSTONE	2.7	159.5	
254.4			SANDSTONE/SHALE	8.8	162.2	
245.6			SILTSTONE	5.7	171.0	
239.9			SHALE	78.3	176.7	
161.6			UNKNOWN	203.4	255.0	
-41.8	CARBONDALE	ENERGY	SHALE	0.3	458.4	COAL PARTINGS AT BASE
-42.1	CARBONDALE	HERRIN	COAL	8.6	458.7	
-50.7	CARBONDALE		UNDERCLAY	2.8	467.3	

MAPID: 19900070000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883533 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.861401 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 416.6 **LOGGED (FT.):** 550.7 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 16 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
416.6	PLEISTOCENE		UNCONSOLIDATED	27.8	0.0	
388.8	PLEISTOCENE		CLAY	0.2	27.8	WITH COAL
388.6			SHALE	7.4	28.0	WITH COAL PARTINGS
381.2			SANDSTONE	12.4	35.4	DRILLER ID'S AS LS
368.8			LIMESTONE	0.6	47.8	
368.2			SANDSTONE	2.0	48.4	DRILLER ID'S AS LS
366.2			SHALE	70.9	50.4	
295.3			LIMESTONE	1.2	121.3	
294.1			SHALE	3.0	122.5	
291.1			LIMESTONE	0.8	125.5	
290.3			SHALE	0.3	126.3	
290.0			LIMESTONE	0.3	126.6	
289.8			SHALE	3.0	126.8	
286.8			COAL	0.4	129.8	BONEY
286.3			BLACK SHALE	3.7	130.3	COAL PARTINGS
282.7			SILTY SHALE	4.5	133.9	
278.2			SHALY SANDSTONE	11.8	138.4	
266.3			LIMESTONE	0.7	150.3	
265.7			SILTSTONE	9.8	150.9	
255.9			SHALE	3.7	160.7	
252.3			LIMESTONE	0.5	164.3	
251.8			SILTY SHALE	94.4	164.8	
157.3			BLACK SHALE	2.3	259.3	
155.0			SHALY SANDSTONE	32.1	261.6	
122.9			BLACK SHALE	1.6	293.7	
121.3			SHALE	0.8	295.3	
120.6			COAL	0.9	296.0	
119.7			UNDERCLAY	1.9	296.9	
117.8			SILTSTONE	3.8	298.8	
114.0			SANDSTONE/SHALE	19.6	302.6	
94.4			SHALE	8.6	322.2	
85.8			DARK SHALE	0.5	330.8	COAL PARTINGS
85.3			BLACK SHALE	0.1	331.3	
85.3	MODESTO	DEGRAFF	COAL	0.3	331.3	BONEY
85.0	MODESTO		SHALE	0.3	331.6	
84.8	MODESTO		UNDERCLAY	2.4	331.8	
82.3	MODESTO	PIASA	LIMESTONE	3.3	334.3	
79.0	MODESTO		SILTSTONE	0.6	337.6	
78.5	MODESTO		SHALE	5.3	338.1	

73.2	MODESTO		BLACK SHALE	2.0	343.4	
71.2	MODESTO		BLACK LIMESTONE	0.3	345.4	
70.9	CARBONDALE	DANVILLE	COAL	1.8	345.7	
69.2	CARBONDALE		SILTY SHALE	6.3	347.4	
62.9	CARBONDALE		SHALE	0.7	353.7	
62.3	CARBONDALE		COAL	0.1	354.3	BONEY
62.2	CARBONDALE		SILTSTONE	1.4	354.4	
60.8	CARBONDALE		SANDSTONE	3.3	355.8	
57.4	CARBONDALE		SHALE	0.3	359.2	
57.1	CARBONDALE	ALLENBY	COAL	0.6	359.5	BONEY
56.5	CARBONDALE		UNDERCLAY	2.9	360.1	
53.6	CARBONDALE	BANKSTON FORK	LIMESTONE	4.4	363.0	
49.2	CARBONDALE		SHALE	8.6	367.4	
40.6	CARBONDALE		SILTSTONE	11.8	376.0	
28.8	CARBONDALE		SHALE	9.3	387.8	
19.5	CARBONDALE	CONANT	BLACK LIMESTONE	0.8	397.1	
18.8	CARBONDALE		BLACK SHALE	0.3	397.8	
18.5	CARBONDALE		SILTSTONE	3.3	398.1	
15.2	CARBONDALE		LIMESTONE	0.3	401.4	
14.8	CARBONDALE		SHALE	1.0	401.8	
13.8	CARBONDALE	ANNA	BLACK SHALE	0.5	402.8	
13.3	CARBONDALE	ENERGY	SILTSTONE	22.6	403.3	
-9.2	CARBONDALE	ENERGY	SHALE	6.4	425.8	
-15.7	CARBONDALE	ENERGY	SILTSTONE	27.1	432.3	
-42.7	CARBONDALE	HERRIN	COAL	3.5	459.3	
-46.2	CARBONDALE		UNDERCLAY	3.4	462.8	
-49.7	CARBONDALE		SHALE	1.9	466.3	
-51.6	CARBONDALE		LIMESTONE	8.2	468.2	
-59.7	CARBONDALE		SILTSTONE	6.7	476.3	
-66.4	CARBONDALE		SANDSTONE/SHALE	5.1	483.0	
-71.5	CARBONDALE		SHALE	5.2	488.1	
-76.7	CARBONDALE	ST. DAVID	BLACK LIMESTONE	1.7	493.3	
-78.3	CARBONDALE	TURNER MINE	BLACK SHALE	5.6	494.9	
-83.9	CARBONDALE	DYKERSBURG	SHALE	9.5	500.5	
-93.4	CARBONDALE	SPRINGFIELD	COAL	4.0	510.0	
-97.4	CARBONDALE		UNDERCLAY	3.3	514.0	
-100.7	CARBONDALE		SHALE	5.8	517.3	
-106.6	CARBONDALE		SHALE & SANDSTONE	4.8	523.2	
-111.4	CARBONDALE		SILTSTONE	7.7	528.0	
-119.1	CARBONDALE		SHALE	15.0	535.7	

MAPID: 19900070000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883533 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.861401 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 417.0 **LOGGED (FT.):** 551.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-42.0	CARBONDALE	HERRIN	COAL	3.5	459.0	
-93.0	CARBONDALE	SPRINGFIELD	COAL	4.0	510.0	

MAPID: 19900070000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883533 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.861401 **DATE COLLECTED:** 0 / 0 / 1935

SURFACE ELEVATION (FT.): 416.6 **LOGGED (FT.):** 550.7 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 16 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
416.6			UNCLASSIFIED	35.4	0.0	NO CORE
381.2	MODESTO		GRAY SANDSTONE	12.4	35.4	
368.8	MODESTO		GRAY LIMESTONE	0.6	47.8	
368.2	MODESTO		GRAY SANDSTONE	2.0	48.4	
366.2	MODESTO		GRAY SHALE	19.6	50.4	
346.6	MODESTO		UNCLASSIFIED	49.7	70.0	NO CORE
296.9	MODESTO		GRAY SILTSTONE	1.7	119.7	
295.3	MODESTO		GRAY LIMESTONE	1.2	121.3	
294.1	MODESTO		DARK GRAY SHALE	3.0	122.5	
291.1	MODESTO		GRAY LIMESTONE	0.8	125.5	
290.3	MODESTO		CALCAREOUS SHALE	0.3	126.3	
290.0	MODESTO		GRAY LIMESTONE	0.3	126.6	
289.8	MODESTO		SILTY SHALE	3.0	126.8	
286.8	MODESTO		BONE COAL	0.4	129.8	
286.3	MODESTO		BLACK SHALE	3.7	130.3	
282.7	MODESTO		SILTY SHALE	2.5	133.9	
280.2	MODESTO		GRAY SILTSTONE	2.2	136.4	
278.0	MODESTO		GRAY SHALE	3.8	138.6	
274.2	MODESTO		SHALE	7.8	142.4	
266.3	MODESTO		GRAY LIMESTONE	0.7	150.3	
265.7	MODESTO		GRAY SILTSTONE	2.5	150.9	
263.1	MODESTO		GRAY SILTSTONE	3.3	153.5	
259.8	MODESTO		GRAY SILTSTONE	3.9	156.8	
255.9	MODESTO		DARK GRAY SHALE	3.7	160.7	
252.3	MODESTO		GRAY LIMESTONE	0.5	164.3	
251.8	MODESTO		SHALE	7.3	164.8	
244.4	MODESTO		GRAY SILTSTONE	1.5	172.2	
242.9	MODESTO		SILTY SHALE	6.0	173.7	
236.9	MODESTO		GRAY SILTSTONE	10.3	179.7	
226.6	MODESTO		GRAY SHALE	19.0	190.0	
207.6	MODESTO		GRAY SILTSTONE	5.0	209.0	
202.6	MODESTO		SILTY SHALE	2.0	214.0	
200.6	MODESTO		SHALE	10.5	216.0	
190.1	MODESTO		DARK GRAY SHALE	23.8	226.5	
166.3	MODESTO		GRAY SHALE	1.0	250.3	
165.3	MODESTO		GRAY SHALE	8.0	251.3	
157.3	MODESTO		DARK SHALE	0.5	259.3	
156.8	MODESTO		GRAY SHALE	0.8	259.8	
156.0	MODESTO		SILTY SHALE	1.0	260.6	

155.0	MODESTO		SILTY SHALE	5.9	261.6	
149.1	MODESTO		SANDSTONE/SHALE	11.8	267.5	GRAY
137.3	MODESTO		SILTY SHALE	7.9	279.3	
129.4	MODESTO		DARK GRAY SHALE	6.5	287.2	
122.9	MODESTO		BLACK SHALE	1.6	293.7	
121.3	MODESTO		DARK GRAY SHALE	0.8	295.3	
120.6	MODESTO	POND CREEK	COAL	0.9	296.0	
119.7	MODESTO		UNDERCLAY	1.9	296.9	
117.8	MODESTO		GRAY SILTSTONE	3.8	298.8	
114.0	MODESTO		GRAY SANDSTONE	2.2	302.6	
111.8	MODESTO		SHALE & SANDSTONE	3.7	304.8	
108.2	MODESTO		GRAY SANDSTONE	2.9	308.4	
105.3	MODESTO		SILTY SHALE	10.8	311.3	
94.4	MODESTO		SHALE	8.6	322.2	
85.8	MODESTO		DARK GRAY SHALE	0.5	330.8	
85.3	MODESTO		BLACK SHALE	0.1	331.3	
85.3	MODESTO		BONE COAL	0.3	331.3	
85.0	MODESTO		DARK GRAY SHALE	0.3	331.6	
84.8	MODESTO		UNDERCLAY	2.4	331.8	LIGHT GRAY
82.3	MODESTO	PIASA	GRAY LIMESTONE	3.3	334.3	
79.0	MODESTO		GRAY SILTSTONE	0.5	337.6	
78.5	MODESTO		DARK GRAY SHALE	5.3	338.1	
73.2	MODESTO		BLACK SHALE	2.0	343.4	
71.2	MODESTO		BLACK LIMESTONE	0.3	345.4	
70.9	CARBONDALE	DANVILLE	COAL	1.8	345.7	
69.2	CARBONDALE		GRAY SILTSTONE	0.7	347.4	
68.5	CARBONDALE		SILTY SHALE	2.9	348.1	
65.6	CARBONDALE		GRAY SILTSTONE	2.7	351.0	
62.9	CARBONDALE		DARK GRAY SHALE	0.7	353.7	
62.3	CARBONDALE		COAL	0.1	354.3	
62.2	CARBONDALE		GRAY SILTSTONE	1.4	354.4	
60.8	CARBONDALE		GRAY SANDSTONE	3.3	355.8	
57.4	CARBONDALE		SILTY SHALE	0.3	359.2	
57.1	CARBONDALE	ALLENBY	COAL	0.6	359.5	CORE LOST
56.5	CARBONDALE		UNDERCLAY	2.9	360.1	DARK GRAY
53.6	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	4.4	363.0	
49.2	CARBONDALE		SILTY SHALE	2.6	367.4	
46.6	CARBONDALE		GRAY SHALE	6.0	370.0	
40.6	CARBONDALE		GRAY SILTSTONE	11.8	376.0	
28.8	CARBONDALE		SILTY SHALE	6.7	387.8	
22.1	CARBONDALE		DARK GRAY SHALE	2.6	394.5	
19.5	CARBONDALE		BLACK LIMESTONE	0.8	397.1	
18.8	CARBONDALE		GRAY SILTSTONE	0.3	397.8	
18.5	CARBONDALE		GRAY SILTSTONE	3.3	398.1	
15.2	CARBONDALE		GRAY LIMESTONE	0.3	401.4	
14.8	CARBONDALE		DARK GRAY SHALE	1.0	401.8	
13.8	CARBONDALE		BLACK SHALE	0.5	402.8	
13.3	CARBONDALE		GRAY SILTSTONE	22.6	403.3	

-9.2	CARBONDALE		DARK GRAY SHALE	3.9	425.8	
-13.2	CARBONDALE		GRAY SHALE	2.5	429.8	
-15.7	CARBONDALE		GRAY SILTSTONE	27.1	432.3	
-42.7	CARBONDALE	HERRIN	COAL	3.5	459.3	
-46.2	CARBONDALE		UNDERCLAY	3.4	462.8	GRAY
-49.7	CARBONDALE		SOFT SHALE	1.9	466.3	CORE LOST
-51.6	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	8.2	468.2	
-59.7	CARBONDALE		GRAY SILTSTONE	6.7	476.3	
-66.4	CARBONDALE		GRAY SANDSTONE	0.3	483.0	
-66.7	CARBONDALE		GREEN SHALE	0.3	483.3	
-66.9	CARBONDALE		SHALE & SANDSTONE	4.6	483.5	
-71.5	CARBONDALE		DARK GRAY SHALE	5.2	488.1	
-76.7	CARBONDALE	ST. DAVID	BLACK LIMESTONE	1.7	493.3	
-78.3	CARBONDALE	TURNER MINE	BLACK SHALE	5.6	494.9	
-83.9	CARBONDALE	DYKERSBURG	SILTY SHALE	3.3	500.5	
-87.2	CARBONDALE	DYKERSBURG	GRAY SHALE	6.3	503.8	
-93.4	CARBONDALE	SPRINGFIELD	COAL	4.0	510.0	
-97.4	CARBONDALE		UNDERCLAY	3.3	514.0	DARK GRAY
-100.7	CARBONDALE		GRAY SHALE	5.8	517.3	
-106.6	CARBONDALE		SHALE & SANDSTONE	4.8	523.2	
-111.4	CARBONDALE		GRAY SILTSTONE	7.7	528.0	
-119.1	CARBONDALE		DARK GRAY SHALE	4.3	535.7	
-123.4	CARBONDALE		DARK SHALE	10.7	540.0	

MAPID: 19900071000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.88169 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.850213 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 429.4 **LOGGED (FT.):** 492.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 22 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
429.4	PLEISTOCENE		UNCONSOLIDATED	33.0	0.0	
396.4			SHALE	63.0	33.0	
333.4			BLACK SHALE	0.2	96.0	
333.2			DARK SHALE	3.0	96.2	DARK GRAY TO BLACK
330.2			SHALE	0.5	99.2	
329.7			LIMESTONE	0.5	99.7	
329.2			SHALE	6.0	100.2	
323.2			BLACK LIMESTONE	0.8	106.2	
322.4			SHALE	6.0	107.0	
316.4			BLACK SHALE	3.0	113.0	
313.4			SHALE	21.0	116.0	
292.4			SANDSTONE	7.0	137.0	
285.4			SHALE	7.0	144.0	
278.4			SANDSTONE	43.0	151.0	
235.4			SHALE	41.0	194.0	
194.4			BLACK SHALE	1.0	235.0	
193.4			SHALE	1.8	236.0	
191.6			SHALY SANDSTONE	26.7	237.8	
164.9			SHALE	4.2	264.5	SS LAMINAE
160.7			BLACK SHALE	2.3	268.7	
158.4			COAL	0.8	271.0	
157.6			UNDERCLAY	6.3	271.8	
151.2			SILTSTONE	1.5	278.2	
149.7			SANDSTONE	6.3	279.7	
143.4			SHALY SANDSTONE	15.5	286.0	
127.9			SHALE	15.2	301.5	
112.7	MODESTO		DARK SHALE	0.3	316.7	
112.4	MODESTO	DEGRAFF	COAL	0.5	317.0	BONEY
111.9	MODESTO		UNDERCLAY	0.3	317.5	
111.6	MODESTO		SILTY SHALE	2.9	317.8	WITH LIMESTONE NODULES
108.6	MODESTO	PIASA	LIMESTONE	3.3	320.8	
105.4	MODESTO		BLACK SHALE	2.0	324.0	COAL PARTINGS AT BASE
103.4	CARBONDALE	DANVILLE	COAL	2.0	326.0	
101.4	CARBONDALE		SILTSTONE	2.5	328.0	
98.9	CARBONDALE		SHALE	5.8	330.5	
93.1	CARBONDALE		COAL	0.0	336.3	BONEY
93.1	CARBONDALE		BLACK SHALE	1.3	336.3	
91.7	CARBONDALE		SANDSTONE	0.8	337.7	
90.9	CARBONDALE		SHALE	0.3	338.5	

90.6	CARBONDALE	ALLENBY	COAL	0.5	338.8	BONEY
90.1	CARBONDALE		UNDERCLAY	2.7	339.3	
87.4	CARBONDALE		SHALE	3.4	342.0	
84.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.3	345.4	
77.7	CARBONDALE		SANDSTONE	0.5	351.7	
77.2	CARBONDALE		SHALE	6.8	352.2	
70.4	CARBONDALE		SANDSTONE	4.8	359.0	
65.6	CARBONDALE		SHALE	20.2	363.8	
45.4	CARBONDALE		SILTSTONE	0.3	384.0	
45.1	CARBONDALE	BRERETON	LIMESTONE	7.4	384.3	
37.6	CARBONDALE	ANNA	BLACK SHALE	2.0	391.8	
35.6	CARBONDALE	ENERGY	SHALE	32.3	393.8	
3.4	CARBONDALE	HERRIN	COAL	8.2	426.0	
-4.8	CARBONDALE		UNDERCLAY	1.0	434.2	WITH SHALE
-5.8	CARBONDALE		LIMESTONE	13.7	435.2	
-19.4	CARBONDALE		SHALE	1.8	448.8	
-21.2	CARBONDALE		SHALY SANDSTONE	2.8	450.6	
-23.9	CARBONDALE		SHALE	9.4	453.3	
-33.4	CARBONDALE	ST. DAVID	LIMESTONE	1.3	462.8	
-34.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	464.0	
-38.4	CARBONDALE	DYKERSBURG	SHALE	9.9	467.8	
-48.3	CARBONDALE	SPRINGFIELD	COAL	4.0	477.7	
-52.3	CARBONDALE		UNDERCLAY	2.0	481.7	
-54.3	CARBONDALE		SHALE	6.3	483.7	
-60.6	CARBONDALE		LIMESTONE	1.0	490.0	
-61.6	CARBONDALE		SILTSTONE	1.0	491.0	

MAPID: 19900071000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.88169 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.850213 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 429.0 **LOGGED (FT.):** 492.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
3.0	CARBONDALE	HERRIN	COAL	8.2	426.0	
-49.0	CARBONDALE	SPRINGFIELD	COAL	4.0	478.0	

MAPID: 19900071000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.88169 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.850213 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 429.4 **LOGGED (FT.):** 492.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 22 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
429.4			UNCLASSIFIED	33.0	0.0	CORE MISSING
396.4	MODESTO		SILTY SHALE	0.3	33.0	
396.1	MODESTO		GRAY SHALE	32.8	33.3	
363.2	MODESTO		GRAY SHALE	2.8	66.2	
360.4	MODESTO		SHALE	24.0	69.0	
336.4	MODESTO		GRAY SHALE	3.0	93.0	
333.4	MODESTO		HARD SHALE	0.2	96.0	
333.2	MODESTO		BLACK SHALE	2.8	96.2	
330.4	MODESTO		SILTY SHALE	0.2	99.0	
330.2	MODESTO		CALCAREOUS SHALE	0.5	99.2	
329.7	MODESTO		GRAY LIMESTONE	0.5	99.7	
329.2	MODESTO		CALCAREOUS SHALE	0.4	100.2	
328.8	MODESTO		SILTY SHALE	5.6	100.6	
323.2	MODESTO		LIMESTONE	0.8	106.2	
322.4	MODESTO		LAMINATED SHALE	1.0	107.0	
321.4	MODESTO		DARK SHALE	3.8	108.0	
317.6	MODESTO		GRAY SHALE	1.2	111.8	
316.4	MODESTO		BLACK SHALE	3.0	113.0	
313.4	MODESTO		SILTY SHALE	21.0	116.0	
292.4	MODESTO		GRAY SANDSTONE	7.0	137.0	
285.4	MODESTO		LAMINATED SHALE	7.0	144.0	
278.4	MODESTO		SANDSTONE	7.0	151.0	
271.4	MODESTO		SANDSTONE	36.0	158.0	
235.4	MODESTO		HARD SHALE	0.3	194.0	
235.1	MODESTO		UNCLASSIFIED	35.7	194.3	CORE MISSING
199.4	MODESTO		SILTY SHALE	5.0	230.0	
194.4	MODESTO		CALCAREOUS SHALE	1.0	235.0	
193.4	MODESTO		SILTY SHALE	1.8	236.0	
191.6	MODESTO		SHALE & SANDSTONE	16.2	237.8	
175.4	MODESTO		LAMINATED SHALE	10.5	254.0	
164.9	MODESTO		DARK GRAY SHALE	3.7	264.5	
161.2	MODESTO		DARK SHALE	0.5	268.2	
160.7	MODESTO		BLACK SHALE	1.0	268.7	
159.7	MODESTO		DARK SHALE	0.3	269.7	
159.5	MODESTO		SHALE	1.1	269.9	
158.4	MODESTO	POND CREEK	COAL	0.8	271.0	
157.6	MODESTO		UNDERCLAY	6.3	271.8	GRAY
151.2	MODESTO		GRAY SILTSTONE	1.5	278.2	
149.7	MODESTO		GRAY SANDSTONE	6.3	279.7	

143.4	MODESTO		SHALE & SANDSTONE	15.5	286.0	
127.9	MODESTO		LAMINATED SHALE	3.5	301.5	
124.4	MODESTO		SHALE	11.7	305.0	
112.7	MODESTO		DARK SHALE	0.3	316.7	
112.4	MODESTO		BONE COAL	0.5	317.0	
111.9	MODESTO		UNDERCLAY	0.3	317.5	GRAY
111.6	MODESTO		GREEN SHALE	0.8	317.8	
110.7	MODESTO		GRAY SILTSTONE	0.7	318.7	
110.1	MODESTO		BROWN LIMESTONE	0.5	319.3	
109.6	MODESTO		SILTY SHALE	0.9	319.8	
108.6	MODESTO	PIASA	GRAY LIMESTONE	3.3	320.8	
105.4	MODESTO		LAMINATED SHALE	1.8	324.0	
103.6	MODESTO		SILTY SHALE	0.3	325.8	
103.4	CARBONDALE	DANVILLE	COAL	2.0	326.0	
101.4	CARBONDALE		GRAY SILTSTONE	2.5	328.0	
98.9	CARBONDALE		SOFT SHALE	5.6	330.5	
93.3	CARBONDALE		SILTY SHALE	0.2	336.1	
93.2	CARBONDALE		BONE COAL	0.0	336.2	
93.1	CARBONDALE		HARD SHALE	1.3	336.3	
91.7	CARBONDALE		GRAY SANDSTONE	0.8	337.7	
90.9	CARBONDALE		SILTY SHALE	0.3	338.5	
90.6	CARBONDALE	ALLENBY	BONE COAL	0.5	338.8	
90.1	CARBONDALE		UNDERCLAY	2.7	339.3	GREEN-GRAY
87.4	CARBONDALE		SOFT SHALE	3.4	342.0	
84.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.3	345.4	
77.7	CARBONDALE	ANVIL ROCK	ARGILLACEOUS SANDSTONE	0.5	351.7	LIGHT GRAY
77.2	CARBONDALE	ANVIL ROCK	LAMINATED SHALE	6.8	352.2	
70.4	CARBONDALE	ANVIL ROCK	SANDSTONE	4.8	359.0	
65.6	CARBONDALE	ANVIL ROCK	LAMINATED SHALE	13.2	363.8	
52.4	CARBONDALE		DARK SHALE	5.8	377.0	
46.6	CARBONDALE		SILTY SHALE	0.3	382.8	
46.4	CARBONDALE		SILTY SHALE	1.0	383.0	
45.4	CARBONDALE		GRAY SILTSTONE	0.3	384.0	
45.1	CARBONDALE	BRERETON	GRAY LIMESTONE	7.4	384.3	
37.6	CARBONDALE	ANNA	BLACK SHALE	2.0	391.8	
35.6	CARBONDALE	ENERGY	SILTY SHALE	18.9	393.8	
16.7	CARBONDALE	ENERGY	SILTY SHALE	13.3	412.7	
3.4	CARBONDALE	HERRIN	COAL	8.2	426.0	
-4.8	CARBONDALE		SILTY SHALE	1.0	434.2	
-5.8	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	13.7	435.2	
-19.4	CARBONDALE		GREEN SHALE	1.8	448.8	
-21.2	CARBONDALE		SHALE & SANDSTONE	0.4	450.6	
-21.6	CARBONDALE		SHALE & SANDSTONE	2.3	451.0	
-23.9	CARBONDALE		SILTY SHALE	1.7	453.3	
-25.6	CARBONDALE		SOFT SHALE	7.8	455.0	
-33.4	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.3	462.8	
-34.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	464.0	

-38.4	CARBONDALE	DYKERSBURG	SOFT SHALE	9.9	467.8	
-48.3	CARBONDALE	SPRINGFIELD	COAL	4.0	477.7	
-52.3	CARBONDALE		UNDERCLAY	2.0	481.7	GRAY
-54.3	CARBONDALE		SILTY SHALE	6.3	483.7	
-60.6	CARBONDALE		BROWN LIMESTONE	1.0	490.0	
-61.6	CARBONDALE		GRAY SILTSTONE	1.0	491.0	

MAPID: 19901261000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 660' S line, 720' E line of SE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.885335 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.85098 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 422.0 **LOGGED (FT.):** 440.8 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. S-7 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
81.0	MODESTO	PIASA	LIMESTONE	2.5	341.0	
78.5	CARBONDALE		CLAYSTONE	1.5	343.5	
77.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	345.0	LOWER BENCH
74.0	CARBONDALE	LAWSON	GRAY SHALE	34.0	348.0	
40.0	CARBONDALE	BRERETON	LIMESTONE	5.5	382.0	
34.5	CARBONDALE	ANNA	BLACK SHALE	2.0	387.5	
32.5	CARBONDALE	ENERGY	SANDSTONE	0.5	389.5	
32.0	CARBONDALE	ENERGY	GRAY SHALE	42.0	390.0	
-10.0	CARBONDALE	HERRIN	COAL	8.8	432.0	

MAPID: 19902398000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 275' W line of NE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.876991 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.854036 **DATE COLLECTED:** 12 / 0 / 1969

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 1620.0 **LOG TYPE:** Electric Log

SOURCE: BUFAY OIL COMPANY **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-256.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	696.0	
-330.0	SPOON	DAVIS	UNCLASSIFIED	-	770.0	
-1180.0	BASE OF PENN.		UNCLASSIFIED	-	1620.0	

MAPID: 19901235000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 660' S line, 360' E line of SE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.902538 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.850533 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 463.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. 12 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
115.0	MODESTO	PIASA	LIMESTONE	3.0	326.0	
112.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	329.0	LOWER BENCH
111.0	CARBONDALE	CONANT	LIMESTONE	1.0	330.0	
110.0	CARBONDALE		GRAY SHALE	7.0	331.0	
103.0	CARBONDALE	BRERETON	LIMESTONE	3.0	338.0	
-14.0	CARBONDALE	HERRIN	COAL	8.0	455.0	

MAPID: 19901287000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.92295 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.852827 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 461.0 **LOG TYPE:** Electric Log

SOURCE: REDWINE, NASH OLD BEN1-A **WELL TYPE:** Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
171.0	MODESTO	PIASA	LIMESTONE	3.0	292.0	
168.0	MODESTO		GRAY SHALE	26.0	295.0	
142.0	CARBONDALE	DANVILLE	COAL	2.5	321.0	
139.5	CARBONDALE		GRAY SHALE	27.0	323.5	
112.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	350.5	
106.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	85.0	356.5	
21.5	CARBONDALE	ENERGY	SHALE & SANDSTONE	7.0	441.5	
11.0	CARBONDALE	HERRIN	COAL	9.0	452.0	

MAPID: 19901287000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.92295 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.852827 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 3002.0 **LOG TYPE:** Electric Log
SOURCE: REDWINE NASH ETAL **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
11.0	CARBONDALE	HERRIN	COAL	10.0	452.0	
-41.0	CARBONDALE	SPRINGFIELD	COAL	5.0	504.0	
-121.0	CARBONDALE	HOUCHIN CREEK	COAL	-	584.0	

MAPID: 19902003000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 660' N line, 330' W line of SE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.922951 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.850094 **DATE COLLECTED:** 11 / 0 / 1946
SURFACE ELEVATION (FT.): 487.0 **LOGGED (FT.):** 1634.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1147.0	BASE OF PENN.		UNCLASSIFIED	-	1634.0	

MAPID: 19902004000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 600' S line, 330' W line of SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.922973 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.842569 **DATE COLLECTED:** 4 / 0 / 1952
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 1444.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-987.0	BASE OF PENN.		UNCLASSIFIED	-	1444.0	

MAPID: 19902004000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 600' S line, 330' W line of SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.922973 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.842569 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 2781.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
173.0	CARBONDALE	HERRIN	COAL	8.0	284.0	
120.0	CARBONDALE	SPRINGFIELD	COAL	3.0	337.0	
39.0	CARBONDALE	HOUCHIN CREEK	COAL	-	418.0	

MAPID: 19902004000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 600' S line, 330' W line of SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.922973 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.842569 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 292.0 **LOG TYPE:** Electric Log
SOURCE: NO COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
295.0	CARBONDALE	DANVILLE	COAL	2.5	162.0	
292.5	CARBONDALE		GRAY SHALE	6.0	164.5	
286.5	CARBONDALE	ALLENBY	COAL	1.0	170.5	
285.5	CARBONDALE		DARK GRAY SHALE	3.0	171.5	
282.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	174.5	
276.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	28.0	181.0	
248.0	CARBONDALE	ENERGY	GRAY SHALE	74.0	209.0	
174.0	CARBONDALE	HERRIN	COAL	9.0	283.0	

MAPID: 19901302000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** 600' S line, 0' E line of SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.901122 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.842901 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 415.0 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. C-45 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
161.1	MODESTO	PIASA	LIMESTONE/UNDERCLAY	2.8	292.9	
158.4	CARBONDALE		CLAYSTONE	1.0	295.6	
157.4	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	0.8	296.6	UPPER BENCH
156.6	CARBONDALE	BANKSTON FORK	LIMESTONE	12.2	297.4	LOWER BENCH
144.4	CARBONDALE	LAWSON	CLAYSTONE	2.0	309.6	
142.4	CARBONDALE	LAWSON	GRAY SHALE	4.0	311.6	
138.4	CARBONDALE	LAWSON	SANDSTONE	1.8	315.6	
136.6	CARBONDALE	LAWSON	SHALE & SILTSTONE	12.2	317.4	
124.4	CARBONDALE	LAWSON	GRAY SHALE	5.5	329.6	
118.9	CARBONDALE	JAMESTOWN	CALCAREOUS SHALE	0.9	335.1	
118.0	CARBONDALE	ENERGY	CALCAREOUS SHALE	3.6	336.0	
114.4	CARBONDALE	ENERGY	SILTSTONE	8.0	339.6	
106.4	CARBONDALE	ENERGY	GRAY SHALE	10.7	347.6	
95.7	CARBONDALE	ENERGY	SILTSTONE	6.3	358.3	
89.4	CARBONDALE	ENERGY	GRAY SHALE	40.4	364.6	
49.0	CARBONDALE	HERRIN	COAL	10.0	405.0	

MAPID: 19901424000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.909194 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.847675 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 2960.0 **LOG TYPE:** Electric Log
SOURCE: TIOGA OIL **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
28.0	CARBONDALE	HERRIN	COAL	9.0	432.0	
-23.0	CARBONDALE	SPRINGFIELD	COAL	4.0	483.0	
-102.0	CARBONDALE	HOUCHIN CREEK	COAL	-	562.0	

MAPID: 19901887000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.904653 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.847767 **DATE COLLECTED:** 11 / 0 / 1955

SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 1590.0 **LOG TYPE:** Electric Log

SOURCE: PHILLIPS PETROLEUM CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-231.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	688.0	
-303.0	SPOON	DAVIS	UNCLASSIFIED	-	760.0	
-1133.0	BASE OF PENN.		UNCLASSIFIED	-	1590.0	

MAPID: 19900072000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2392' N line, 1295' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878153 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.842847 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 441.2 **LOGGED (FT.):** 336.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 40 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
441.2	PLEISTOCENE		BROWN SANDSTONE	20.0	0.0	
421.2	MODESTO		BROWN SANDSTONE	23.5	20.0	
397.7	MODESTO		GRAY SANDSTONE	0.5	43.5	
397.2	MODESTO		GRAY SANDSTONE	41.0	44.0	
356.2	MODESTO		GRAY SANDSTONE	5.0	85.0	
351.2	MODESTO		SILTY SHALE	41.0	90.0	
310.2	MODESTO		GRAY SHALE	12.0	131.0	
298.2	MODESTO		SILTY SHALE	0.5	143.0	
297.7	MODESTO		LIMESTONE	0.5	143.5	
297.2	MODESTO		SILTY SHALE	1.5	144.0	
295.7	MODESTO		SILTY SHALE	1.2	145.5	
294.5	MODESTO		SILTY SHALE	10.8	146.7	
283.7	MODESTO		SOFT SHALE	0.8	157.5	
282.9	MODESTO		BONE COAL	0.1	158.3	
282.9	MODESTO		GRAY SILTSTONE	0.5	158.3	
282.4	MODESTO		SILTY SHALE	10.2	158.8	
272.2	MODESTO		DARK SHALE	2.0	169.0	
270.2	MODESTO		SILTY SHALE	1.5	171.0	
268.7	MODESTO		LAMINATED SHALE	4.3	172.5	
264.4	MODESTO		BLACK SHALE	3.5	176.8	
260.9	MODESTO	POND CREEK	COAL	1.3	180.3	
259.5	MODESTO		SILTY SHALE	0.7	181.7	
258.9	MODESTO		GRAY SILTSTONE	1.2	182.3	
257.7	MODESTO		ARGILLACEOUS SANDSTONE	29.5	183.5	LIGHT GRAY
228.2	MODESTO		GRAY SANDSTONE	9.0	213.0	
219.2	MODESTO		GRAY SILTSTONE	1.0	222.0	
218.2	MODESTO		GRAY SILTSTONE	11.0	223.0	
207.2	MODESTO		SHALE & SANDSTONE	2.6	234.0	
204.6	MODESTO		GRAY SANDSTONE	0.6	236.6	
204.0	MODESTO		SHALE & SANDSTONE	1.8	237.2	
202.2	MODESTO		GRAY SANDSTONE	0.3	239.0	
201.9	MODESTO	PIASA	GRAY LIMESTONE	5.7	239.3	
196.3	CARBONDALE		CALCAREOUS SHALE	5.1	244.9	
191.2	CARBONDALE		SILTY SHALE	3.0	250.0	
188.2	CARBONDALE		DARK SHALE	0.3	253.0	
187.9	CARBONDALE		GREEN SHALE	6.3	253.3	
181.7	CARBONDALE	ANVIL ROCK	SILTY SHALE	0.2	259.5	
181.5	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	1.3	259.7	

180.2	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	14.0	261.0
166.2	CARBONDALE	ANVIL ROCK	SILTY SHALE	8.5	275.0
157.7	CARBONDALE	ANVIL ROCK	SILTY SHALE	1.5	283.5
156.2	CARBONDALE	ANVIL ROCK	SILTY SHALE	1.3	285.0
154.9	CARBONDALE	ANVIL ROCK	CALCAREOUS SHALE	1.0	286.3
153.9	CARBONDALE	CONANT	BLACK LIMESTONE	1.7	287.3
152.2	CARBONDALE		CALCAREOUS SHALE	0.8	289.0
151.4	CARBONDALE	BRERETON	GRAY LIMESTONE	6.2	289.8
145.2	CARBONDALE	ANNA	BLACK SHALE	1.8	296.0
143.4	CARBONDALE	ENERGY	SILTY SHALE	28.3	297.8
115.1	CARBONDALE	HERRIN	COAL	7.7	326.1
107.4	CARBONDALE		UNDERCLAY	2.3	333.8

MAPID: 19900072000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2392' N line, 1295' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878153 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.842847 **DATE COLLECTED:** 8 / 0 / 1923

SURFACE ELEVATION (FT.): 441.2 **LOGGED (FT.):** 336.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 40 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
441.2	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
421.2			SANDSTONE	70.0	20.0	
351.2			SHALE	41.0	90.0	INCLINED BEDS
310.2			SHALE	12.5	131.0	
297.7			BLACK LIMESTONE	0.5	143.5	
297.2			SHALE	14.3	144.0	INCLINED BEDS
282.9			COAL	0.1	158.3	BONEY
282.9			SILTSTONE	0.5	158.3	
282.4			SHALE	10.2	158.8	INCLINED BEDS
272.2			BLACK SHALE	2.0	169.0	
270.2			DARK SHALE	5.8	171.0	INCLINED BEDS
264.4			SHALE	3.5	176.8	BLACK LIMESTONE INCLUSIONS
260.9	CARBONDALE	DANVILLE	COAL	1.3	180.3	
259.5	CARBONDALE		SHALE	0.7	181.7	COALY PARTINGS; INCLINED BEDS
258.9	CARBONDALE		SILTSTONE	1.2	182.3	
257.7	CARBONDALE		SANDSTONE	38.5	183.5	INCLINED BEDS
219.2	CARBONDALE		SILTSTONE	12.0	222.0	
207.2	CARBONDALE		SANDSTONE/SHALE	5.3	234.0	INCLINED BEDS
201.9	CARBONDALE	BANKSTON FORK	LIMESTONE	5.7	239.3	
196.3	CARBONDALE		SHALE	8.1	244.9	INCLINED BEDS
188.2	CARBONDALE		BLACK SHALE	0.3	253.0	INCLINED BEDS
187.9	CARBONDALE		SHALE	6.3	253.3	INCLINED BEDS
181.7	CARBONDALE		BLACK SHALE	0.2	259.5	
181.5	CARBONDALE		SANDSTONE/SHALE	1.3	259.7	INCLINED BEDS
180.2	CARBONDALE		SANDSTONE	14.0	261.0	INCLINED BEDS
166.2	CARBONDALE		SHALE	8.5	275.0	INCLINED BEDS
157.7	CARBONDALE		DARK SHALE	3.8	283.5	INCLINED BEDS
153.9	CARBONDALE	CONANT	BLACK LIMESTONE	1.7	287.3	INCLINED BEDS
152.2	CARBONDALE		BLACK SHALE	0.8	289.0	INCLINED BEDS
151.4	CARBONDALE	BRERETON	LIMESTONE	6.2	289.8	
145.2	CARBONDALE	ANNA	BLACK SHALE	1.1	296.0	
144.1	CARBONDALE	ENERGY	SHALE	29.0	297.1	INCLINED BED
115.1	CARBONDALE	HERRIN	COAL	7.7	326.1	
107.4	CARBONDALE		UNDERCLAY	2.3	333.8	

MAPID: 19900073000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1580' S line, 1290' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878205 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.838823 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 469.7 **LOGGED (FT.):** 270.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 53 **WELL TYPE:** Coal Test

COMMENT: DRILL LOG AVAIL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
469.7	PLEISTOCENE		CLAY	22.0	0.0	CORE MISSING
447.7	MODESTO		BROWN SANDSTONE	15.0	22.0	
432.7	MODESTO		SILTY SHALE	2.0	37.0	
430.7	MODESTO		SILTY SHALE	47.8	39.0	
382.9	MODESTO		BLACK LIMESTONE	0.2	86.8	
382.7	MODESTO		GRAY SILTSTONE	3.0	87.0	
379.7	MODESTO		SHALE & SANDSTONE	3.5	90.0	
376.2	MODESTO		VARRIGATED SHALE	13.5	93.5	
362.7	MODESTO		SHALE	16.5	107.0	
346.2	MODESTO		DARK SHALE	4.5	123.5	
341.7	MODESTO		SILTY SHALE	1.8	128.0	
339.9	MODESTO		HARD SHALE	1.2	129.8	
338.7	MODESTO		GRAY SILTSTONE	9.0	131.0	
329.7	MODESTO		GRAY SANDSTONE	1.2	140.0	
328.5	MODESTO		GRAY SILTSTONE	4.8	141.2	
323.7	MODESTO		GRAY SHALE	8.5	146.0	
315.2	MODESTO		SILTY SHALE	0.8	154.5	
314.4	MODESTO	PIASA	GRAY LIMESTONE	2.7	155.3	
311.7	MODESTO		CALCAREOUS SHALE	0.3	158.0	
311.4	MODESTO		BLACK SHALE	1.6	158.3	
309.9	MODESTO		GREEN SHALE	0.2	159.8	
309.7	MODESTO		GREEN SHALE	2.0	160.0	
307.7	MODESTO		DARK GRAY SHALE	2.5	162.0	
305.2	CARBONDALE	DANVILLE	COAL	0.7	164.5	
304.5	CARBONDALE		GRAY SILTSTONE	4.2	165.2	
300.4	CARBONDALE		GRAY SHALE	1.7	169.3	
298.7	CARBONDALE		CALCAREOUS SANDSTONE	0.5	171.0	DARK GRAY
298.2	CARBONDALE		GRAY SILTSTONE	6.5	171.5	
291.7	CARBONDALE		CALCAREOUS SHALE	3.0	178.0	
288.7	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.5	181.0	
283.2	CARBONDALE		GRAY SILTSTONE	6.5	186.5	
276.7	CARBONDALE		SILTY SHALE	3.5	193.0	
273.2	CARBONDALE		BLACK SHALE	2.5	196.5	
270.7	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	2.0	199.0	
268.7	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	10.0	201.0	LIGHT GRAY
258.7	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	7.0	211.0	
251.7	CARBONDALE	ANVIL ROCK	SILTY SHALE	2.0	218.0	
249.7	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	1.5	220.0	

248.2	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	1.2	221.5	
247.0	CARBONDALE	CONANT	BLACK LIMESTONE	0.5	222.7	
246.5	CARBONDALE	JAMESTOWN	COAL	0.3	223.2	
246.2	CARBONDALE		CALCAREOUS SHALE	2.0	223.5	
244.2	CARBONDALE	BRERETON	LIMESTONE	7.2	225.5	
237.0	CARBONDALE		SILTY SHALE	0.5	232.7	
236.5	CARBONDALE		GRAY SHALE	0.8	233.2	
235.7	CARBONDALE	ANNA	BLACK SHALE	2.0	234.0	
233.7	CARBONDALE	ENERGY	SILTY SHALE	22.0	236.0	
211.7	CARBONDALE	HERRIN	COAL	6.7	258.0	"CORE REMOVED TO SMALL BOX"
205.0	CARBONDALE		UNDERCLAY	5.3	264.7	"NOT IN CORE BOX"

MAPID: 19900073000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1580' S line, 1290' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878205 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.838823 **DATE COLLECTED:** 11 / 0 / 1923

SURFACE ELEVATION (FT.): 469.7 **LOGGED (FT.):** 270.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 53 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
469.7	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
447.7			SANDSTONE	15.0	22.0	
432.7			SHALE	49.8	37.0	
382.9			BLACK LIMESTONE	0.2	86.8	
382.7			SILTSTONE	3.0	87.0	
379.7			SHALY SANDSTONE	33.5	90.0	
346.2			DARK SHALE	4.5	123.5	
341.7			BLACK SHALE	3.0	128.0	
338.7			SHALE	9.0	131.0	
329.7	MODESTO		SANDSTONE	1.2	140.0	
328.5	MODESTO		SILTSTONE	4.8	141.2	
323.7	MODESTO		SHALE	9.3	146.0	
314.4	MODESTO	PIASA	LIMESTONE	2.7	155.3	
311.7	MODESTO		SHALE	0.3	158.0	
311.4	MODESTO		BLACK SHALE	1.6	158.3	
309.9	MODESTO		SHALE	4.7	159.8	THIN COAL PARTINGS NEAR BASE
305.2	CARBONDALE	DANVILLE	COAL	0.7	164.5	
304.5	CARBONDALE		SILTSTONE	4.2	165.2	
300.4	CARBONDALE		SHALE	1.7	169.3	
298.7	CARBONDALE		SANDSTONE	0.5	171.0	
298.2	CARBONDALE		SILTSTONE	6.5	171.5	
291.7	CARBONDALE		SHALE	3.0	178.0	
288.7	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	181.0	
283.2	CARBONDALE		SILTSTONE	6.5	186.5	
276.7	CARBONDALE		SHALE	3.5	193.0	
273.2	CARBONDALE		BLACK SHALE	2.5	196.5	COAL PARTINGS AT BASE
270.7	CARBONDALE		SHALY SANDSTONE	2.0	199.0	
268.7	CARBONDALE		SANDSTONE	10.0	201.0	
258.7	CARBONDALE		SILTSTONE	7.0	211.0	
251.7	CARBONDALE		SHALE	3.5	218.0	
248.2	CARBONDALE		SILTSTONE	1.2	221.5	
247.0	CARBONDALE	CONANT	BLACK LIMESTONE	0.5	222.7	
246.5	CARBONDALE	JAMESTOWN	COAL	0.3	223.2	
246.2	CARBONDALE		BLACK SHALE	2.0	223.5	
244.2	CARBONDALE	BRERETON	LIMESTONE	7.2	225.5	
237.0	CARBONDALE	ANNA	BLACK SHALE	0.5	232.7	
236.5	CARBONDALE	ANNA	SHALE	0.8	233.2	
235.7	CARBONDALE	ANNA	BLACK SHALE	2.0	234.0	
233.7	CARBONDALE	ENERGY	SHALE	22.0	236.0	

211.7	CARBONDALE	HERRIN	COAL	6.7	258.0
205.0	CARBONDALE		UNDERCLAY	5.3	264.7

MAPID: 19900074000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 35' S line, 52' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.877988 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.83457 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 491.6 **LOGGED (FT.):** 325.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 28 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
491.6	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
480.6			SANDSTONE	3.0	11.0	
477.6			SHALE	42.0	14.0	
435.6			SHALE & SANDSTONE	6.0	56.0	
429.6			SHALE	26.0	62.0	
403.6			DARK SHALE	5.0	88.0	
398.6			COAL	0.3	93.0	
398.3			BLACK SHALE	0.3	93.3	
398.0			SHALE	2.2	93.6	
395.8	MODESTO		SANDSTONE/SHALE	4.8	95.8	
391.1	MODESTO		SANDSTONE	9.5	100.5	
381.6	MODESTO		SHALE	4.0	110.0	
377.6	MODESTO		SHALE	19.0	114.0	
358.6	MODESTO		DARK SHALE	1.0	133.0	
357.6	MODESTO	DEGRAFF	COAL	0.3	134.0	BONY
357.3	MODESTO		UNDERCLAY	0.3	134.3	
357.0	MODESTO		SHALE	1.4	134.6	
355.6	MODESTO	PIASA	LIMESTONE	2.3	136.0	
353.3	MODESTO		SHALE	0.5	138.3	
352.8	MODESTO		BLACK SHALE	0.3	138.8	
352.4	MODESTO		SHALE	2.5	139.2	
349.9	MODESTO		BLACK SHALE	3.6	141.7	
346.3	CARBONDALE	DANVILLE	COAL	1.3	145.3	
345.1	CARBONDALE		UNDERCLAY	6.0	146.5	
339.1	CARBONDALE		SHALY SANDSTONE	1.5	152.5	
337.6	CARBONDALE		SHALE	2.0	154.0	
335.6	CARBONDALE		DARK SHALE	1.0	156.0	COAL PARTINGS
334.6	CARBONDALE	ALLENBY	COAL	0.2	157.0	BONE
334.4	CARBONDALE		SHALE	0.3	157.2	
334.1	CARBONDALE		SANDSTONE	0.6	157.5	
333.5	CARBONDALE		BLACK SHALE	0.1	158.1	COAL PARTINGS
333.4	CARBONDALE		UNDERCLAY	4.7	158.2	
328.8	CARBONDALE		SHALE	1.3	162.8	
327.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.6	164.1	
324.9	CARBONDALE		SHALE	10.0	166.7	
314.9	CARBONDALE		SANDSTONE	7.5	176.7	
307.4	CARBONDALE		SHALE	1.0	184.2	
306.4	CARBONDALE		SANDSTONE	3.5	185.2	
302.9	CARBONDALE		SILTSTONE	7.2	188.7	

295.8	CARBONDALE		SHALE	1.6	195.8	
294.2	CARBONDALE	JAMESTOWN	COAL	0.2	197.4	
294.0	CARBONDALE		LIMESTONE	0.7	197.6	
293.3	CARBONDALE		BLACK SHALE	1.7	198.3	
291.7	CARBONDALE	BRERETON	LIMESTONE	5.8	199.9	
285.8	CARBONDALE	ANNA	BLACK SHALE	2.0	205.8	
283.8	CARBONDALE	ENERGY	SHALE	44.9	207.8	
238.9	CARBONDALE	HERRIN	COAL	9.6	252.7	
229.3	CARBONDALE		UNDERCLAY	2.1	262.3	
227.2	CARBONDALE		SHALE	8.8	264.4	
218.5	CARBONDALE		SHALE	0.1	273.1	COAL PARTINGS
218.4	CARBONDALE		SHALE	2.8	273.2	
215.6	CARBONDALE		ROCK	1.0	276.0	LS-SH-FLINT CONGLOMERATE
214.6	CARBONDALE		SHALE	3.8	277.0	
210.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	280.8	
207.1	CARBONDALE	DYKERSBURG	SHALE	11.5	284.5	
195.6	CARBONDALE	SPRINGFIELD	COAL	4.2	296.0	
191.4	CARBONDALE		UNDERCLAY	4.4	300.2	
187.0	CARBONDALE		SHALE	5.9	304.6	
181.1	CARBONDALE		SANDSTONE/SHALE	14.5	310.5	

MAPID: 19900074000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 35' S line, 52' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.877988 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.83457 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 325.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
239.0	CARBONDALE	HERRIN	COAL	9.6	253.0	
196.0	CARBONDALE	SPRINGFIELD	COAL	4.2	296.0	

MAPID: 19900074000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 35' S line, 52' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.877988 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.83457 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 491.6 **LOGGED (FT.):** 325.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 28 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
491.6	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
480.6	MODESTO		BROWN SANDSTONE	3.0	11.0	
477.6	MODESTO		SILTY SHALE	10.0	14.0	
467.6	MODESTO		SILTY SHALE	32.0	24.0	
435.6	MODESTO		SHALE & SANDSTONE	6.0	56.0	
429.6	MODESTO		SOFT SHALE	1.0	62.0	
428.6	MODESTO		DARK GRAY SHALE	2.0	63.0	
426.6	MODESTO		DARK GRAY SHALE	16.0	65.0	
410.6	MODESTO		HARD SHALE	1.0	81.0	
409.6	MODESTO		HARD SHALE	6.0	82.0	
403.6	MODESTO		SLATY SHALE	5.0	88.0	
398.6	MODESTO	POND CREEK	COAL	0.3	93.0	
398.3	MODESTO		BLACK SHALE	0.3	93.3	
398.0	MODESTO		HARD SHALE	0.6	93.6	
397.4	MODESTO		CALCAREOUS SHALE	1.6	94.2	
395.8	MODESTO		GRAY SANDSTONE	3.3	95.8	
392.6	MODESTO		SANDY SHALE	1.5	99.0	
391.1	MODESTO		GRAY SANDSTONE	10.0	100.5	
381.1	MODESTO		GRAY SILTSTONE	4.0	110.5	
377.1	MODESTO		SILTY SHALE	19.0	114.5	
358.1	MODESTO		LAMINATED SHALE	1.0	133.5	
357.1	MODESTO		BONE COAL	0.3	134.5	
356.8	MODESTO		UNDERCLAY	0.3	134.8	GRAY
356.5	MODESTO		SILTY SHALE	1.4	135.1	
355.1	MODESTO	PIASA	GRAY LIMESTONE	2.3	136.5	
352.8	MODESTO		CALCAREOUS SHALE	0.5	138.8	
352.3	MODESTO		SOFT SHALE	0.2	139.3	
352.1	MODESTO		HARD SHALE	0.7	139.5	
351.4	MODESTO		SOFT SHALE	1.5	140.2	
349.9	MODESTO		HARD SHALE	3.6	141.7	
346.3	CARBONDALE	DANVILLE	COAL	1.3	145.3	
345.1	CARBONDALE		CLAYSTONE	6.0	146.5	GRAY
339.1	CARBONDALE		SHALE & SANDSTONE	1.5	152.5	
337.6	CARBONDALE		SOFT SHALE	2.0	154.0	
335.6	CARBONDALE		BLACK SHALE	1.0	156.0	
334.6	CARBONDALE	ALLENBY	BONE COAL	0.2	157.0	
334.4	CARBONDALE		DARK GRAY SHALE	0.3	157.2	
334.1	CARBONDALE		GRAY SANDSTONE	0.6	157.5	
333.5	CARBONDALE		HARD SHALE	0.1	158.1	WITH COAL PARTINGS

333.4	CARBONDALE		SHALE	4.7	158.2	
328.8	CARBONDALE		CALCAREOUS SHALE	1.3	162.8	
327.5	CARBONDALE	BANKSTON FORK	SHALY LIMESTONE	2.6	164.1	LIGHT GRAY
324.9	CARBONDALE		SANDY SHALE	4.3	166.7	
320.6	CARBONDALE		SLATY SHALE	5.7	171.0	
314.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	6.0	176.7	
308.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	1.5	182.7	
307.4	CARBONDALE	ANVIL ROCK	SILTY SHALE	1.0	184.2	
306.4	CARBONDALE	ANVIL ROCK	SANDSTONE	3.5	185.2	
302.9	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	7.2	188.7	
295.8	CARBONDALE		SILTY SHALE	1.6	195.8	
294.2	CARBONDALE	JAMESTOWN	BONE COAL	0.2	197.4	
294.0	CARBONDALE		GRAY LIMESTONE	0.7	197.6	
293.3	CARBONDALE		CALCAREOUS SHALE	1.7	198.3	
291.7	CARBONDALE	BRERETON	GRAY LIMESTONE	5.8	199.9	
285.8	CARBONDALE	ANNA	BLACK SHALE	2.0	205.8	
283.8	CARBONDALE	ENERGY	SILTY SHALE	10.3	207.8	
273.6	CARBONDALE	ENERGY	GRAY SHALE	34.7	218.0	
238.9	CARBONDALE	HERRIN	COAL	9.6	252.7	
229.3	CARBONDALE		CLAYSTONE	2.1	262.3	GRAY
227.3	CARBONDALE		GRAY SHALE	8.8	264.3	
218.5	CARBONDALE		GRAY SHALE	0.1	273.1	
218.4	CARBONDALE		DARK GRAY SHALE	2.8	273.2	
215.6	CARBONDALE		CONGLOMERATE	1.0	276.0	
214.6	CARBONDALE		DARK GRAY SHALE	2.4	277.0	
212.2	CARBONDALE		CALCAREOUS SHALE	1.3	279.4	
210.8	CARBONDALE		SLATY SHALE	3.8	280.8	
207.1	CARBONDALE		HARD SHALE	11.5	284.5	
195.6	CARBONDALE	SPRINGFIELD	COAL	4.2	296.0	
191.4	CARBONDALE		UNDERCLAY	1.0	300.2	GRAY
190.4	CARBONDALE		UNDERCLAY	3.4	301.2	GREEN-GRAY
187.0	CARBONDALE		SILTY SHALE	3.1	304.6	
183.9	CARBONDALE		SOFT SHALE	2.8	307.7	
181.1	CARBONDALE		GRAY SILTSTONE	6.6	310.5	
174.5	CARBONDALE		SOFT SHALE	3.3	317.1	
171.3	CARBONDALE		SANDSTONE	0.4	320.3	
170.8	CARBONDALE		SHALE	1.0	320.8	
169.8	CARBONDALE		SANDSTONE	3.3	321.8	

MAPID: 19901297000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 0' S line, 675' E line of SE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.876009 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.842052 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 438.0 **LOGGED (FT.):** 412.2 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. C-43 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
117.4	MODESTO	PIASA	LIMESTONE/UNDERCLAY	2.9	320.6	
114.5	CARBONDALE		CLAYSTONE	4.5	323.5	
110.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	2.0	328.0	UPPER BENCH
108.0	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	2.4	330.0	LOWER BENCH
105.6	CARBONDALE	LAWSON	SILTSTONE	1.5	332.4	
104.1	CARBONDALE	LAWSON	GRAY SHALE	11.8	333.9	
92.3	CARBONDALE	LAWSON	SANDSTONE	12.6	345.7	
79.7	CARBONDALE	LAWSON	GRAY SHALE	10.6	358.3	
69.1	CARBONDALE	LAWSON	CALCAREOUS SANDSTONE	2.3	368.9	
66.8	CARBONDALE	CONANT	CALCAREOUS SHALE	0.3	371.2	
66.5	CARBONDALE	JAMESTOWN	COAL	0.3	371.5	
66.2	CARBONDALE		BLACK SHALE	2.5	371.8	
63.7	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.3	374.3	
58.4	CARBONDALE	ANNA	BLACK SHALE	1.5	379.6	
56.9	CARBONDALE	ENERGY	GRAY SHALE	23.9	381.1	
33.0	CARBONDALE	HERRIN	COAL	7.2	405.0	

MAPID: 19902119000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 260' N line, 240' W line of SE SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.85854 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.837792 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 439.6 **LOG TYPE:** Survey Core Study
SOURCE: BELL & ZOLLER COAL CO. 1 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
102.6	MODESTO	PIASA	LIMESTONE	3.2	368.4	
99.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	371.6	LOWER BENCH
93.9	CARBONDALE	LAWSON	GRAY SHALE	34.9	377.1	
59.0	CARBONDALE		BLACK SHALE	1.0	412.0	
58.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	6.3	413.0	
51.7	CARBONDALE	ANNA	BLACK SHALE	4.8	419.3	
46.9	CARBONDALE	ENERGY	GRAY SHALE	6.9	424.1	
40.0	CARBONDALE	HERRIN	COAL	8.6	431.0	

MAPID: 19902458000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.865172 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.848678 **DATE COLLECTED:** 7 / 0 / 1970

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 1595.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1144.0	BASE OF PENN.		UNCLASSIFIED	-	1595.0	

MAPID: 19900075000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 58' N line, 66' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.854269 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.849371 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 463.4 **LOGGED (FT.):** 433.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 41 **WELL TYPE:** Coal Test

COMMENT: DRILL RECORD AVAIL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
463.4	PLEISTOCENE		CLAY	11.0	0.0	
452.4	MODESTO		SILTY SHALE	14.2	11.0	
438.2	MODESTO		SHALE & SANDSTONE	3.5	25.2	
434.7	MODESTO		SILTY SHALE	19.3	28.7	
415.4	MODESTO		SHALE	6.0	48.0	
409.4	MODESTO		GRAY SHALE	27.5	54.0	
381.9	MODESTO		GRAY LIMESTONE	0.2	81.5	
381.7	MODESTO		DARK GRAY SHALE	8.3	81.7	
373.4	MODESTO		CALCAREOUS SHALE	0.3	90.0	
373.1	MODESTO		SILTY SHALE	0.7	90.3	
372.4	MODESTO		SHALE	0.2	91.0	
372.2	MODESTO		GRAY LIMESTONE	0.5	91.2	
371.7	MODESTO		CALCAREOUS SHALE	1.2	91.7	
370.6	MODESTO		SILTY SHALE	2.3	92.8	
368.3	MODESTO		GRAY SHALE	1.0	95.1	
367.3	MODESTO		SHALE & SANDSTONE	0.9	96.1	
366.4	MODESTO		GRAY SILTSTONE	5.0	97.0	
361.4	MODESTO		SHALE & SANDSTONE	1.0	102.0	
360.4	MODESTO		GRAY SILTSTONE	4.2	103.0	
356.2	MODESTO		GRAY SANDSTONE	21.8	107.2	
334.4	MODESTO		UNCLASSIFIED	42.0	129.0	"NO CORE"
292.4	MODESTO		GRAY SILTSTONE	29.0	171.0	
263.4	MODESTO		SILTY SHALE	7.0	200.0	
256.4	MODESTO		UNCLASSIFIED	36.0	207.0	"NO CORE"
220.4	MODESTO		SHALE & SANDSTONE	4.7	243.0	
215.7	MODESTO		SHALE & SANDSTONE	9.0	247.7	
206.7	MODESTO		SILTY SHALE	14.1	256.7	
192.6	MODESTO		HARD SHALE	0.3	270.8	
192.3	MODESTO		SILTY SHALE	3.7	271.1	
188.6	MODESTO		HARD SHALE	1.0	274.8	
187.6	MODESTO		BLACK SHALE	1.3	275.8	
186.4	MODESTO	POND CREEK	COAL	1.7	277.0	WITH GYPSUM
184.7	MODESTO		GRAY SILTSTONE	2.0	278.7	
182.7	MODESTO		SILTSTONE	6.2	280.7	
176.6	MODESTO		SILTY SHALE	4.2	286.8	
172.4	MODESTO		SOFT SHALE	2.0	291.0	
170.4	MODESTO		GRAY SILTSTONE	2.0	293.0	
168.4	MODESTO		SANDSTONE	3.8	295.0	
164.6	MODESTO		VARRIGATED SHALE	3.1	298.8	

161.5	MODESTO		DARK GRAY SHALE	1.0	301.9	
160.5	MODESTO		HARD SHALE	4.4	302.9	
156.1	MODESTO		CALCAREOUS SHALE	1.0	307.3	
155.1	MODESTO	PIASA	GRAY LIMESTONE	1.5	308.3	
153.6	MODESTO	PIASA	GRAY LIMESTONE	2.0	309.8	
151.6	MODESTO		GREEN SHALE	2.0	311.8	
149.6	MODESTO		HARD SHALE	0.3	313.8	
149.2	MODESTO		SILTY SHALE	0.3	314.2	
148.9	MODESTO		CALCAREOUS SHALE	0.5	314.5	
148.4	MODESTO		BONE COAL	0.2	315.0	
148.2	MODESTO		SILTY SHALE	1.3	315.2	
146.9	MODESTO		CALCAREOUS SHALE	1.5	316.5	
145.4	CARBONDALE	DANVILLE	COAL	1.4	318.0	
144.0	CARBONDALE		UNDERCLAY	1.0	319.4	
143.0	CARBONDALE		GRAY SILTSTONE	3.1	320.4	
139.9	CARBONDALE		SILTY SHALE	1.9	323.5	
138.0	CARBONDALE		SILTY SHALE	2.6	325.4	
135.4	CARBONDALE		SANDSTONE	1.5	328.0	
133.9	CARBONDALE		SILTY SHALE	0.5	329.5	
133.4	CARBONDALE	ALLENBY	COAL	0.3	330.0	
133.1	CARBONDALE		CALCAREOUS SHALE	1.3	330.3	
131.7	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	8.3	331.7	
123.4	CARBONDALE	ANVIL ROCK	SANDSTONE	7.3	340.0	
116.1	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	1.3	347.3	
114.7	CARBONDALE	ANVIL ROCK	SILTY SHALE	4.0	348.7	
110.7	CARBONDALE	ANVIL ROCK	SILTY SHALE	8.3	352.7	
102.4	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	1.0	361.0	
101.4	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	4.2	362.0	
97.2	CARBONDALE	ANVIL ROCK	SILTY SHALE	7.7	366.2	
89.6	CARBONDALE	ANVIL ROCK	ARGILLACEOUS SANDSTONE	6.2	373.8	LIGHT GRAY
83.4	CARBONDALE	ANVIL ROCK	SILTY SHALE	5.3	380.0	
78.1	CARBONDALE	CONANT	LIMESTONE	0.5	385.3	
77.6	CARBONDALE		CALCAREOUS SHALE	0.8	385.8	
76.8	CARBONDALE	JAMESTOWN	COAL	0.1	386.6	
76.7	CARBONDALE		SILTY SHALE	2.8	386.7	
74.0	CARBONDALE	BRERETON	GRAY LIMESTONE	3.1	389.4	
70.9	CARBONDALE	ANNA	BLACK SHALE	2.4	392.5	
68.5	CARBONDALE	ENERGY	SILTY SHALE	4.1	394.9	
64.4	CARBONDALE	ENERGY	GRAY SHALE	19.0	399.0	
45.4	CARBONDALE	HERRIN	COAL	8.1	418.0	
37.3	CARBONDALE		CALCAREOUS CLAYSTONE	6.9	426.1	

MAPID: 19900075000C **VERSION:** 2 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 58' N line, 66' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.854269 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.849371 **DATE COLLECTED:** 8 / 0 / 1923

SURFACE ELEVATION (FT.): 463.4 **LOGGED (FT.):** 433.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 41 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
463.4	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
452.4			SHALE	14.2	11.0	
438.2			SHALE & SANDSTONE	22.8	25.2	
415.4			SHALE	33.5	48.0	
381.9			LIMESTONE	0.2	81.5	
381.7			SHALE	9.5	81.7	COAL LENSE NEAR BASE
372.2			LIMESTONE	0.5	91.2	
371.7			DARK SHALE	1.2	91.7	
370.6			SHALE	2.3	92.8	COAL PARTING AT 94'
368.3			SANDSTONE/SHALE	12.1	95.1	WITH SILTSTONE
356.2			SANDSTONE	62.1	107.2	
294.1			UNKNOWN	0.2	169.3	SH MATRIX
294.0			SHALE	68.6	169.4	WITH SILTSTONE
225.4			SANDSTONE/SHALE	18.7	238.0	
206.7			SHALE	14.1	256.7	
192.6			BLACK SHALE	6.3	270.8	
186.4			COAL	1.7	277.0	
184.7			SHALE	8.2	278.7	
176.6			SHALE	6.2	286.8	
170.4			SILTSTONE	2.0	293.0	
168.4			SANDSTONE	3.8	295.0	
164.6			SHALE	9.5	298.8	
155.1	MODESTO	PIASA	LIMESTONE	3.5	308.3	
151.6	MODESTO		SHALE	2.0	311.8	
149.6	MODESTO		BLACK SHALE	1.2	313.8	
148.4	MODESTO		COAL	0.2	315.0	BONE
148.2	MODESTO		SHALE	1.3	315.2	
146.9	MODESTO		DARK SHALE	1.5	316.5	
145.4	CARBONDALE	DANVILLE	COAL	1.4	318.0	
144.0	CARBONDALE		UNDERCLAY	1.0	319.4	
143.0	CARBONDALE		SILTSTONE	3.1	320.4	
139.9	CARBONDALE		SHALE	4.5	323.5	
135.4	CARBONDALE		SANDSTONE	1.5	328.0	
133.9	CARBONDALE		SHALE	0.5	329.5	
133.4	CARBONDALE	ALLENBY	COAL	0.3	330.0	
133.1	CARBONDALE		SHALE	1.3	330.3	
131.7	CARBONDALE	BANKSTON FORK	LIMESTONE	8.3	331.7	
123.4	CARBONDALE		SHALE & SANDSTONE	45.3	340.0	
78.1	CARBONDALE		BLACK LIMESTONE	0.5	385.3	

77.6	CARBONDALE		BLACK SHALE	0.8	385.8
76.8	CARBONDALE	JAMESTOWN	COAL	0.1	386.6
76.7	CARBONDALE		BLACK SHALE	2.8	386.7
74.0	CARBONDALE	BRERETON	LIMESTONE	3.1	389.4
70.9	CARBONDALE	ANNA	BLACK SHALE	2.4	392.5
68.5	CARBONDALE	ENERGY	SHALE	23.1	394.9
45.4	CARBONDALE	HERRIN	COAL	8.1	418.0
37.3	CARBONDALE		UNKNOWN	6.9	426.1

MAPID: 19900076000C **VERSION:** 1 **PROJECT:** NCRDS96

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.84405 **GEOLOGIST:** MCCRACKEN

CONFIDENTIAL: N **LATITUDE:** 37.835739 **DATE COLLECTED:** 4 / 0 / 1923

SURFACE ELEVATION (FT.): 471.7 **LOGGED (FT.):** 522.0 **LOG TYPE:** Multiple log types

SOURCE: MADISON COAL CORP 30 **WELL TYPE:** Coal Test

COMMENT: CORE STUDY BY G.V. COHEE W/ DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
471.7	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
446.7			SHALE	3.0	25.0	
443.7			COAL	0.3	28.0	BONEY
443.4			SHALE	4.1	28.3	
439.4			SHALE & SANDSTONE	1.2	32.3	
438.2			SANDSTONE	6.8	33.5	
431.4			SHALE & SANDSTONE	14.7	40.3	
416.7			SHALE	62.3	55.0	
354.4			LIMESTONE	0.5	117.3	
353.9			BLACK SHALE	1.3	117.8	
352.6			LIMESTONE	0.8	119.1	
351.9			SHALE	10.4	119.8	
341.4			COAL	0.7	130.3	
340.8			SHALE	2.2	130.9	
338.6			SILTSTONE	3.8	133.1	
334.8			SANDSTONE	61.3	136.9	
273.4			SHALE	1.8	198.3	
271.7			CONGLOMERATE	0.2	200.0	
271.5			SHALE	63.7	200.2	
207.9			BLACK SHALE	1.7	263.8	
206.2			SILTSTONE	1.8	265.5	
204.4			SHALE	32.6	267.3	
171.9			BLACK SHALE	3.6	299.8	
168.3			COAL	0.7	303.4	
167.6			SILTSTONE	2.6	304.1	
165.0			SHALE	1.0	306.7	
164.0	MODESTO		SANDSTONE	17.8	307.7	
146.2	MODESTO		SHALE	19.9	325.5	
126.3	MODESTO	DEGRAFF	COAL	0.5	345.4	
125.8	MODESTO		SHALE	2.0	345.9	
123.8	MODESTO	PIASA	LIMESTONE	3.0	347.9	
120.8	MODESTO		SHALE	0.7	350.9	
120.1	MODESTO		BLACK SHALE	0.8	351.6	
119.3	MODESTO		SHALE	2.3	352.4	
117.0	MODESTO		BLACK LIMESTONE	0.8	354.7	
116.2	CARBONDALE	DANVILLE	COAL	0.7	355.5	
115.5	CARBONDALE		SILTSTONE	2.8	356.2	
112.7	CARBONDALE		SANDSTONE	1.0	359.0	
111.7	CARBONDALE		SHALE	1.3	360.0	

110.4	CARBONDALE		SANDSTONE	7.5	361.3	
102.9	CARBONDALE		SHALE	3.2	368.8	
99.7	CARBONDALE	ALLENBY	COAL	0.7	372.0	
99.0	CARBONDALE		BLACK SHALE	0.4	372.7	
98.6	CARBONDALE		SHALE	4.7	373.1	
93.9	CARBONDALE	BANKSTON FORK	LIMESTONE	5.1	377.8	
88.8	CARBONDALE		SILTSTONE	7.9	382.9	
80.9	CARBONDALE		SHALE	25.3	390.8	
55.7	CARBONDALE		SHALE & SANDSTONE	3.0	416.0	
52.7	CARBONDALE	CONANT	BLACK LIMESTONE	2.8	419.0	
49.9	CARBONDALE	JAMESTOWN	COAL	0.2	421.8	BONEY
49.7	CARBONDALE		BLACK SHALE	1.3	422.0	
48.4	CARBONDALE	BRERETON	LIMESTONE	3.8	423.3	
44.7	CARBONDALE	ANNA	BLACK SHALE	3.5	427.0	
41.2	CARBONDALE	ENERGY	SHALE	21.5	430.5	
19.7	CARBONDALE	HERRIN	COAL	8.7	452.0	
11.0	CARBONDALE		UNDERCLAY	4.2	460.7	
6.9	CARBONDALE		SHALE	3.3	464.8	
3.5	CARBONDALE		LIMESTONE	3.8	468.2	
-0.3	CARBONDALE		SHALE	12.3	472.0	
-12.6	CARBONDALE	ST. DAVID	LIMESTONE	0.7	484.3	
-13.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.1	485.0	COAL PARTINGS
-16.4	CARBONDALE	DYKERSBURG	SHALE	22.9	488.1	
-39.3	CARBONDALE	SPRINGFIELD	COAL	4.2	511.0	
-43.5	CARBONDALE		SHALE	6.8	515.2	

MAPID: 19900076000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.84405 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.835739 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 522.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
20.0	CARBONDALE	HERRIN	COAL	8.7	452.0	
-39.0	CARBONDALE	SPRINGFIELD	COAL	4.2	511.0	

MAPID: 19900076000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.84405 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.835739 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 471.8 **LOGGED (FT.):** 522.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 30 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
471.8	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
446.8	MODESTO		GRAY SHALE	3.0	25.0	
443.8	MODESTO		BONE COAL	0.3	28.0	
443.5	MODESTO		SILTY SHALE	4.1	28.3	
439.5	MODESTO		SHALE & SANDSTONE	1.2	32.3	
438.3	MODESTO		SANDSTONE	6.8	33.5	
431.5	MODESTO		SHALE & SANDSTONE	14.7	40.3	
416.8	MODESTO		SILTY SHALE	13.0	55.0	
403.8	MODESTO		SILTY SHALE	23.0	68.0	
380.8	MODESTO		SOFT SHALE	12.0	91.0	
368.8	MODESTO		CALCAREOUS SHALE	14.0	103.0	
354.8	MODESTO		DARK GRAY SHALE	0.3	117.0	
354.5	MODESTO		LIMESTONE	0.5	117.3	
354.0	MODESTO		SILTY SHALE	1.3	117.8	
352.7	MODESTO		LIMESTONE	0.8	119.1	
352.0	MODESTO		SILTY SHALE	10.4	119.8	
341.5	MODESTO		COAL	0.6	130.3	
340.9	MODESTO		SOFT SHALE	2.3	130.9	
338.7	MODESTO		GRAY SILTSTONE	3.8	133.1	
334.9	MODESTO		SANDSTONE	1.3	136.9	
333.6	MODESTO		SANDSTONE	44.8	138.2	
288.8	MODESTO		SANDSTONE	14.3	183.0	
274.5	MODESTO		SILTY SHALE	2.8	197.3	
271.8	MODESTO		CONGLOMERATE	0.2	200.0	
271.6	MODESTO		SILTY SHALE	23.3	200.2	
248.3	MODESTO		UNCLASSIFIED	34.8	223.5	CORE MISSING
213.5	MODESTO		SILTY SHALE	5.5	258.3	
208.0	MODESTO		CALCAREOUS SHALE	1.7	263.8	
206.3	MODESTO		GRAY SILTSTONE	1.8	265.5	
204.5	MODESTO		SILTY SHALE	1.6	267.3	
203.0	MODESTO		SILTY SHALE	9.2	268.8	
193.8	MODESTO		SILTY SHALE	16.0	278.0	
177.8	MODESTO		CALCAREOUS SHALE	5.8	294.0	
172.0	MODESTO		CALCAREOUS SHALE	1.3	299.8	
170.7	MODESTO		BLACK SHALE	2.3	301.1	
168.4	MODESTO	POND CREEK	COAL	0.7	303.4	
167.7	MODESTO		GRAY SILTSTONE	2.6	304.1	
165.1	MODESTO		SILTY SHALE	1.0	306.7	
164.1	MODESTO		GRAY SANDSTONE	2.0	307.7	

162.1	MODESTO		GRAY SANDSTONE	15.8	309.7	
146.3	MODESTO		SILTY SHALE	2.0	325.5	
144.3	MODESTO		SILTY SHALE	2.3	327.5	
142.0	MODESTO		SHALE	15.7	329.8	
126.4	MODESTO		BONE COAL	0.5	345.4	
125.9	MODESTO		GRAY SHALE	2.0	345.9	
123.9	MODESTO	PIASA	GRAY LIMESTONE	3.0	347.9	
120.9	MODESTO		GREEN SHALE	0.7	350.9	
120.2	MODESTO		BLACK SHALE	0.8	351.6	
119.4	MODESTO		GRAY SHALE	1.2	352.4	
118.2	MODESTO		SOFT SHALE	1.1	353.6	
117.1	MODESTO		LIMESTONE	0.8	354.7	
116.3	CARBONDALE	DANVILLE	COAL	0.7	355.5	
115.6	CARBONDALE		GRAY SILTSTONE	2.8	356.2	
112.8	CARBONDALE		GRAY SANDSTONE	1.0	359.0	
111.8	CARBONDALE		SILTY SHALE	1.3	360.0	
110.5	CARBONDALE		SANDSTONE	3.7	361.3	
106.8	CARBONDALE		SANDSTONE	3.8	365.0	
103.0	CARBONDALE		DARK GRAY SHALE	1.0	368.8	
102.0	CARBONDALE		GRAY SHALE	2.2	369.8	
99.8	CARBONDALE	ALLENBY	COAL	0.7	372.0	
99.1	CARBONDALE		SOFT SHALE	0.4	372.7	
98.7	CARBONDALE		SILTY SHALE	1.0	373.1	
97.7	CARBONDALE		GRAY SHALE	3.7	374.1	
94.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.1	377.8	
89.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	0.8	382.8	
88.1	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	7.1	383.7	
81.0	CARBONDALE	ANVIL ROCK	SILTY SHALE	8.3	390.8	
72.8	CARBONDALE	ANVIL ROCK	HARD SHALE	2.0	399.0	
70.8	CARBONDALE	ANVIL ROCK	SHALE	6.2	401.0	
64.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	8.8	407.2	
55.8	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	3.0	416.0	
52.8	CARBONDALE	ANVIL ROCK	SILTY SHALE	2.8	419.0	
50.0	CARBONDALE	CONANT	BLACK LIMESTONE	0.2	421.8	
49.8	CARBONDALE	JAMESTOWN	BONE COAL	0.3	422.0	
49.5	CARBONDALE		DARK SHALE	1.0	422.3	
48.5	CARBONDALE	BRERETON	LIMESTONE	3.8	423.3	
44.8	CARBONDALE	ANNA	BLACK SHALE	3.5	427.0	
41.3	CARBONDALE	ENERGY	SILTY SHALE	21.5	430.5	
19.8	CARBONDALE	HERRIN	COAL	8.7	452.0	
11.1	CARBONDALE		CALCAREOUS CLAYSTONE	4.2	460.7	GRAY
7.0	CARBONDALE		SILTY SHALE	3.3	464.8	
3.6	CARBONDALE	HIGGINSVILLE	NODULAR LIMESTONE	3.8	468.2	LIGHT BROWN
-0.2	CARBONDALE		SHALE	3.0	472.0	
-3.2	CARBONDALE		UNCLASSIFIED	47.0	475.0	"CORE MISSING" SEE DRILL RECORD

MAPID: 19902121000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 490' N line, 140' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.840982 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.840768 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 463.0 **LOG TYPE:** Drillers Log

SOURCE: BELL & ZOLLER COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
86.0	MODESTO	PIASA	LIMESTONE	3.3	377.0	
82.7	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	380.3	LOWER BENCH
76.7	CARBONDALE	LAWSON	GRAY SHALE	31.5	386.3	
45.2	CARBONDALE	LAWSON	SHALE & SANDSTONE	7.8	417.8	
37.4	CARBONDALE	LAWSON	SILTY SHALE	2.8	425.6	
34.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	7.8	428.3	
26.9	CARBONDALE	CONANT	CALCAREOUS SHALE	1.5	436.1	
25.4	CARBONDALE	JAMESTOWN	BONE COAL	0.4	437.6	
25.0	CARBONDALE		CALCAREOUS SHALE	4.0	438.0	
21.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	8.7	442.0	
12.3	CARBONDALE	ANNA	BLACK SHALE	4.3	450.7	
8.0	CARBONDALE	HERRIN	COAL	8.0	455.0	

MAPID: 19902126000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.848684 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.846739 **DATE COLLECTED:** 1 / 0 / 1958

SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 1605.0 **LOG TYPE:** Electric Log

SOURCE: KUZMICH, R. W. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-240.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	684.0	
-304.0	SPOON	DAVIS	UNCLASSIFIED	-	748.0	
-1161.0	BASE OF PENN.		UNCLASSIFIED	-	1605.0	

MAPID: 19902126000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.848684 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.846739 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 3016.0 **LOG TYPE:** Electric Log
SOURCE: KUZMICH, R. W. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
2.0	CARBONDALE	HERRIN	COAL	8.0	442.0	
-54.0	CARBONDALE	SPRINGFIELD	COAL	4.0	498.0	
-126.0	CARBONDALE	HOUCHIN CREEK	COAL	-	570.0	

MAPID: 19900077000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 52' N line, 682' E line of NW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.824146 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.848756 **DATE COLLECTED:** 4 / 0 / 1923
SURFACE ELEVATION (FT.): 433.5 **LOGGED (FT.):** 1674.5 **LOG TYPE:** Survey Core Study
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-1241.0	BASE OF PENN.		UNCLASSIFIED	-	1674.5	

MAPID: 19900077000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 52' N line, 682' E line of NW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.824146 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.848756 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 434.0 **LOGGED (FT.):** 2136.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-18.0	CARBONDALE	HERRIN	COAL	6.7	452.0	
-98.0	CARBONDALE	SPRINGFIELD	COAL	4.0	532.0	
-165.0	CARBONDALE	HOUCHIN CREEK	COAL	-	599.0	

MAPID: 19900077000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 52' N line, 682' E line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.824146 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.848756 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 433.0 **LOGGED (FT.):** 458.7 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP. 25 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
72.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	4.5	361.0	
67.5	MODESTO		DARK GRAY SHALE	2.0	365.5	
65.5	CARBONDALE	DANVILLE	COAL	1.7	367.5	
63.8	CARBONDALE		GRAY SHALE	7.5	369.2	
56.3	CARBONDALE		SHALE & SANDSTONE	8.8	376.7	
47.5	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	3.0	385.5	
44.5	CARBONDALE	LAWSON	SANDSTONE	5.3	388.5	
39.2	CARBONDALE	LAWSON	SHALE & SILTSTONE	3.3	393.8	
35.8	CARBONDALE	LAWSON	SANDSTONE	10.6	397.2	
25.3	CARBONDALE	LAWSON	SHALE & SILTSTONE	26.8	407.7	
-1.6	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	2.5	434.6	
-4.1	CARBONDALE		BLACK SHALE	4.8	437.1	
-8.9	CARBONDALE	BRERETON	LIMESTONE	8.3	441.9	
-17.2	CARBONDALE	ANNA	BLACK SHALE	1.3	450.2	
-19.0	CARBONDALE	HERRIN	COAL	6.7	452.0	

MAPID: 19900078000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.827717 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.833469 **DATE COLLECTED:** 5 / 16 / 1923

SURFACE ELEVATION (FT.): 479.5 **LOGGED (FT.):** 519.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 31 **WELL TYPE:** Coal Test

COMMENT: CORE DESCRIP ALSO ON FILE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
479.5	PLEISTOCENE		CLAY	20.0	0.0	YEL
459.5	MODESTO		SANDSTONE	4.5	20.0	
455.0	MODESTO		CALCAREOUS SHALE	3.5	24.5	
451.5	MODESTO		COAL	0.8	28.0	
450.7	MODESTO		SILTY SHALE	6.0	28.8	
444.7	MODESTO		SILTY SHALE	1.9	34.8	
442.8	MODESTO		GRAY SANDSTONE	2.0	36.7	
440.8	MODESTO		GRAY SHALE	2.9	38.7	
437.9	MODESTO		SILTY SANDSTONE	0.9	41.6	GRAY
437.0	MODESTO		GRAY SHALE	15.5	42.5	
421.5	MODESTO		GRAY SHALE	56.5	58.0	
365.0	MODESTO		DARK GRAY SHALE	1.5	114.5	
363.5	MODESTO		DARK GRAY SHALE	1.3	116.0	
362.2	MODESTO		SILTY LIMESTONE	0.8	117.3	DARK GRAY
361.3	MODESTO		BLACK SHALE	0.6	118.2	
360.7	MODESTO		GRAY SHALE	7.3	118.8	
353.5	MODESTO		SILTY SHALE	2.0	126.0	
351.5	MODESTO		GRAY SHALE	3.4	128.0	
348.1	MODESTO		DARK GRAY SHALE	17.8	131.4	
330.3	MODESTO		CALCAREOUS SHALE	10.8	149.2	
319.5	MODESTO		CALCAREOUS SANDSTONE	2.0	160.0	LIGHT GRAY
317.5	MODESTO		GRAY SHALE	4.0	162.0	
313.5	MODESTO		ARGILLACEOUS SANDSTONE	29.2	166.0	LIGHT GRAY
284.3	MODESTO		GRAY SANDSTONE	3.0	195.2	
281.3	MODESTO		SILTY SHALE	14.8	198.2	
266.5	MODESTO		DARK GRAY SHALE	40.0	213.0	
226.5	MODESTO		BLACK SHALE	2.0	253.0	
224.5	MODESTO		DARK GRAY SHALE	2.0	255.0	
222.5	MODESTO		COAL	0.1	257.0	
222.4	MODESTO		CALCAREOUS SHALE	1.3	257.1	
221.2	MODESTO		GRAY SHALE	8.2	258.3	
213.0	MODESTO		DARK GRAY SHALE	8.3	266.5	
204.7	MODESTO		DARK GRAY SHALE	8.5	274.8	
196.2	MODESTO		DARK GRAY SHALE	7.0	283.3	
189.2	MODESTO		GRAY SHALE	0.2	290.3	
189.1	MODESTO		COAL	0.7	290.4	
188.4	MODESTO		UNDERCLAY	2.3	291.1	GRAY
186.2	MODESTO		GRAY SANDSTONE	2.1	293.3	

184.1	MODESTO		GRAY SANDSTONE	4.3	295.4	
179.7	MODESTO		GRAY SHALE	6.8	299.8	
173.0	MODESTO		DARK GRAY SHALE	4.2	306.5	
168.8	MODESTO	POND CREEK	COAL WITH SHALE	2.5	310.7	VERY DARK GRAY
166.3	MODESTO		GRAY SHALE	2.5	313.2	
163.8	MODESTO		GRAY SHALE	7.8	315.7	
156.1	MODESTO		DARK GRAY SHALE	7.8	323.4	
148.3	MODESTO		LIMESTONE	0.3	331.2	
148.1	MODESTO		COAL	0.3	331.4	
147.8	MODESTO		LIGHT SHALE	2.3	331.7	
145.5	MODESTO	PIASA	GRAY LIMESTONE	3.0	334.0	
142.5	MODESTO		COAL WITH SHALE	1.0	337.0	BLACK
141.5	MODESTO		GREEN SHALE	3.5	338.0	
138.0	CARBONDALE	DANVILLE	COAL	1.8	341.5	
136.2	CARBONDALE		GREEN SHALE	4.3	343.3	
132.0	CARBONDALE		COAL WITH SHALE	1.2	347.5	GRAY
130.8	CARBONDALE		GRAY SANDSTONE	3.2	348.7	
127.7	CARBONDALE		GRAY SHALE	1.7	351.8	
126.0	CARBONDALE		CALCAREOUS SANDSTONE	0.3	353.5	GRAY
125.7	CARBONDALE		GRAY SHALE	1.6	353.8	
124.2	CARBONDALE		CALCAREOUS SHALE	1.3	355.3	
122.8	CARBONDALE	ALLENBY	COAL WITH SHALE	1.8	356.7	GRAY
121.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.5	358.5	
118.5	CARBONDALE		GREEN SHALE	5.2	361.0	
113.3	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	11.3	366.2	LIGHT GRAY
102.1	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	0.7	377.4	
101.4	CARBONDALE	ANVIL ROCK	GRAY SHALE	0.9	378.1	
100.5	CARBONDALE	ANVIL ROCK	GRAY SHALE	10.0	379.0	
90.5	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	12.8	389.0	
77.7	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	5.9	401.8	
71.7	CARBONDALE		LIGHT SHALE	0.5	407.8	
71.2	CARBONDALE	JAMESTOWN	COAL	0.3	408.3	
71.0	CARBONDALE		SILTY SHALE	0.8	408.5	
70.2	CARBONDALE	BRERETON	GRAY LIMESTONE	4.4	409.3	
65.7	CARBONDALE	BRERETON	GRAY LIMESTONE	0.2	413.8	
65.6	CARBONDALE	ENERGY	SILTY SHALE	5.2	413.9	
60.4	CARBONDALE	ENERGY	SILTY SHALE	11.9	419.1	
48.5	CARBONDALE	ENERGY	BLACK SHALE	0.3	431.0	
48.2	CARBONDALE	HERRIN	COAL	7.2	431.3	
41.0	CARBONDALE	HERRIN	UNDERCLAY	2.3	438.5	GRAY
38.7	CARBONDALE	HERRIN	COAL WITH SHALE	4.0	440.8	LIGHT GRAY
34.7	CARBONDALE		GRAY SHALE	1.4	444.8	
33.3	CARBONDALE		DARK GRAY SHALE	1.3	446.2	
32.1	CARBONDALE		CONGLOMERATE	0.3	447.4	
31.8	CARBONDALE		GRAY SHALE	1.0	447.7	
30.8	CARBONDALE		DARK GRAY SHALE	0.4	448.7	

30.4	CARBONDALE		GRAY SHALE	0.9	449.1	
29.5	CARBONDALE		DARK GRAY SHALE	1.8	450.0	
27.7	CARBONDALE		GRAY LIMESTONE	0.4	451.8	
27.2	CARBONDALE		HARD SHALE	3.1	452.3	
24.2	CARBONDALE		GRAY SHALE	53.0	455.3	
-28.8	CARBONDALE	SPRINGFIELD	COAL	4.2	508.3	GRAY
-33.0	CARBONDALE		UNKNOWN	4.5	512.5	
-37.5	CARBONDALE		LIGHT SHALE	2.0	517.0	

MAPID: 19900078000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.827717 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.833469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 519.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
49.0	CARBONDALE	HERRIN	COAL	7.3	431.0	
-28.0	CARBONDALE	SPRINGFIELD	COAL	4.2	508.0	

MAPID: 19900079000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.825308 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820521 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 518.1 **LOGGED (FT.):** 491.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 37 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.1	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
504.1	MODESTO		LIGHT SHALE	10.0	14.0	
494.1	MODESTO		SOFT SHALE	44.5	24.0	
449.6	MODESTO		GRAY SHALE	11.5	68.5	
438.1	MODESTO		SOFT SHALE	1.5	80.0	
436.6	MODESTO		SANDY SHALE	1.9	81.5	
434.7	MODESTO		SHALY LIMESTONE	0.8	83.4	GRAY
433.9	MODESTO		SANDY SHALE	1.8	84.2	
432.1	MODESTO		GRAY SHALE	22.6	86.0	
409.5	MODESTO		SANDSTONE	5.4	108.6	
404.1	MODESTO		SANDSTONE	40.0	114.0	
364.1	MODESTO		SANDSTONE/LIMESTONE	14.3	154.0	LIGHT
349.8	MODESTO		CONGLOMERATE	0.2	168.3	
349.6	MODESTO		GRAY SILTSTONE	10.5	168.5	
339.1	MODESTO		GRAY SHALE	11.0	179.0	
328.1	MODESTO		VARRIGATED SHALE	29.4	190.0	
298.7	MODESTO		VARRIGATED SHALE	0.7	219.4	
298.0	MODESTO		GRAY LIMESTONE	2.4	220.1	
295.6	MODESTO		SANDY SHALE	0.8	222.5	
294.8	MODESTO		COAL	0.2	223.3	
294.6	MODESTO		SOFT SHALE	3.1	223.5	
291.5	MODESTO		SOFT SHALE	9.3	226.6	
282.3	MODESTO		DARK GRAY SHALE	17.9	235.8	
264.3	MODESTO		BLACK SHALE	1.3	253.8	
263.1	MODESTO	POND CREEK	COAL	1.3	255.0	
261.8	MODESTO		UNDERCLAY	1.7	256.3	LIGHT GRAY
260.1	MODESTO		GRAY SILTSTONE	0.8	258.0	
259.3	MODESTO		GRAY SHALE	0.5	258.8	
258.8	MODESTO		GRAY SILTSTONE	4.3	259.3	
254.4	MODESTO		GRAY SHALE	0.3	263.7	
254.1	MODESTO		SANDY SHALE	0.5	264.0	
253.6	MODESTO		GRAY SANDSTONE	9.5	264.5	
244.1	MODESTO		VARRIGATED SHALE	7.3	274.0	
236.8	MODESTO		DARK GRAY SHALE	21.1	281.3	
215.8	MODESTO		BLACK SHALE	0.2	302.3	
215.6	MODESTO		COAL	0.2	302.5	
215.4	MODESTO		GRAY SHALE	1.5	302.7	
213.9	MODESTO	PIASA	SHALY LIMESTONE	2.7	304.2	LIGHT GRAY
211.3	MODESTO		GREEN SHALE	0.7	306.8	

210.6	MODESTO		BLACK SHALE	1.0	307.5	
209.6	CARBONDALE		GRAY SHALE	3.1	308.5	
206.5	CARBONDALE		GRAY SANDSTONE	3.4	311.6	
203.1	CARBONDALE		GRAY SHALE	2.8	315.0	
200.3	CARBONDALE	ALLENBY	COAL	0.0	317.8	
200.2	CARBONDALE		GRAY SILTSTONE	1.4	317.9	
198.8	CARBONDALE		SHALY SANDSTONE	1.8	319.3	
197.1	CARBONDALE		SHALE & SANDSTONE	3.2	321.0	
193.9	CARBONDALE		GRAY SHALE	2.5	324.2	
191.4	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	3.7	326.7	
187.8	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	0.3	330.3	
187.4	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	5.8	330.7	
181.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	1.3	336.5	
180.3	CARBONDALE	ANVIL ROCK	SANDY SHALE	1.6	337.8	
178.7	CARBONDALE	ANVIL ROCK	GRAY SHALE	1.3	339.4	
177.4	CARBONDALE	ANVIL ROCK	GRAY SHALE	0.7	340.7	
176.8	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	6.3	341.3	
170.4	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	18.5	347.7	
151.9	CARBONDALE		GRAY SHALE	6.4	366.2	
145.5	CARBONDALE		GRAY SHALE	4.3	372.6	
141.2	CARBONDALE	CONANT	BLACK LIMESTONE	0.7	376.9	
140.5	CARBONDALE	JAMESTOWN	COAL	0.4	377.6	
140.1	CARBONDALE		BLACK SHALE	4.2	378.0	
135.9	CARBONDALE	BRERETON	GRAY LIMESTONE	10.8	382.2	
125.1	CARBONDALE	ANNA	BLACK SHALE	2.0	393.0	
123.1	CARBONDALE	HERRIN	COAL	6.5	395.0	"CORE SENT TO URBANA FOR ANALY. 1923"
116.6	CARBONDALE		UNDERCLAY	6.8	401.5	GRAY
109.8	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	2.3	408.3	
107.5	CARBONDALE		GRAY SHALE	4.8	410.6	
102.8	CARBONDALE		GRAY LIMESTONE	1.1	415.3	
101.7	CARBONDALE		GRAY SHALE	2.6	416.4	
99.1	CARBONDALE		DARK SHALE	1.0	419.0	
98.1	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.2	420.0	
96.9	CARBONDALE	DYKERSBURG	GRAY SHALE	1.5	421.2	
95.4	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	10.1	422.7	
85.3	CARBONDALE	DYKERSBURG	GRAY SANDSTONE	0.3	432.8	
85.0	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	14.3	433.1	
70.8	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	24.8	447.3	
46.0	CARBONDALE	DYKERSBURG	GRAY SHALE	5.8	472.1	
40.3	CARBONDALE	SPRINGFIELD	COAL	4.5	477.8	"CORE SENT TO URBANA FOR ANALYS. 1923
35.8	CARBONDALE		UNDERCLAY	5.3	482.3	GRAY
30.4	CARBONDALE		GRAY SHALE	3.3	487.7	

MAPID: 19900079000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.825308 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.820521 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 491.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
123.0	CARBONDALE	HERRIN	COAL	6.5	395.0	
40.0	CARBONDALE	SPRINGFIELD	COAL	4.5	478.0	

MAPID: 19901289000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.825315 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.820515 **DATE COLLECTED:** 8 / 0 / 1942

SURFACE ELEVATION (FT.): 531.0 **LOGGED (FT.):** 1632.0 **LOG TYPE:** Electric Log

SOURCE: SHELL OIL COMPANY **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-139.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	670.0	
-221.0	SPOON	DAVIS	UNCLASSIFIED	-	752.0	
-1101.0	BASE OF PENN.		UNCLASSIFIED	-	1632.0	

MAPID: 19901371000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** 0' S line, 330' E line of SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.832237 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.819833 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 104.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-114 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.4	CARBONDALE	DANVILLE	COAL	1.3	9.6	
484.0	CARBONDALE		SHALE & SANDSTONE	15.3	11.0	
468.8	CARBONDALE	ALLENBY	COAL	0.2	26.2	
468.6	CARBONDALE		CLAYSTONE	3.3	26.4	
465.3	CARBONDALE	BANKSTON FORK	LIMESTONE	3.4	29.7	LOWER BENCH
461.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.6	33.1	
451.3	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	0.3	43.7	
451.0	CARBONDALE	LAWSON	SANDSTONE	5.4	44.0	
445.6	CARBONDALE	LAWSON	GRAY SHALE	28.0	49.4	
417.6	CARBONDALE	LAWSON	SHALE & SANDSTONE	3.0	77.4	
414.6	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.7	80.4	
413.9	CARBONDALE	JAMESTOWN	BONE COAL	0.5	81.1	
413.4	CARBONDALE		BLACK SHALE	3.1	81.6	
410.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.4	84.7	
404.9	CARBONDALE	ANNA	BLACK SHALE	4.6	90.1	
400.3	CARBONDALE	ENERGY	GRAY SHALE	1.3	94.7	
399.0	CARBONDALE	HERRIN	COAL	8.0	96.0	

MAPID: 19900080000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.844034 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.832045 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 490.9 **LOGGED (FT.):** 459.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 50 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.9	PLEISTOCENE		UNCLASSIFIED	71.0	0.0	CORE MISSING
419.9	MODESTO		SILTY SHALE	36.0	71.0	
383.9	MODESTO		VARRIGATED SHALE	9.0	107.0	
374.9	MODESTO		GRAY LIMESTONE	1.0	116.0	
373.9	MODESTO		SILTY SHALE	0.8	117.0	
373.1	MODESTO		BLACK SHALE	1.0	117.8	
372.1	MODESTO		DARK GRAY SHALE	10.8	118.8	
361.3	MODESTO		DARK GRAY SHALE	0.4	129.6	
360.9	MODESTO		COAL	0.3	130.0	
360.6	MODESTO		DARK GRAY SHALE	1.2	130.3	
359.4	MODESTO		GRAY SHALE	3.8	131.5	
355.6	MODESTO		GRAY SANDSTONE	6.7	135.3	
348.9	MODESTO		GRAY SANDSTONE	38.0	142.0	
310.9	MODESTO		UNCLASSIFIED	33.5	180.0	CORE MISSING
277.4	MODESTO		SILTY SHALE	39.5	213.5	
237.9	MODESTO		SHALE	7.8	253.0	
230.1	MODESTO		SILTY SHALE	3.2	260.8	
226.9	MODESTO		HARD SHALE	1.2	264.0	
225.7	MODESTO		SHALE & SANDSTONE	14.8	265.2	
210.9	MODESTO		SHALE & SANDSTONE	3.4	280.0	
207.5	MODESTO		SILTY SHALE	1.6	283.4	
205.9	MODESTO		CLAYSTONE	0.2	285.0	"LOOKS LIKE FAULT GOUGE"; GRAY
205.7	MODESTO		VARRIGATED SHALE	4.8	285.2	
200.9	MODESTO		DARK GRAY SHALE	6.5	290.0	
194.4	MODESTO		DARK GRAY SHALE	1.5	296.5	
192.9	MODESTO		SILTY SHALE	2.0	298.0	
190.9	MODESTO		DARK GRAY SHALE	2.0	300.0	
188.9	MODESTO		SILTY SHALE	0.2	302.0	
188.7	MODESTO		DARK GRAY SHALE	2.8	302.2	
185.9	MODESTO		SILTY SHALE	7.2	305.0	
178.7	MODESTO		SILTY SHALE	0.8	312.2	
177.9	MODESTO	POND CREEK	COAL	0.7	313.0	
177.2	MODESTO		SILTY SHALE	2.3	313.7	
174.9	MODESTO		SILTY SHALE	1.8	316.0	
173.1	MODESTO		GRAY SILTSTONE	5.3	317.8	
167.9	MODESTO		GRAY SANDSTONE	11.0	323.0	
156.9	MODESTO		GRAY SILTSTONE	3.0	334.0	
153.9	MODESTO		GRAY SILTSTONE	1.5	337.0	
152.4	MODESTO	PIASA	GRAY LIMESTONE	1.7	338.5	

150.7	MODESTO		SOFT SHALE	0.2	340.2	
150.6	MODESTO		SOFT SHALE	0.8	340.3	
149.8	MODESTO		GRAY SHALE	4.1	341.1	
145.7	MODESTO		SILTY SHALE	0.5	345.2	
145.2	MODESTO		GRAY LIMESTONE	0.3	345.7	
145.0	MODESTO		DARK SHALE	7.3	345.9	
137.7	CARBONDALE	DANVILLE	COAL	1.4	353.2	
136.3	CARBONDALE		GRAY SILTSTONE	2.2	354.6	
134.1	CARBONDALE		SOFT SHALE	0.3	356.8	
133.9	CARBONDALE		GRAY SILTSTONE	3.8	357.0	
130.1	CARBONDALE		DARK GRAY SHALE	0.3	360.8	
129.9	CARBONDALE	ALLENBY	COAL	0.5	361.0	
129.4	CARBONDALE		UNDERCLAY	0.8	361.5	GRAY
128.6	CARBONDALE		GREEN SHALE	2.4	362.3	
126.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.3	364.7	
123.9	CARBONDALE		SILTY SANDSTONE	3.0	367.0	LIGHT GRAY
120.9	CARBONDALE		GRAY SILTSTONE	2.0	370.0	
118.9	CARBONDALE		GRAY SHALE	0.5	372.0	
118.4	CARBONDALE		COAL	0.0	372.5	
118.4	CARBONDALE		SILTY SHALE	2.3	372.5	
116.1	CARBONDALE		GRAY SHALE	2.0	374.8	
114.1	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	1.3	376.8	
112.8	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	4.6	378.1	
108.2	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	28.0	382.7	
80.2	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	20.7	410.7	
59.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	3.0	431.3	
56.6	CARBONDALE	CONANT	SILTY LIMESTONE	0.9	434.3	DARK
55.7	CARBONDALE	JAMESTOWN	COAL	0.0	435.2	
55.6	CARBONDALE	JAMESTOWN	SILTY SHALE	0.3	435.3	
55.3	CARBONDALE	JAMESTOWN	COAL	0.3	435.6	
55.1	CARBONDALE		BLACK SHALE	2.0	435.8	
53.1	CARBONDALE	BRERETON	GRAY LIMESTONE	4.9	437.8	
48.1	CARBONDALE	ANNA	BLACK SHALE	4.8	442.8	
43.4	CARBONDALE		SILTY SHALE	0.7	447.5	
42.7	CARBONDALE	HERRIN	COAL	6.9	448.2	
35.8	CARBONDALE		UNDERCLAY	3.9	455.1	GRAY

MAPID: 19900081000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.84634 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.826498 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 507.1 **LOGGED (FT.):** 279.7 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 43 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
507.1	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
485.1	MODESTO		VARRIGATED SHALE	25.8	22.0	
459.3	MODESTO		LIMESTONE	0.4	47.8	
458.8	MODESTO		DARK GRAY SHALE	3.6	48.3	
455.3	MODESTO		CALCAREOUS SHALE	0.2	51.8	
455.1	MODESTO		GRAY SHALE	4.8	52.0	
450.3	MODESTO		SANDSTONE/SHALE	7.8	56.8	
442.6	MODESTO		SOFT SHALE	1.9	64.5	
440.7	MODESTO		GRAY LIMESTONE	0.8	66.4	
439.9	MODESTO		SOFT SHALE	2.8	67.2	
437.1	MODESTO		SILTY SHALE	10.0	70.0	
427.1	MODESTO		DARK GRAY SHALE	7.3	80.0	
419.8	MODESTO		BLACK SHALE	0.3	87.3	
419.6	MODESTO		DARK SHALE	1.5	87.5	
418.1	MODESTO		HARD SHALE	1.0	89.0	
417.1	MODESTO		BLACK SHALE	6.5	90.0	
410.6	MODESTO		GRAY SHALE	6.5	96.5	
404.1	MODESTO		COAL	0.6	103.0	
403.5	MODESTO		GRAY SHALE	1.8	103.6	
401.8	MODESTO		GRAY SHALE	1.7	105.3	
400.1	MODESTO		GRAY SILTSTONE	1.0	107.0	
399.1	MODESTO		GREEN SHALE	6.5	108.0	
392.6	MODESTO		GRAY LIMESTONE	2.0	114.5	
390.6	MODESTO		SILTY SHALE	2.5	116.5	
388.1	MODESTO		COAL	1.7	119.0	
386.4	MODESTO		UNDERCLAY	1.0	120.7	GRAY
385.4	MODESTO		CALCAREOUS SILTSTONE	1.3	121.7	LIGHT GRAY
384.1	MODESTO		GRAY SANDSTONE	11.5	123.0	
372.6	MODESTO		SHALE & SANDSTONE	1.3	134.5	
371.3	MODESTO		VARRIGATED SHALE	2.5	135.8	
368.8	MODESTO		DARK GRAY SHALE	3.3	138.3	
365.5	MODESTO		DARK GRAY SHALE	0.6	141.6	
364.9	MODESTO		COAL	0.1	142.2	
364.8	MODESTO		SILTY SHALE	0.3	142.3	
364.6	MODESTO		SANDY LIMESTONE	2.8	142.5	BROWN-GRAY
361.8	MODESTO		GRAY SANDSTONE	11.4	145.3	
350.3	MODESTO		SANDY SHALE	1.3	156.8	
349.1	MODESTO		COAL/SANDSTONE	0.0	158.0	
349.0	MODESTO		DARK GRAY SHALE	10.4	158.1	

338.6	MODESTO	SHALE & SANDSTONE	14.7	168.5	
323.9	MODESTO	GRAY SANDSTONE	19.7	183.2	
304.3	MODESTO	GRAY SILTSTONE	1.8	202.8	
302.4	MODESTO	BLACK SHALE	1.3	204.7	
301.1	MODESTO	UNCLASSIFIED	51.0	206.0	CORE MISSING
250.1	MODESTO	DARK GRAY SHALE	1.1	257.0	
249.0	MODESTO	LIMESTONE	3.4	258.1	
245.6	MODESTO	SILTY SHALE	1.3	261.5	
244.3	MODESTO	SILTY SHALE	16.8	262.8	REMAINDER OF CORE NOT SAVED

MAPID: 19900082000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 70' S line, 23' E line of SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845197 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.8202 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 518.7 **LOGGED (FT.):** 287.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 36 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.7	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
496.7	MODESTO		SILTY SHALE	8.0	22.0	
488.7	MODESTO		GREEN SHALE	0.3	30.0	
488.4	MODESTO		GREEN SHALE	7.2	30.3	
481.2	MODESTO		CALCAREOUS SHALE	2.5	37.5	
478.7	MODESTO		SILTY SHALE	5.0	40.0	
473.7	MODESTO		DARK GRAY SHALE	14.2	45.0	
459.5	MODESTO		DARK SHALE	11.7	59.2	
447.9	MODESTO		BLACK SHALE	1.2	70.8	
446.7	MODESTO		SILTY SHALE	3.0	72.0	
443.7	MODESTO	POND CREEK	COAL	0.4	75.0	
443.3	MODESTO		UNDERCLAY	4.3	75.4	GRAY
438.9	MODESTO		SHALE & SANDSTONE	10.8	79.8	
428.2	MODESTO		HARD SHALE	19.5	90.5	
408.7	MODESTO		COAL	0.5	110.0	
408.2	MODESTO		HARD SHALE	4.1	110.5	
404.1	MODESTO	PIASA	GRAY LIMESTONE	3.3	114.6	
400.8	MODESTO	PIASA	HARD SHALE	0.7	117.9	
400.1	MODESTO	PIASA	GRAY LIMESTONE	0.7	118.6	
399.4	MODESTO	PIASA	SILTY SHALE	1.0	119.3	
398.4	MODESTO	PIASA	SANDY SHALE	0.3	120.3	
398.2	MODESTO		GRAY LIMESTONE	0.2	120.5	
398.0	MODESTO		BLACK SHALE	2.5	120.7	
395.5	CARBONDALE	DANVILLE	COAL	1.9	123.2	
393.6	CARBONDALE		HARD SHALE	2.0	125.1	
391.6	CARBONDALE		GRAY SILTSTONE	5.6	127.1	
386.0	CARBONDALE		GRAY SANDSTONE	1.7	132.7	
384.4	CARBONDALE		DARK GRAY SHALE	2.3	134.3	
382.0	CARBONDALE	ALLENBY	COAL	0.4	136.7	
381.6	CARBONDALE		CALCAREOUS CLAYSTONE	4.7	137.1	DARK GRAY
376.9	CARBONDALE		UNDERCLAY	7.8	141.8	BLACK
369.2	CARBONDALE		LIMESTONE	1.8	149.5	
367.4	CARBONDALE		GRAY SILTSTONE	0.7	151.3	
366.7	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	3.2	152.0	
363.5	CARBONDALE	ANVIL ROCK	GRAY SILTSTONE	2.2	155.2	
361.4	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	3.1	157.3	
358.3	CARBONDALE	ANVIL ROCK	SILTY SHALE	0.5	160.4	
357.8	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	2.6	160.9	

355.2	CARBONDALE	ANVIL ROCK	SILTY SANDSTONE	3.0	163.5	LIGHT GRAY
352.2	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	21.5	166.5	
330.7	CARBONDALE	ANVIL ROCK	HARD SHALE	1.3	188.0	
329.4	CARBONDALE	CONANT	LIMESTONE	1.2	189.3	
328.3	CARBONDALE		DARK SHALE	0.3	190.4	
327.9	CARBONDALE	JAMESTOWN	COAL	0.3	190.8	
327.7	CARBONDALE		SILTY SHALE	5.2	191.0	
322.5	CARBONDALE		DARK GRAY SHALE	2.3	196.2	
320.3	CARBONDALE		DARK GRAY SHALE	1.0	198.4	
319.3	CARBONDALE		SILTY SHALE	0.6	199.4	
318.7	CARBONDALE		GRAY LIMESTONE	19.5	200.0	
299.2	CARBONDALE	HERRIN	COAL	7.5	219.5	
291.7	CARBONDALE		UNDERCLAY	3.3	227.0	GRAY
288.4	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	0.7	230.3	
287.7	CARBONDALE		GRAY SILTSTONE	4.0	231.0	
283.7	CARBONDALE		SILTY SHALE	0.8	235.0	
282.9	CARBONDALE		GRAY LIMESTONE	1.0	235.8	
281.9	CARBONDALE		DARK GRAY SHALE	2.8	236.8	
279.1	CARBONDALE		SILTY SHALE	6.4	239.6	
272.7	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.4	246.0	
271.3	CARBONDALE	DYKERSBURG	BLACK SHALE	2.2	247.4	
269.1	CARBONDALE	DYKERSBURG	SILTY SHALE	1.7	249.6	
267.4	CARBONDALE	DYKERSBURG	SILTY SHALE	4.2	251.3	
263.3	CARBONDALE	DYKERSBURG	GRAY SHALE	17.6	255.4	
245.7	CARBONDALE	SPRINGFIELD	COAL	4.1	273.0	
241.6	CARBONDALE		SOFT SHALE	5.3	277.1	
236.3	CARBONDALE		GRAY SHALE	4.6	282.4	

MAPID: 19900082000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 70' S line, 23' E line of SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845197 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.8202 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 519.0 **LOGGED (FT.):** 287.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
299.0	CARBONDALE	HERRIN	COAL	7.5	220.0	
246.0	CARBONDALE	SPRINGFIELD	COAL	4.1	273.0	

MAPID: 19900083000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.853384 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.826535 **DATE COLLECTED:** 8 / 2 / 1923

SURFACE ELEVATION (FT.): 507.6 **LOGGED (FT.):** 307.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 44 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
507.6	PLEISTOCENE		BROWN SANDSTONE	23.0	0.0	
484.6	MODESTO		GRAY SHALE	32.6	23.0	
452.0	MODESTO		BLACK SHALE	0.5	55.6	
451.5	MODESTO		GRAY SHALE	4.6	56.1	
446.9	MODESTO		GRAY SHALE	2.4	60.7	
444.5	MODESTO		DARK GRAY SHALE	0.9	63.1	
443.6	MODESTO		SHALE & SANDSTONE	8.5	64.0	
435.1	MODESTO		SANDSTONE/SHALE	8.7	72.5	DARK GRAY
426.4	MODESTO		GRAY SHALE	0.8	81.2	
425.6	MODESTO		DARK GRAY SHALE	20.0	82.0	
405.6	MODESTO		DARK GRAY SHALE	2.2	102.0	
403.4	MODESTO		BLACK SHALE	0.5	104.2	
402.9	MODESTO	POND CREEK	COAL	1.3	104.7	
401.6	MODESTO		BLACK SHALE	7.0	106.0	
394.6	MODESTO		GRAY SHALE	14.0	113.0	
380.6	MODESTO		GRAY SHALE	5.7	127.0	
374.9	MODESTO		DARK GRAY SHALE	6.7	132.7	
368.3	MODESTO		COAL	0.3	139.3	LIGHT GREEN-GRAY
367.9	MODESTO	PIASA	GRAY LIMESTONE	4.2	139.7	
363.8	MODESTO		GRAY SHALE	0.3	143.8	
363.5	MODESTO		GRAY SHALE	0.9	144.1	
362.6	MODESTO		BLACK SHALE	1.0	145.0	
361.6	MODESTO		NO RECORD	1.2	146.0	
360.4	CARBONDALE	DANVILLE	COAL	1.6	147.2	
358.8	CARBONDALE		UNDERCLAY	0.3	148.8	GRAY
358.6	CARBONDALE		GRAY SANDSTONE	3.0	149.0	
355.6	CARBONDALE		GRAY SANDSTONE	2.8	152.0	
352.8	CARBONDALE		DARK GRAY SHALE	1.5	154.8	
351.3	CARBONDALE		GRAY SANDSTONE	4.7	156.3	
346.6	CARBONDALE		GRAY SANDSTONE	4.0	161.0	
342.6	CARBONDALE		DARK GRAY SHALE	0.5	165.0	
342.1	CARBONDALE		GREEN SHALE	0.3	165.5	
341.8	CARBONDALE		UNDERCLAY	0.5	165.8	GREEN-GRAY
341.3	CARBONDALE		GRAY SHALE	5.3	166.3	
335.9	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	4.3	171.7	
331.6	CARBONDALE		GRAY SANDSTONE	7.0	176.0	
324.6	CARBONDALE		DARK GRAY SHALE	2.3	183.0	
322.3	CARBONDALE		BONE COAL	0.2	185.3	
322.1	CARBONDALE	ANVIL ROCK	GRAY SHALE	1.5	185.5	

320.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	7.0	187.0	
313.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	2.1	194.0	
311.5	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	9.1	196.1	
302.4	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	1.0	205.2	
301.4	CARBONDALE	ANVIL ROCK	SHALE	0.1	206.2	SILTY MICACEOUS
301.3	CARBONDALE	ANVIL ROCK	SANDSTONE	0.3	206.3	
301.1	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	14.8	206.5	
286.3	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	9.4	221.3	
276.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	1.0	230.7	
275.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	0.5	231.7	
275.4	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	1.4	232.2	
274.0	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	0.2	233.6	
273.8	CARBONDALE		GRAY LIMESTONE	0.8	233.8	
273.0	CARBONDALE		DARK GRAY SHALE	0.3	234.6	
272.8	CARBONDALE		BLACK LIMESTONE	0.2	234.8	
272.6	CARBONDALE		BLACK LIMESTONE	1.0	235.0	
271.6	CARBONDALE		DARK GRAY SHALE	5.5	236.0	
266.1	CARBONDALE	BRERETON	GRAY LIMESTONE	7.8	241.5	
258.3	CARBONDALE	ANNA	BLACK SHALE	0.5	249.3	
257.8	CARBONDALE	HERRIN	COAL	8.7	249.8	
249.1	CARBONDALE		UNDERCLAY	1.1	258.5	GRAY
248.0	CARBONDALE		BLACK SHALE	4.2	259.6	
243.8	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	0.8	263.8	
243.0	CARBONDALE		GREEN SHALE	1.8	264.6	
241.3	CARBONDALE		GRAY SHALE	0.4	266.3	
240.8	CARBONDALE		GRAY SHALE	1.9	266.8	
238.9	CARBONDALE		GRAY SHALE	11.0	268.7	
227.9	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.3	279.7	
226.6	CARBONDALE	ST. DAVID	BLACK LIMESTONE	0.7	281.0	
225.9	CARBONDALE	DYKERSBURG	GRAY SHALE	3.8	281.7	
222.2	CARBONDALE	DYKERSBURG	SHALE	16.1	285.4	THIN #5 AT BASE
206.1	CARBONDALE	SPRINGFIELD	COAL	4.2	301.5	
201.9	CARBONDALE		UNDERCLAY	1.3	305.7	

MAPID: 19900084000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.853344 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820984 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 515.1 **LOGGED (FT.):** 279.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 49 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
515.1			UNCLASSIFIED	14.0	0.0	CORE MISSING
501.1	MODESTO		BROWN SANDSTONE	11.5	14.0	
489.6	MODESTO		SILTY SHALE	9.8	25.5	
479.8	MODESTO		GRAY SILTSTONE	22.3	35.3	
457.6	MODESTO		GRAY SILTSTONE	1.5	57.5	
456.1	MODESTO		SILTY SHALE	24.3	59.0	
431.8	MODESTO		CALCAREOUS SHALE	0.3	83.3	
431.5	MODESTO		CALCAREOUS SHALE	0.8	83.6	
430.8	MODESTO		GRAY SILTSTONE	1.3	84.3	
429.5	MODESTO		SHALE & SANDSTONE	7.9	85.6	
421.6	MODESTO		SHALE & SANDSTONE	3.5	93.5	
418.1	MODESTO		SHALE & SANDSTONE	1.0	97.0	
417.1	MODESTO		SHALE & SANDSTONE	8.0	98.0	
409.1	MODESTO		DARK GRAY SHALE	12.3	106.0	
396.8	MODESTO		BLACK SHALE	1.5	118.3	
395.3	MODESTO		BLACK SHALE	3.2	119.8	
392.1	MODESTO	POND CREEK	COAL	0.8	123.0	
391.3	MODESTO		UNDERCLAY	1.7	123.8	GRAY
389.7	MODESTO		GREEN SHALE	3.0	125.4	
386.7	MODESTO		GRAY SANDSTONE	7.8	128.4	
378.9	MODESTO		SILTY SHALE	3.0	136.2	
375.9	MODESTO		GRAY SHALE	1.3	139.2	
374.7	MODESTO		GRAY SHALE	5.6	140.4	
369.1	MODESTO		BROWN SHALE	11.3	146.0	
357.8	MODESTO		GRAY SHALE	9.3	157.3	
348.6	MODESTO		COAL	0.3	166.5	
348.3	MODESTO		VARRIGATED SHALE	1.1	166.8	
347.2	MODESTO	PIASA	GRAY LIMESTONE	5.0	167.9	
342.2	MODESTO		CALCAREOUS SHALE	0.3	172.9	
341.8	MODESTO		GRAY SHALE	1.7	173.3	
340.2	MODESTO		BLACK SHALE	0.2	174.9	
340.0	CARBONDALE	DANVILLE	COAL	1.9	175.1	
338.1	CARBONDALE		HARD SHALE	3.6	177.0	
334.5	CARBONDALE		GRAY SILTSTONE	1.0	180.6	
333.5	CARBONDALE		GRAY SILTSTONE	0.4	181.6	
333.1	CARBONDALE		SILTSTONE	4.7	182.0	
328.4	CARBONDALE		GRAY SHALE	0.7	186.7	
327.8	CARBONDALE	ALLENBY	COAL	0.5	187.3	
327.3	CARBONDALE		GRAY SILTSTONE	5.3	187.8	

321.9	CARBONDALE		SILTY SHALE	0.8	193.2	
321.1	CARBONDALE		CALCAREOUS SHALE	2.3	194.0	
318.8	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.3	196.3	
313.4	CARBONDALE		GRAY SANDSTONE	6.0	201.7	
307.4	CARBONDALE		SILTY SHALE	3.0	207.7	
304.4	CARBONDALE		SILTY SHALE	3.4	210.7	
301.0	CARBONDALE		SHALE & SANDSTONE	5.9	214.1	
295.1	CARBONDALE		GRAY SANDSTONE	3.0	220.0	
292.1	CARBONDALE		GRAY SILTSTONE	18.5	223.0	
273.6	CARBONDALE		SHALE & SANDSTONE	7.1	241.5	
266.5	CARBONDALE		SILTY SHALE	1.2	248.6	
265.3	CARBONDALE	CONANT	LIMESTONE	0.7	249.8	
264.6	CARBONDALE	JAMESTOWN	COAL	0.4	250.5	
264.2	CARBONDALE		CALCAREOUS SHALE	1.9	250.9	
262.3	CARBONDALE	BRERETON	LIMESTONE	0.8	252.8	
261.5	CARBONDALE		BONE COAL	0.1	253.6	
261.4	CARBONDALE		BLACK SHALE	4.3	253.7	
257.1	CARBONDALE		UNCLASSIFIED	21.0	258.0	CORE MISSING

MAPID: 19901295000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 750' S line, 5' E line of SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.849901 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829514 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 280.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-41 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
339.0	CARBONDALE	DANVILLE	COAL	2.0	174.0	
337.0	CARBONDALE		SHALE & SANDSTONE	14.4	176.0	
322.5	CARBONDALE	ALLENBY	BONE COAL	0.6	190.5	
321.9	CARBONDALE		CLAYSTONE	4.4	191.1	
317.6	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	195.4	LOWER BENCH
313.6	CARBONDALE	LAWSON	SANDSTONE	9.8	199.4	
303.7	CARBONDALE	LAWSON	BONE COAL	0.3	209.3	
303.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	9.1	209.5	
294.4	CARBONDALE	LAWSON	SHALE & SANDSTONE	21.8	218.6	
272.6	CARBONDALE	LAWSON	SANDSTONE	11.6	240.4	
261.1	CARBONDALE	JAMESTOWN	COAL	0.5	251.9	
260.6	CARBONDALE		GRAY SHALE	10.6	252.4	
250.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	6.8	263.0	
243.2	CARBONDALE	ANNA	BLACK SHALE	4.5	269.8	
238.7	CARBONDALE	ENERGY	GRAY SHALE	4.7	274.3	
234.0	CARBONDALE	HERRIN	COAL	1.0	279.0	

MAPID: 19902200000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.836955 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.830174 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 3040.0 **LOG TYPE:** Electric Log

SOURCE: MUTUAL OIL & GAS CO. **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
59.0	CARBONDALE	HERRIN	COAL	6.0	424.0	
6.0	CARBONDALE	SPRINGFIELD	COAL	4.0	477.0	
-64.0	CARBONDALE	HOUCHIN CREEK	COAL	-	547.0	

MAPID: 19902231000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 350' S line, 350' E line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.836946 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.82092 **DATE COLLECTED:** 5 / 0 / 1963

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 1486.0 **LOG TYPE:** Electric Log

SOURCE: FULFORD J E **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-979.0	BASE OF PENN.		UNCLASSIFIED	-	1486.0	

MAPID: 19900085000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.86538 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.833833 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 480.2 **LOGGED (FT.):** 393.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 29 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.2	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
466.2	MODESTO		BROWN SANDSTONE	20.0	14.0	
446.2	MODESTO		SANDSTONE	39.0	34.0	
407.2	MODESTO		GRAY SILTSTONE	4.0	73.0	
403.2	MODESTO		GRAY SILTSTONE	19.0	77.0	
384.2	MODESTO		SILTY SHALE	13.3	96.0	
370.9	MODESTO		SILTY SHALE	4.8	109.3	
366.2	MODESTO		SHALE	31.0	114.0	
335.2	MODESTO		VARRIGATED SHALE	2.0	145.0	
333.2	MODESTO		SILTY SHALE	0.8	147.0	
332.4	MODESTO		SHALE & SANDSTONE	8.3	147.8	
324.2	MODESTO		SHALE & SANDSTONE	8.0	156.0	
316.2	MODESTO		DARK GRAY SHALE	15.0	164.0	
301.2	MODESTO		CALCAREOUS SHALE	2.0	179.0	
299.2	MODESTO		BLACK SHALE	1.0	181.0	
298.2	MODESTO		SILTY SHALE	6.0	182.0	
292.2	MODESTO	POND CREEK	COAL	0.8	188.0	CORE LOST
291.4	MODESTO		SOFT SHALE	4.2	188.8	CORE DISINTEGRATED
287.2	MODESTO		GRAY SILTSTONE	12.0	193.0	
275.2	MODESTO		ARGILLACEOUS SANDSTONE	1.5	205.0	LIGHT GRAY
273.7	MODESTO		VARRIGATED SHALE	4.5	206.5	
269.2	MODESTO		DARK GRAY SHALE	6.5	211.0	
262.7	MODESTO		GRAY LIMESTONE	0.8	217.5	
261.9	MODESTO		GREEN SHALE	0.4	218.3	
261.5	MODESTO	PIASA	GRAY LIMESTONE	3.1	218.7	
258.4	MODESTO		CALCAREOUS SHALE	0.5	221.8	
257.9	MODESTO		SILTY SHALE	4.5	222.3	
253.4	MODESTO		SOFT SHALE	1.3	226.8	
252.2	CARBONDALE	DANVILLE	COAL	0.4	228.0	
251.8	CARBONDALE		CALCAREOUS SILTSTONE	6.1	228.4	DARK GRAY
245.7	CARBONDALE		GRAY SANDSTONE	8.0	234.5	
237.7	CARBONDALE		DARK GRAY SHALE	1.8	242.5	
235.9	CARBONDALE		SOFT SHALE	0.2	244.3	
235.7	CARBONDALE		SILTY SHALE	4.5	244.5	
231.2	CARBONDALE		GREEN SHALE	1.5	249.0	
229.7	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.5	250.5	
224.2	CARBONDALE	ANVIL ROCK	ARGILLACEOUS SANDSTONE	1.3	256.0	LIGHT GRAY
222.9	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	3.8	257.3	

219.2	CARBONDALE	ANVIL ROCK	SILTY SHALE	8.0	261.0	
211.2	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	13.0	269.0	
198.2	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	6.0	282.0	
192.2	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	2.5	288.0	
189.7	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	4.5	290.5	
185.2	CARBONDALE	CONANT	GRAY LIMESTONE	0.5	295.0	
184.7	CARBONDALE	JAMESTOWN	COAL	0.2	295.5	
184.5	CARBONDALE		CALCAREOUS SHALE	1.5	295.7	
183.0	CARBONDALE	BRERETON	GRAY LIMESTONE	5.6	297.2	
177.4	CARBONDALE	ANNA	BLACK SHALE	3.3	302.8	
174.2	CARBONDALE	ENERGY	HARD SHALE	17.5	306.0	
156.7	CARBONDALE	ENERGY	GRAY SHALE	2.5	323.5	
154.2	CARBONDALE	HERRIN	COAL	8.6	326.0	
145.6	CARBONDALE		CLAYSTONE	2.4	334.6	
143.2	CARBONDALE		CALCAREOUS SHALE	1.0	337.0	
142.2	CARBONDALE	HIGGINSVILLE	SHALY LIMESTONE	8.3	338.0	LIGHT GRAY
133.9	CARBONDALE		CALCAREOUS SHALE	0.7	346.3	
133.2	CARBONDALE		DARK GRAY SHALE	13.5	347.0	
119.7	CARBONDALE		DARK GRAY SHALE	0.5	360.5	
119.2	CARBONDALE	ST. DAVID	LIMESTONE	2.0	361.0	
117.2	CARBONDALE	TURNER MINE	BLACK SHALE	4.5	363.0	
112.7	CARBONDALE	DYKERSBURG	GRAY SHALE	11.5	367.5	
101.2	CARBONDALE	SPRINGFIELD	COAL	4.5	379.0	
96.7	CARBONDALE		UNDERCLAY	0.5	383.5	LIGHT GRAY
96.2	CARBONDALE		HARD SHALE	5.0	384.0	
91.2	CARBONDALE		SOFT SHALE	4.0	389.0	

MAPID: 19900085000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.86538 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.833833 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 393.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
154.0	CARBONDALE	HERRIN	COAL	8.6	326.0	
101.0	CARBONDALE	SPRINGFIELD	COAL	4.5	379.0	

MAPID: 19900087000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.867775 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.83381 **DATE COLLECTED:** 8 / 3 / 1923

SURFACE ELEVATION (FT.): 482.8 **LOGGED (FT.):** 240.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP. 42 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
482.8	PLEISTOCENE		BROWN SANDSTONE	18.0	0.0	
464.8	MODESTO		GRAY SHALE	3.7	18.0	
461.1	MODESTO		GRAY SHALE	0.1	21.7	
461.0	MODESTO		GRAY SHALE	14.8	21.8	
446.3	MODESTO		SHALE	2.0	36.5	VT. PARTINGS
444.3	MODESTO		SHALE	9.3	38.5	LAMINATED
435.0	MODESTO		GRAY SHALE	0.3	47.8	
434.7	MODESTO		GRAY SHALE	5.6	48.1	
429.1	MODESTO		SHALE	4.0	53.7	SANDSTONE PARTINGS
425.1	MODESTO		GRAY SHALE	6.3	57.7	
418.8	MODESTO		GRAY SHALE	5.4	64.0	PYRITE
413.4	MODESTO		GRAY SHALE	0.3	69.4	
413.1	MODESTO	POND CREEK	COAL	0.5	69.7	MUCH GYPSUM
412.6	MODESTO		GRAY SHALE	13.0	70.2	
399.6	MODESTO		GRAY SHALE	0.8	83.2	BRITTLE
398.9	MODESTO		SHALY SANDSTONE	5.1	83.9	SHALE
393.8	MODESTO		GRAY SHALE	8.2	89.0	BANDED SANDY SHALE
385.6	MODESTO		GRAY SHALE	2.7	97.2	
383.0	MODESTO		GRAY SHALE	11.7	99.8	WITH LIMESTONE
371.3	MODESTO		GRAY LIMESTONE	2.7	111.5	
368.6	MODESTO	PIASA	GRAY LIMESTONE	5.8	114.2	
362.8	MODESTO		DARK GRAY SHALE	1.0	120.0	
361.8	CARBONDALE	DANVILLE	COAL	1.6	121.0	PYRITE
360.2	CARBONDALE		GRAY SHALE	0.5	122.6	
359.7	CARBONDALE		GRAY SHALE	0.5	123.1	SANDSTONE PARTINGS
359.2	CARBONDALE		GRAY SHALE	3.1	123.6	
356.1	CARBONDALE		GRAY SHALE	0.4	126.7	
355.7	CARBONDALE		GRAY SHALE	1.0	127.1	
354.7	CARBONDALE		GRAY SHALE	7.2	128.1	LIGHT GRAY SANDSTONE PARTINGS
347.5	CARBONDALE		GRAY SANDSTONE	5.8	135.3	
341.8	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	4.3	141.0	
337.5	CARBONDALE	ANVIL ROCK	GRAY SHALE	0.9	145.3	LIGHT GRAY SANDSTONE PARTINGS
336.5	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	4.7	146.3	
331.9	CARBONDALE	ANVIL ROCK	GRAY SHALE	2.0	150.9	
329.9	CARBONDALE	ANVIL ROCK	GRAY SHALE	0.5	152.9	MICACEOUS SHALE
329.4	CARBONDALE	ANVIL ROCK	DARK SHALE	0.8	153.4	
328.5	CARBONDALE	ANVIL ROCK	GRAY SHALE	2.5	154.3	LIGHT GRAY SANDSTONE PARTINGS
326.0	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	0.8	156.8	

325.2	CARBONDALE	ANVIL ROCK	GRAY SHALE	4.2	157.6	LIGHT GRAY SANDSTONE PARTINGS
321.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	2.0	161.8	
319.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	5.3	163.8	BANDS OF MICACEOUS SANDSTONE; GRAY
313.7	CARBONDALE	ANVIL ROCK	GRAY SHALE	8.5	169.1	LIGHT GRAY SANDSTONE PARTINGS
305.2	CARBONDALE	ANVIL ROCK	GRAY SHALE	2.9	177.6	IRREGULAR PARTINGS
302.3	CARBONDALE	ANVIL ROCK	GRAY SHALE	1.3	180.5	LIMESTONE INCLUSIONS
301.0	CARBONDALE	ANVIL ROCK	SANDSTONE	2.0	181.8	MICA STREAKS
299.0	CARBONDALE	ANVIL ROCK	SANDSTONE	2.7	183.8	MICA STREAKS
296.4	CARBONDALE	BRERETON	GRAY LIMESTONE	1.0	186.4	
295.4	CARBONDALE	BRERETON	GRAY LIMESTONE	5.3	187.4	
290.0	CARBONDALE	ENERGY	DARK GRAY SHALE	8.4	192.8	
281.6	CARBONDALE	ENERGY	GRAY SHALE	19.3	201.2	BANDS OF LIMESTONE
262.3	CARBONDALE	HERRIN	COAL	8.8	220.5	PYRITE
253.5	CARBONDALE		UNDERCLAY	0.6	229.3	GRAY
253.0	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	4.4	229.8	
248.5	CARBONDALE		GRAY LIMESTONE	5.8	234.3	

MAPID: 19900088000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** 277' S line, 31' W line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.863876 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.824394 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 248.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 48 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
482.0	PLEISTOCENE		UNCONSOLIDATED	24.0	0.0	
458.0	MODESTO		SILTY SHALE	30.0	24.0	
428.0	MODESTO		SOFT SHALE	1.0	54.0	
427.0	MODESTO		GRAY SILTSTONE	1.2	55.0	
425.8	MODESTO		SHALE & SANDSTONE	8.8	56.2	
417.0	MODESTO		SILTY SHALE	13.2	65.0	
403.8	MODESTO		DARK GRAY SHALE	0.3	78.2	
403.5	MODESTO		DARK GRAY SHALE	1.0	78.5	
402.5	MODESTO		BLACK SHALE	0.3	79.5	
402.2	MODESTO		BLACK SHALE	1.0	79.8	
401.2	MODESTO		BLACK SHALE	1.5	80.8	
399.7	MODESTO		BLACK SHALE	0.3	82.3	
399.3	MODESTO		COAL	0.6	82.7	
398.7	MODESTO		GREEN SHALE	3.0	83.3	
395.7	MODESTO		SILTY SHALE	2.0	86.3	
393.7	MODESTO		GRAY SILTSTONE	2.2	88.3	
391.6	MODESTO		GRAY SANDSTONE	3.3	90.4	
388.3	MODESTO		GRAY SILTSTONE	20.8	93.7	
367.6	MODESTO		DARK GRAY SHALE	7.8	114.4	
359.8	MODESTO		COAL	0.2	122.2	
359.7	MODESTO		UNDERCLAY	2.1	122.3	
357.6	MODESTO		GRAY LIMESTONE	2.3	124.4	
355.2	MODESTO		CALCAREOUS SHALE	0.4	126.8	
354.8	MODESTO		GREEN SHALE	1.0	127.2	
353.8	MODESTO		SOFT SHALE	0.3	128.2	
353.5	MODESTO		DARK SHALE	4.5	128.5	
349.0	MODESTO	POND CREEK	COAL	0.1	133.0	
348.9	MODESTO		GRAY SILTSTONE	2.9	133.1	
346.0	MODESTO		GRAY SILTSTONE	1.0	136.0	
345.0	MODESTO		SHALE & SANDSTONE	1.0	137.0	
344.0	MODESTO		DARK GRAY SHALE	2.1	138.0	
341.9	MODESTO		GRAY SILTSTONE	3.2	140.1	
338.7	MODESTO		GRAY SANDSTONE	1.8	143.3	
336.9	MODESTO		SILTY SHALE	1.4	145.1	
335.5	MODESTO		COAL	0.4	146.5	
335.1	MODESTO		UNDERCLAY	4.1	146.9	
331.0	MODESTO	PIASA	GRAY LIMESTONE	3.3	151.0	
327.7	CARBONDALE		GRAY SILTSTONE	1.0	154.3	
326.7	CARBONDALE		SILTY SHALE	9.7	155.3	

317.0	CARBONDALE		DARK GRAY SHALE	1.5	165.0
315.5	CARBONDALE		DARK GRAY SHALE	2.1	166.5
313.4	CARBONDALE	ALLENBY	BONE COAL	0.3	168.6
313.2	CARBONDALE	ANVIL ROCK	GRAY SHALE	0.7	168.8
312.5	CARBONDALE	ANVIL ROCK	SILTY SHALE	5.5	169.5
307.0	CARBONDALE	ANVIL ROCK	SANDSTONE	10.1	175.0
296.9	CARBONDALE	ANVIL ROCK	SANDSTONE	15.9	185.1
281.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SHALE	0.3	201.0
280.7	CARBONDALE	BRERETON	GRAY LIMESTONE	4.4	201.3
276.2	CARBONDALE	ANNA	BLACK SHALE	2.5	205.8
273.7	CARBONDALE	ENERGY	GRAY SHALE	18.8	208.3
255.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	227.0
245.0	CARBONDALE	HERRIN	COAL	6.0	237.0
239.0	CARBONDALE		CLAYSTONE	5.0	243.0

MAPID: 19900089000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862738 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820862 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 472.5 **LOGGED (FT.):** 373.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 35 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.5	PLEISTOCENE		UNCONSOLIDATED	31.0	0.0	
441.5	MODESTO		ARGILLACEOUS SANDSTONE	5.8	31.0	BUFF
435.7	MODESTO		SANDSTONE	10.7	36.8	
425.0	MODESTO		CONGLOMERATE	0.6	47.5	
424.4	MODESTO		GRAY SILTSTONE	18.9	48.1	
405.5	MODESTO		GRAY SILTSTONE	12.8	67.0	
392.7	MODESTO		SILTY SHALE	23.9	79.8	
368.7	MODESTO		SILTY SHALE	16.3	103.8	
352.5	MODESTO		COAL	0.1	120.0	
352.4	MODESTO		SILTY SHALE	2.7	120.1	
349.7	MODESTO		SHALE & SANDSTONE	9.1	122.8	
340.7	MODESTO		DARK GRAY SHALE	7.0	131.8	
333.7	MODESTO		GRAY SHALE	16.5	138.8	
317.2	MODESTO		BLACK SHALE	2.3	155.3	
314.9	MODESTO		BONE COAL	0.1	157.6	DISINTEGRATED/NO SAMPLE
314.8	MODESTO		DARK GRAY SHALE	1.3	157.7	
313.5	MODESTO	POND CREEK	COAL	0.7	159.0	
312.8	MODESTO		UNDERCLAY	3.0	159.7	
309.8	MODESTO		DARK GRAY SHALE	0.9	162.7	
308.9	MODESTO		SHALE	0.7	163.6	
308.2	MODESTO		SHALE & SANDSTONE	11.1	164.3	
297.2	MODESTO		GRAY SILTSTONE	0.7	175.3	
296.5	MODESTO		BLACK SHALE	4.2	176.0	
292.3	MODESTO		ARGILLACEOUS SANDSTONE	1.7	180.2	LIGHT
290.7	MODESTO		GRAY SILTSTONE	5.0	181.8	
285.7	MODESTO		SILTY SHALE	15.0	186.8	
270.7	MODESTO		BONE COAL	0.2	201.8	
270.5	MODESTO		DARK GRAY SHALE	1.0	202.0	
269.5	MODESTO	PIASA	BROWN LIMESTONE	4.0	203.0	
265.5	MODESTO		SILTY SHALE	1.0	207.0	
264.5	MODESTO		GRAY SHALE	3.0	208.0	
261.5	CARBONDALE	DANVILLE	COAL	1.0	211.0	
260.5	CARBONDALE	DANVILLE	COAL	1.7	212.0	
258.8	CARBONDALE		GRAY SILTSTONE	1.8	213.7	
257.0	CARBONDALE		GRAY SANDSTONE	3.9	215.5	
253.1	CARBONDALE		DARK GRAY SHALE	1.0	219.4	
252.1	CARBONDALE		GRAY SILTSTONE	0.3	220.4	
251.7	CARBONDALE		SILTY SHALE	2.1	220.8	

249.7	CARBONDALE		SANDSTONE	3.2	222.8	
246.5	CARBONDALE		SHALE & SANDSTONE	2.0	226.0	
244.5	CARBONDALE	ALLENBY	COAL	0.7	228.0	
243.8	CARBONDALE		UNDERCLAY	2.8	228.7	DARK GRAY
241.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.3	231.5	
234.7	CARBONDALE		GRAY SANDSTONE	3.2	237.8	
231.6	CARBONDALE		SILTY SHALE	7.5	240.9	
224.1	CARBONDALE		COAL	0.2	248.4	
223.9	CARBONDALE		DARK GRAY SHALE	2.6	248.6	
221.3	CARBONDALE		SILTY SHALE	2.8	251.2	
218.5	CARBONDALE		GRAY SILTSTONE	23.4	254.0	
195.1	CARBONDALE		BLACK SHALE	4.3	277.4	
190.7	CARBONDALE		SILTY SHALE	0.3	281.8	
190.4	CARBONDALE	CONANT	BLACK LIMESTONE	0.8	282.1	
189.6	CARBONDALE	JAMESTOWN	COAL	0.4	282.9	
189.2	CARBONDALE		BLACK SHALE	0.9	283.3	
188.2	CARBONDALE		SHALE	0.4	284.3	
187.8	CARBONDALE	BRERETON	LIMESTONE	7.9	284.7	
179.9	CARBONDALE	ENERGY	HARD SHALE	4.6	292.6	
175.3	CARBONDALE	ENERGY	GRAY SILTSTONE	8.0	297.2	
167.3	CARBONDALE	HERRIN	COAL	9.1	305.2	
158.2	CARBONDALE		UNDERCLAY	4.6	314.3	
153.7	CARBONDALE	HIGGINSVILLE	BROWN LIMESTONE	2.2	318.8	
151.5	CARBONDALE		BROWN LIMESTONE	9.3	321.0	
142.2	CARBONDALE		GREEN SHALE	2.2	330.3	
140.0	CARBONDALE		BLACK SHALE	2.0	332.5	
138.0	CARBONDALE		SILTY SHALE	2.1	334.5	
135.9	CARBONDALE		LIMESTONE	0.3	336.6	
135.6	CARBONDALE		DARK GRAY SHALE	9.1	336.9	
126.5	CARBONDALE	ST. DAVID	LIMESTONE	2.1	346.0	
124.4	CARBONDALE	DYKERSBURG	HARD SHALE	5.9	348.1	
118.5	CARBONDALE	DYKERSBURG	GRAY SHALE	3.4	354.0	
115.1	CARBONDALE	DYKERSBURG	SHALE	4.6	357.4	
110.5	CARBONDALE	SPRINGFIELD	COAL	4.7	362.0	CORE BADLY WEATHERED
105.8	CARBONDALE		UNDERCLAY	3.3	366.7	
102.5	CARBONDALE		GRAY SHALE	1.8	370.0	
100.7	CARBONDALE		CALCAREOUS SHALE	1.3	371.8	

MAPID: 19900089000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862738 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.820862 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 373.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
168.0	CARBONDALE	HERRIN	COAL	9.1	305.0	
111.0	CARBONDALE	SPRINGFIELD	COAL	4.7	362.0	

MAPID: 19901372000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** 50' N line, 626' E line of NE SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.866222 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.827179 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 491.0 **LOGGED (FT.):** 222.4 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. C-115 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
365.5	MODESTO	PIASA	LIMESTONE/UNDERCLAY	4.1	125.5	
361.4	CARBONDALE		GRAY SHALE	1.8	129.6	
359.6	CARBONDALE	ALLENBY	COAL	0.7	131.4	
358.9	CARBONDALE		CLAYSTONE & SHALE	3.9	132.1	
355.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	4.1	136.0	LOWER BENCH
350.9	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	0.3	140.1	
350.7	CARBONDALE	LAWSON	GRAY SHALE	12.3	140.3	
338.4	CARBONDALE	LAWSON	BONE COAL	0.1	152.6	
338.3	CARBONDALE	LAWSON	BLACK SHALE	23.0	152.7	
315.2	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	4.4	175.8	
310.9	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.5	180.1	
310.4	CARBONDALE	JAMESTOWN	COAL	0.5	180.6	
309.9	CARBONDALE		BLACK SHALE	1.0	181.1	
308.9	CARBONDALE	BRERETON	LIMESTONE	5.8	182.1	
303.2	CARBONDALE	ANNA	BLACK SHALE	5.8	187.8	
297.3	CARBONDALE	ENERGY	GRAY SHALE	19.3	193.7	
278.0	CARBONDALE	HERRIN	COAL	9.4	213.0	

MAPID: 19902210000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** 380' N line, 330' E line of SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.870012 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829944 **DATE COLLECTED:** 2 / 0 / 1962

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 1430.0 **LOG TYPE:** Electric Log

SOURCE: FULFORD J E **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
19.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	506.0	
-37.0	SPOON	DAVIS	UNCLASSIFIED	-	562.0	
-905.0	BASE OF PENN.		UNCLASSIFIED	-	1430.0	

MAPID: 19900090000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.879074 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.82604 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 482.2 **LOGGED (FT.):** 291.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 54 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
482.2	PLEISTOCENE		BROWN SANDSTONE	24.0	0.0	
458.2	MODESTO		BROWN SANDSTONE	4.0	24.0	
454.2	MODESTO		GRAY SHALE	12.0	28.0	
442.2	MODESTO		SHALE & SILTSTONE	24.3	40.0	LIGHT GRAY
417.9	MODESTO		BLACK SHALE	1.7	64.3	
416.2	MODESTO		GRAY SHALE	17.8	66.0	
398.4	MODESTO		DARK GRAY SHALE	6.0	83.8	
392.4	MODESTO		COAL	0.0	89.8	
392.3	MODESTO		DARK GRAY SHALE	0.5	89.9	
391.9	MODESTO		BLACK SHALE	1.1	90.3	
390.8	MODESTO		GRAY SHALE	1.9	91.4	
388.9	MODESTO		BLACK SHALE	0.8	93.3	
388.0	MODESTO		GRAY LIMESTONE	0.7	94.2	
387.4	MODESTO		SHALE & SANDSTONE	3.7	94.8	
383.7	MODESTO		GRAY SANDSTONE	6.4	98.5	
377.3	MODESTO		GRAY SANDSTONE	2.1	104.9	
375.2	MODESTO		DARK GRAY SHALE	19.3	107.0	
355.9	MODESTO		BLACK SHALE	1.2	126.3	
354.7	MODESTO		BLACK SHALE	1.0	127.5	
353.7	MODESTO	POND CREEK	COAL	1.0	128.5	
352.7	MODESTO		UNDERCLAY	4.5	129.5	GRAY
348.2	MODESTO		BLACK SHALE	1.0	134.0	
347.2	MODESTO		SHALE & SANDSTONE	4.3	135.0	
342.9	MODESTO		GRAY SANDSTONE	4.8	139.3	
338.1	MODESTO		GRAY SHALE	0.4	144.1	
337.7	MODESTO		GRAY SHALE	11.3	144.5	
326.4	MODESTO		BROWN SHALE	15.9	155.8	
310.4	MODESTO		COAL	0.8	171.8	
309.6	MODESTO		BLACK SHALE	0.3	172.6	
309.3	MODESTO		GREEN SHALE	0.6	172.9	
308.7	MODESTO	PIASA	GRAY LIMESTONE	3.7	173.5	
305.0	MODESTO		BLACK SHALE	0.2	177.2	
304.9	MODESTO		GREEN SHALE	2.2	177.3	
302.7	MODESTO		BLACK SHALE	0.5	179.5	
302.2	CARBONDALE	DANVILLE	COAL	2.0	180.0	
300.2	CARBONDALE		UNDERCLAY	2.0	182.0	GRAY
298.2	CARBONDALE		BLACK SHALE	5.0	184.0	
293.2	CARBONDALE		GRAY SANDSTONE	6.0	189.0	
287.2	CARBONDALE	ALLENBY	COAL	0.7	195.0	

286.5	CARBONDALE		UNDERCLAY	1.2	195.7	DARK GRAY
285.4	CARBONDALE		GRAY SHALE	1.4	196.8	
283.9	CARBONDALE		GREEN SHALE	5.3	198.3	
278.6	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	3.4	203.6	
275.2	CARBONDALE		GRAY SANDSTONE	2.5	207.0	
272.7	CARBONDALE		SHALE & SANDSTONE	2.0	209.5	
270.7	CARBONDALE		GREEN SHALE	4.5	211.5	
266.2	CARBONDALE		DARK GRAY SHALE	3.0	216.0	
263.2	CARBONDALE		COAL	0.5	219.0	
262.7	CARBONDALE		DARK GRAY SHALE	1.5	219.5	
261.2	CARBONDALE		DARK GRAY SHALE	1.8	221.0	
259.4	CARBONDALE		GRAY SANDSTONE	3.4	222.8	
255.9	CARBONDALE		DARK GRAY SHALE	3.9	226.3	
252.0	CARBONDALE		GRAY SANDSTONE	2.3	230.2	
249.7	CARBONDALE		DARK GRAY SHALE	8.3	232.5	
241.4	CARBONDALE		DARK GRAY SHALE	1.3	240.8	
240.2	CARBONDALE		DARK GRAY SHALE	0.5	242.0	
239.7	CARBONDALE		BLACK SHALE	0.2	242.5	
239.5	CARBONDALE	CONANT	GRAY LIMESTONE	1.3	242.7	
238.2	CARBONDALE	JAMESTOWN	COAL	0.1	244.0	
238.1	CARBONDALE		DARK GRAY SHALE	0.7	244.1	
237.4	CARBONDALE		DARK GRAY SHALE	1.0	244.8	
236.4	CARBONDALE	BRERETON	GRAY LIMESTONE	5.8	245.8	
230.6	CARBONDALE	ANNA	BLACK SHALE	4.0	251.6	
226.6	CARBONDALE	ENERGY	GRAY SHALE	1.4	255.6	
225.2	CARBONDALE	ENERGY	GRAY SHALE	23.5	257.0	
201.7	CARBONDALE	HERRIN	COAL	7.7	280.5	
194.0	CARBONDALE		UNDERCLAY	2.8	288.2	

MAPID: 19900091000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.881204 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820365 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 456.5 **LOGGED (FT.):** 370.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 34 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
456.5	PLEISTOCENE		UNKNOWN	74.0	0.0	
382.5	MODESTO		GRAY SHALE	20.0	74.0	
362.5	MODESTO		DARK GRAY SHALE	9.0	94.0	
353.5	MODESTO		CLAYSTONE	1.5	103.0	GRAY
352.0	MODESTO		DARK GRAY SHALE	6.5	104.5	
345.5	MODESTO		GREEN SHALE	2.0	111.0	
343.5	MODESTO		SHALE & SILTSTONE	11.0	113.0	GREEN-GRAY
332.5	MODESTO		GRAY SANDSTONE	12.0	124.0	
320.5	MODESTO		SHALE & SANDSTONE	4.0	136.0	
316.5	MODESTO		BLACK SHALE	1.0	140.0	
315.5	MODESTO		COAL	0.2	141.0	
315.3	MODESTO		UNDERCLAY	1.0	141.2	GRAY
314.3	MODESTO		GREEN SHALE	6.8	142.2	
307.5			NO RECORD	116.0	149.0	
191.5	CARBONDALE		SHALE & SANDSTONE	2.7	265.0	
188.8	CARBONDALE	CONANT	GRAY LIMESTONE	1.3	267.7	
187.5	CARBONDALE	JAMESTOWN	COAL	0.1	269.0	
187.4	CARBONDALE	BRERETON	GRAY LIMESTONE	1.2	269.1	
186.2	CARBONDALE	ENERGY	DARK GRAY SHALE	1.2	270.3	
185.0	CARBONDALE	ENERGY	GRAY LIMESTONE	18.5	271.5	
166.5	CARBONDALE	ENERGY	BLACK SHALE	4.0	290.0	
162.5	CARBONDALE	HERRIN	COAL	6.5	294.0	
156.0	CARBONDALE		UNDERCLAY	2.5	300.5	GRAY
153.5	CARBONDALE		BLACK SHALE	8.0	303.0	
145.5	CARBONDALE		DARK GRAY SHALE	15.0	311.0	DARK GREEN-GRAY
130.5	CARBONDALE		DARK GRAY SHALE	12.0	326.0	
118.5	CARBONDALE	ST. DAVID	GRAY LIMESTONE	2.1	338.0	
116.4	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	340.1	
112.4	CARBONDALE	DYKERSBURG	GRAY SHALE	6.9	344.1	
105.5	CARBONDALE	SPRINGFIELD	COAL	4.2	351.0	
101.3	CARBONDALE		UNDERCLAY	3.8	355.2	DARK GRAY
97.5	CARBONDALE		GREEN SHALE	7.0	359.0	
90.5	CARBONDALE		GRAY SHALE	4.0	366.0	

MAPID: 19901308000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** 0' S line, 300' E line of NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883419 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.82306 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 288.4 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-51 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
259.7	MODESTO	PIASA	LIMESTONE	2.3	202.3	
257.3	CARBONDALE		CLAYSTONE	1.3	204.7	
256.0	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	3.6	206.0	LOWER BENCH
252.4	CARBONDALE	LAWSON	SHALE & SANDSTONE	2.5	209.6	
249.9	CARBONDALE	LAWSON	SHALE & SILTSTONE	19.2	212.1	
230.8	CARBONDALE	LAWSON	SANDSTONE	2.3	231.2	
228.4	CARBONDALE	LAWSON	SILTY SHALE	1.5	233.6	
226.9	CARBONDALE	LAWSON	GRAY SHALE	9.2	235.1	
217.8	CARBONDALE	CONANT	CALCAREOUS SHALE	0.3	244.2	
217.5	CARBONDALE	JAMESTOWN	COAL	0.2	244.5	
217.4	CARBONDALE		CALCAREOUS SHALE	1.3	244.6	
216.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.4	246.0	
210.6	CARBONDALE	ANNA	BLACK SHALE	5.0	251.4	
205.6	CARBONDALE	ENERGY	GRAY SHALE	24.6	256.4	
181.0	CARBONDALE	HERRIN	COAL	7.4	281.0	

MAPID: 19902207000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** 200' N line, 450' W line of SE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.885335 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829848 **DATE COLLECTED:** 8 / 0 / 1960

SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 1427.0 **LOG TYPE:** Electric Log

SOURCE: NAT'L. ASSOC. PETRO. CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-928.0	BASE OF PENN.		UNCLASSIFIED	-	1427.0	

MAPID: 19901328000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 17 **QUARTERS/FOOTAGES:** 25' S line, 250' W line of SE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.895199 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.826469 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 328.0 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-70 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
245.1	MODESTO	PIASA	LIMESTONE/UNDERCLAY	1.5	212.9	
243.6	CARBONDALE	DANVILLE	COAL	2.3	214.4	
241.3	CARBONDALE		SHALE & SANDSTONE	12.0	216.7	
229.3	CARBONDALE	ALLENBY	COAL	0.5	228.7	
228.8	CARBONDALE		SILTY SHALE	3.0	229.2	
225.7	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	5.8	232.3	LOWER BENCH
219.9	CARBONDALE	LAWSON	SANDSTONE	1.2	238.1	
218.8	CARBONDALE	LAWSON	SILTY SHALE	6.0	239.2	
212.8	CARBONDALE	LAWSON	COAL	0.1	245.2	
212.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.3	245.3	
202.5	CARBONDALE	LAWSON	GRAY SHALE	17.3	255.5	
185.2	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	11.4	272.8	
173.9	CARBONDALE	ANNA	BLACK SHALE	1.5	284.1	
172.3	CARBONDALE	ENERGY	GRAY SHALE	34.3	285.7	
138.0	CARBONDALE	HERRIN	COAL	8.0	320.0	

MAPID: 19922625000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 360' W line of NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.894811 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.832885 **DATE COLLECTED:** 9 / 0 / 1974

SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 1405.0 **LOG TYPE:** Electric Log

SOURCE: DULL, JOE A. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-923.0	BASE OF PENN.		UNCLASSIFIED	-	1405.0	

MAPID: 19900093000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.912587 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.829071 **DATE COLLECTED:** 7 / 14 / 1960

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 308.5 **LOG TYPE:** Drillers Log

SOURCE: CONS. COAL CO. OF ST. LOUIS 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
420.0	PLEISTOCENE		SAND	2.0	30.0	
418.0	PLEISTOCENE		MUD	1.0	32.0	BLUE
417.0	MODESTO		SAND	10.0	33.0	
407.0	MODESTO		RED SANDSTONE	5.0	43.0	
402.0	MODESTO		GRAY SANDSTONE	4.0	48.0	
398.0	MODESTO		CLAYSTONE	4.0	52.0	BLUE
394.0	MODESTO		SHALE	25.0	56.0	
369.0	MODESTO		SHALE & SILTSTONE	40.0	81.0	GRAY
329.0	MODESTO		COAL	0.5	121.0	
328.5	MODESTO		SHALE & SILTSTONE	20.0	121.5	GRAY
308.5	MODESTO		SHALE & SILTSTONE	12.0	141.5	BLUE
296.5	MODESTO		BLACK SHALE	5.0	153.5	
291.5	MODESTO	POND CREEK	COAL	2.0	158.5	
289.5	MODESTO		UNDERCLAY	1.0	160.5	
288.5	MODESTO		SHALE & SILTSTONE	18.0	161.5	GRAY
270.5	MODESTO		COAL	0.8	179.5	
269.7	MODESTO		UNDERCLAY	1.0	180.3	
268.7	MODESTO	PIASA	LIMESTONE	2.0	181.3	
266.7	MODESTO		BLACK SHALE	2.0	183.3	
264.7	CARBONDALE	DANVILLE	COAL	2.0	185.3	
262.7	CARBONDALE		SHALE & SILTSTONE	22.0	187.3	GRAY
240.7	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	209.3	
234.7	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	12.0	215.3	WHITE
222.7	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	72.0	227.3	GRAY
150.7	CARBONDALE	HERRIN	COAL	9.2	299.3	

MAPID: 19900410000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919078 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.829938 **DATE COLLECTED:** 7 / 14 / 1960

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 320.2 **LOG TYPE:** Drillers Log

SOURCE: CONS. COAL CO. ST. LOUIS 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0	PLEISTOCENE		UNCONSOLIDATED	32.5	0.0	
423.5			SAND	2.0	32.5	
421.5	MODESTO		SHALE	6.0	34.5	
415.5	MODESTO		ROCK	18.0	40.5	
397.5	MODESTO		SANDSTONE	17.0	58.5	
380.5	MODESTO		SHALE & SILTSTONE	59.0	75.5	
321.5	MODESTO		SHALE & SILTSTONE	22.0	134.5	
299.5	MODESTO		COAL	2.5	156.5	
297.0	MODESTO		UNDERCLAY	1.0	159.0	
296.0	MODESTO		BLACK SHALE	2.0	160.0	
294.0	MODESTO		GRAY SHALE	30.0	162.0	
264.0	MODESTO		LIMESTONE	2.0	192.0	
262.0	CARBONDALE	DANVILLE	COAL	2.0	194.0	
260.0	CARBONDALE		SHALE & SILTSTONE	18.0	196.0	GRAY
242.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	214.0	
238.0	CARBONDALE		BLACK SHALE	3.0	218.0	
235.0	CARBONDALE		GRAY SANDSTONE	10.0	221.0	
225.0	CARBONDALE		LIMESTONE	1.0	231.0	
224.0	CARBONDALE		BLACK SHALE	2.0	232.0	
222.0	CARBONDALE		GRAY SHALE	11.0	234.0	
211.0	CARBONDALE		SANDSTONE/SHALE	6.0	245.0	GRAY
205.0	CARBONDALE		SHALE & SILTSTONE	62.0	251.0	GRAY
143.0	CARBONDALE	HERRIN	COAL	7.2	313.0	

MAPID: 19900410000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919078 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829938 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 320.2 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATION COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
264.0	MODESTO	PIASA	LIMESTONE	2.0	192.0	
262.0	CARBONDALE	DANVILLE	COAL	2.0	194.0	
260.0	CARBONDALE		GRAY SHALE	18.0	196.0	
242.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	214.0	
238.0	CARBONDALE	LAWSON	GRAY SHALE	3.0	218.0	
235.0	CARBONDALE	LAWSON	SANDSTONE	10.0	221.0	
225.0	CARBONDALE	BRERETON	LIMESTONE	1.0	231.0	
224.0	CARBONDALE	ANNA	BLACK SHALE	2.0	232.0	
222.0	CARBONDALE	ENERGY	GRAY SHALE	11.0	234.0	
211.0	CARBONDALE	ENERGY	SILTY SHALE	6.0	245.0	
205.0	CARBONDALE	ENERGY	GRAY SHALE	62.0	251.0	
143.0	CARBONDALE	HERRIN	COAL	7.2	313.0	

MAPID: 19922681000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.922514 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820779 **DATE COLLECTED:** 2 / 0 / 1975

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 275.0 **LOG TYPE:** Drillers Log

SOURCE: A & H ENGINEERING CORP B-2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0	PLEISTOCENE		CLAY	24.0	0.0	BROWN
416.0	MODESTO		GRAY SHALE	49.0	24.0	
367.0	MODESTO		GRAY LIMESTONE	1.5	73.0	
365.5	MODESTO		GRAY SHALE	22.5	74.5	
343.0	MODESTO		COAL	1.0	97.0	BLACK
342.0	MODESTO		ARGILACEOUS SHALE	1.5	98.0	
340.5	MODESTO		GRAY SHALE	18.5	99.5	
322.0	MODESTO		COAL	3.0	118.0	BLACK
319.0	MODESTO		GRAY SHALE	5.0	121.0	
314.0	MODESTO		BLACK SHALE	11.0	126.0	
303.0	MODESTO		GRAY SHALE	17.0	137.0	
286.0	MODESTO		SHALE WITH LIMESTONE	7.0	154.0	
279.0	MODESTO		GRAY LIMESTONE	3.0	161.0	
276.0	MODESTO		BROWN SHALE	5.5	164.0	
270.5	MODESTO		GRAY LIMESTONE	4.5	169.5	
266.0	CARBONDALE	DANVILLE	COAL	2.0	174.0	BLACK
264.0	CARBONDALE		GRAY SHALE	10.5	176.0	
253.5	CARBONDALE		GRAY SHALE	5.0	186.5	
248.5	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.0	191.5	
242.5	CARBONDALE		GRAY SHALE	6.5	197.5	
236.0	CARBONDALE		SANDY SHALE	22.0	204.0	
214.0	CARBONDALE		SHALY LIMESTONE	11.0	226.0	GRAY
203.0	CARBONDALE		COAL	2.5	237.0	BLACK
200.5	CARBONDALE		GRAY SHALE	4.5	239.5	
196.0	CARBONDALE		GRAY SHALE	22.0	244.0	
174.0	CARBONDALE	HERRIN	CAVITY	2.0	266.0	
172.0	CARBONDALE	HERRIN	MINE OPENING	5.5	268.0	
166.5	CARBONDALE		UNDERCLAY	1.5	273.5	GRAY

MAPID: 19922710000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.925024 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.827152 **DATE COLLECTED:** 2 / 4 / 1976

SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 327.4 **LOG TYPE:** Survey Core Study

SOURCE: HANSON ENGINEERS, INC. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
418.7	MODESTO		SANDSTONE	7.1	30.3	
411.6	MODESTO		GRAY SANDSTONE	3.2	37.4	
408.4	MODESTO		GRAY SANDSTONE	0.6	40.6	
407.8	MODESTO		GRAY SANDSTONE	1.1	41.2	
406.7	MODESTO		CONGLOMERATE	0.9	42.3	DARK REDDISH BROWN
405.7	MODESTO		BLACK SHALE	4.2	43.3	
401.6	MODESTO		BLACK SHALE	10.0	47.4	
391.6	MODESTO		BLACK SHALE	4.3	57.4	
387.3	MODESTO		BLACK SHALE	1.7	61.7	
385.7	MODESTO		BLACK SHALE	4.1	63.3	
381.6	MODESTO		BLACK SHALE	10.0	67.4	
371.6	MODESTO		DARK GRAY SHALE	10.0	77.4	
361.6	MODESTO		DARK GRAY SHALE	2.8	87.4	
358.8	MODESTO		CLAYSTONE	1.3	90.2	DARK OLIVE GRAY
357.6	MODESTO		DARK GRAY SHALE	6.0	91.4	
351.6	MODESTO		DARK GRAY SHALE	10.0	97.4	
341.6	MODESTO		BLACK SHALE	2.5	107.4	
339.1	MODESTO		CARBONACEOUS SHALE	7.5	109.9	
331.6	MODESTO		CARBONACEOUS SHALE	3.2	117.4	
328.4	MODESTO		BLACK SHALE	5.4	120.6	
323.0	MODESTO		COAL	1.4	126.0	
321.6	MODESTO		COAL	0.2	127.4	
321.4	MODESTO		CLAYSTONE	0.3	127.6	
321.1	MODESTO		GRAY SANDSTONE	9.5	127.9	
311.6	MODESTO		GRAY SANDSTONE	1.2	137.4	
310.4	MODESTO		BLACK SHALE	1.3	138.6	
309.1	MODESTO		BLACK SHALE	6.1	139.9	
303.0	MODESTO		BLACK SHALE	1.4	146.0	
301.6	MODESTO		BLACK SHALE	10.0	147.4	
291.6	MODESTO		DARK GRAY SHALE	10.0	157.4	
281.6	MODESTO		BLACK SHALE	0.4	167.4	
281.2	MODESTO		GRAY LIMESTONE	0.2	167.8	
281.0	MODESTO		COAL	0.3	168.0	
280.7	MODESTO		CLAYSTONE	0.7	168.3	DARK GRAY
280.0	MODESTO		GRAY LIMESTONE	2.2	169.0	
277.8	MODESTO		CLAYSTONE	1.8	171.2	DARK GREEN-GRAY
276.0	MODESTO		DARK GRAY SHALE	2.3	173.0	
273.7	MODESTO		DARK GRAY SHALE	1.8	175.3	
271.9	CARBONDALE	DANVILLE	COAL	0.3	177.1	

271.6	CARBONDALE	DANVILLE	COAL	1.6	177.4	
270.0	CARBONDALE		CLAYSTONE	0.3	179.0	DARK GRAY
269.7	CARBONDALE		BLACK SHALE	2.6	179.3	
267.1	CARBONDALE		BLACK SHALE	1.0	181.9	
266.1	CARBONDALE		DARK GRAY SHALE	3.5	182.9	
262.6	CARBONDALE		BLACK SHALE	0.3	186.4	
262.2	CARBONDALE		CLAYSTONE	0.4	186.8	MEDIUM GRAY
261.8	CARBONDALE		CORE LOSS	0.3	187.2	
261.6	CARBONDALE		CLAYSTONE	1.6	187.4	OLIVE GRAY
260.0	CARBONDALE		DARK GRAY SHALE	0.5	189.0	
259.5	CARBONDALE		GRAY SANDSTONE	0.2	189.5	
259.3	CARBONDALE		GRAY SHALE	0.3	189.7	
259.1	CARBONDALE		GRAY SANDSTONE	0.1	189.9	
259.0	CARBONDALE		GRAY SHALE	0.2	190.0	
258.7	CARBONDALE	ALLENBY	COAL	0.3	190.3	
258.4	CARBONDALE		CLAYSTONE	3.2	190.6	DARK GRAY
255.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	1.3	193.8	
254.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.4	195.0	
251.6	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.8	197.4	
248.8	CARBONDALE		GREEN SHALE	1.0	200.2	
247.8	CARBONDALE		GREEN SHALE	2.8	201.2	
245.1	CARBONDALE		DARK GRAY SHALE	2.3	203.9	
242.7	CARBONDALE		GRAY SANDSTONE	1.2	206.3	
241.6	CARBONDALE		GRAY SANDSTONE	0.3	207.4	
241.3	CARBONDALE		SANDSTONE/SHALE	9.8	207.7	MEDIUM DARK GRAY
231.6	CARBONDALE		SANDSTONE/SHALE	8.2	217.4	MEDIUM DARK GRAY
223.4	CARBONDALE		DARK GRAY SHALE	0.7	225.6	
222.7	CARBONDALE	BRERETON	GRAY LIMESTONE	0.8	226.3	
221.9	CARBONDALE	BRERETON	GRAY LIMESTONE	5.4	227.1	
216.5	CARBONDALE	ANNA	BLACK SHALE	1.9	232.5	
214.6	CARBONDALE	ANNA	BLACK SHALE	2.7	234.4	
211.9	CARBONDALE	ENERGY	CLAYSTONE	0.7	237.1	MEDIUM GRAY
211.2	CARBONDALE	ENERGY	BLACK SHALE	9.3	237.8	
201.9	CARBONDALE	ENERGY	BLACK SHALE	10.0	247.1	
191.9	CARBONDALE	ENERGY	SHALE & SILTSTONE	10.3	257.1	LIGHT GRAY
181.7	CARBONDALE	ENERGY	GRAY SHALE	10.0	267.3	
171.7	CARBONDALE	ENERGY	GRAY SHALE	10.0	277.3	
161.7	CARBONDALE	ENERGY	GRAY SHALE	10.0	287.3	
151.7	CARBONDALE	ENERGY	GRAY SHALE	8.8	297.3	
142.8	CARBONDALE	HERRIN	COAL	1.2	306.2	
141.7	CARBONDALE	HERRIN	COAL	10.0	307.3	
131.7	CARBONDALE		DARK GRAY SHALE	10.0	317.3	

MAPID: 19922711000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** NE SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.925104 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.828972 **DATE COLLECTED:** 2 / 5 / 1976

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 314.1 **LOG TYPE:** Drillers Log

SOURCE: HANSON ENGINEERS 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
421.5	MODESTO		SANDSTONE	7.3	28.5	
414.2	MODESTO		CARBONACEOUS SHALE	0.7	35.8	
413.6	MODESTO		GRAY SANDSTONE	1.3	36.4	
412.2	MODESTO		BLACK SHALE	1.6	37.8	
410.7	MODESTO		CONGLOMERATE	0.9	39.3	LIGHT GRAY
409.7	MODESTO		BLACK SHALE	7.5	40.3	
402.2	MODESTO		BLACK SHALE	10.0	47.8	
392.2	MODESTO		BLACK SHALE	10.0	57.8	
382.2	MODESTO		BLACK SHALE	10.0	67.8	
372.2	MODESTO		BLACK SHALE	10.0	77.8	
362.2	MODESTO		CLAYSTONE	1.5	87.8	OLIVE GRAY
360.7	MODESTO		SILTY SHALE	8.5	89.3	
352.2	MODESTO		BLACK SHALE	10.0	97.8	
342.2	MODESTO		BLACK SHALE	6.0	107.8	
336.2	MODESTO		BLACK SHALE	3.0	113.8	
333.2	MODESTO		BLACK SHALE	4.0	116.8	
329.2	MODESTO		COAL	0.8	120.8	
328.5	MODESTO		CLAYSTONE	1.8	121.5	DARK GRAY
326.7	MODESTO		CARBONACEOUS SHALE	1.0	123.3	
325.7	MODESTO		BLACK SHALE	2.5	124.3	
323.2	MODESTO		BLACK SHALE	10.0	126.8	
313.2	MODESTO		BLACK SHALE	9.3	136.8	
304.0	MODESTO		DARK GRAY SHALE	9.5	146.0	
294.5	MODESTO		DARK GRAY SHALE	4.8	155.5	
289.7	MODESTO		DARK GRAY SHALE	1.6	160.3	
288.1	MODESTO		BLACK SHALE	2.0	161.9	
286.1	MODESTO		CLAYSTONE	1.0	163.9	DARK GRAY
285.1	MODESTO		UNKNOWN	0.6	164.9	
284.5	MODESTO		COAL	0.1	165.5	DARK GRAY
284.4	MODESTO		CLAYSTONE	0.4	165.6	DARK OLIVE GRAY
284.0	MODESTO	PIASA	GRAY LIMESTONE	2.1	166.0	
281.9	MODESTO		DARK GRAY SHALE	3.0	168.1	DARK GREEN-GRAY
278.9	MODESTO		DARK GRAY SHALE	1.0	171.1	
277.9	MODESTO		GRAY LIMESTONE	0.2	172.1	
277.7	MODESTO		DARK GRAY SHALE	0.6	172.3	
277.1	CARBONDALE	DANVILLE	COAL	1.8	172.9	
275.4	CARBONDALE		BLACK SHALE	4.3	174.6	
271.1	CARBONDALE		GRAY SHALE	2.5	178.9	
268.6	CARBONDALE		CLAYSTONE	0.3	181.4	MEDIUM GRAY

268.3	CARBONDALE		CLAYSTONE	1.9	181.7	MEDIUM GRAY
266.4	CARBONDALE		GRAY SANDSTONE	1.9	183.6	
264.5	CARBONDALE		GRAY SANDSTONE	1.0	185.5	
263.5	CARBONDALE		BLACK SHALE	0.9	186.5	
262.5	CARBONDALE	ALLENBY	COAL	0.4	187.5	DARK BROWN
262.1	CARBONDALE		CLAYSTONE	0.6	187.9	DARK GRAY-BROWN
261.5	CARBONDALE		CLAYSTONE	2.1	188.5	MEDIUM GRAY
259.4	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.0	190.6	
253.4	CARBONDALE		GRAY SHALE	3.6	196.6	
249.8	CARBONDALE		DARK GRAY SHALE	1.4	200.2	
248.4	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	2.9	201.6	
245.5	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	1.0	204.5	
244.5	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	2.6	205.5	
241.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	3.1	208.1	
238.8	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	9.8	211.2	
229.0	CARBONDALE		DARK GRAY SHALE	0.8	221.0	
228.2	CARBONDALE	BRERETON	GRAY LIMESTONE	3.2	221.8	
225.0	CARBONDALE	BRERETON	GRAY LIMESTONE	1.5	225.0	
223.5	CARBONDALE	ANNA	BLACK SHALE	2.4	226.5	
221.1	CARBONDALE	ENERGY	SHALE & SILTSTONE	16.1	228.9	LIGHT TO DARK GRAY
205.0	CARBONDALE	ENERGY	SHALE & SILTSTONE	16.3	245.0	LIGHT TO DARK GRAY
188.7	CARBONDALE	ENERGY	DARK GRAY SHALE	13.3	261.3	
175.4	CARBONDALE	ENERGY	DARK GRAY SHALE	20.0	274.6	
155.4	CARBONDALE	ENERGY	DARK GRAY SHALE	6.5	294.6	
148.9	CARBONDALE	ENERGY	DARK GRAY SHALE	2.9	301.1	
146.0	CARBONDALE	ENERGY	DARK GRAY SHALE	0.0	304.0	
146.0	CARBONDALE	HERRIN	COAL	2.1	304.0	DARK GRAY
143.9	CARBONDALE	HERRIN	CLAYSTONE	0.2	306.1	DARK GRAY
143.7	CARBONDALE	HERRIN	CLAYSTONE	0.2	306.3	MEDIUM LIGHT GRAY
143.5	CARBONDALE	HERRIN	PYRITE	0.0	306.5	
143.5	CARBONDALE	HERRIN	COAL	0.9	306.5	
142.5	CARBONDALE	HERRIN	COAL	0.5	307.5	
142.0	CARBONDALE	HERRIN	COAL	2.0	308.0	
140.0	CARBONDALE	HERRIN	BONE COAL	0.0	310.0	BROWN-BLACK
140.0	CARBONDALE	HERRIN	COAL	1.4	310.0	
138.6	CARBONDALE	HERRIN	DARK GRAY SHALE	0.1	311.4	
138.5	CARBONDALE	HERRIN	COAL	2.5	311.5	
136.1	CARBONDALE	HERRIN	CLAYSTONE	0.0	313.9	DARK GRAY
136.0	CARBONDALE	HERRIN	COAL	0.2	314.0	

MAPID: 19900411000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.917926 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.816124 **DATE COLLECTED:** 0 / 0 / 1908

SURFACE ELEVATION (FT.): 427.9 **LOGGED (FT.):** 270.0 **LOG TYPE:** Drillers Log

SOURCE: JOHNSTONCITY&STLOUIS COALCO **WELL TYPE:** Coal Test

COMMENT: LOG OF DRL HL ABOUT 200' N OF SHFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
427.9	MODESTO		SANDSTONE/SHALE	11.0	0.0	
416.9	MODESTO		BLUE SHALE	15.0	11.0	
401.9	MODESTO		BLACK SHALE	77.0	26.0	
324.9	MODESTO		GREEN SHALE	10.0	103.0	
314.9	MODESTO		SANDSTONE/SHALE	17.0	113.0	
297.9	MODESTO		DARK SHALE	5.0	130.0	
292.9	MODESTO		SANDSTONE/SHALE	10.0	135.0	
282.9	MODESTO		SANDSTONE	13.0	145.0	
269.9	MODESTO		GREEN SHALE	3.0	158.0	
266.9	CARBONDALE		CLAYSTONE	6.0	161.0	WHITE
260.9	CARBONDALE		LIMESTONE	4.0	167.0	
256.9	CARBONDALE		BLACK SHALE	6.0	171.0	
250.9	CARBONDALE		SANDSTONE/SHALE	5.0	177.0	
245.9	CARBONDALE		BLUE SHALE	10.0	182.0	
235.9	CARBONDALE		SANDSTONE	16.0	192.0	
219.9	CARBONDALE		BLACK SHALE	1.0	208.0	
218.9	CARBONDALE		LIMESTONE	1.0	209.0	
217.9	CARBONDALE		SHALE & SILTSTONE	16.0	210.0	BLACK
201.9	CARBONDALE		GREEN SHALE	1.0	226.0	
200.9	CARBONDALE		SHALE	33.0	227.0	10.5' OF COAL FROM 260-270.5
167.9	CARBONDALE		UNDERCLAY	10.0	260.0	

MAPID: 19902042000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 19 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.921139 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.80568 **DATE COLLECTED:** 7 / 30 / 1895

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 213.5 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COUNTY COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
424.0	PLEISTOCENE		BROWN SANDSTONE	8.0	6.0	
416.0	PLEISTOCENE		BROWN SANDSTONE	7.0	14.0	
409.0	PLEISTOCENE		SAND	20.0	21.0	LIGHT BLUE
389.0	CARBONDALE		BLACK SHALE	3.2	41.0	
385.8	CARBONDALE		BLACK SHALE	2.0	44.2	
383.8	CARBONDALE		UNDERCLAY	0.7	46.2	
383.2	CARBONDALE		BLACK SHALE	8.2	46.8	
375.0	CARBONDALE		SANDY SHALE	4.0	55.0	
371.0	CARBONDALE		GRAY SHALE	5.0	59.0	
366.0	CARBONDALE		SHALE & SILTSTONE	26.0	64.0	LIGHT BLUE
340.0	CARBONDALE		GRAY SHALE	15.0	90.0	
325.0	CARBONDALE		GRAY SANDSTONE	25.0	105.0	
300.0	CARBONDALE		GRAY SANDSTONE	10.0	130.0	
290.0	CARBONDALE		GRAY SANDSTONE	19.0	140.0	
271.0	CARBONDALE	BRERETON	BLUE LIMESTONE	9.3	159.0	
261.7	CARBONDALE	ANNA	SHALE	3.0	168.3	
258.7	CARBONDALE	ENERGY	SHALE & SILTSTONE	32.9	171.3	LIGHT BLUE
225.7	CARBONDALE	HERRIN	COAL	8.6	204.3	
217.2	CARBONDALE		BLACK SHALE	0.7	212.8	

MAPID: 19902042000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 19 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.921139 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.80568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 212.6 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COUNTY COAL **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
386.1	CARBONDALE	DANVILLE	COAL WITH SHALE PARTINGS	2.0	43.9	
384.1	CARBONDALE		GRAY SHALE	8.8	45.9	
375.2	CARBONDALE	ALLENBY	CARBONACEOUS SANDSTONE	4.0	54.8	
371.2	CARBONDALE	LAWSON	SILTY SHALE	5.0	58.8	
366.2	CARBONDALE	LAWSON	GRAY SHALE	26.0	63.8	
340.2	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	15.0	89.8	
325.2	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	35.0	104.8	
290.2	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	19.0	139.8	
271.2	CARBONDALE	BRERETON	LIMESTONE	9.3	158.8	
261.9	CARBONDALE	ANNA	BLACK SHALE	3.0	168.1	
258.9	CARBONDALE	ENERGY	GRAY SHALE	32.9	171.1	
226.0	CARBONDALE	HERRIN	COAL	8.6	204.0	

MAPID: 19901369000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 12' N line, 450' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.880757 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.819421 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 448.0 **LOGGED (FT.):** 292.5 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-112 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
270.0	MODESTO	PIASA	LIMESTONE	2.9	178.0	
267.1	MODESTO		BLACK SHALE	7.3	180.9	
259.8	CARBONDALE		CARBONACEOUS SANDSTONE	10.8	188.2	
249.0	CARBONDALE	ALLENBY	COAL	0.3	199.0	
248.7	CARBONDALE		CLAYSTONE	7.3	199.3	
241.4	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	4.8	206.6	LOWER BENCH
236.5	CARBONDALE	LAWSON	SANDSTONE	1.6	211.5	
234.9	CARBONDALE	LAWSON	GRAY SHALE	19.2	213.1	
215.7	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	10.1	232.3	
205.7	CARBONDALE	LAWSON	GRAY SHALE	10.0	242.3	
195.7	CARBONDALE	LAWSON	SANDSTONE	5.6	252.3	
190.1	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.5	257.9	
189.6	CARBONDALE	JAMESTOWN	COAL	0.3	258.4	
189.3	CARBONDALE		LIMESTONE W/ SHALE	3.7	258.7	
185.7	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	20.5	262.3	
165.2	CARBONDALE	ANNA	BLACK SHALE	2.2	282.8	
163.0	CARBONDALE	HERRIN	COAL	7.5	285.0	

MAPID: 19902203000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 349' N line, 315' E line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878888 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.818566 **DATE COLLECTED:** 12 / 0 / 1959

SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 1480.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-89.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	550.0	
-169.0	SPOON	DAVIS	UNCLASSIFIED	-	630.0	
-1019.0	BASE OF PENN.		UNCLASSIFIED	-	1480.0	

MAPID: 19902203000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 349' N line, 315' E line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.878888 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.818566 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 2658.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
151.0	CARBONDALE	HERRIN	COAL	7.0	310.0	
93.0	CARBONDALE	SPRINGFIELD	COAL	3.0	368.0	
19.0	CARBONDALE	HOUCHIN CREEK	COAL	-	442.0	

MAPID: 19901352000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** 55' N line, 165' E line of NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.864463 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.819751 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 274.5 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-94 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
292.8	MODESTO	PIASA	LIMESTONE W/ SHALE	5.0	175.2	
287.8	MODESTO		GRAY SHALE	2.7	180.2	
285.1	CARBONDALE	DANVILLE	COAL	2.2	182.9	
282.9	CARBONDALE		CLAYSTONE & SHALE	10.7	185.1	
272.3	CARBONDALE	ALLENBY	COAL	0.6	195.7	
271.6	CARBONDALE		CLAYSTONE	3.3	196.4	
268.4	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	6.0	199.6	LOWER BENCH
262.4	CARBONDALE	LAWSON	SHALE & SANDSTONE	9.9	205.6	
252.5	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	0.3	215.5	
252.2	CARBONDALE	LAWSON	GRAY SHALE	33.3	215.8	
218.9	CARBONDALE	LAWSON	CALCAREOUS SANDSTONE	3.9	249.1	
215.0	CARBONDALE	LAWSON	BLACK SHALE	0.9	253.0	
214.1	CARBONDALE	CONANT	LIMESTONE W/ SHALE	1.3	253.9	
212.8	CARBONDALE	JAMESTOWN	COAL	0.3	255.2	
212.5	CARBONDALE		BLACK SHALE	4.2	255.5	
208.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.3	259.7	
204.0	CARBONDALE	ANNA	BLACK SHALE	3.0	264.0	
201.0	CARBONDALE	HERRIN	COAL	7.5	267.0	

MAPID: 19902100000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.860266 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.8116 **DATE COLLECTED:** 8 / 0 / 1957

SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 1560.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-38.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	520.0	
-108.0	SPOON	DAVIS	UNCLASSIFIED	-	590.0	
-1078.0	BASE OF PENN.		UNCLASSIFIED	-	1560.0	

MAPID: 19900097000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.836749 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.809755 **DATE COLLECTED:** 9 / 13 / 1904

SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 495.7 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 19 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
533.0	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
514.0	PLEISTOCENE		GRAVEL	11.4	19.0	
502.6	MODESTO		BLACK SHALE	4.1	30.4	
498.5	MODESTO		SHALE & SILTSTONE	11.0	34.5	BLACK
487.5	MODESTO		BLACK SHALE	4.9	45.5	
482.6	MODESTO		BLACK SHALE	6.1	50.4	
476.5	MODESTO	POND CREEK	COAL	1.1	56.5	
475.4	MODESTO		BLACK SHALE	2.5	57.6	
472.9	MODESTO		SANDSTONE	13.8	60.1	
459.2	MODESTO		LIMESTONE	6.0	73.8	
453.2	MODESTO		BLACK SHALE	0.9	79.8	
452.2	MODESTO		GRAY LIMESTONE	1.4	80.8	
450.8	MODESTO		SHALE & SILTSTONE	10.9	82.2	LOG NOTES "O.5 = BLUE"
439.9	MODESTO		DARK SANDSTONE	0.5	93.1	
439.4	MODESTO		BLACK SHALE	0.3	93.6	
439.2	MODESTO		COAL	0.9	93.8	
438.2	MODESTO	PIASA	LIMESTONE	9.4	94.8	
428.8	MODESTO		BLACK SHALE	2.2	104.2	
426.7	CARBONDALE	DANVILLE	COAL	2.2	106.3	
424.5	CARBONDALE		BLACK SHALE	1.7	108.5	
422.8	CARBONDALE	BANKSTON FORK	BLUE LIMESTONE	7.3	110.2	
415.6	CARBONDALE	ANVIL ROCK	SANDSTONE	5.7	117.4	
409.9	CARBONDALE	ANVIL ROCK	SANDSTONE	7.5	123.1	
402.4	CARBONDALE	ANVIL ROCK	SANDSTONE	8.1	130.6	
394.3	CARBONDALE	ANVIL ROCK	BLACK SHALE	0.9	138.7	
393.4	CARBONDALE	ANVIL ROCK	SANDSTONE	26.0	139.6	
367.4	CARBONDALE	BRERETON	LIMESTONE	8.0	165.6	
359.4	CARBONDALE	ANNA	BLACK SHALE	2.9	173.6	
356.5	CARBONDALE	ENERGY	SHALE & SILTSTONE	13.8	176.5	
342.7	CARBONDALE	HERRIN	COAL	6.3	190.3	
336.5	CARBONDALE		UNDERCLAY	0.4	196.5	
336.1	CARBONDALE	HIGGINSVILLE	LIMESTONE	14.8	196.9	
321.2	CARBONDALE		SANDSTONE	2.5	211.8	
318.7	CARBONDALE		BLACK SHALE	3.0	214.3	
315.7	CARBONDALE	ST. DAVID	LIMESTONE	3.7	217.3	
312.1	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	33.6	220.9	
278.5	CARBONDALE	SPRINGFIELD	COAL	3.2	254.5	
275.3	CARBONDALE		BLACK SHALE	3.0	257.7	
272.3	CARBONDALE		GRAY LIMESTONE	8.5	260.7	

263.8	CARBONDALE		SHALE & SILTSTONE	28.5	269.2	
235.3	CARBONDALE		SANDSTONE	15.9	297.7	
219.4	CARBONDALE	EXCELLO	BLACK SHALE	8.3	313.6	
211.2	CARBONDALE	EXCELLO	LIMESTONE	1.8	321.8	
209.3	CARBONDALE	EXCELLO	BLACK SHALE	4.3	323.7	
205.1	CARBONDALE	HOUCHIN CREEK	COAL	2.5	327.9	
202.6	CARBONDALE		BLACK SHALE	1.1	330.4	
201.5	CARBONDALE		SANDSTONE	3.7	331.5	
197.8	CARBONDALE		GRAY LIMESTONE	8.3	335.2	
189.5	CARBONDALE		SANDSTONE	4.0	343.5	
185.5	CARBONDALE		GRAY LIMESTONE	1.5	347.5	
184.0	CARBONDALE		BLACK SHALE	5.5	349.0	
178.5	CARBONDALE	SURVANT - UPPER	COAL	1.2	354.5	
177.3	CARBONDALE		UNDERCLAY	0.3	355.7	
177.1	CARBONDALE		SHALE & SILTSTONE	15.1	355.9	
162.0	CARBONDALE	SURVANT - LOWER	COAL	1.3	371.0	
160.7	CARBONDALE		BLACK SHALE	1.2	372.3	
159.5	CARBONDALE		SANDSTONE	2.0	373.5	
157.5	CARBONDALE		BLACK SHALE	3.8	375.5	
153.7	CARBONDALE		COAL	0.3	379.3	
153.5	CARBONDALE		SHALE & SILTSTONE	42.8	379.5	BLUE
110.7	CARBONDALE		BLACK LIMESTONE	9.6	422.3	
101.2	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.3	431.8	
98.9	CARBONDALE	COLCHESTER	COAL	0.5	434.1	
98.4	CARBONDALE		UNDERCLAY	0.6	434.6	
97.8	CARBONDALE		GRAY LIMESTONE	5.0	435.2	
92.8	CARBONDALE		SANDY LIMESTONE	3.3	440.2	
89.5	CARBONDALE		SANDSTONE	18.8	443.5	
70.7	CARBONDALE		SHALE & SILTSTONE	26.1	462.3	
44.7	CARBONDALE	DEKOVEN	COAL	1.5	488.3	
43.2	CARBONDALE	DEKOVEN	BLACK SHALE	0.5	489.8	
42.7	CARBONDALE	DEKOVEN	COAL	3.0	490.3	
39.7	CARBONDALE		BLACK SHALE	2.3	493.3	

MAPID: 19900098000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.84967 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.808843 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 512.0 **LOGGED (FT.):** 316.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 20 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
512.0	PLEISTOCENE		UNCONSOLIDATED	29.5	0.0	
482.5	MODESTO		SANDSTONE	41.3	29.5	
441.2	MODESTO		SHALE & SILTSTONE	21.5	70.8	BLUE
419.7	MODESTO		LIMESTONE	2.3	92.3	
417.3	MODESTO		SHALE & SILTSTONE	25.6	94.7	
391.7	MODESTO		COAL	0.4	120.3	
391.3	MODESTO		SANDSTONE	8.0	120.7	
383.3	MODESTO		LIMESTONE	1.9	128.7	
381.4	MODESTO		SHALE & SILTSTONE	11.5	130.6	BLUE
369.9	MODESTO		SANDSTONE	5.5	142.1	
364.4	MODESTO		SHALE & SILTSTONE	14.4	147.6	BLUE
350.0	MODESTO		BLACK SHALE	2.5	162.0	
347.5	MODESTO	POND CREEK	COAL	3.7	164.5	
343.8	MODESTO		UNDERCLAY	0.5	168.2	
343.3	MODESTO		BLACK SHALE	1.3	168.7	
342.0	MODESTO		COAL	0.8	170.0	
341.2	MODESTO		UNDERCLAY	0.5	170.8	
340.7	MODESTO		SANDSTONE	4.6	171.3	
336.1	MODESTO		BLACK SHALE	8.5	175.9	
327.6	MODESTO		SHALE & SILTSTONE	14.4	184.4	BLUE
313.2	MODESTO		COAL	0.9	198.8	
312.2	MODESTO		UNDERCLAY	0.6	199.8	
311.7	MODESTO		SHALE & SILTSTONE	21.5	200.3	BLUE
290.2	MODESTO	PIASA	LIMESTONE	4.9	221.8	
285.2	MODESTO		SHALE & SILTSTONE	11.5	226.8	BLUE
273.7	CARBONDALE	DANVILLE	COAL	1.3	238.3	
272.4	CARBONDALE		UNDERCLAY	0.3	239.6	
272.1	CARBONDALE		SHALE & SILTSTONE	22.7	239.9	
249.4	CARBONDALE		COAL	3.2	262.6	
246.2	CARBONDALE		UNDERCLAY	0.6	265.8	
245.7	CARBONDALE		BLACK SHALE	5.3	266.3	
240.3	CARBONDALE		SANDSTONE	3.7	271.7	
236.7	CARBONDALE		BLACK SHALE	2.0	275.3	
234.7	CARBONDALE		COAL	3.4	277.3	
231.2	CARBONDALE		BLACK SHALE	6.8	280.8	
224.4	CARBONDALE		LIMESTONE	4.5	287.6	
219.9	CARBONDALE		BLACK SHALE	1.9	292.1	
218.0	CARBONDALE	BRERETON	LIMESTONE	5.3	294.0	
212.7	CARBONDALE	ANNA	BLACK SHALE	4.3	299.3	

208.4	CARBONDALE	ANNA	BLACK SHALE	5.2	303.6
203.2	CARBONDALE	HERRIN	COAL	7.5	308.8
195.7	CARBONDALE		BLACK SHALE	0.5	316.3

MAPID: 19901322000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** 40' N line, 260' E line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.841323 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.819871 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 217.3 **LOG TYPE:** Drillers Log

SOURCE: CONSOLIDATED COAL CO. C-64 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
423.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	3.5	117.0	
419.6	MODESTO		GRAY SHALE	3.9	120.4	
415.7	CARBONDALE	DANVILLE	COAL	3.5	124.3	
412.2	CARBONDALE		SHALE & SANDSTONE	9.4	127.8	
402.8	CARBONDALE	ALLENBY	COAL	0.6	137.2	
402.2	CARBONDALE		CLAYSTONE	5.0	137.8	
397.2	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	4.5	142.8	LOWER BENCH
392.7	CARBONDALE	LAWSON	SANDSTONE	6.2	147.3	
386.6	CARBONDALE	LAWSON	GRAY SHALE	5.8	153.4	
380.7	CARBONDALE	LAWSON	BONE COAL	0.9	159.3	
379.8	CARBONDALE	LAWSON	SHALE & SILTSTONE	23.9	160.2	
355.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	7.4	184.1	
348.5	CARBONDALE	CONANT	CALCAREOUS SHALE	0.7	191.5	
347.8	CARBONDALE	JAMESTOWN	COAL	0.3	192.2	
347.6	CARBONDALE		BLACK SHALE	2.3	192.4	
345.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.2	194.7	
340.1	CARBONDALE	ANNA	BLACK SHALE	2.8	199.9	
337.3	CARBONDALE	ENERGY	GRAY SHALE	9.3	202.7	
328.0	CARBONDALE	HERRIN	COAL	5.3	212.0	

MAPID: 19900099000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.832238 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.818908 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 501.2 **LOGGED (FT.):** 114.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 51 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
501.2	PLEISTOCENE		BROWN SANDSTONE	14.0	0.0	
487.2			GRAY LIMESTONE	0.5	14.0	
486.7			GRAY SHALE	2.0	14.5	
484.7			GRAY SHALE	0.5	16.5	
484.2			DARK GRAY SHALE	1.0	17.0	
483.2			GRAY SHALE	0.5	18.0	
482.7			GRAY SANDSTONE	5.0	18.5	
477.7			GRAY SHALE	3.5	23.5	
474.2			GRAY SHALE	1.0	27.0	
473.2			GRAY SANDSTONE	4.0	28.0	
469.2			GRAY SHALE	0.8	32.0	
468.4			GRAY SANDSTONE	0.7	32.8	
467.7			BLACK SHALE	0.5	33.5	
467.2			GRAY SHALE	4.0	34.0	
463.2			GRAY LIMESTONE	3.0	38.0	
460.2			GRAY SANDSTONE	4.5	41.0	
455.7			GRAY SHALE	6.3	45.5	
449.4			BONE COAL	0.2	51.8	
449.2			BLUE SHALE	0.7	52.0	
448.5			GRAY SANDSTONE	6.8	52.7	
441.7			SANDY SHALE	1.5	59.5	
440.2			SANDY SHALE	1.0	61.0	
439.2			BLACK SHALE	2.5	62.0	
436.7			SHALE & SANDSTONE	10.5	64.5	
426.2			DARK GRAY SHALE	14.2	75.0	
412.0	CARBONDALE	CONANT	GRAY LIMESTONE	0.9	89.2	
411.1	CARBONDALE	JAMESTOWN	COAL	0.3	90.1	
410.9	CARBONDALE		GRAY LIMESTONE	0.5	90.3	
410.4	CARBONDALE		DARK GRAY SHALE	3.0	90.8	
407.4	CARBONDALE	BRERETON	GRAY LIMESTONE	4.3	93.8	
403.0	CARBONDALE	BRERETON	GRAY LIMESTONE	2.8	98.2	
400.2	CARBONDALE	ANNA	BLACK SHALE	4.1	101.0	
396.1	CARBONDALE	HERRIN	COAL	6.1	105.1	
390.0	CARBONDALE		UNDERCLAY	2.8	111.2	

MAPID: 19900100000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.834552 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.818982 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 525.5 **LOGGED (FT.):** 230.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP. 45 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
525.5	PLEISTOCENE		BROWN SANDSTONE	23.0	0.0	
502.5	MODESTO		GRAY SANDSTONE	5.0	23.0	
497.5	MODESTO		BLACK SHALE	3.0	28.0	
494.5	MODESTO		GRAY SHALE	22.0	31.0	
472.5	MODESTO		DARK GRAY SHALE	4.6	53.0	
467.9	CARBONDALE	DANVILLE	COAL	0.4	57.6	
467.5	CARBONDALE		DARK GRAY SHALE	0.3	58.0	
467.2	CARBONDALE		GRAY LIMESTONE	3.3	58.3	
464.0	CARBONDALE		GREEN SHALE	6.3	61.5	
457.7	CARBONDALE		GRAY LIMESTONE	0.2	67.8	
457.5	CARBONDALE	ALLENBY	COAL	0.8	68.0	
456.7	CARBONDALE		UNDERCLAY	1.7	68.8	GRAY
455.0	CARBONDALE		DARK GRAY SHALE	1.0	70.5	
454.0	CARBONDALE		BLACK SHALE	0.8	71.5	
453.2	CARBONDALE		GRAY SANDSTONE	8.7	72.3	
444.5	CARBONDALE		GREEN SHALE	3.0	81.0	
441.5	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.3	84.0	
436.2	CARBONDALE		BLACK SHALE	1.7	89.3	
434.5	CARBONDALE		GRAY SANDSTONE	0.3	91.0	
434.2	CARBONDALE		GRAY SANDSTONE	2.3	91.3	
431.8	CARBONDALE		GRAY SHALE	1.8	93.7	
430.0	CARBONDALE		BLACK SHALE	3.3	95.5	
426.8	CARBONDALE		DARK GRAY SHALE	0.5	98.7	
426.3	CARBONDALE		BLACK SHALE	0.9	99.2	
425.4	CARBONDALE		BLACK SHALE	2.8	100.1	
422.6	CARBONDALE		DARK GRAY SHALE	24.3	102.9	
398.3	CARBONDALE		DARK GRAY SHALE	3.8	127.2	
394.6	CARBONDALE		BLACK SHALE	0.8	130.9	
393.8	CARBONDALE	JAMESTOWN	COAL	0.3	131.7	
393.6	CARBONDALE		BLACK SHALE	6.2	131.9	
387.4	CARBONDALE	BRERETON	SHALE WITH LIMESTONE	1.3	138.1	
386.1	CARBONDALE	BRERETON	GRAY LIMESTONE	4.1	139.4	
382.0	CARBONDALE	BRERETON	SHALE WITH LIMESTONE	0.6	143.5	
381.4	CARBONDALE	BRERETON	GRAY LIMESTONE	3.8	144.1	
377.7	CARBONDALE	ANNA	BLACK SHALE	5.7	147.8	
372.0	CARBONDALE	HERRIN	COAL	7.1	153.5	
364.9	CARBONDALE		UNDERCLAY	2.4	160.6	GRAY
362.5	CARBONDALE	HIGGINSVILLE	LIMESTONE & SHALE	1.0	163.0	LIGHT GRAY
361.5	CARBONDALE		GRAY SHALE	8.8	164.0	

352.7	CARBONDALE		SHALY LIMESTONE	0.8	172.8	LIGHT GRAY
352.0	CARBONDALE		GRAY SHALE	1.5	173.5	
350.5	CARBONDALE		DARK GRAY SHALE	0.8	175.0	
349.7	CARBONDALE		GRAY SHALE	3.3	175.8	
346.4	CARBONDALE	ST. DAVID	GRAY LIMESTONE	2.1	179.1	
344.3	CARBONDALE	TURNER MINE	BLACK SHALE	0.5	181.2	
343.8	CARBONDALE	TURNER MINE	DARK GRAY SHALE	0.7	181.7	
343.2	CARBONDALE	TURNER MINE	BLACK SHALE	3.7	182.3	
339.5	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	2.5	186.0	
337.0	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	34.3	188.5	
302.7	CARBONDALE	SPRINGFIELD	COAL	4.3	222.8	
298.5	CARBONDALE		GRAY SHALE	3.0	227.0	

MAPID: 19900100000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.834552 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.818982 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 526.0 **LOGGED (FT.):** 230.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
372.0	CARBONDALE	HERRIN	COAL	7.1	154.0	
303.0	CARBONDALE	SPRINGFIELD	COAL	4.3	223.0	

MAPID: 19900101000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** 158' S line, 26' E line of NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.826554 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.816398 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 525.3 **LOGGED (FT.):** 133.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 52 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
525.3	PLEISTOCENE		BROWN SANDSTONE	30.0	0.0	
495.3	MODESTO		GRAY SHALE	1.0	30.0	
494.3	MODESTO	PIASA	GRAY LIMESTONE	1.5	31.0	
492.8	MODESTO		GRAY LIMESTONE	0.5	32.5	
492.3	MODESTO		GREEN SHALE	3.0	33.0	
489.3	MODESTO		DARK GRAY SHALE	4.0	36.0	
485.3	CARBONDALE	DANVILLE	COAL	0.1	40.0	
485.2	CARBONDALE		BLACK SHALE	1.5	40.1	
483.7	CARBONDALE		GREEN SHALE	0.3	41.6	
483.5	CARBONDALE		DARK GRAY SHALE	3.3	41.8	
480.1	CARBONDALE		GREEN SHALE	5.7	45.2	
474.5	CARBONDALE		DARK GRAY SHALE	1.2	50.8	
473.3	CARBONDALE		GREEN SHALE	5.5	52.0	
467.8	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.3	57.5	
461.5	CARBONDALE		GRAY SANDSTONE	8.3	63.8	
453.1	CARBONDALE		DARK GRAY SHALE	0.8	72.2	
452.3	CARBONDALE		GRAY SANDSTONE	12.0	73.0	
440.3	CARBONDALE		SHALE & SANDSTONE	4.5	85.0	
435.8	CARBONDALE		DARK GRAY SHALE	2.5	89.5	
433.3	CARBONDALE		DARK GRAY SHALE	16.0	92.0	
417.3	CARBONDALE	CONANT	GRAY LIMESTONE	0.3	108.0	
417.0	CARBONDALE	JAMESTOWN	COAL	0.2	108.3	
416.8	CARBONDALE		DARK GRAY SHALE	1.3	108.5	
415.5	CARBONDALE	BRERETON	GRAY LIMESTONE	4.6	109.8	
411.0	CARBONDALE		BLACK SHALE	5.2	114.3	
405.8	CARBONDALE	ENERGY	GRAY SHALE	4.7	119.5	
401.1	CARBONDALE	HERRIN	COAL	6.0	124.2	
395.1	CARBONDALE		UNDERCLAY	2.8	130.2	

MAPID: 19900101000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** 158' S line, 26' E line of NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.826554 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.816398 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 130.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP. 52 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
494.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	2.0	31.0	
492.0	MODESTO		DARK GRAY SHALE	7.0	33.0	
485.0	CARBONDALE		SHALE & SILTSTONE	17.4	40.0	
467.6	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	6.3	57.4	
461.3	CARBONDALE	LAWSON	SANDSTONE	8.3	63.7	
452.9	CARBONDALE	LAWSON	DARK GRAY SHALE	0.8	72.1	
452.1	CARBONDALE	LAWSON	SANDSTONE	12.0	72.9	
440.1	CARBONDALE	LAWSON	SHALE & SANDSTONE	4.5	84.9	
435.6	CARBONDALE	LAWSON	DARK GRAY SHALE	18.5	89.4	
417.1	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.3	107.9	
416.8	CARBONDALE	JAMESTOWN	COAL	0.2	108.2	
416.6	CARBONDALE		DARK GRAY SHALE	1.3	108.4	
415.3	CARBONDALE	BRERETON	LIMESTONE	4.6	109.7	
410.8	CARBONDALE	ANNA	BLACK SHALE	5.2	114.2	
405.6	CARBONDALE	ENERGY	GRAY SHALE	4.7	119.4	
401.0	CARBONDALE	HERRIN	COAL	6.0	124.0	

MAPID: 19902099000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.82306 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.811265 **DATE COLLECTED:** 7 / 0 / 1957

SURFACE ELEVATION (FT.): 574.0 **LOGGED (FT.):** 1480.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
29.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	545.0	
-31.0	SPOON	DAVIS	UNCLASSIFIED	-	605.0	
-906.0	BASE OF PENN.		UNCLASSIFIED	-	1480.0	

MAPID: 19902099000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.82306 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.811265 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 574.0 **LOGGED (FT.):** 3130.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
304.0	CARBONDALE	HERRIN	COAL	5.0	270.0	
224.0	CARBONDALE	SPRINGFIELD	COAL	4.0	350.0	
154.0	CARBONDALE	HOUCHIN CREEK	COAL	-	420.0	

MAPID: 19900102000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.824264 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.795699 **DATE COLLECTED:** 0 / 0 / 1904

SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 507.1 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
547.0	PLEISTOCENE		CLAY	7.0	0.0	
540.0	MODESTO		SANDSTONE	10.0	7.0	
530.0	MODESTO		CLAYSTONE	65.0	17.0	
465.0	MODESTO		BLACK SHALE	2.0	82.0	
463.0	MODESTO		COAL	0.8	84.0	
462.2	MODESTO		UNDERCLAY	0.6	84.8	
461.6	MODESTO		SHALE & SILTSTONE	39.0	85.4	BLUE
422.6	MODESTO		BLACK SHALE	4.0	124.4	
418.6	MODESTO		COAL	3.3	128.4	
415.2	MODESTO		UNDERCLAY	0.8	131.8	
414.5	MODESTO		SANDSTONE	26.2	132.5	
388.3	MODESTO	PIASA	LIMESTONE	4.5	158.7	
383.8	MODESTO		SHALE & SILTSTONE	21.0	163.2	LIGHT BLUE
362.8	MODESTO		BLACK SHALE	1.5	184.2	
361.3	CARBONDALE	DANVILLE	COAL	1.6	185.7	
359.7	CARBONDALE		UNDERCLAY	0.3	187.3	
359.4	CARBONDALE		BLACK SHALE	5.0	187.6	
354.4	CARBONDALE	BANKSTON FORK	LIMESTONE	11.4	192.6	
343.0	CARBONDALE		SANDSTONE	2.5	204.0	
340.5	CARBONDALE		BLACK SHALE	5.3	206.5	
335.2	CARBONDALE		BLACK SHALE	1.3	211.8	
333.9	CARBONDALE		LIMESTONE	2.0	213.1	
331.9	CARBONDALE		SHALE & SILTSTONE	13.9	215.1	LIGHT BLUE
318.0	CARBONDALE		SHALE & SILTSTONE	23.3	229.0	DARK BLUE
294.7	CARBONDALE	CONANT	LIMESTONE	1.5	252.3	
293.2	CARBONDALE		BLACK SHALE	1.8	253.8	
291.3	CARBONDALE	JAMESTOWN	COAL	0.3	255.7	
291.1	CARBONDALE		BLACK SHALE	0.9	255.9	
290.2	CARBONDALE		LIMESTONE	4.2	256.8	
286.0	CARBONDALE		SHALE & SILTSTONE	12.3	261.0	
273.7	CARBONDALE	BRERETON	BLUE LIMESTONE	1.3	273.3	
272.5	CARBONDALE	ANNA	BLACK SHALE	9.3	274.5	
263.2	CARBONDALE	ANNA	BLACK SHALE	1.6	283.8	
261.7	CARBONDALE	ANNA	BLACK SHALE	3.8	285.3	
257.9	CARBONDALE	HERRIN	COAL	5.3	289.1	
252.7	CARBONDALE		UNDERCLAY	0.6	294.3	
252.1	CARBONDALE		BLACK SHALE	4.3	294.9	
247.7	CARBONDALE		BLACK SHALE	2.5	299.3	
245.2	CARBONDALE		BLACK SHALE	5.2	301.8	

240.1	CARBONDALE	ST. DAVID	LIMESTONE	1.5	306.9	
238.6	CARBONDALE	TURNER MINE	BLACK SHALE	0.8	308.4	
237.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	309.2	
235.8	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	38.0	311.2	
197.8	CARBONDALE	SPRINGFIELD	COAL	1.3	349.2	
196.6	CARBONDALE		UNDERCLAY	0.6	350.4	
196.0	CARBONDALE		BLACK SHALE	2.0	351.0	
194.0	CARBONDALE		BROWN LIMESTONE	2.0	353.0	
192.0	CARBONDALE		BLACK SHALE	8.0	355.0	
184.0	CARBONDALE		SHALE	6.0	363.0	
178.0	CARBONDALE		SHALE & SILTSTONE	10.1	369.0	
167.9	CARBONDALE		SHALE	1.3	379.1	
166.6	CARBONDALE		SHALE & SILTSTONE	27.0	380.4	
139.6	CARBONDALE	EXCELLO	BLACK SHALE	4.9	407.4	
134.7	CARBONDALE	EXCELLO	BLACK SHALE	2.7	412.3	
132.0	CARBONDALE	EXCELLO	BLACK SHALE	4.0	415.0	
128.0	CARBONDALE	HOUCHIN CREEK	COAL	1.8	419.0	
126.2	CARBONDALE		BLACK SHALE	2.0	420.8	
124.2	CARBONDALE		LIMESTONE	4.0	422.8	
120.2	CARBONDALE		SANDSTONE	2.7	426.8	
117.5	CARBONDALE		LIMESTONE	15.1	429.5	
102.4	CARBONDALE	SURVANT	COAL	0.7	444.6	
101.7	CARBONDALE		BLACK SHALE	2.0	445.3	
99.7	CARBONDALE		SANDY LIMESTONE	8.5	447.3	
91.2	CARBONDALE		BLACK SHALE	0.8	455.8	
90.5	CARBONDALE		SHALE & SILTSTONE	32.0	456.5	LIGHT BLUE
58.5	CARBONDALE		SHALE & SILTSTONE	16.8	488.5	BLACK
41.7	CARBONDALE	COLCHESTER	COAL	0.8	505.3	
40.9	CARBONDALE		UNDERCLAY	0.7	506.1	
40.2	CARBONDALE		SANDY LIMESTONE	0.3	506.8	

MAPID: 19901411000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** 100' S line, 1000' E line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.820939 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.790459 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 259.3 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR COAL CO 1411 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
372.2	MODESTO	PIASA	LIMESTONE	2.3	167.8	
369.8	MODESTO		BLACK SHALE	6.0	170.2	
363.8	CARBONDALE	DANVILLE	COAL	2.4	176.2	
361.4	CARBONDALE		SHALE & SILTSTONE	11.0	178.6	
350.4	CARBONDALE	ALLENBY	BONE COAL	0.7	189.6	
349.7	CARBONDALE		CLAYSTONE	3.1	190.3	
346.7	CARBONDALE	BANKSTON FORK	LIMESTONE	7.4	193.3	LOWER BENCH
339.2	CARBONDALE	LAWSON	CLAYSTONE	0.8	200.8	
338.4	CARBONDALE	LAWSON	SILTSTONE	4.1	201.6	
334.3	CARBONDALE	LAWSON	GRAY SHALE	32.3	205.7	
302.0	CARBONDALE	CONANT	LIMESTONE	0.9	238.0	
301.1	CARBONDALE	JAMESTOWN	COAL	0.4	238.9	
300.7	CARBONDALE		BLACK SHALE	2.4	239.3	
298.2	CARBONDALE	BRERETON	LIMESTONE	5.3	241.8	
293.0	CARBONDALE	ANNA	BLACK SHALE	4.9	247.0	
288.1	CARBONDALE	ENERGY	BLACK SHALE	1.1	251.9	
287.0	CARBONDALE	HERRIN	COAL	6.3	253.0	

MAPID: 19901829000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.819734 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.791995 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 259.5 **LOG TYPE:** Drillers Log

SOURCE: BROOKS & OUSLEY 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
510.0	PLEISTOCENE		UNCONSOLIDATED	26.0	0.0	
484.0	PLEISTOCENE		SAND	3.0	26.0	
481.0	MODESTO		SANDSTONE	6.0	29.0	
475.0	MODESTO		SANDSTONE/SHALE	8.5	35.0	
466.5	MODESTO		BLUE SHALE	12.1	43.5	
454.4	MODESTO		COAL	1.6	55.6	
452.8	MODESTO		SANDSTONE/SHALE	5.5	57.2	
447.3	MODESTO		BLUE SHALE	13.3	62.7	
434.0	MODESTO		SHALE	7.0	76.0	
427.0	MODESTO		BLACK SHALE	11.0	83.0	
416.0	MODESTO		BLUE SHALE	6.7	94.0	
409.3	MODESTO		SHALE	9.0	100.7	
400.3	MODESTO		BLUE SHALE	1.1	109.7	
399.2	MODESTO		LIMESTONE	7.0	110.8	
392.2	MODESTO		SANDSTONE	8.0	117.8	
384.2	MODESTO		BLACK SHALE	7.3	125.8	
377.0	MODESTO		BLUE SHALE	6.1	133.0	
370.9	MODESTO		SANDSTONE	9.0	139.1	
361.9	MODESTO		BLUE SHALE	8.8	148.1	
353.2	MODESTO		SHALE	7.0	156.8	
346.2	MODESTO		SANDSTONE/SHALE	16.0	163.8	
330.2	MODESTO		BLUE LIMESTONE	8.2	179.8	
322.0	MODESTO		BLUE SHALE	16.0	188.0	
306.0	MODESTO	PIASA	BLUE LIMESTONE	7.7	204.0	
298.3	CARBONDALE		BLACK SHALE	18.5	211.7	
279.8	CARBONDALE	ALLENBY	COAL	0.8	230.2	
279.0	CARBONDALE		SHALE	4.3	231.0	
274.7	CARBONDALE		SANDSTONE/SHALE	6.2	235.3	
268.5	CARBONDALE	BRERETON	BLUE LIMESTONE	4.0	241.5	
264.5	CARBONDALE	ANNA	BLACK SHALE	5.0	245.5	
259.5	CARBONDALE	HERRIN	COAL	8.5	250.5	

MAPID: 19901932000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.834423 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.798599 **DATE COLLECTED:** 9 / 0 / 1956
SURFACE ELEVATION (FT.): 487.0 **LOGGED (FT.):** 1425.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Dry Hole
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
37.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	450.0	
-33.0	SPOON	DAVIS	UNCLASSIFIED	-	520.0	
-938.0	BASE OF PENN.		UNCLASSIFIED	-	1425.0	

MAPID: 19901932000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.834423 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.798599 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 487.0 **LOGGED (FT.):** 2779.0 **LOG TYPE:** Electric Log
SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
274.0	CARBONDALE	HERRIN	COAL	8.0	213.0	
211.0	CARBONDALE	SPRINGFIELD	COAL	4.0	276.0	
140.0	CARBONDALE	HOUCHIN CREEK	COAL	-	347.0	

MAPID: 19900104000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.847275 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.803259 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 343.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
475.0	PLEISTOCENE		CLAY	10.0	0.0	
465.0	MODESTO		SANDSTONE/SHALE	2.0	10.0	
463.0	MODESTO		BROWN SANDSTONE	2.0	12.0	
461.0	MODESTO		SANDSTONE/SHALE	2.0	14.0	
459.0	MODESTO		SANDSTONE	14.0	16.0	
445.0	MODESTO		SHALE	45.0	30.0	
400.0	MODESTO		SHALE	5.0	75.0	
395.0	MODESTO		SANDSTONE/SHALE	1.0	80.0	
394.0	MODESTO		GRAY LIMESTONE	1.0	81.0	
393.0	MODESTO		SANDSTONE/SHALE	11.0	82.0	
382.0	MODESTO		DARK SHALE	17.3	93.0	
364.7	MODESTO	POND CREEK	COAL	0.7	110.3	
364.0	MODESTO		UNDERCLAY	1.3	111.0	
362.7	MODESTO		GRAY SHALE	2.7	112.3	
360.0	MODESTO		SHALE	1.5	115.0	
358.5	MODESTO		GRAY SHALE	3.5	116.5	
355.0	MODESTO		SHALE	11.0	120.0	
344.0	MODESTO		SANDSTONE	42.0	131.0	
302.0	MODESTO		DARK SHALE	2.5	173.0	
299.5	MODESTO	PIASA	GRAY LIMESTONE	3.5	175.5	
296.0	MODESTO		DARK SHALE	4.0	179.0	
292.0	CARBONDALE	DANVILLE	COAL	2.3	183.0	
289.7	CARBONDALE		UNDERCLAY	0.3	185.3	
289.3	CARBONDALE		SANDSTONE	7.3	185.7	
282.0	CARBONDALE		SHALE	7.0	193.0	
275.0	CARBONDALE	BANKSTON FORK	LIMESTONE	14.0	200.0	
261.0	CARBONDALE		SHALE	12.0	214.0	
249.0	CARBONDALE		GRAY SHALE	19.5	226.0	
229.5	CARBONDALE	BRERETON	GRAY LIMESTONE	4.5	245.5	
225.0	CARBONDALE	ENERGY	DARK SHALE	29.3	250.0	
195.7	CARBONDALE	HERRIN	COAL	5.5	279.3	
190.2	CARBONDALE	HERRIN	BONE COAL	0.1	284.8	
190.1	CARBONDALE	HERRIN	COAL	1.6	284.9	
188.5	CARBONDALE		UNDERCLAY	3.5	286.5	
185.0	CARBONDALE		SHALE	14.0	290.0	
171.0	CARBONDALE		DARK SHALE	11.0	304.0	
160.0	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.0	315.0	
159.0	CARBONDALE	DYKERSBURG	DARK SHALE	20.2	316.0	
138.8	CARBONDALE	SPRINGFIELD	COAL	4.5	336.2	

134.3	CARBONDALE	UNDERCLAY	2.3	340.7

MAPID: 19900104000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.847275 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.803259 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 343.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
196.0	CARBONDALE	HERRIN	COAL	7.2	279.0	
139.0	CARBONDALE	SPRINGFIELD	COAL	4.5	336.0	

MAPID: 19900106000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.837935 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.795851 **DATE COLLECTED:** 0 / 0 / 1904

SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 459.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
459.0	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
419.0	MODESTO		SANDSTONE	13.0	40.0	
406.0	MODESTO		BLACK SHALE	4.0	53.0	
402.0	MODESTO		SHALE & SILTSTONE	42.0	57.0	BLACK
360.0	MODESTO		BLACK SHALE	1.0	99.0	
359.0	MODESTO		COAL	0.6	100.0	
358.4	MODESTO		UNDERCLAY	0.9	100.6	
357.5	MODESTO		BLACK SHALE	3.0	101.5	
354.5	MODESTO		COAL	0.2	104.5	
354.3	MODESTO		UNDERCLAY	0.7	104.7	
353.7	MODESTO		BLACK SHALE	1.8	105.3	
351.8	MODESTO		COAL	1.7	107.2	
350.2	MODESTO		UNDERCLAY	0.3	108.8	
349.8	MODESTO		BLACK SHALE	5.8	109.2	
344.1	MODESTO		SANDSTONE	2.8	114.9	
341.2	MODESTO		BLACK SHALE	8.8	117.8	
332.4	MODESTO		COAL	1.1	126.6	
331.3	MODESTO		UNDERCLAY	0.3	127.7	
331.1	MODESTO		BLACK SHALE	2.0	127.9	
329.1	MODESTO		BLACK SHALE	4.6	129.9	
324.5	MODESTO		WHITE SANDSTONE	4.4	134.5	
320.1	MODESTO		SHALE & SILTSTONE	29.8	138.9	BLACK
290.2	MODESTO	PIASA	BLUE LIMESTONE	4.7	168.8	
285.6	MODESTO		BLACK SHALE	1.8	173.4	
283.7	CARBONDALE	DANVILLE	COAL	2.3	175.3	
281.4	CARBONDALE		UNDERCLAY	0.3	177.6	
281.2	CARBONDALE		BLACK SHALE	1.8	177.8	
279.4	CARBONDALE	BRERETON	BROWN LIMESTONE	15.8	179.6	
263.7	CARBONDALE	ANNA	BLACK SHALE	2.7	195.3	
261.0	CARBONDALE	HERRIN	COAL	4.6	198.0	
256.4	CARBONDALE		UNDERCLAY	0.6	202.6	
255.8	CARBONDALE		SHALE	2.8	203.2	
253.1	CARBONDALE		BROWN LIMESTONE	14.7	205.9	
238.4	CARBONDALE		BLACK SHALE	3.6	220.6	
234.8	CARBONDALE	BRIAR HILL	COAL	1.3	224.2	
233.5	CARBONDALE		UNDERCLAY	0.8	225.5	
232.7	CARBONDALE		BLACK SHALE	8.8	226.3	
223.8	CARBONDALE		BLUE LIMESTONE	1.8	235.2	
222.0	CARBONDALE		BLACK SHALE	4.8	237.0	

217.2	CARBONDALE		COAL	2.3	241.8	FAULTED #5A OR UPPER BENCH OF #5?
214.9	CARBONDALE		UNDERCLAY	0.3	244.1	
214.7	CARBONDALE	TURNER MINE	BLACK SHALE	1.7	244.3	
213.0	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	18.8	246.0	WHITE
194.2	CARBONDALE	SPRINGFIELD	COAL	4.1	264.8	
190.1	CARBONDALE		UNDERCLAY	0.4	268.9	
189.7	CARBONDALE		BLACK SHALE	2.8	269.3	
186.8	CARBONDALE		BROWN LIMESTONE	7.3	272.2	
179.5	CARBONDALE		SHALE	18.1	279.5	
161.4	CARBONDALE		SHALE & SILTSTONE	33.9	297.6	
127.5	CARBONDALE		BLACK SHALE	1.6	331.5	
125.9	CARBONDALE	HANOVER	BLUE LIMESTONE	1.6	333.1	
124.3	CARBONDALE	EXCELLO	BLACK SHALE	3.7	334.7	
120.7	CARBONDALE	HOUCHIN CREEK	COAL	1.4	338.3	
119.2	CARBONDALE		UNDERCLAY	0.4	339.8	
118.8	CARBONDALE		BLACK SHALE	2.3	340.2	
116.5	CARBONDALE		LIMESTONE	14.8	342.5	
101.7	CARBONDALE		SHALE	2.9	357.3	
98.7	CARBONDALE		BLACK SHALE	4.8	360.3	
93.9	CARBONDALE		SHALE & SILTSTONE	14.8	365.1	
79.2	CARBONDALE	SURVANT	COAL	1.3	379.8	
77.8	CARBONDALE		UNDERCLAY	0.3	381.2	
77.5	CARBONDALE		BLACK SHALE	8.7	381.5	
68.8	CARBONDALE	SURVANT - LOWER	COAL	0.6	390.2	
68.2	CARBONDALE		BLACK SHALE	2.7	390.8	
65.6	CARBONDALE		BLACK SHALE	2.8	393.4	
62.7	CARBONDALE		BLACK SHALE	5.9	396.3	
56.8	CARBONDALE		BLACK SHALE	2.8	402.2	
54.0	CARBONDALE		SHALE & SILTSTONE	29.8	405.0	BLUE
24.2	CARBONDALE		BROWN LIMESTONE	4.9	434.8	
19.3	CARBONDALE		BLACK SHALE	1.9	439.7	
17.4	CARBONDALE		BLACK SHALE	0.8	441.6	
16.6	CARBONDALE		SANDY LIMESTONE	16.6	442.4	

MAPID: 19901594000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** 0' N line, 330' E line of NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.846087 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.797695 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 257.8 **LOG TYPE:** Survey Core Study

SOURCE: FREEMAN UNITED 44 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
304.5	MODESTO	PIASA	LIMESTONE/UNDERCLAY	2.1	165.5	
302.4	MODESTO		CLAYSTONE & SHALE	2.5	167.6	
299.9	CARBONDALE	DANVILLE	COAL	2.4	170.1	
297.5	CARBONDALE		SHALE & SILTSTONE	9.3	172.5	
288.2	CARBONDALE	ALLENBY	COAL	0.3	181.8	
287.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	1.7	182.1	
286.2	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.9	183.8	
275.2	CARBONDALE	LAWSON	GRAY SHALE	21.1	194.8	
254.2	CARBONDALE	LAWSON	LIMESTONE/UNDERCLAY	0.5	215.8	
253.7	CARBONDALE	LAWSON	SHALE & SILTSTONE	2.3	216.3	
251.3	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.3	218.7	
251.1	CARBONDALE	JAMESTOWN	COAL WITH SHALE PARTINGS	0.3	218.9	
250.7	CARBONDALE		GRAY SHALE	0.3	219.3	
250.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.4	219.5	
247.1	CARBONDALE	ANNA	BLACK SHALE	3.3	222.9	
243.7	CARBONDALE	ENERGY	GRAY SHALE	24.8	226.3	
219.0	CARBONDALE	HERRIN	COAL	6.8	251.0	

MAPID: 19900107000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 27 **QUARTERS/FOOTAGES:** NW NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.857809 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796731 **DATE COLLECTED:** 3 / 0 / 1904

SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 297.7 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
446.0	PLEISTOCENE		CLAY	2.0	0.0	
444.0	MODESTO		SANDSTONE	57.0	2.0	
387.0	MODESTO		LIMESTONE	1.8	59.0	
385.2	MODESTO		SHALE & SILTSTONE	57.6	60.8	BLUE
327.6	MODESTO		COAL	3.6	118.4	
324.0	MODESTO		UNDERCLAY	0.7	122.0	
323.3	MODESTO		BLACK SHALE	4.0	122.7	
319.3	MODESTO		LIMESTONE	7.0	126.7	
312.3	MODESTO		SHALE	16.3	133.7	
296.0	MODESTO		BLACK SHALE	7.0	150.0	
289.0	MODESTO		BLACK SHALE	9.0	157.0	
280.0	MODESTO	POND CREEK	COAL	4.2	166.0	
275.8	MODESTO		UNDERCLAY	0.5	170.2	
275.3	MODESTO		SHALE & SILTSTONE	23.1	170.7	BLUE
252.2	MODESTO		COAL	1.3	193.8	
251.0	MODESTO		UNDERCLAY	0.5	195.0	
250.5	MODESTO	PIASA	LIMESTONE	3.6	195.5	
246.9	MODESTO		DARK SANDSTONE	3.0	199.1	
243.9	MODESTO		BLACK SHALE	3.0	202.1	
240.9	MODESTO		BLACK SHALE	1.5	205.1	
239.4	CARBONDALE	DANVILLE	COAL	1.2	206.6	
238.2	CARBONDALE		BLACK SHALE	6.0	207.8	
232.2	CARBONDALE		BLACK SHALE	3.3	213.8	
229.0	CARBONDALE	ALLENBY	COAL	0.6	217.0	
228.4	CARBONDALE		BLACK SHALE	2.2	217.6	
226.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	4.7	219.8	
221.6	CARBONDALE	BANKSTON FORK	LIMESTONE	1.7	224.4	
219.9	CARBONDALE		SANDSTONE	4.0	226.1	
215.9	CARBONDALE		DARK SANDSTONE	21.0	230.1	
194.9	CARBONDALE		BLACK SHALE	1.0	251.1	
193.9	CARBONDALE		SHALE & SILTSTONE	13.0	252.1	
180.9	CARBONDALE	JAMESTOWN	COAL	0.4	265.1	
180.5	CARBONDALE	BRERETON	BLUE LIMESTONE	4.0	265.5	
176.5	CARBONDALE	ANNA	BLACK SHALE	3.5	269.5	
173.0	CARBONDALE	ENERGY	SHALE & SILTSTONE	16.3	273.0	
156.7	CARBONDALE	HERRIN	COAL	6.8	289.3	
149.8	CARBONDALE		UNDERCLAY	0.3	296.2	
149.5	CARBONDALE		BLACK SHALE	1.2	296.5	

MAPID: 19900108000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 27 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.855468 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796751 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 310.2 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.0	PLEISTOCENE		CLAY	17.0	0.0	
437.0	MODESTO		SANDSTONE	61.0	17.0	
376.0	MODESTO		LIMESTONE	2.0	78.0	
374.0	MODESTO		SHALE & SILTSTONE	49.3	80.0	BLUE
324.7	MODESTO	POND CREEK	COAL	3.4	129.3	
321.2	MODESTO		UNDERCLAY	0.7	132.8	
320.6	MODESTO		LIMESTONE	9.7	133.4	
310.9	MODESTO		BLACK SHALE	6.0	143.1	
304.9	MODESTO		SHALE & SILTSTONE	13.7	149.1	BLACK
291.2	MODESTO		BLACK SHALE	1.0	162.8	
290.2	MODESTO		BLACK SHALE	2.3	163.8	
287.9	MODESTO		SHALE & SILTSTONE	25.9	166.1	BLUE
262.0	MODESTO		SHALE & SILTSTONE	16.0	192.0	BLACK
246.0	MODESTO		COAL	1.0	208.0	
245.0	MODESTO		UNDERCLAY	0.5	209.0	
244.5	MODESTO	PIASA	LIMESTONE	2.0	209.5	
242.5	MODESTO		BLACK SHALE	6.0	211.5	
236.5	CARBONDALE	DANVILLE	COAL	2.5	217.5	
234.0	CARBONDALE		UNDERCLAY	0.8	220.0	
233.2	CARBONDALE		SHALE & SILTSTONE	21.3	220.8	BLUE
211.9	CARBONDALE		COAL	0.4	242.1	
211.5	CARBONDALE		UNDERCLAY	0.6	242.5	
210.9	CARBONDALE		LIMESTONE	4.1	243.1	
206.8	CARBONDALE		BLACK SHALE	2.5	247.2	
204.3	CARBONDALE		WHITE SANDSTONE	8.0	249.7	
196.3	CARBONDALE		BLACK SHALE	1.0	257.7	
195.3	CARBONDALE	ALLENBY	COAL	4.0	258.7	
191.3	CARBONDALE		BLACK SHALE	8.0	262.7	
183.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	270.7	
177.3	CARBONDALE		BLACK SHALE	9.4	276.7	
167.9	CARBONDALE		BLACK SHALE	2.3	286.1	
165.7	CARBONDALE	BRERETON	LIMESTONE	5.0	288.3	
160.7	CARBONDALE	ANNA	BLACK SHALE	4.0	293.3	
156.7	CARBONDALE	ANNA	BLACK SHALE	3.2	297.3	
153.5	CARBONDALE	ANNA	BLACK SHALE	0.3	300.5	
153.2	CARBONDALE	HERRIN	COAL	7.8	300.8	
145.3	CARBONDALE		BLACK SHALE	1.5	308.7	

MAPID: 19901577000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 27 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.868299 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.793877 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 296.6 **LOG TYPE:** Survey Core Study

SOURCE: FREEMAN UNITED 4 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
303.5	MODESTO	PIASA	LIMESTONE	2.7	189.5	
300.8	MODESTO		BLACK SHALE	4.6	192.2	
296.2	CARBONDALE	DANVILLE	COAL	2.3	196.8	
294.0	CARBONDALE		SHALE & SANDSTONE	14.5	199.0	
279.5	CARBONDALE		CLAYSTONE	1.8	213.5	
277.7	CARBONDALE	BANKSTON FORK	LIMESTONE	3.8	215.3	LOWER BENCH
274.0	CARBONDALE	LAWSON	SILTSTONE	5.0	219.0	
269.0	CARBONDALE	LAWSON	BLACK SHALE	4.8	224.0	
264.2	CARBONDALE	LAWSON	COAL	0.2	228.8	
264.0	CARBONDALE	LAWSON	SHALE & SILTSTONE	9.8	229.0	
254.2	CARBONDALE	LAWSON	GRAY SHALE	28.6	238.8	
225.7	CARBONDALE	JAMESTOWN	COAL	0.6	267.3	
225.1	CARBONDALE		BLACK SHALE	9.6	267.9	
215.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.1	277.5	
212.4	CARBONDALE	ANNA	GRAY SHALE	0.2	280.6	
212.2	CARBONDALE	ENERGY	LIMESTONE/UNDERCLAY	9.3	280.8	
203.0	CARBONDALE	HERRIN	COAL	6.6	290.0	

MAPID: 19900109000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.875312 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.795597 **DATE COLLECTED:** 10 / 0 / 1904

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 288.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 24 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
445.0	MODESTO		SANDSTONE	9.3	15.0	
435.7	MODESTO		SHALE	6.3	24.3	
429.4	MODESTO		SHALE & SILTSTONE	12.3	30.6	
417.2	MODESTO		SANDSTONE	14.5	42.8	
402.7	MODESTO		SHALE & SILTSTONE	40.0	57.3	
362.7	MODESTO		SANDSTONE	5.2	97.3	
357.5	MODESTO		BLACK SHALE	2.6	102.5	
354.9	MODESTO		BLACK SHALE	7.5	105.1	
347.4	MODESTO		BLACK SHALE	5.5	112.6	
341.9	MODESTO		SHALE & SILTSTONE	16.1	118.1	
325.8	MODESTO		SANDSTONE	12.5	134.2	
313.3	MODESTO		BLACK SHALE	7.0	146.7	
306.3	MODESTO		BLACK SHALE	9.0	153.7	
297.3	MODESTO		SHALE & SILTSTONE	27.7	162.7	
269.7	CARBONDALE		SANDSTONE	4.5	190.3	
265.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.5	194.8	
262.7	CARBONDALE	ANVIL ROCK	SANDSTONE	49.6	197.3	
213.1	CARBONDALE	BRERETON	BLUE LIMESTONE	6.3	246.9	
206.8	CARBONDALE	ANNA	BLACK SHALE	4.0	253.2	
202.8	CARBONDALE	ENERGY	SHALE & SILTSTONE	23.7	257.2	
179.2	CARBONDALE	HERRIN	COAL	8.0	280.8	

MAPID: 19900109000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NE NE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.875312 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.795597 **DATE COLLECTED:** 0 / 0 / 1904

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 288.0 **LOG TYPE:** Drillers Log

SOURCE: RIGG J N 24 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
266.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.5	194.0	
263.5	CARBONDALE	LAWSON	SANDSTONE	49.6	196.5	
213.9	CARBONDALE	BRERETON	LIMESTONE	6.3	246.1	
207.7	CARBONDALE	ANNA	BLACK SHALE	4.0	252.3	
203.7	CARBONDALE	ENERGY	GRAY SHALE	23.7	256.3	
180.0	CARBONDALE	HERRIN	COAL	8.0	280.0	

MAPID: 19900110000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.885695 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.803458 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 472.5 **LOGGED (FT.):** 358.0 **LOG TYPE:** Drillers Log

SOURCE: ST LOUIS COAL & IRON CO. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
472.5	PLEISTOCENE		CLAY	15.0	0.0	
457.5	MODESTO		SANDSTONE	28.5	15.0	
429.0	MODESTO		SANDY SHALE	54.5	43.5	
374.5	MODESTO		BLUE SHALE	21.0	98.0	
353.5	MODESTO		SANDY SHALE	30.0	119.0	
323.5	MODESTO		BLACK SHALE	16.0	149.0	
307.5	MODESTO		DARK SHALE	20.0	165.0	
287.5	MODESTO		BLUE SHALE	15.0	185.0	
272.5	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	10.0	200.0	
262.5	CARBONDALE	ANVIL ROCK	SANDSTONE	56.5	210.0	
206.0	CARBONDALE		BLUE SHALE	1.5	266.5	
204.5	CARBONDALE		DARK SHALE	3.0	268.0	
201.5	CARBONDALE	BRERETON	BLUE LIMESTONE	5.0	271.0	
196.5	CARBONDALE	ENERGY	DARK SHALE	6.0	276.0	
190.5	CARBONDALE	ENERGY	SANDSTONE/SHALE	12.9	282.0	
177.6	CARBONDALE	HERRIN	COAL	7.7	294.9	
169.9	CARBONDALE		UNDERCLAY	2.4	302.6	
167.5	CARBONDALE	HIGGINSVILLE	LIMESTONE	7.0	305.0	
160.5	CARBONDALE		SANDSTONE/SHALE	5.0	312.0	
155.5	CARBONDALE		BLACK SHALE	1.7	317.0	
153.8	CARBONDALE	BRIAR HILL	COAL	0.3	318.7	
153.5	CARBONDALE		SANDSTONE/SHALE	3.0	319.0	
150.5	CARBONDALE		BLUE SHALE	13.0	322.0	
137.5	CARBONDALE	ST. DAVID	LIMESTONE	2.5	335.0	
135.0	CARBONDALE		BLACK SHALE	14.8	337.5	
120.2	CARBONDALE	SPRINGFIELD	COAL	4.0	352.3	
116.2	CARBONDALE		UNDERCLAY	1.8	356.3	

MAPID: 19900111000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW SE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.885678 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.799783 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 443.6 **LOGGED (FT.):** 302.0 **LOG TYPE:** Drillers Log

SOURCE: ST. LOUIC COAL & IRON CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.6	PLEISTOCENE		CLAY	15.0	0.0	
428.6	PLEISTOCENE		SAND	11.0	15.0	
417.6	MODESTO		SANDSTONE/SHALE	15.0	26.0	SOME BLUE
402.6	MODESTO		SHALE	19.0	41.0	
383.6	MODESTO		SANDSTONE/SHALE	24.0	60.0	
359.6	MODESTO		BLUE SHALE	11.0	84.0	
348.6	MODESTO		DARK SHALE	48.0	95.0	
300.6	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	13.0	143.0	
287.6	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0	156.0	
275.6	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	1.0	168.0	
274.6	CARBONDALE	ANVIL ROCK	SANDSTONE	5.0	169.0	
269.6	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	1.5	174.0	
268.1	CARBONDALE	ANVIL ROCK	SANDSTONE	32.0	175.5	
236.1	CARBONDALE	JAMESTOWN	COAL	0.3	207.5	
235.8	CARBONDALE	ANVIL ROCK	SANDSTONE	1.3	207.8	
234.6	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	15.0	209.0	
219.6	CARBONDALE	BRERETON	LIMESTONE	8.0	224.0	
211.6	CARBONDALE	ANNA	BLACK SHALE	3.0	232.0	
208.6	CARBONDALE	ENERGY	SANDSTONE/SHALE	2.2	235.0	
206.4	CARBONDALE	HERRIN	COAL	7.1	237.2	
199.3	CARBONDALE		UNDERCLAY	3.8	244.3	
195.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.0	248.0	
186.6	CARBONDALE		SANDSTONE/SHALE	6.7	257.0	
179.9	CARBONDALE	BRIAR HILL	COAL	0.3	263.7	
179.6	CARBONDALE		SANDSTONE/SHALE	9.0	264.0	
170.6	CARBONDALE		DARK SHALE	8.0	273.0	
162.6	CARBONDALE	ST. DAVID	LIMESTONE	1.5	281.0	
161.1	CARBONDALE	TURNER MINE	BLACK SHALE	13.6	282.5	
147.5	CARBONDALE	SPRINGFIELD	COAL	3.9	296.1	
143.6	CARBONDALE		UNDERCLAY	2.0	300.0	

MAPID: 19922621000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 520' S line, 475' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.87474 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.798901 **DATE COLLECTED:** 4 / 11 / 1973

SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 272.5 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN COAL MINING CO. 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
464.0	PLEISTOCENE		UNCONSOLIDATED	10.5	0.0	
453.5	MODESTO		SANDSTONE	23.5	10.5	
430.0	MODESTO		SANDSTONE	67.1	34.0	
362.9	MODESTO		COAL	1.0	101.1	
362.0	MODESTO		SANDSTONE	21.0	102.0	
341.0	MODESTO		SANDY SHALE	18.1	123.0	
322.9	MODESTO		BLACK SHALE	2.0	141.1	
321.0	MODESTO		COAL	0.1	143.0	
320.9	MODESTO		GRAY SHALE	1.0	143.1	
319.9	MODESTO		SANDY SHALE	1.0	144.1	
318.9	MODESTO		SANDSTONE	22.0	145.1	
297.0	MODESTO		SHALE	19.0	167.0	
278.0	MODESTO	PIASA	GRAY LIMESTONE	2.1	186.0	
275.9	MODESTO		DARK GRAY SHALE	1.0	188.1	
274.9	MODESTO		SHALE WITH LIMESTONE	7.0	189.1	
268.0	CARBONDALE	DANVILLE	COAL	2.0	196.0	
266.0	CARBONDALE		SHALE	9.1	198.0	
256.9	CARBONDALE	ALLENBY	COAL	1.0	207.1	
256.0	CARBONDALE		SHALE	5.0	208.0	
251.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	213.0	
246.0	CARBONDALE		SANDSTONE	3.1	218.0	
242.9	CARBONDALE		SHALE	3.0	221.1	
240.0	CARBONDALE		SHALE & SANDSTONE	31.1	224.0	
208.9	CARBONDALE	BRERETON	LIMESTONE	4.0	255.1	
204.9	CARBONDALE	BRERETON	BLACK SHALE	5.0	259.1	
200.0	CARBONDALE		SILTY SHALE	8.1	264.0	
191.9	CARBONDALE		SILTY SHALE	0.0	272.1	

MAPID: 19922624000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 1180' S line, 60' W line of SE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.877364 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.79324 **DATE COLLECTED:** 2 / 12 / 1975

SURFACE ELEVATION (FT.): 487.0 **LOGGED (FT.):** 268.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN COAL MINING CO. 4 **WELL TYPE:** Coal Test

COMMENT: 4 3/4" BORE HOLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
487.0	PLEISTOCENE		CLAY	14.0	0.0	
473.0	MODESTO		SHALE	6.0	14.0	
467.0	MODESTO		SANDY SHALE	68.0	20.0	
399.0	MODESTO		COAL	0.0	88.0	
399.0	MODESTO		GRAY SHALE	5.0	88.0	
394.0	MODESTO		SANDSTONE	35.0	93.0	
359.0	MODESTO		DARK GRAY SHALE	5.0	128.0	
354.0	MODESTO		DARK GRAY SHALE	7.0	133.0	
347.0	MODESTO		BLACK SHALE	4.0	140.0	
343.0	MODESTO		DARK GRAY SHALE	6.0	144.0	
337.0	MODESTO		GRAY SHALE	14.0	150.0	
323.0	MODESTO		GRAY SHALE	5.0	164.0	
318.0	MODESTO		SANDY SHALE	19.0	169.0	
299.0	MODESTO		CALCAREOUS SANDSTONE	2.0	188.0	
297.0	MODESTO		SANDSTONE	13.0	190.0	
284.0	MODESTO		SHALE WITH LIMESTONE	2.0	203.0	
282.0	CARBONDALE	DANVILLE	COAL	1.0	205.0	
281.0	CARBONDALE		SHALE	6.0	206.0	
275.0	CARBONDALE	ALLENBY	COAL	1.0	212.0	
274.0	CARBONDALE		GREEN SHALE	4.0	213.0	
270.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	217.0	TAN
269.0	CARBONDALE		SANDY SHALE	15.0	218.0	
254.0	CARBONDALE		LIMESTONE	5.0	233.0	
249.0	CARBONDALE		UNKNOWN	30.0	238.0	

MAPID: 19923560000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 54' S line, 2880' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.882895 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.789926 **DATE COLLECTED:** 9 / 12 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 305.3 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL40 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SAND/CLAY	13.0	0.0	
-			GRAY SHALE	54.6	13.0	
-			LIMESTONE	1.2	67.6	
-			SANDY SHALE	114.4	68.8	
-			SANDSTONE	14.3	183.2	
-			BLACK SHALE	10.2	197.4	
-	CARBONDALE		LIMESTONE	7.8	207.6	
-	CARBONDALE	ENERGY	SHALE	29.0	215.3	DARK GRAY
-	CARBONDALE		LIMESTONE	0.7	244.3	
-	CARBONDALE	HERRIN	COAL	6.3	245.0	
-	CARBONDALE		CALCAREOUS SHALE	17.9	251.3	
-	CARBONDALE	BRIAR HILL	SHALE/COAL	2.2	269.3	
-	CARBONDALE		GRAY SHALE	19.0	271.4	
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.8	290.4	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	5.8	295.2	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	301.0	

MAPID: 19900112000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 29 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.900581 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796682 **DATE COLLECTED:** 10 / 0 / 1904

SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 254.9 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 23 **WELL TYPE:** Coal Test

COMMENT: LOC CNTR OF 40

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
527.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
519.0	MODESTO		SANDSTONE	27.5	8.0	
491.5	MODESTO		SHALE & SILTSTONE	11.0	35.5	BLUE
480.5	MODESTO	PIASA	LIMESTONE	1.3	46.5	
479.2	CARBONDALE	DANVILLE	COAL	2.6	47.8	
476.7	CARBONDALE		UNDERCLAY	0.7	50.3	
476.0	CARBONDALE		SANDSTONE	16.0	51.0	
460.0	CARBONDALE		SHALE & SILTSTONE	12.5	67.0	
447.5	CARBONDALE		BLACK SHALE	10.0	79.5	
437.5	CARBONDALE		LIMESTONE	1.7	89.5	
435.8	CARBONDALE		BLACK SHALE	6.3	91.2	
429.6	CARBONDALE	ALLENBY	COAL	2.4	97.4	
427.2	CARBONDALE		UNDERCLAY	0.5	99.8	
426.7	CARBONDALE		SHALE & SILTSTONE	15.3	100.3	BLUE
411.4	CARBONDALE	BANKSTON FORK	LIMESTONE	8.5	115.6	
402.9	CARBONDALE		BLACK SHALE	7.8	124.1	
395.1	CARBONDALE		BROWN LIMESTONE	11.0	131.9	
384.1	CARBONDALE	ANVIL ROCK	SANDSTONE	82.7	142.9	
301.4	CARBONDALE		LIMESTONE	2.9	225.6	
298.5	CARBONDALE		BLACK SHALE	3.0	228.5	
295.5	CARBONDALE	BRERETON	LIMESTONE	11.0	231.5	
284.5	CARBONDALE	ANNA	BLACK SHALE	4.6	242.5	
279.9	CARBONDALE	HERRIN	COAL	7.8	247.1	

MAPID: 19902088000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 29 **QUARTERS/FOOTAGES:** 0' N line, 240' E line of SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.906004 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.792961 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 245.6 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 11 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.6	CARBONDALE	DANVILLE	BLACK SHALE	3.0	82.4	
432.6	CARBONDALE		GRAY SHALE	40.0	85.4	
392.6	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	1.0	125.4	LOWER BENCH
391.6	CARBONDALE	LAWSON	SHALE & SANDSTONE	19.0	126.4	
372.6	CARBONDALE	LAWSON	SANDSTONE	47.9	145.4	
324.6	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	0.8	193.4	
323.9	CARBONDALE	LAWSON	SANDSTONE	7.3	194.1	
316.6	CARBONDALE		SANDSTONE	0.6	201.4	
316.0	CARBONDALE	BRERETON	LIMESTONE	3.1	202.0	
312.9	CARBONDALE	ANNA	BLACK SHALE	1.8	205.1	
311.1	CARBONDALE	ENERGY	GRAY SHALE	0.5	206.9	
310.6	CARBONDALE	ENERGY	GRAY SHALE	30.6	207.4	
280.0	CARBONDALE	HERRIN	COAL	7.6	238.0	

MAPID: 19902554000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.897148 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.790309 **DATE COLLECTED:** 1 / 0 / 1973

SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 1400.0 **LOG TYPE:**

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
13.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	480.0	
-67.0	SPOON	DAVIS	UNCLASSIFIED	-	560.0	
-907.0	BASE OF PENN.		UNCLASSIFIED	-	1400.0	

MAPID: 19923561000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 29 **QUARTERS/FOOTAGES:** 60' S line, 3240' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.902693 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.789507 **DATE COLLECTED:** 4 / 25 / 1980

SURFACE ELEVATION (FT.): 515.0 **LOGGED (FT.):** 298.7 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-003 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
515.0			UNCLASSIFIED	273.0	0.0	
242.0	CARBONDALE	ST. DAVID	FOSSILIFEROUS LIMESTONE	2.0	273.0	
240.0	CARBONDALE		UNCLASSIFIED	13.0	275.0	
227.0	CARBONDALE	SPRINGFIELD	COAL	4.2	288.0	
222.8	CARBONDALE		UNCLASSIFIED	6.5	292.2	

MAPID: 19901951000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 30 **QUARTERS/FOOTAGES:** 355' N line, 845' W line of NE SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.91135 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.795587 **DATE COLLECTED:** 1 / 0 / 1962

SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 1475.0 **LOG TYPE:** Electric Log

SOURCE: FORSYTH-CRTRVL COAL **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
22.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	435.0	
-103.0	SPOON	DAVIS	UNCLASSIFIED	-	560.0	
-1018.0	BASE OF PENN.		UNCLASSIFIED	-	1475.0	

MAPID: 19902251000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 30 **QUARTERS/FOOTAGES:** 40' N line, 40' W line of NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.927733 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.796396 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 247.5 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 04-2-63 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
385.9	MODESTO	PIASA	BLACK SHALE	2.5	166.1	
383.4	MODESTO		BLACK SHALE	0.5	168.6	
382.9	CARBONDALE	DANVILLE	COAL	2.5	169.1	
380.4	CARBONDALE		GRAY SHALE	13.5	171.6	
366.9	CARBONDALE	BANKSTON FORK	LIMESTONE	8.5	185.1	LOWER BENCH
358.4	CARBONDALE	LAWSON	GRAY SHALE	38.5	193.6	
319.9	CARBONDALE	BRERETON	LIMESTONE	3.5	232.1	
316.4	CARBONDALE	ANNA	BLACK SHALE	4.8	235.6	
311.7	CARBONDALE	ENERGY	GRAY SHALE	1.3	240.3	
310.3	CARBONDALE	ENERGY	BLACK SHALE	0.3	241.7	
310.0	CARBONDALE	HERRIN	COAL	5.5	242.0	

MAPID: 19923562000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 30 **QUARTERS/FOOTAGES:** 120' S line, 1680' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.915584 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.789565 **DATE COLLECTED:** 11 / 19 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 347.7 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL34 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SANDY CLAY	15.0	0.0	
-	CARBONDALE		SANDY SHALE	81.0	15.0	
-	CARBONDALE		SHALE	5.0	96.0	BLUE
-	CARBONDALE		LIMESTONE	3.0	101.0	
-	CARBONDALE		SANDY SHALE	62.0	104.0	
-	CARBONDALE	BRERETON	LIMESTONE	2.0	166.0	
-	CARBONDALE	HERRIN	COAL	6.3	168.0	
-	CARBONDALE		GRAY SHALE	72.3	174.3	
-	CARBONDALE	ST. DAVID	LIMESTONE	0.8	246.7	
-	CARBONDALE	TURNER MINE	BLACK SHALE	0.8	247.5	COAL
-	CARBONDALE		LIMESTONE	5.7	248.3	
-	CARBONDALE		GRAY SHALE	12.7	254.0	
-	CARBONDALE		SHALE	17.3	266.7	DARK GRAY
-	CARBONDALE	HOUCHIN CREEK	COAL	1.0	284.0	PER LOG
-	CARBONDALE		LIMESTONE	1.7	285.0	
-	CARBONDALE		GRAY SHALE	11.8	286.7	
-	CARBONDALE		SANDSTONE	15.3	298.5	BLACK
-	CARBONDALE		GRAY SHALE	34.0	313.7	

MAPID: 19923563000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 30 **QUARTERS/FOOTAGES:** 1320' S line, 240' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.910589 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.792905 **DATE COLLECTED:** 8 / 20 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 262.6 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL37 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SAND/CLAY	26.0	0.0	
-	CARBONDALE		GRAY SHALE	27.6	26.0	
-	CARBONDALE		SANDY SHALE	26.1	53.6	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	80.3	79.7	
-	CARBONDALE		BLACK SHALE	5.0	160.0	
-	CARBONDALE		LIMESTONE	5.0	165.0	
-	CARBONDALE	ENERGY	GRAY SHALE	26.0	170.0	
-	CARBONDALE	HERRIN	COAL	6.3	196.0	
-	CARBONDALE		CALCAREOUS SHALE	38.1	202.2	
-	CARBONDALE		CORE LOSS	18.0	240.3	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	258.3	

MAPID: 19900114000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.916576 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.787345 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 453.0 **LOGGED (FT.):** 128.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL **WELL TYPE:** Coal Test

COMMENT: EAST SIDE OF LAND

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
453.0	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
431.0	PLEISTOCENE		SAND & GRAVEL	25.5	22.0	
405.5	CARBONDALE		BLACK SHALE	2.5	47.5	
403.0	CARBONDALE		BLACK SHALE	4.0	50.0	
399.0	CARBONDALE		GRAY SANDSTONE	6.0	54.0	
393.0	CARBONDALE		UNKNOWN	10.0	60.0	
383.0	CARBONDALE	ALLENBY	COAL	1.0	70.0	
382.0	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	2.0	71.0	
380.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	27.3	73.0	GRAY
352.7	CARBONDALE	JAMESTOWN	COAL	1.0	100.3	
351.7	CARBONDALE		BLACK SHALE	4.0	101.3	
347.7	CARBONDALE	BRERETON	LIMESTONE	11.0	105.3	
336.7	CARBONDALE	ANNA	BLACK SHALE	3.0	116.3	
333.7	CARBONDALE	HERRIN	COAL	9.0	119.3	

MAPID: 19900114000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.916576 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.787345 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 453.0 **LOGGED (FT.):** 128.0 **LOG TYPE:** Drillers Log

SOURCE: MARION COUNTY COAL **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
392.3	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	60.7	
382.3	CARBONDALE	LAWSON	SANDSTONE	2.0	70.7	
380.3	CARBONDALE	LAWSON	GRAY SHALE	27.3	72.7	
353.0	CARBONDALE	JAMESTOWN	COAL	1.0	100.0	
352.0	CARBONDALE		BLACK SHALE	4.0	101.0	
348.0	CARBONDALE	BRERETON	LIMESTONE	11.0	105.0	
337.0	CARBONDALE	ANNA	BLACK SHALE	3.0	116.0	
334.0	CARBONDALE	HERRIN	COAL	9.0	119.0	

MAPID: 19900115000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 31 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919008 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.781668 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 122.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 44 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
452.0	PLEISTOCENE		UNCONSOLIDATED	24.6	0.0	
427.4	PLEISTOCENE		SAND	16.7	24.6	
410.7	CARBONDALE		WHITE SANDSTONE	14.0	41.3	
396.7	CARBONDALE		RED SANDSTONE	3.0	55.3	
393.7	CARBONDALE		WHITE SANDSTONE	6.5	58.3	
387.2	CARBONDALE		GRAY LIMESTONE	8.4	64.8	
378.8	CARBONDALE		ROCK	4.3	73.2	
374.5	CARBONDALE		BLACK SHALE	9.3	77.5	
365.2	CARBONDALE		LIMESTONE	4.0	86.8	
361.2	CARBONDALE		LIMESTONE	25.0	90.8	
336.2	CARBONDALE	HERRIN	COAL	7.0	115.8	

MAPID: 19900117000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 31 **QUARTERS/FOOTAGES:** SE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.921157 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.783529 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 112.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	PLEISTOCENE		BROWN SANDSTONE	10.0	20.0	
-	PLEISTOCENE		SAND	8.0	30.0	GRAY
-	PLEISTOCENE		BROWN SANDSTONE	18.0	38.0	
-	CARBONDALE		BLACK SHALE	9.0	56.0	
-	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	10.0	65.0	
-	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	5.5	75.0	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	2.0	80.5	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	82.5	
-	CARBONDALE	ENERGY	SHALE & SILTSTONE	17.5	86.5	BLUE
-	CARBONDALE	HERRIN	COAL	8.5	104.0	

MAPID: 19901526000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 32 **QUARTERS/FOOTAGES:** 25' N line, 2380' W line of NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.90146 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.789285 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 224.5 **LOG TYPE:** Survey Core Study

SOURCE: FREEMAN UNITED 10 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0	MODESTO	PIASA	LIMESTONE	2.5	32.0	
453.5	CARBONDALE		GRAY SHALE	47.0	34.5	
406.5	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	81.5	
405.5	CARBONDALE	LAWSON	GRAY SHALE	26.7	82.5	
378.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	31.0	109.2	
347.8	CARBONDALE	LAWSON	SANDSTONE	58.3	140.2	
289.5	CARBONDALE	LAWSON	GRAY SHALE	10.4	198.5	
279.1	CARBONDALE	CONANT	LIMESTONE	1.0	208.9	
278.1	CARBONDALE		BLACK SHALE	3.2	209.9	
274.9	CARBONDALE	BRERETON	LIMESTONE	6.5	213.1	
268.4	CARBONDALE	ANNA	BLACK SHALE	2.2	219.6	
266.2	CARBONDALE	ENERGY	BLACK SHALE	1.4	221.8	
264.8	CARBONDALE	ENERGY	GRAY SHALE	0.3	223.2	
264.6	CARBONDALE	ENERGY	GRAY SHALE	1.7	223.4	
271.0	CARBONDALE	HERRIN	COAL	7.5	217.0	

MAPID: 19923564000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 32 **QUARTERS/FOOTAGES:** 120' N line, 1560' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.896849 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.789071 **DATE COLLECTED:** 12 / 13 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 306.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL33 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			GRAY SHALE	10.3	36.0	
-			BLACK SHALE	4.4	46.3	
-			SANDY SHALE	45.8	50.7	
-			SANDSTONE	107.3	96.4	
-	CARBONDALE		LIMESTONE	2.4	203.8	
-	CARBONDALE		GRAY SHALE	5.2	206.2	
-	CARBONDALE	BRERETON	LIMESTONE	3.9	211.3	
-	CARBONDALE	ANNA	BLACK SHALE	6.4	215.3	
-	CARBONDALE	ENERGY	GRAY SHALE	3.5	221.7	
-	CARBONDALE	HERRIN	COAL	7.6	225.2	
-	CARBONDALE		CALCAREOUS SHALE	33.3	232.8	
-	CARBONDALE		BLACK SHALE	16.5	266.1	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	17.0	282.6	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	299.6	
-	CARBONDALE		SHALE	2.3	303.8	

MAPID: 19900118000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883312 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.788819 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 266.7 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 22 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
505.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
497.0	MODESTO		SANDSTONE	10.0	8.0	
487.0	MODESTO		BLACK SHALE	4.0	18.0	
483.0	MODESTO		SHALE & SILTSTONE	20.8	22.0	
462.2	MODESTO		SHALE & SILTSTONE	29.4	42.8	
432.7	MODESTO		BLACK SHALE	7.6	72.3	
425.2	MODESTO		COAL	1.7	79.8	
423.5	MODESTO		BLACK SHALE	4.7	81.5	
418.8	MODESTO		BLACK SHALE	6.8	86.2	
412.1	MODESTO		BLACK SHALE	1.0	92.9	
411.1	MODESTO		BLACK SHALE	4.3	93.9	
406.7	MODESTO		SHALE & SILTSTONE	12.2	98.3	BLUE
394.6	MODESTO		SHALE & SILTSTONE	10.6	110.4	BLACK
384.0	MODESTO		BLACK SHALE	5.3	121.0	
378.7	MODESTO		SHALE & SILTSTONE	23.9	126.3	
354.7	MODESTO		BLACK SHALE	4.2	150.3	
350.6	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	71.1	154.4	
279.5	CARBONDALE		BLACK SHALE	2.0	225.5	
277.5	CARBONDALE	BRERETON	GRAY LIMESTONE	5.0	227.5	
272.5	CARBONDALE	ANNA	BLACK SHALE	2.0	232.5	
270.5	CARBONDALE	ANNA	BLACK SHALE	5.0	234.5	
265.5	CARBONDALE	ANNA	BLACK SHALE	1.0	239.5	
264.5	CARBONDALE	ENERGY	SHALE & SILTSTONE	18.3	240.5	
246.2	CARBONDALE	HERRIN	COAL	7.8	258.8	
238.3	CARBONDALE		UNKNOWN	0.0	266.7	

MAPID: 19902087000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 2150' N line, 1320' W line of NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.886799 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.783697 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 208.5 **LOG TYPE:** Drillers Log
SOURCE: FREEMAN UNITED 8 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
332.4	CARBONDALE	BANKSTON FORK	LIMESTONE	1.5	169.6	UPPER BENCH
330.9	CARBONDALE	BANKSTON FORK	GRAY SHALE	8.0	171.1	SHALE PARTING
322.9	CARBONDALE	BANKSTON FORK	LIMESTONE	0.5	179.1	LOWER BENCH
322.4	CARBONDALE	LAWSON	GRAY SHALE	8.8	179.6	
313.6	CARBONDALE	JAMESTOWN	COAL	0.2	188.4	
313.4	CARBONDALE		GRAY SHALE	1.8	188.6	
311.6	CARBONDALE	BRERETON	LIMESTONE	8.3	190.4	
303.4	CARBONDALE	ANNA	BLACK SHALE	3.4	198.6	
300.0	CARBONDALE	HERRIN	COAL	6.5	202.0	

MAPID: 19902209000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.874162 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.775734 **DATE COLLECTED:** 2 / 0 / 1961
SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 1530.0 **LOG TYPE:** Electric Log
SOURCE: LINDSAY, THEODORE R. **WELL TYPE:** Dry Hole
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
81.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	405.0	
6.0	SPOON	DAVIS	UNCLASSIFIED	-	480.0	
-1044.0	BASE OF PENN.		UNCLASSIFIED	-	1530.0	

MAPID: 19902209000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.874162 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.775734 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 1984.0 **LOG TYPE:** Electric Log
SOURCE: LINDSAY, THEODORE R. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
266.0	CARBONDALE	SPRINGFIELD	COAL	4.0	220.0	
211.0	CARBONDALE	HOUCHIN CREEK	COAL	-	275.0	

MAPID: 19923565000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 120' S line, 2160' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.880532 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.775081 **DATE COLLECTED:** 10 / 20 / 1979

SURFACE ELEVATION (FT.): 474.6 **LOGGED (FT.):** 197.7 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL8 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
474.6	PLEISTOCENE		SANDY CLAY	40.0	0.0	
434.6			SANDSTONE	15.0	40.0	
419.6			GRAY SHALE	17.5	55.0	
402.1	MODESTO	PIASA	LIMESTONE	7.5	72.5	WHITE
394.6			BLACK SHALE	10.3	80.0	
384.3			GRAY SHALE	4.9	90.3	
379.3			LIMESTONE	1.8	95.3	
377.5			SHALE	12.1	97.1	DARK GRAY
365.4	CARBONDALE	BANKSTON FORK	LIMESTONE	3.3	109.2	BLACK
362.1	CARBONDALE		SHALE	9.8	112.5	DARK GRAY
352.4	CARBONDALE		BLACK SHALE	1.3	122.2	
351.1	CARBONDALE		LIMESTONE	17.0	123.5	BLACK
334.1	CARBONDALE	ANNA	BLACK SHALE	4.0	140.5	
330.1	CARBONDALE	HERRIN	COAL	6.0	144.5	
324.1	CARBONDALE		SHALE	4.8	150.5	WHITE
319.3	CARBONDALE		LIMESTONE	18.9	155.3	GRAY
300.4	CARBONDALE	ST. DAVID	LIMESTONE	1.8	174.2	BLACK
298.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	176.0	
296.3	CARBONDALE	DYKERSBURG	GRAY SHALE	15.3	178.3	
281.0	CARBONDALE	SPRINGFIELD	COAL	4.1	193.6	

MAPID: 19923566000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 1920' S line, 2400' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.881324 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.78004 **DATE COLLECTED:** 4 / 28 / 1980

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 254.3 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-005 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
485.0			UNCLASSIFIED	167.0	0.0	
318.0	CARBONDALE	HERRIN	COAL	6.0	167.0	
312.0	CARBONDALE		UNCLASSIFIED	77.1	173.0	
235.0	CARBONDALE	SPRINGFIELD	COAL	4.3	250.0	

MAPID: 19900119000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 0' S line, 330' W line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.871841 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.778686 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 178.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 29 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
492.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
480.0	PLEISTOCENE		GRAVEL	6.0	12.0	
474.0	PLEISTOCENE		SAND	8.0	18.0	
466.0	MODESTO		BLACK SHALE	2.7	26.0	
463.3	MODESTO		BLACK SHALE	4.0	28.7	
459.3	MODESTO		BLACK SHALE	5.6	32.7	
453.7	MODESTO	POND CREEK	COAL	1.7	38.3	
452.1	MODESTO		BLACK SHALE	3.2	39.9	
448.9	MODESTO		SANDSTONE	4.1	43.1	
444.8	MODESTO		SHALE & SILTSTONE	21.8	47.2	
423.0	MODESTO		SHALE & SILTSTONE	10.3	69.0	
412.7	MODESTO		COAL	0.9	79.3	
411.8	MODESTO		UNDERCLAY	0.2	80.2	
411.7	MODESTO	PIASA	GRAY LIMESTONE	0.7	80.3	
411.0	MODESTO		BLACK SHALE	4.7	81.0	
406.3	MODESTO		BLACK SHALE	0.3	85.7	
406.1	CARBONDALE	DANVILLE	COAL	2.3	85.9	
403.8	CARBONDALE		UNDERCLAY	0.3	88.2	
403.6	CARBONDALE		SANDSTONE	4.4	88.4	
399.2	CARBONDALE		BLACK SHALE	6.6	92.8	
392.6	CARBONDALE	ALLENBY	COAL	1.2	99.4	
391.4	CARBONDALE		BLACK SHALE	2.8	100.6	
388.7	CARBONDALE		COAL	0.7	103.3	
388.0	CARBONDALE		SHALE	3.7	104.0	
384.3	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.2	107.7	
378.2	CARBONDALE		SANDSTONE	3.8	113.8	
374.3	CARBONDALE		BLACK SHALE	0.8	117.7	
373.6	CARBONDALE		SHALE & SILTSTONE	37.8	118.4	
335.7	CARBONDALE		BLACK SHALE	4.2	156.3	
331.6	CARBONDALE	BRERETON	BLUE LIMESTONE	8.9	160.4	
322.7	CARBONDALE	ANNA	BLACK SHALE	3.0	169.3	
319.7	CARBONDALE	HERRIN	COAL	6.0	172.3	

MAPID: 19900119000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 0' S line, 330' W line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.871841 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.778686 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 178.0 **LOG TYPE:** Drillers Log

SOURCE: HUNT WM 29 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
412.0	MODESTO	PIASA	LIMESTONE	0.7	80.0	
411.3	MODESTO		SILTY SHALE	4.9	80.7	
406.4	CARBONDALE	DANVILLE	COAL	2.3	85.6	
404.2	CARBONDALE		GRAY SHALE	14.9	87.8	
389.2	CARBONDALE	ALLENBY	COAL	0.7	102.8	
388.6	CARBONDALE		GRAY SHALE	3.7	103.4	
384.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	107.1	
378.7	CARBONDALE	LAWSON	SANDSTONE	3.8	113.3	
374.9	CARBONDALE	LAWSON	SILTY SHALE	0.8	117.1	
374.1	CARBONDALE	LAWSON	GRAY SHALE	37.8	117.9	
336.3	CARBONDALE		BLACK SHALE	4.2	155.7	
332.1	CARBONDALE	BRERETON	LIMESTONE	8.9	159.9	
323.2	CARBONDALE	ANNA	BLACK SHALE	3.0	168.8	
320.0	CARBONDALE	HERRIN	COAL	6.0	172.0	

MAPID: 19900417000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NW SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.860131 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781721 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 223.0 **LOG TYPE:** Drillers Log
SOURCE: COSGROVE-MEEHAN COAL CORP 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
503.0	PLEISTOCENE		CLAY	40.0	0.0	
463.0	MODESTO		SANDSTONE	4.0	40.0	
459.0	MODESTO		BLUE SHALE	27.0	44.0	
432.0	MODESTO		BLACK SHALE	2.0	71.0	
430.0	MODESTO		COAL	1.0	73.0	
429.0	MODESTO		SHALE	10.0	74.0	
419.0	MODESTO		SANDSTONE	5.0	84.0	
414.0	MODESTO		SHALE	32.0	89.0	
382.0	MODESTO		BLACK SHALE	2.0	121.0	
380.0	MODESTO	PIASA	LIMESTONE	2.0	123.0	
378.0	MODESTO		GRAY SHALE	3.0	125.0	
375.0	CARBONDALE	DANVILLE	COAL	2.0	128.0	
373.0	CARBONDALE		GRAY SHALE	17.0	130.0	
356.0	CARBONDALE		BLACK SHALE	1.0	147.0	
355.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	148.0	
349.0	CARBONDALE		SHALE & SILTSTONE	12.0	154.0	GRAY
337.0	CARBONDALE		DARK SHALE	27.0	166.0	
310.0	CARBONDALE	BRERETON	LIMESTONE	6.0	193.0	
304.0	CARBONDALE	ANNA	BLACK SHALE	4.0	199.0	
300.0	CARBONDALE	ENERGY	BLACK SHALE	4.0	203.0	
296.0	CARBONDALE	ENERGY	BLACK SHALE	9.0	207.0	
287.0	CARBONDALE	HERRIN	COAL	7.0	216.0	

MAPID: 19901926000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 310' N line, 390' E line of NW SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.869651 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.781683 **DATE COLLECTED:** 7 / 0 / 1956
SURFACE ELEVATION (FT.): 504.0 **LOGGED (FT.):** 1545.0 **LOG TYPE:** Electric Log
SOURCE: EAKLE & HOLDER PETRO. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
64.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	440.0	
-6.0	SPOON	DAVIS	UNCLASSIFIED	-	510.0	
-1041.0	BASE OF PENN.		UNCLASSIFIED	-	1545.0	

MAPID: 19901926000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 310' N line, 390' E line of NW SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.869651 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.781683 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 504.0 **LOGGED (FT.):** 2774.0 **LOG TYPE:** Electric Log
SOURCE: EAKLE & HOLDER PETRO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
310.0	CARBONDALE	HERRIN	COAL	6.0	194.0	
245.0	CARBONDALE	SPRINGFIELD	COAL	4.0	259.0	
176.0	CARBONDALE	HOUCHIN CREEK	COAL	-	328.0	

MAPID: 19923567000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 1440' N line, 1920' W line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.866241 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.786216 **DATE COLLECTED:** 3 / 16 / 1978
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 252.8 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING; DAVIDSON DRILL31 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	5.3	0.0	
-	PLEISTOCENE		SANDY CLAY	25.8	5.3	
-	MODESTO		SANDY SHALE	95.8	31.0	
-	MODESTO		BLACK SHALE	7.7	126.8	
-	MODESTO		SANDY SHALE	3.5	134.5	
-	CARBONDALE	DANVILLE	COAL	1.5	138.0	
-	CARBONDALE		SHALE	1.8	139.5	DARK GRAY
-	CARBONDALE		LIMESTONE	4.8	141.3	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	16.8	146.0	
-	CARBONDALE		GRAY SHALE	11.3	162.8	
-	CARBONDALE	JAMESTOWN	COAL	0.7	174.2	
-	CARBONDALE		GRAY SHALE	1.9	174.8	
-	CARBONDALE	BRERETON	LIMESTONE	3.3	176.8	
-	CARBONDALE	ANNA	SHALE	3.8	180.0	DARK
-	CARBONDALE	HERRIN	COAL	2.2	183.8	FAULTED
-	CARBONDALE		SHALE	8.7	186.0	
-	CARBONDALE		COAL	0.3	194.7	
-	CARBONDALE		CALCAREOUS SHALE	7.1	195.0	
-	CARBONDALE		SANDSTONE	10.8	202.1	
-	CARBONDALE	BRIAR HILL	COAL	0.2	212.8	
-	CARBONDALE		SANDSTONE	32.1	213.0	
-	CARBONDALE	ST. DAVID	LIMESTONE	0.9	245.1	WITH 3" COAL SEAM
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.8	246.0	

MAPID: 19900120000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.838296 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.777381 **DATE COLLECTED:** 8 / 0 / 1918

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 223.5 **LOG TYPE:** Drillers Log

SOURCE: J.N. RIGG 18 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
468.0	PLEISTOCENE		CLAY	34.2	0.0	
433.8	PLEISTOCENE		SAND	2.0	34.2	
431.8	MODESTO		SANDSTONE	10.3	36.2	
421.5	MODESTO		CLAYSTONE	20.5	46.5	
401.0	MODESTO		WHITE LIMESTONE	3.8	67.0	
397.2	MODESTO		BLACK SHALE	6.2	70.8	
391.1	MODESTO		COAL	2.5	76.9	
388.6	MODESTO		BLACK SHALE	8.0	79.4	
380.6	MODESTO		SANDSTONE	9.0	87.4	
371.6	MODESTO		BLACK SHALE	1.3	96.4	
370.2	MODESTO		SHALE & SILTSTONE	18.0	97.8	BLUE
352.2	MODESTO		COAL	0.4	115.8	
351.8	MODESTO		BLACK SHALE	2.0	116.2	
349.8	MODESTO		BLUE LIMESTONE	1.0	118.2	
348.8	MODESTO		BLACK SHALE	2.7	119.2	
346.2	MODESTO		BLACK SHALE	2.5	121.8	
343.7	CARBONDALE	DANVILLE	COAL	1.8	124.3	
341.8	CARBONDALE		SANDSTONE	8.0	126.2	
333.8	CARBONDALE		SHALE & SILTSTONE	15.0	134.2	BLUE
318.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	149.2	
311.0	CARBONDALE		SHALE & SILTSTONE	27.0	157.0	LIGHT
284.0	CARBONDALE		BLACK SHALE	9.0	184.0	
275.0	CARBONDALE	BRERETON	LIMESTONE	1.0	193.0	
274.0	CARBONDALE	ANNA	BLACK SHALE	7.0	194.0	
267.0	CARBONDALE		COAL	0.3	201.0	
266.7	CARBONDALE	ENERGY	SHALE & SILTSTONE	14.0	201.3	LIGHT
252.7	CARBONDALE	HERRIN	COAL	6.7	215.3	
246.0	CARBONDALE		CLAYSTONE	0.5	222.0	
245.5	CARBONDALE		BLACK SHALE	1.0	222.5	

MAPID: 19900120000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.838296 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.777381 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 221.7 **LOG TYPE:** Drillers Log

SOURCE: RIGG J N 18 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
350.0	MODESTO	PIASA	LIMESTONE	1.0	118.0	
349.0	MODESTO		DARK GRAY SHALE	5.2	119.0	
343.8	CARBONDALE	DANVILLE	COAL	1.8	124.2	
342.0	CARBONDALE		SHALE & SANDSTONE	23.0	126.0	
319.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	149.0	
311.2	CARBONDALE	LAWSON	GRAY SHALE	27.0	156.8	
284.2	CARBONDALE	LAWSON	GRAY SHALE	9.0	183.8	
275.2	CARBONDALE	BRERETON	LIMESTONE	1.0	192.8	
274.2	CARBONDALE	ENERGY	GRAY SHALE	7.0	193.8	
267.2	CARBONDALE	ENERGY	BLACK SHALE	0.3	200.8	
266.8	CARBONDALE	ENERGY	GRAY SHALE	14.0	201.2	
253.0	CARBONDALE	HERRIN	COAL	6.7	215.0	

MAPID: 19902324000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.843996 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.77822 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 194.5 **LOG TYPE:** Drillers Log

SOURCE: OTEY CHARLES **WELL TYPE:** Coal Test

COMMENT: RECRD INCOMP/ONLY CERTAIN INTRVLS GIVN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	24.0	0.0	
-	PLEISTOCENE		SHALE	26.0	24.0	
-	MODESTO		BLACK SHALE	1.0	50.0	
-	MODESTO		COAL	2.0	51.0	
-	MODESTO		CLAYSTONE	2.0	53.0	
-	MODESTO		SHALE	3.0	55.0	
-	MODESTO		SANDSTONE	10.0	58.0	
-	MODESTO		SHALE	29.0	68.0	
-	MODESTO		LIMESTONE	3.0	97.0	
-	CARBONDALE		SHALE	7.0	100.0	
-	CARBONDALE		SANDSTONE	10.0	107.0	
-	CARBONDALE		SHALE	10.0	117.0	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	127.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	134.0	
-	CARBONDALE		SHALE	8.0	140.0	
-	CARBONDALE		SANDSTONE	2.0	148.0	
-	CARBONDALE		SANDY SHALE	11.0	150.0	
-	CARBONDALE		SHALE	14.0	161.0	
-	CARBONDALE		GRAY SHALE	3.0	175.0	
-	CARBONDALE	BRERETON	LIMESTONE	7.0	178.0	
-	CARBONDALE	ANNA	BLACK SHALE	1.5	185.0	
-	CARBONDALE	HERRIN	COAL	8.0	186.5	
-	CARBONDALE		SHALE	0.0	194.5	THICKNESS NOT GIVEN

MAPID: 19902325000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.844026 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.776365 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 249.8 **LOG TYPE:** Drillers Log

SOURCE: BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test

COMMENT: RECRD INCOMP/ONLY CERTAIN INTRVLS GIVN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	MODESTO		UNKNOWN	53.0	12.0	
-	MODESTO		COAL	0.5	65.0	
-	MODESTO		UNKNOWN	34.5	65.5	
-	MODESTO		LIMESTONE	1.0	100.0	
-	MODESTO		COAL	1.3	101.0	
-	MODESTO		UNKNOWN	4.0	102.3	
-	MODESTO		GRAY LIMESTONE	2.8	106.3	
-	MODESTO		UNKNOWN	40.0	109.0	
-	MODESTO		COAL	1.0	149.0	
-	MODESTO		UNKNOWN	2.0	150.0	
-	MODESTO	PIASA	GRAY LIMESTONE	2.5	152.0	
-	MODESTO		UNKNOWN	2.5	154.5	
-	CARBONDALE	DANVILLE	COAL	2.0	157.0	
-	CARBONDALE		UNKNOWN	9.5	159.0	
-	CARBONDALE	ALLENBY	COAL	0.5	168.5	
-	CARBONDALE		UNKNOWN	4.0	169.0	
-	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.0	173.0	
-	CARBONDALE		UNKNOWN	33.0	179.0	
-	CARBONDALE	CONANT	LIMESTONE	0.5	212.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	212.5	
-	CARBONDALE	BRERETON	LIMESTONE	2.0	213.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	215.0	
-	CARBONDALE	ENERGY	BLUE SHALE	23.5	218.0	
-	CARBONDALE	HERRIN	COAL	6.0	241.5	
-	CARBONDALE		CLAYSTONE	0.7	247.5	
-	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	1.5	248.3	

MAPID: 19902043000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** S2 SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.83354 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.783858 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 501.0 **LOGGED (FT.):** 241.5 **LOG TYPE:** Electric Log

SOURCE: SMOKEY OIL CO. Isaccs 1 **WELL TYPE:** Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
357.0	MODESTO	PIASA	LIMESTONE	5.0	144.0	
352.0	MODESTO		DARK GRAY SHALE	3.5	149.0	
348.5	CARBONDALE	DANVILLE	COAL	2.7	152.5	
345.8	CARBONDALE		GRAY SHALE	10.0	155.2	
335.8	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	165.2	
325.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	29.0	175.2	
296.8	CARBONDALE	BRERETON	LIMESTONE	5.5	204.2	
291.3	CARBONDALE	ANNA	BLACK SHALE	2.0	209.7	
289.3	CARBONDALE	ENERGY	GRAY SHALE	19.0	211.7	
267.0	CARBONDALE	HERRIN	COAL	7.5	234.0	

MAPID: 19902043000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** S2 SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.83354 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.783858 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 501.0 **LOGGED (FT.):** 2896.0 **LOG TYPE:** Electric Log

SOURCE: SMOKEY OIL CO. **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
257.0	CARBONDALE	HERRIN	COAL	6.0	244.0	
201.0	CARBONDALE	SPRINGFIELD	COAL	4.0	300.0	
129.0	CARBONDALE	HOUCHIN CREEK	COAL	-	372.0	

MAPID: 19902503000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.821084 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.776505 **DATE COLLECTED:** 6 / 0 / 1971

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 1440.0 **LOG TYPE:** Electric Log

SOURCE: DULL, JOE A. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-14.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	490.0	
-79.0	SPOON	DAVIS	UNCLASSIFIED	-	555.0	
-964.0	BASE OF PENN.		UNCLASSIFIED	-	1440.0	

MAPID: 19923568000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** 100' S line, 600' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.833951 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.775879 **DATE COLLECTED:** 5 / 25 / 1991

SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 293.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-220 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0	PLEISTOCENE		CLAY	12.0	0.0	
453.0	PLEISTOCENE		SAND & GRAVEL	27.0	12.0	CLAY
426.0	MODESTO		SHALE	89.0	39.0	WITH SANDSTONE STREAKS
337.0	CARBONDALE	DANVILLE	COAL	1.0	128.0	
336.0	CARBONDALE		UNDERCLAY	2.0	129.0	
334.0	CARBONDALE	GALUM	LIMESTONE	2.0	131.0	
332.0	CARBONDALE		SANDSTONE	13.0	133.0	WITH SHALE STREAKS
319.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	146.0	
314.0	CARBONDALE		SANDSTONE	12.0	151.0	
302.0	CARBONDALE		LIMESTONE	1.0	163.0	
301.0	CARBONDALE		GRAY SHALE	27.0	164.0	
274.0	CARBONDALE		BLACK SHALE	4.0	191.0	
270.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	195.0	
253.0	CARBONDALE	HERRIN	COAL	8.0	212.0	
245.0	CARBONDALE		SANDSTONE	24.0	220.0	
221.0	CARBONDALE		BLACK SHALE	3.0	244.0	
218.0	CARBONDALE		SHALE	16.0	247.0	WITH SANDSTONE STREAKS
202.0	CARBONDALE		BLACK SHALE	2.0	263.0	
200.0	CARBONDALE		GRAY SHALE	2.0	265.0	
198.0	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	267.0	
196.0	CARBONDALE	DYKERSBURG	GRAY SHALE	12.5	269.0	
183.5	CARBONDALE	SPRINGFIELD	COAL	4.0	281.5	
179.5	CARBONDALE		UNDERCLAY	2.0	285.5	
177.5	CARBONDALE		SANDY SHALE	5.5	287.5	

MAPID: 19990026000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** 100' N line, 600' E line of NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.819645 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.782608 **DATE COLLECTED:** 5 / 13 / 1975

SURFACE ELEVATION (FT.): 517.1 **LOGGED (FT.):** 341.8 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-1-75 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.1	PLEISTOCENE		CLAY	10.0	0.0	
507.1	MODESTO		BROWN SANDSTONE	13.5	10.0	
493.6	MODESTO		SILTY SHALE	54.5	23.5	
439.1	MODESTO		CALCAREOUS SHALE	3.0	78.0	
436.1	MODESTO		COAL	0.5	81.0	
435.6	MODESTO		UNDERCLAY	2.5	81.5	
433.1	MODESTO		SILTSTONE	2.0	84.0	
431.1	MODESTO		SILTY SHALE	12.0	86.0	
419.1	MODESTO		SILTY SHALE	4.0	98.0	
415.1	MODESTO		SILTY SHALE	11.0	102.0	
404.1	MODESTO		BLACK SHALE	2.0	113.0	
402.1	MODESTO		GRAY SHALE	2.5	115.0	
399.6	MODESTO	POND CREEK	COAL	1.0	117.5	APPROXIMATE THICKNESS
398.6	MODESTO		UNDERCLAY	1.5	118.5	
397.1	MODESTO		SILTY SHALE	3.5	120.0	
393.6	MODESTO		SILTY SHALE	7.0	123.5	
386.6	MODESTO		SANDSTONE	29.0	130.5	
357.6	MODESTO		SILTY SHALE	11.5	159.5	
346.1	MODESTO	DEGRAFF	BLACK SHALE & COAL	2.0	171.0	APPROXIMATE THICKNESS
344.1	MODESTO		SILTY SHALE	0.5	173.0	
343.6	MODESTO	PIASA	LIMESTONE	1.0	173.5	
342.6	MODESTO		GRAY SHALE	6.0	174.5	
336.6	CARBONDALE	DANVILLE	COAL	1.0	180.5	APPROXIMATE THICKNESS
335.6	CARBONDALE		SILTY SHALE	1.5	181.5	
334.1	CARBONDALE		SANDSTONE	4.0	183.0	
330.1	CARBONDALE		SILTY SHALE	3.0	187.0	
327.1	CARBONDALE		COAL	0.5	190.0	APPROXIMATE THICKNESS
326.6	CARBONDALE		SILTY SHALE	1.5	190.5	
325.1	CARBONDALE		CALCAREOUS SANDSTONE	0.5	192.0	
324.6	CARBONDALE		SILTY SHALE	3.0	192.5	
321.6	CARBONDALE	ALLENBY	COAL	1.0	195.5	APPROXIMATE THICKNESS
320.6	CARBONDALE		SILTY SHALE	3.5	196.5	
317.1	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	200.0	
309.6	CARBONDALE	ANVIL ROCK	SANDSTONE	7.5	207.5	
302.1	CARBONDALE		SILTY SHALE	19.0	215.0	
283.1	CARBONDALE		GRAY SHALE	5.0	234.0	
278.1	CARBONDALE	BRERETON	LIMESTONE	0.5	239.0	
277.6	CARBONDALE	BRERETON	LIMESTONE	2.5	239.5	

275.1	CARBONDALE	ANNA	BLACK SHALE	4.0	242.0	
271.1	CARBONDALE	ENERGY	GRAY SHALE	10.0	246.0	
261.1	CARBONDALE	ENERGY	SHALE	3.0	256.0	
258.1	CARBONDALE	ENERGY	GRAY SHALE	2.1	259.0	
256.0	CARBONDALE	HERRIN	COAL	5.9	261.1	
250.1	CARBONDALE		SANDY SHALE	1.9	267.0	
248.2	CARBONDALE		CALCAREOUS SANDSTONE	1.0	268.9	
247.2	CARBONDALE		UNKNOWN	0.5	269.9	
246.7	CARBONDALE		CALCAREOUS SANDSTONE	6.6	270.4	
240.1	CARBONDALE		SANDY SHALE	3.0	277.0	
237.1	CARBONDALE		CALCAREOUS SANDSTONE	4.0	280.0	
233.1	CARBONDALE		BLACK SHALE	0.5	284.0	
232.6	CARBONDALE		SANDSTONE	5.0	284.5	
227.6	CARBONDALE	BRIAR HILL	COAL	1.0	289.5	APPROXIMATE THICKNESS
226.6	CARBONDALE		SANDY SHALE	1.5	290.5	
225.1	CARBONDALE		SANDSTONE	2.0	292.0	
223.1	CARBONDALE		SANDY SHALE	5.0	294.0	
218.1	CARBONDALE	ST. DAVID	LIMESTONE	4.0	299.0	
214.1	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	303.0	
211.6	CARBONDALE	DYKERSBURG	SANDY SHALE	2.5	305.5	
209.1	CARBONDALE	DYKERSBURG	SILTY SHALE	3.0	308.0	
206.1	CARBONDALE	DYKERSBURG	SILTY SHALE	18.0	311.0	
188.1	CARBONDALE	SPRINGFIELD	COAL	3.6	329.0	
184.5	CARBONDALE		SILTSTONE	3.3	332.6	
181.2	CARBONDALE		SILTY SHALE	5.9	335.9	

MAPID: 19900001000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.723298 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.85078 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 410.9 **LOGGED (FT.):** 595.0 **LOG TYPE:** Drillers Log

SOURCE: HENRY HEFFLIN 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
410.9	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
395.9	PLEISTOCENE		SAND	15.0	15.0	
380.9	PLEISTOCENE		GRAVEL	23.0	30.0	
357.9	MODESTO		GRAY SHALE	27.0	53.0	
330.9	MODESTO	MACOUPIN	LIMESTONE	1.0	80.0	
329.9	MODESTO		BLACK SHALE	1.0	81.0	
328.9	MODESTO		SANDSTONE	22.0	82.0	
306.9	MODESTO		SHALE	2.1	104.0	
304.8	MODESTO	WOMAC	COAL	1.4	106.1	
303.4	MODESTO		CLAYSTONE	0.2	107.5	
303.2	MODESTO		SANDY SHALE	41.3	107.7	
261.9	MODESTO		SANDY SHALE	22.0	149.0	
239.9	MODESTO		SANDY SHALE	20.0	171.0	
219.9	MODESTO		BLUE SHALE	1.0	191.0	
218.9	MODESTO		LIMESTONE	1.0	192.0	
217.9	MODESTO		SHALE	2.0	193.0	
215.9	MODESTO		SANDY SHALE	8.0	195.0	
207.9	MODESTO		BLUE SHALE	5.5	203.0	
202.4	MODESTO	CHAPEL	COAL	0.8	208.5	
201.6	MODESTO		SHALY SANDSTONE	27.8	209.3	
173.9	MODESTO		SANDSTONE	73.0	237.0	
100.9	MODESTO		BLUE SHALE	24.0	310.0	
76.9	MODESTO		COAL	0.5	334.0	
76.4	MODESTO		GRAY SHALE	0.5	334.5	
75.9	MODESTO		BLUE SHALE	1.0	335.0	
74.9	MODESTO		SANDY SHALE	20.0	336.0	
54.9	MODESTO		BLUE SHALE	14.0	356.0	
40.9	MODESTO		BLACK SHALE	1.0	370.0	
39.9	MODESTO	POND CREEK	COAL	1.0	371.0	
38.9	MODESTO		GRAY SHALE	3.0	372.0	
35.9	MODESTO		SANDY SHALE	9.0	375.0	
26.9	MODESTO		BLUE SHALE	2.0	384.0	
24.9	MODESTO		GRAY SHALE	1.0	386.0	
23.9	MODESTO		CALCAREOUS SHALE	1.0	387.0	
22.9	MODESTO		SHALY SANDSTONE	19.0	388.0	
3.9	MODESTO		GRAY SHALE	1.0	407.0	
2.9	MODESTO		BLUE SHALE	2.0	408.0	
0.9	MODESTO	PIASA	LIMESTONE	3.0	410.0	
-2.1	MODESTO		GRAY SHALE	2.0	413.0	

-4.1	MODESTO		BLUE SHALE	4.0	415.0	
-8.1	CARBONDALE	DANVILLE	COAL	2.0	419.0	
-10.1	CARBONDALE		CLAYSTONE	1.0	421.0	
-11.1	CARBONDALE		SANDY SHALE	7.5	422.0	
-18.6	CARBONDALE		SANDSTONE	3.0	429.5	
-21.6	CARBONDALE		BLUE SHALE	4.2	432.5	
-25.8	CARBONDALE	ALLENBY	COAL	0.3	436.7	
-26.1	CARBONDALE		CLAYSTONE	0.2	437.0	
-26.3	CARBONDALE		BLUE SHALE	2.8	437.2	
-29.1	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	440.0	
-36.1	CARBONDALE		SANDY SHALE	29.7	447.0	
-65.8	CARBONDALE	JAMESTOWN	COAL	0.4	476.7	
-66.2	CARBONDALE	BRERETON	LIMESTONE	3.8	477.1	
-70.0	CARBONDALE	ANNA	BLACK SHALE	3.8	480.9	
-73.9	CARBONDALE	ENERGY	SHALE & SILTSTONE	12.8	484.8	GRAY
-86.6	CARBONDALE	ENERGY	BLACK SHALE	0.7	497.5	
-87.3	CARBONDALE	HERRIN	COAL	3.3	498.2	
-90.6	CARBONDALE	HERRIN	COAL	0.4	501.5	
-91.0	CARBONDALE	HERRIN	COAL	0.8	501.9	
-91.8	CARBONDALE	HERRIN	GRAY SHALE	0.1	502.7	BLUE
-91.9	CARBONDALE	HERRIN	COAL	1.4	502.8	
-93.3	CARBONDALE		CLAYSTONE	0.7	504.2	
-93.9	CARBONDALE	HIGGINSVILLE	SHALY LIMESTONE	9.0	504.8	
-102.9	CARBONDALE		SANDY SHALE	60.2	513.8	
-163.1	CARBONDALE		GRAY SHALE	15.0	574.0	
-178.1	CARBONDALE		UNCLASSIFIED	1.6	589.0	"COAL ?"
-179.7	CARBONDALE	SPRINGFIELD	COAL	3.0	590.6	
-182.7	CARBONDALE		CLAYSTONE	1.4	593.6	

MAPID: 19900001000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.723298 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.85078 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 411.0 **LOGGED (FT.):** 595.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-8.0	CARBONDALE	DANVILLE	COAL	2.0	419.0	
-19.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	3.0	430.0	
-29.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	440.0	
-87.0	CARBONDALE	HERRIN	COAL	6.0	498.0	
-180.0	CARBONDALE	SPRINGFIELD	COAL	4.6	591.0	

MAPID: 19900002000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 0' S line, 330' E line of NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.712717 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.85976 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 433.9 **LOGGED (FT.):** 669.0 **LOG TYPE:** Drillers Log

SOURCE: SW BURLISON 9 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
433.9	PLEISTOCENE		CLAY	5.0	0.0	
428.9	BOND	MT. CARMEL	SANDSTONE	8.0	5.0	
420.9	BOND	MT. CARMEL	SANDSTONE	4.0	13.0	
416.9	BOND	MT. CARMEL	SANDY SHALE	3.0	17.0	
413.9	MODESTO		SANDSTONE	68.0	20.0	
345.9	MODESTO		DARK SHALE	16.3	88.0	
329.6	MODESTO		SHALY COAL	0.5	104.3	
329.1	MODESTO		BLACK SHALE	6.2	104.8	
322.9	MODESTO		GRAY SHALE	18.0	111.0	
304.9	MODESTO		LIMESTONE	0.5	129.0	
304.4	MODESTO		DARK SHALE	36.5	129.5	
267.9	MODESTO	MACOUPIN	LIMESTONE	1.0	166.0	
266.9	MODESTO		SHALE	8.0	167.0	
258.9	MODESTO		SANDY SHALE	23.1	175.0	
235.8	MODESTO	WOMAC	COAL	1.2	198.1	
234.6	MODESTO		DARK SHALE	4.8	199.3	
229.9	MODESTO		SANDY SHALE	42.0	204.0	
187.9	MODESTO		DARK SHALE	35.0	246.0	
152.9	MODESTO		LIMESTONE	1.0	281.0	
151.9	MODESTO		DARK SHALE	18.2	282.0	
133.7	MODESTO	CHAPEL	COAL	0.5	300.2	
133.2	MODESTO		DARK SHALE	2.3	300.7	
130.9	MODESTO		SANDSTONE	21.0	303.0	
109.9	MODESTO		SANDY SHALE	49.0	324.0	
60.9	MODESTO		DARK SHALE	40.0	373.0	
20.9	MODESTO		SANDY SHALE	34.3	413.0	
-13.4	MODESTO	POND CREEK	COAL	1.2	447.3	
-14.6	MODESTO		CLAYSTONE	1.5	448.5	
-16.1	MODESTO		SANDY SHALE	1.0	450.0	
-17.1	MODESTO		SANDSTONE	10.0	451.0	
-27.1	MODESTO		SANDY SHALE	8.0	461.0	
-35.1	MODESTO		DARK SHALE	12.0	469.0	
-47.1	MODESTO	PIASA	LIMESTONE	3.0	481.0	
-50.1	MODESTO		DARK SHALE	9.3	484.0	
-59.4	CARBONDALE	DANVILLE	COAL	1.8	493.3	
-61.1	CARBONDALE		DARK SHALE	6.0	495.0	
-67.1	CARBONDALE		SANDSTONE	1.0	501.0	
-68.1	CARBONDALE		SANDY SHALE	8.0	502.0	
-76.1	CARBONDALE		DARK SHALE	7.0	510.0	

-83.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	517.0	
-89.1	CARBONDALE		SANDSTONE	6.0	523.0	
-95.1	CARBONDALE		SANDY SHALE	27.0	529.0	
-122.1	CARBONDALE	BRERETON	LIMESTONE	4.0	556.0	
-126.1	CARBONDALE	ANNA	BLACK SHALE	3.0	560.0	
-129.1	CARBONDALE	ENERGY	SANDY SHALE	7.0	563.0	
-136.1	CARBONDALE	ENERGY	BLACK SHALE	0.5	570.0	
-136.6	CARBONDALE	HERRIN	COAL	3.2	570.5	
-139.8	CARBONDALE	HERRIN	COAL	0.0	573.7	
-139.9	CARBONDALE	HERRIN	COAL	1.3	573.8	
-141.2	CARBONDALE	HERRIN	GRAY SHALE	0.1	575.1	BLUE
-141.3	CARBONDALE	HERRIN	COAL	1.3	575.2	
-142.5	CARBONDALE		CLAYSTONE	3.6	576.4	
-146.1	CARBONDALE		CALCAREOUS SHALE	20.0	580.0	
-166.1	CARBONDALE		SHALY SANDSTONE	19.0	600.0	
-185.1	CARBONDALE		SANDY SHALE	44.3	619.0	
-229.4	CARBONDALE	SPRINGFIELD	COAL	4.7	663.3	
-234.1	CARBONDALE		CLAYSTONE	1.0	668.0	

MAPID: 19900002000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 0' S line, 330' E line of NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.712717 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.85976 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 434.0 **LOGGED (FT.):** 575.9 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 9 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-47.0	MODESTO	PIASA	LIMESTONE	3.0	481.0	
-50.0	MODESTO		DARK GRAY SHALE	9.3	484.0	
-59.3	CARBONDALE	DANVILLE	COAL	1.8	493.3	
-61.0	CARBONDALE		SHALE & SANDSTONE	22.0	495.0	
-83.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	6.0	517.0	
-89.0	CARBONDALE	LAWSON	SANDSTONE	6.0	523.0	
-95.0	CARBONDALE	LAWSON	SILTY SHALE	27.0	529.0	
-122.0	CARBONDALE	BRERETON	LIMESTONE	4.0	556.0	
-126.0	CARBONDALE	ANNA	BLACK SHALE	3.0	560.0	
-129.0	CARBONDALE	ENERGY	SILTY SHALE	7.0	563.0	
-136.0	CARBONDALE	ENERGY	BLACK SHALE	0.5	570.0	
-136.0	CARBONDALE	HERRIN	COAL	5.9	570.0	

MAPID: 19901776000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.709199 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.850604 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 438.8 **LOG TYPE:** Drillers Log

SOURCE: STATLER 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	PLEISTOCENE		CLAY	30.0	0.0	
390.0	MODESTO		SANDSTONE	4.0	30.0	
386.0	MODESTO		SHALE	8.0	34.0	
378.0	MODESTO		SANDSTONE	11.0	42.0	
367.0	MODESTO		COAL	1.5	53.0	
365.5	MODESTO		LIGHT SHALE	19.0	54.5	
346.5	MODESTO		BLUE SHALE	21.0	73.5	
325.5	MODESTO		COAL	0.5	94.5	
325.0	MODESTO		LIGHT SHALE	40.0	95.0	
285.0	MODESTO		SANDSTONE	16.0	135.0	
269.0	MODESTO		LIGHT SHALE	12.0	151.0	
257.0	MODESTO		SANDSTONE	4.0	163.0	
253.0	MODESTO		LIGHT SHALE	51.0	167.0	
202.0	MODESTO		BLUE SHALE	4.0	218.0	
198.0	MODESTO		SANDSTONE	12.0	222.0	
186.0	MODESTO		SANDSTONE	8.0	234.0	
178.0	MODESTO		SHALE	16.0	242.0	
162.0	MODESTO		SANDSTONE	64.0	258.0	
98.0	MODESTO		LIGHT SHALE	18.0	322.0	
80.0	MODESTO		BLUE SHALE	24.0	340.0	
56.0	CARBONDALE	DANVILLE	COAL	2.0	364.0	
54.0	CARBONDALE		BLUE SHALE	16.0	366.0	
38.0	CARBONDALE		SANDSTONE	23.0	382.0	
15.0	CARBONDALE		BLUE LIMESTONE	2.5	405.0	
12.5	CARBONDALE		LIMESTONE	10.0	407.5	
2.5	CARBONDALE	BRERETON	BLUE LIMESTONE	6.0	417.5	
-3.5	CARBONDALE	ANNA	BLACK SHALE	8.0	423.5	
-11.5	CARBONDALE	HERRIN	COAL	7.3	431.5	

MAPID: 19901937000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE
QUADRANGLE: HARCO **LONGITUDE:** -88.715132 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.857049 **DATE COLLECTED:** 9 / 0 / 1956
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 3170.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD., BARRETT ETAL **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-302.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	760.0	
-	CARBONDALE	SURVANT	COAL	2.0		
-425.0	CARBONDALE	COLCHESTER	COAL	0.5	883.0	
-487.0	CARBONDALE	DEKOVEN	COAL	3.0	945.0	
-494.0	CARBONDALE	LOWER DEKOVEN	COAL	1.8	952.0	
-502.0	CARBONDALE	DAVIS	COAL	3.0	960.0	
-547.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	1005.0	

MAPID: 19901937000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE
QUADRANGLE: HARCO **LONGITUDE:** -88.715132 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.857049 **DATE COLLECTED:** 9 / 0 / 1956
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 1840.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Dry Hole
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-427.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	885.0	
-502.0	SPOON	DAVIS	UNCLASSIFIED	-	960.0	
-1382.0	BASE OF PENN.		UNCLASSIFIED	-	1840.0	

MAPID: 19923921000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SW NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.719848 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.860715 **DATE COLLECTED:** 5 / 20 / 1982

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 214.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LOG Z **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		CLAY	14.0	0.0	
436.0			SANDSTONE	12.0	14.0	BROWN
424.0			SHALE	5.0	26.0	
419.0			SANDSTONE	9.5	31.0	
409.5			SANDY SHALE	0.8	40.5	
408.7			SANDSTONE	77.3	41.3	
331.3			SHALE	2.3	118.7	
329.0			COAL	2.8	121.0	
326.2			UNDERCLAY	5.2	123.8	
321.0			SHALE	19.0	129.0	
302.0			SANDY SHALE	6.0	148.0	
296.0			SHALE	20.0	154.0	
276.0			DARK SHALE	1.0	174.0	
275.0			BLACK SHALE	4.5	175.0	
270.5			LIMESTONE	0.5	179.5	BROWN
270.0			SHALE	8.5	180.0	
261.5			SANDY SHALE	24.3	188.5	
237.2			COAL	1.2	212.8	

MAPID: 19900004000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: HARCO **LONGITUDE:** -88.731508 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.858911 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 549.1 **LOG TYPE:** Drillers Log
SOURCE: FARLEY G W B **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-40.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	3.0	458.0	
-43.0	MODESTO		DARK GRAY SHALE	6.2	461.0	
-49.2	CARBONDALE	DANVILLE	COAL	2.8	467.2	
-52.0	CARBONDALE		SHALE & SANDSTONE	14.0	470.0	
-66.0	CARBONDALE	ALLENBY	COAL	0.5	484.0	
-66.5	CARBONDALE		CLAYSTONE	3.5	484.5	
-70.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	8.0	488.0	
-78.0	CARBONDALE	LAWSON	SILTY SHALE	16.0	496.0	
-94.0	CARBONDALE	LAWSON	GRAY SHALE	22.0	512.0	
-116.0	CARBONDALE		BLACK SHALE	4.0	534.0	
-120.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.0	538.0	
-123.0	CARBONDALE	ANNA	BLACK SHALE	3.0	541.0	
-126.0	CARBONDALE	HERRIN	COAL	5.1	544.0	

MAPID: 19900004000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: HARCO **LONGITUDE:** -88.731508 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.858911 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 643.0 **LOG TYPE:** Drillers Log
SOURCE: FARLEY G W **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-49.0	CARBONDALE	DANVILLE	COAL	2.8	467.0	
-59.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	477.0	
-70.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	488.0	
-126.0	CARBONDALE	HERRIN	COAL	5.1	544.0	
-221.0	CARBONDALE	SPRINGFIELD	COAL	4.2	639.0	

MAPID: 19900004000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE SW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.731508 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.858911 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 643.2 **LOG TYPE:** Drillers Log

SOURCE: CW FARLEY B **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
418.0	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
400.0	BOND	MT. CARMEL	SANDSTONE	50.0	18.0	
350.0	MODESTO		SANDY SHALE	5.0	68.0	
345.0	MODESTO		SHALE	47.0	73.0	
298.0	MODESTO		BLACK SHALE	4.0	120.0	
294.0	MODESTO		SHALE	3.5	124.0	
290.5	MODESTO	MACOUPIN	LIMESTONE	1.5	127.5	
289.0	MODESTO		SHALE	20.0	129.0	
269.0	MODESTO		HARD SHALE	52.0	149.0	
217.0	MODESTO	WOMAC	COAL	3.0	201.0	
214.0	MODESTO		SHALE	46.0	204.0	
168.0	MODESTO	CHAPEL	COAL	1.0	250.0	
167.0	MODESTO		SHALE	5.0	251.0	
162.0	MODESTO		SANDSTONE	20.0	256.0	
142.0	MODESTO		SANDY SHALE	10.0	276.0	
132.0	MODESTO		SANDSTONE	44.0	286.0	
88.0	MODESTO		SANDY SHALE	9.0	330.0	
79.0	MODESTO		LIMESTONE	1.0	339.0	
78.0	MODESTO		SHALE	30.0	340.0	
48.0	MODESTO		SANDY SHALE	29.0	370.0	
19.0	MODESTO		BLACK SHALE	7.0	399.0	
12.0	MODESTO	POND CREEK	COAL	2.0	406.0	
10.0	MODESTO		CLAYSTONE	4.0	408.0	
6.0	MODESTO		SANDSTONE	5.0	412.0	
1.0	MODESTO		LIMESTONE	3.0	417.0	
-2.0	MODESTO		SHALE	38.0	420.0	
-40.0	MODESTO	PIASA	LIMESTONE	3.0	458.0	
-43.0	MODESTO		BLACK SHALE	1.0	461.0	
-44.0	MODESTO		BLUE SHALE	5.2	462.0	
-49.2	CARBONDALE	DANVILLE	COAL	2.8	467.2	
-52.0	CARBONDALE		CLAYSTONE	2.0	470.0	
-54.0	CARBONDALE		SHALE	5.0	472.0	
-59.0	CARBONDALE		SANDSTONE	4.0	477.0	
-63.0	CARBONDALE		SHALE	3.0	481.0	
-66.0	CARBONDALE	ALLENBY	COAL	0.5	484.0	
-66.5	CARBONDALE		CLAYSTONE	3.5	484.5	
-70.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	488.0	
-78.0	CARBONDALE		SANDY SHALE	16.0	496.0	
-94.0	CARBONDALE		SHALE	22.0	512.0	

-116.0	CARBONDALE		BLACK SHALE	4.0	534.0
-120.0	CARBONDALE	BRERETON	LIMESTONE	3.0	538.0
-123.0	CARBONDALE	ANNA	BLACK SHALE	3.0	541.0
-126.0	CARBONDALE	HERRIN	COAL	5.1	544.0
-131.1	CARBONDALE		CLAYSTONE	2.9	549.1
-134.0	CARBONDALE		SHALE	2.0	552.0
-136.0	CARBONDALE		CALCAREOUS SHALE	20.0	554.0
-156.0	CARBONDALE		SANDY SHALE	26.0	574.0
-182.0	CARBONDALE		SHALE	39.0	600.0
-221.0	CARBONDALE	SPRINGFIELD	COAL	0.3	639.0
-221.3	CARBONDALE	SPRINGFIELD	BLACK SHALE	0.8	639.3
-222.1	CARBONDALE	SPRINGFIELD	COAL	3.1	640.1

MAPID: 19902594000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE

QUADRANGLE: HARCO **LONGITUDE:** -88.733801 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.857076 **DATE COLLECTED:** 9 / 0 / 1973

SURFACE ELEVATION (FT.): 438.0 **LOGGED (FT.):** 3265.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F., CARNEY ROY **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-270.0	CARBONDALE	HOUCHIN CREEK	COAL	1.6	708.0	
-396.0	CARBONDALE	COLCHESTER	COAL	0.5	834.0	
-443.0	CARBONDALE	DEKOVEN	COAL	3.0	881.0	
-449.0	CARBONDALE	LOWER DEKOVEN	COAL	2.0	887.0	
-459.0	CARBONDALE	DAVIS	COAL	3.5	897.0	
-467.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.0	905.0	

MAPID: 19900005000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754354 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.860602 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 582.3 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 14 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
8.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	3.0	484.0	
5.0	MODESTO		DARK GRAY SHALE	8.3	487.0	
-3.3	CARBONDALE	DANVILLE	COAL	1.6	495.3	
-4.9	CARBONDALE		SHALE & SANDSTONE	17.2	496.9	
-22.1	CARBONDALE	ALLENBY	COAL	0.3	514.1	
-22.4	CARBONDALE		GRAY SHALE	3.1	514.4	
-25.5	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	3.0	517.5	
-28.5	CARBONDALE	LAWSON	SILTY SHALE	19.0	520.5	
-47.5	CARBONDALE	LAWSON	SANDSTONE	8.0	539.5	
-55.5	CARBONDALE	LAWSON	SILTY SHALE	8.0	547.5	
-63.5	CARBONDALE	LAWSON	GRAY SHALE	3.0	555.5	
-66.5	CARBONDALE	LAWSON	DARK GRAY SHALE	11.0	558.5	
-77.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.0	569.5	
-80.5	CARBONDALE	ANNA	BLACK SHALE	3.1	572.5	
-85.0	CARBONDALE	HERRIN	COAL	5.3	577.0	

MAPID: 19900005000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754354 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.860602 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 672.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-4.0	CARBONDALE	DANVILLE	COAL	1.6	496.0	
-14.0	CARBONDALE	SS BELOW NO. 7		5.0	506.0	
-26.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	518.0	
-48.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	8.0	540.0	
-85.0	CARBONDALE	HERRIN	COAL	5.3	577.0	
-114.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	26.0	606.0	
-175.0	CARBONDALE	SPRINGFIELD	COAL	4.7	667.0	

MAPID: 19900005000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** SE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754354 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.860602 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.2 **LOGGED (FT.):** 672.0 **LOG TYPE:** Drillers Log

SOURCE: JOHN SMITH 14 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
492.2	PLEISTOCENE		CLAY	15.0	0.0	
477.2	PLEISTOCENE		GRAVEL	2.0	15.0	
475.2	BOND	MT. CARMEL	SANDSTONE	1.5	17.0	
473.7	BOND	MT. CARMEL	SANDSTONE	49.5	18.5	
424.2	BOND	MT. CARMEL	SANDY SHALE	6.0	68.0	
418.2	BOND	MT. CARMEL	SANDSTONE	31.0	74.0	
387.2	MODESTO		SANDY SHALE	5.0	105.0	
382.2	MODESTO		SHALE	14.0	110.0	
368.2	MODESTO		BLUE SHALE	28.0	124.0	
340.2	MODESTO		BLACK SHALE	3.2	152.0	
337.0	MODESTO	MACOUPIN	LIMESTONE	0.8	155.2	
336.2	MODESTO		LIGHT SHALE	4.0	156.0	
332.2	MODESTO		SANDY SHALE	8.0	160.0	
324.2	MODESTO		SANDSTONE	11.0	168.0	
313.2	MODESTO		GRAY SHALE	4.8	179.0	
308.4	MODESTO	WOMAC	COAL	0.3	183.8	
308.1	MODESTO		GRAY SHALE	2.9	184.1	
305.2	MODESTO		SANDY SHALE	17.0	187.0	
288.2	MODESTO		GRAY SHALE	46.0	204.0	
242.2	MODESTO		DARK SHALE	11.3	250.0	
230.9	MODESTO		BLACK SHALE	0.8	261.3	
230.2	MODESTO		LIMESTONE	0.8	262.0	
229.4	MODESTO		SANDY SHALE	1.2	262.8	
228.2	MODESTO		SHALY SANDSTONE	70.0	264.0	
158.2	MODESTO		SANDSTONE	43.0	334.0	
115.2	MODESTO		SANDY SHALE	2.0	377.0	
113.2	MODESTO		SHALY SANDSTONE	9.0	379.0	
104.2	MODESTO		GRAY SHALE	34.7	388.0	
69.5	MODESTO		COAL	0.3	422.7	
69.2	MODESTO		CLAYSTONE	2.0	423.0	
67.2	MODESTO		SANDY SHALE	20.0	425.0	
47.2	MODESTO		DARK SHALE	10.0	445.0	
37.2	MODESTO		BLACK SHALE	7.0	455.0	
30.2	MODESTO	POND CREEK	COAL	1.1	462.0	
29.1	MODESTO		CLAYSTONE	0.2	463.1	
28.9	MODESTO		SHALY SANDSTONE	2.8	463.3	
26.2	MODESTO		GRAY SHALE	7.0	466.0	
19.2	MODESTO		SHALY SANDSTONE	7.0	473.0	
12.2	MODESTO		BLUE SHALE	4.5	480.0	

7.7	MODESTO	PIASA	LIMESTONE	3.0	484.5
4.7	MODESTO		BLACK SHALE	1.0	487.5
3.7	MODESTO		BLUE SHALE	3.5	488.5
0.2	MODESTO		DARK SHALE	3.8	492.0
-3.6	CARBONDALE	DANVILLE	COAL	1.6	495.8
-5.2	CARBONDALE		CLAYSTONE	0.6	497.4
-5.8	CARBONDALE		SHALY SANDSTONE	2.0	498.0
-7.8	CARBONDALE		GRAY SHALE	6.0	500.0
-13.8	CARBONDALE		SANDSTONE	5.0	506.0
-18.8	CARBONDALE		GRAY SHALE	3.6	511.0
-22.4	CARBONDALE	ALLENBY	COAL	0.3	514.6
-22.7	CARBONDALE		GRAY SHALE	3.1	514.9
-25.8	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	518.0
-28.8	CARBONDALE		SANDY SHALE	19.0	521.0
-47.8	CARBONDALE		SANDSTONE	8.0	540.0
-55.8	CARBONDALE		SANDY SHALE	8.0	548.0
-63.8	CARBONDALE		GRAY SHALE	3.0	556.0
-66.8	CARBONDALE		DARK SHALE	11.0	559.0
-77.8	CARBONDALE	BRERETON	LIMESTONE	4.0	570.0
-81.8	CARBONDALE		BLACK SHALE	3.1	574.0
-84.9	CARBONDALE	HERRIN	COAL	2.5	577.1
-87.4	CARBONDALE	HERRIN	PYRITE	0.0	579.6
-87.4	CARBONDALE	HERRIN	COAL	0.5	579.6
-88.0	CARBONDALE	HERRIN	COAL	0.2	580.2
-88.2	CARBONDALE	HERRIN	COAL	0.8	580.4
-89.0	CARBONDALE	HERRIN	BLACK SHALE	0.1	581.2
-89.1	CARBONDALE	HERRIN	COAL	1.0	581.3
-90.2	CARBONDALE		GRAY SHALE	3.6	582.4
-93.8	CARBONDALE		CALCAREOUS SHALE	16.0	586.0
-109.8	CARBONDALE		SANDY SHALE	4.0	602.0
-113.8	CARBONDALE		SHALY SANDSTONE	26.0	606.0
-139.8	CARBONDALE		SANDY SHALE	20.0	632.0
-159.8	CARBONDALE		GRAY SHALE	14.6	652.0
-174.4	CARBONDALE	SPRINGFIELD	COAL	0.7	666.6
-175.1	CARBONDALE	SPRINGFIELD	PYRITE	0.2	667.3
-175.3	CARBONDALE	SPRINGFIELD	COAL	0.5	667.5
-175.8	CARBONDALE	SPRINGFIELD	PYRITE	0.1	668.0
-175.8	CARBONDALE	SPRINGFIELD	COAL	2.7	668.0
-178.6	CARBONDALE	SPRINGFIELD	COAL	0.5	670.8
-179.1	CARBONDALE		CLAYSTONE	0.8	671.3

MAPID: 19902049000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.75773 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.85968 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 228.1 **LOG TYPE:** Drillers Log

SOURCE: STOTLAR 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		SOIL	3.0	0.0	
487.0	PLEISTOCENE		BROWN SANDSTONE	4.0	3.0	
483.0	PLEISTOCENE		CLAY	6.4	7.0	RED
476.6	CARBONDALE		SANDY SHALE	18.0	13.4	
458.6	CARBONDALE		SANDSTONE	23.5	31.4	
435.1	CARBONDALE		BLUE SHALE	20.0	54.9	
415.1	CARBONDALE		COAL	1.2	74.9	
413.9	CARBONDALE		SANDY SHALE	5.5	76.1	
408.4	CARBONDALE		SHALE	7.0	81.6	
401.4	CARBONDALE		SANDY SHALE	11.0	88.6	
390.4	CARBONDALE		BLUE SHALE	4.5	99.6	
385.9	CARBONDALE		BLACK SHALE	1.0	104.1	
384.9	CARBONDALE		SHALY COAL	8.0	105.1	
376.9	CARBONDALE		BLUE SHALE	6.0	113.1	
370.9	CARBONDALE		BLACK SHALE	7.2	119.1	
363.7	CARBONDALE		LIMESTONE	8.3	126.3	
355.4	CARBONDALE		SANDY SHALE	11.0	134.6	
344.4	CARBONDALE		SANDSTONE	8.4	145.6	
336.0	CARBONDALE		BLUE SHALE	6.0	154.0	
330.0	CARBONDALE		BLUE SHALE	4.0	160.0	
326.0	CARBONDALE		SANDY SHALE	28.0	164.0	
298.0	CARBONDALE		SANDY SHALE	8.5	192.0	
289.5	CARBONDALE		SANDY SHALE	16.5	200.5	
273.0	CARBONDALE		BLUE SHALE	4.0	217.0	
269.0	CARBONDALE	HERRIN	COAL	7.1	221.0	

MAPID: 19902596000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 940' N line, 330' W line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.752032 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.853489 **DATE COLLECTED:** 8 / 0 / 1973

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 1764.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-357.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	802.0	
-421.0	SPOON	DAVIS	UNCLASSIFIED	-	866.0	
-1319.0	BASE OF PENN.		UNCLASSIFIED	-	1764.0	

MAPID: 19900007000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763362 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.8552 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 574.7 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 8 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
0.0	CARBONDALE	DANVILLE	BONE COAL	2.0	503.0	
-2.0	CARBONDALE		SILTY SHALE	18.0	505.0	
-20.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	6.0	523.0	
-26.0	CARBONDALE	LAWSON	DARK GRAY SHALE	2.0	529.0	
-28.0	CARBONDALE	LAWSON	SILTY SHALE	14.0	531.0	
-42.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	8.0	545.0	
-50.0	CARBONDALE	LAWSON	DARK GRAY SHALE	7.5	553.0	
-57.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.5	560.5	
-62.0	CARBONDALE	ANNA	BLACK SHALE	4.0	565.0	
-66.0	CARBONDALE	HERRIN	COAL	5.7	569.0	

MAPID: 19900007000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763362 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.8552 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 672.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
11.0	CARBONDALE	DANVILLE	COAL	2.0	492.0	
-9.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	512.0	
-31.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	8.0	534.0	
-66.0	CARBONDALE	HERRIN	COAL	5.7	569.0	
-93.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	34.0	596.0	
-164.0	CARBONDALE	SPRINGFIELD	COAL	4.0	667.0	

MAPID: 19900007000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763362 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.8552 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 503.3 **LOGGED (FT.):** 672.0 **LOG TYPE:** Drillers Log

SOURCE: FINNEY 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
503.3	PLEISTOCENE		CLAY	16.0	0.0	
487.3	BOND	MT. CARMEL	SANDSTONE	32.0	16.0	
455.3	BOND	MT. CARMEL	SANDY SHALE	2.0	48.0	
453.3	BOND	MT. CARMEL	SANDSTONE	5.0	50.0	
448.3	BOND	MT. CARMEL	SHALE	2.0	55.0	
446.3	BOND	MT. CARMEL	SANDSTONE	36.0	57.0	
410.3	MODESTO		DARK SHALE	4.0	93.0	
406.3	MODESTO		SANDY SHALE	19.0	97.0	
387.3	MODESTO		DARK SHALE	26.0	116.0	
361.3	MODESTO		GRAY SHALE	3.0	142.0	
358.3	MODESTO		BLACK SHALE	2.0	145.0	
356.3	MODESTO		GRAY SHALE	13.0	147.0	
343.3	MODESTO		SANDY SHALE	7.0	160.0	
336.3	MODESTO		GRAY SHALE	5.0	167.0	
331.3	MODESTO	WOMAC	COAL	1.0	172.0	
330.3	MODESTO		GRAY SHALE	5.0	173.0	
325.3	MODESTO		SHALY SANDSTONE	11.0	178.0	
314.3	MODESTO		SANDY SHALE	29.0	189.0	
285.3	MODESTO		SHALE	27.0	218.0	
258.3	MODESTO		DARK SHALE	2.0	245.0	
256.3	MODESTO		LIMESTONE	1.0	247.0	
255.3	MODESTO		SHALY SANDSTONE	72.0	248.0	
183.3	MODESTO		SANDSTONE	58.0	320.0	
125.3	MODESTO		BLUE SHALE	23.5	378.0	
101.8	MODESTO		SHALE	1.0	401.5	
100.8	MODESTO		BLUE SHALE	9.5	402.5	
91.3	MODESTO	POND CREEK	COAL	0.5	412.0	
90.8	MODESTO		GRAY SHALE	1.5	412.5	
89.3	MODESTO		SANDY SHALE	16.0	414.0	
73.3	MODESTO		DARK SHALE	25.0	430.0	
48.3	CARBONDALE	DANVILLE	COAL	1.2	455.0	
47.1	CARBONDALE		SANDSTONE	28.8	456.2	
18.3	CARBONDALE		SHALY SANDSTONE	6.6	485.0	
11.7	CARBONDALE		GRAY SHALE	0.4	491.6	
11.3	CARBONDALE	ALLENBY	BONE COAL	2.0	492.0	
9.3	CARBONDALE		SANDY SHALE	7.0	494.0	
2.3	CARBONDALE		GRAY SHALE	11.0	501.0	
-8.7	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	512.0	
-14.7	CARBONDALE		BLUE SHALE	2.0	518.0	

-16.7	CARBONDALE		SANDY SHALE	14.0	520.0
-30.7	CARBONDALE		SANDSTONE	8.0	534.0
-38.7	CARBONDALE		BLUE SHALE	7.5	542.0
-46.2	CARBONDALE	BRERETON	LIMESTONE	4.5	549.5
-50.7	CARBONDALE	ANNA	BLACK SHALE	4.0	554.0
-54.7	CARBONDALE	ENERGY	DARK SHALE	11.2	558.0
-65.9	CARBONDALE	HERRIN	COAL	1.9	569.2
-67.8	CARBONDALE	HERRIN	PYRITE	0.0	571.1
-67.8	CARBONDALE	HERRIN	COAL	1.3	571.1
-69.1	CARBONDALE	HERRIN	BLACK SHALE	0.0	572.4
-69.2	CARBONDALE	HERRIN	COAL	0.7	572.5
-69.8	CARBONDALE	HERRIN	BLACK SHALE	0.0	573.1
-69.9	CARBONDALE	HERRIN	COAL	1.7	573.2
-71.5	CARBONDALE		GRAY SHALE	3.2	574.8
-74.7	CARBONDALE		SANDY SHALE	2.0	578.0
-76.7	CARBONDALE		GRAY SHALE	9.0	580.0
-85.7	CARBONDALE		SANDY SHALE	7.0	589.0
-92.7	CARBONDALE		SHALY SANDSTONE	14.0	596.0
-106.7	CARBONDALE		SANDSTONE	4.0	610.0
-110.7	CARBONDALE		SANDSTONE	16.0	614.0
-126.7	CARBONDALE		SANDY SHALE	30.0	630.0
-156.7	CARBONDALE		GRAY SHALE	6.6	660.0
-163.3	CARBONDALE	SPRINGFIELD	COAL	4.0	666.6
-167.3	CARBONDALE		CLAYSTONE	1.4	670.6

MAPID: 19902597000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.774813 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.856998 **DATE COLLECTED:** 8 / 0 / 1973

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 1790.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-372.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	852.0	
-444.0	SPOON	DAVIS	UNCLASSIFIED	-	924.0	
-1310.0	BASE OF PENN.		UNCLASSIFIED	-	1790.0	

MAPID: 19900008000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 68' N line, 57' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.789966 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.862987 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 724.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-23.0	CARBONDALE	DANVILLE	COAL	1.5	530.0	
-36.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.3	543.0	
-39.0	CARBONDALE	ANVIL ROCK	SILTSTONE & SHALE	36.0	546.0	
-110.0	CARBONDALE	HERRIN	COAL	6.6	617.0	
-134.0	CARBONDALE	BRIAR HILL	COAL	0.4	641.0	
-151.0	CARBONDALE	CANTON	SANDSTONE/SHALE	9.0	658.0	
-207.0	CARBONDALE	SPRINGFIELD	COAL	4.5	714.0	

MAPID: 19900008000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 68' N line, 57' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.789966 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.862987 **DATE COLLECTED:** 7 / 26 / 1923

SURFACE ELEVATION (FT.): 506.9 **LOGGED (FT.):** 553.0 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP. **WELL TYPE:** Diamond Drill

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
506.9			UNCONSOLIDATED	11.0	0.0	
495.9	BOND		SANDSTONE/SHALE	84.0	11.0	
411.9	BOND	CARTHAGE	LIMESTONE	6.2	95.0	
405.7	MODESTO		BLACK SHALE	2.5	101.2	
403.2	MODESTO		SHALE	56.8	103.7	
346.5	MODESTO		LIMESTONE	0.3	160.4	
346.1	MODESTO		DARK SHALE	3.2	160.8	
343.0	MODESTO		BLACK SHALE	2.7	163.9	
340.3	MODESTO		SHALE	24.8	166.6	
315.5	MODESTO		LIMESTONE	0.9	191.4	
314.6	MODESTO		SHALE	42.2	192.3	
272.4	MODESTO		SANDSTONE	2.5	234.5	
269.9	MODESTO		SHALE	46.7	237.0	
223.2	MODESTO		DARK SHALE	1.3	283.7	
222.0	MODESTO		SHALE	18.9	284.9	
203.1	MODESTO		BLACK SHALE	3.3	303.8	
199.7	MODESTO		LIMESTONE	0.8	307.2	
198.9	MODESTO		DARK SHALE	46.3	308.0	
152.6	MODESTO		SANDSTONE	2.8	354.3	
149.7	MODESTO		SHALE	1.0	357.2	
148.7	MODESTO		SANDSTONE	10.3	358.2	
138.4	MODESTO		SHALE	0.4	368.5	
138.0	MODESTO		SANDSTONE	8.1	368.9	
129.9	MODESTO		SHALE	1.8	377.0	
128.1	MODESTO		SANDSTONE	1.6	378.8	
126.6	MODESTO		SHALE	0.1	380.3	
126.5	MODESTO		SANDSTONE	19.1	380.4	
107.4	MODESTO		GRAY SHALE	47.5	399.5	
59.9	MODESTO		COAL	0.1	447.0	
59.8	MODESTO		GRAY SHALE	34.9	447.1	
24.9	MODESTO		COAL	1.1	482.0	
23.8	MODESTO		SHALE	6.9	483.1	
16.9	MODESTO		SANDSTONE	6.5	490.0	
10.4	MODESTO		GRAY SHALE	33.7	496.5	
-23.3	CARBONDALE	DANVILLE	COAL	1.8	530.2	UNCERTAIN CORRELATION
-25.1	CARBONDALE		GRAY SHALE	11.0	532.0	
-36.1	CARBONDALE		LIMESTONE	5.9	543.0	
-42.0	CARBONDALE		SANDSTONE	3.4	548.9	
-45.4	CARBONDALE		SHALE	1.8	552.3	

-47.3	CARBONDALE		SANDSTONE	4.2	554.2
-51.4	CARBONDALE		DARK SHALE	3.5	558.3
-54.9	CARBONDALE		COAL	0.1	561.8
-55.0	CARBONDALE		SANDSTONE/SHALE	28.8	561.9
-83.9	CARBONDALE		COAL	0.1	590.8
-83.9	CARBONDALE		LIMESTONE	4.6	590.8
-88.5	CARBONDALE	ENERGY	GRAY SHALE	21.6	595.4
-110.1	CARBONDALE	HERRIN	COAL	6.6	617.0
-116.7	CARBONDALE		UNDERCLAY	3.4	623.6
-120.1	CARBONDALE		LIMESTONE	4.1	627.0
-124.2	CARBONDALE		GRAY SHALE	9.9	631.1
-134.1	CARBONDALE		BONE COAL	0.4	641.0
-134.5	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	44.9	641.4
-179.4	CARBONDALE	DYKERSBURG	GRAY SHALE	27.7	686.3
-207.1	CARBONDALE	SPRINGFIELD	COAL	4.5	714.0
-211.6	CARBONDALE		UNDERCLAY	4.0	718.5
-215.6	CARBONDALE		GRAY SHALE	1.5	722.5

MAPID: 19900008000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 68' N line, 57' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.789966 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.862987 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 622.6 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 21 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-22.9	CARBONDALE	DANVILLE	COAL	1.5	529.9	
-24.4	CARBONDALE		SHALE & SILTSTONE	7.2	531.4	
-31.6	CARBONDALE		SILTSTONE	3.8	538.6	
-35.4	CARBONDALE	BANKSTON FORK	LIMESTONE	3.3	542.4	
-38.7	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	13.0	545.7	
-51.7	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	1.8	558.7	
-53.5	CARBONDALE	LAWSON	BLACK SHALE	3.3	560.5	
-56.8	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	18.5	563.8	
-75.3	CARBONDALE	LAWSON	GRAY SHALE	8.0	582.3	
-83.3	CARBONDALE	CONANT	CALCAREOUS SHALE	0.2	590.3	
-83.4	CARBONDALE		BLACK SHALE	0.2	590.4	
-83.6	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.3	590.6	
-87.9	CARBONDALE	ANNA	BLACK SHALE	2.6	594.9	
-90.5	CARBONDALE	ENERGY	GRAY SHALE	4.4	597.5	
-94.9	CARBONDALE	ENERGY	GRAY SHALE	14.1	601.9	
-109.0	CARBONDALE	HERRIN	COAL	6.6	616.0	

MAPID: 19900008000C **VERSION:** 4 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 68' N line, 57' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.789966 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.862987 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 506.9 **LOGGED (FT.):** 724.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 21 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
506.9	PLEISTOCENE		UNCLASSIFIED	80.0	0.0	
426.9	BOND	MT. CARMEL	GRAY SANDSTONE	13.1	80.0	
413.8	BOND		GRAY SHALE	0.2	93.1	
413.6	BOND	CARTHAGE	GRAY LIMESTONE	7.9	93.3	
405.7	MODESTO		BLACK SHALE	0.5	101.2	
405.2	MODESTO		BLACK SHALE	0.3	101.7	
405.0	MODESTO		BLACK SHALE	1.8	101.9	
403.2	MODESTO		GRAY SHALE	13.1	103.7	
390.1	MODESTO		BLACK SHALE	5.3	116.8	
384.9	MODESTO		NO RECORD	40.0	122.0	
344.9	MODESTO		GRAY SHALE	3.1	162.0	
341.8	MODESTO	MACOUPIN	GRAY LIMESTONE	2.2	165.1	
339.6	MODESTO		GRAY SHALE	20.5	167.3	
319.1	MODESTO		GRAY LIMESTONE	0.4	187.8	
318.7	MODESTO		DARK GRAY SHALE	0.3	188.2	
318.5	MODESTO		GRAY LIMESTONE	0.7	188.4	
317.8	MODESTO		BLACK SHALE	2.3	189.1	
315.6	MODESTO		GRAY LIMESTONE	1.0	191.3	
314.6	MODESTO		GRAY SHALE	4.7	192.3	
309.9	MODESTO		BLACK SHALE	3.5	197.0	
306.4	MODESTO		BLACK SHALE	0.5	200.5	
305.9	MODESTO		GRAY SHALE	6.0	201.0	
299.9	MODESTO		SHALE & SANDSTONE	18.0	207.0	
281.9	MODESTO	WOMAC	COAL	0.5	225.0	
281.4	MODESTO		GRAY SHALE	3.0	225.5	
278.4	MODESTO		BLACK SHALE	6.0	228.5	
272.4	MODESTO		GRAY SANDSTONE	2.5	234.5	
269.9	MODESTO		GRAY SHALE	0.8	237.0	
269.1	MODESTO		GRAY SHALE	7.3	237.8	
261.8	MODESTO		SHALE & SANDSTONE	6.1	245.1	
255.7	MODESTO		SHALE & SILTSTONE	21.7	251.2	LIGHT GRAY
234.1	MODESTO		BLACK SHALE	0.8	272.8	
233.2	MODESTO		GRAY SHALE	7.3	273.7	
225.9	MODESTO		DARK GRAY SHALE	3.0	281.0	
222.9	MODESTO		BLACK SHALE	1.0	284.0	
221.9	MODESTO		GRAY SHALE	19.7	285.0	
202.2	MODESTO		DARK GRAY SHALE	0.7	304.7	
201.6	MODESTO		BLACK LIMESTONE	0.8	305.3	
200.8	MODESTO		DARK GRAY SHALE	1.1	306.1	

199.7	MODESTO		GRAY LIMESTONE	0.8	307.2	
198.9	MODESTO		DARK GRAY SHALE	0.3	308.0	
198.6	MODESTO		BLACK SHALE	1.2	308.3	
197.4	MODESTO		DARK GRAY SHALE	32.8	309.5	
164.6	MODESTO		DARK GRAY SHALE	9.7	342.3	
154.9	MODESTO		SHALE & SANDSTONE	2.3	352.0	
152.6	MODESTO		GRAY SANDSTONE	3.0	354.3	
149.6	MODESTO		SANDSTONE/SHALE	1.3	357.3	GRAY-PINK
148.3	MODESTO		GRAY SANDSTONE	18.5	358.6	
129.8	MODESTO		SHALE & SANDSTONE	1.7	377.1	
128.1	MODESTO		GRAY SANDSTONE	0.5	378.8	
127.6	MODESTO		GRAY SANDSTONE	15.3	379.3	
112.3	MODESTO		SHALE & SANDSTONE	1.3	394.6	
111.1	MODESTO		GRAY SANDSTONE	4.0	395.8	
107.1	MODESTO		BLACK SHALE	1.2	399.8	
105.9	MODESTO		GRAY SHALE	1.5	401.0	
104.4	MODESTO		SHALE & SILTSTONE	12.8	402.5	GRAY
91.6	MODESTO		GRAY SHALE	4.3	415.3	
87.4	MODESTO		GRAY SHALE	1.7	419.5	
85.7	MODESTO		GRAY SHALE	18.5	421.2	
67.2	MODESTO		BLACK SHALE	2.7	439.7	
64.6	MODESTO		DARK GRAY SHALE	2.4	442.3	
62.1	MODESTO		BLACK SHALE	3.0	444.8	
59.1	MODESTO		GRAY SHALE	1.9	447.8	
57.2	MODESTO		BLACK SHALE	0.7	449.7	
56.6	MODESTO		SHALE & SANDSTONE	7.0	450.3	
49.6	MODESTO		SHALE & SANDSTONE	3.7	457.3	
45.9	MODESTO		DARK GRAY SHALE	2.5	461.0	
43.4	MODESTO		DARK GRAY SHALE	15.9	463.5	
27.5	MODESTO		BLACK SHALE	3.4	479.4	
24.1	MODESTO	POND CREEK	COAL	1.1	482.8	
23.0	MODESTO		UNDERCLAY	4.6	483.9	GRAY
18.4	MODESTO		BROWN LIMESTONE	0.7	488.5	
17.7	MODESTO		GRAY SHALE	0.9	489.2	
16.8	MODESTO		GRAY SANDSTONE	2.3	490.1	
14.6	MODESTO		GRAY SANDSTONE	3.8	492.3	
10.8	MODESTO		SHALE & SANDSTONE	1.5	496.1	
9.3	MODESTO		BLACK SHALE	1.3	497.6	
8.0	MODESTO		GRAY SANDSTONE	3.0	498.9	
5.0	MODESTO		GRAY SHALE	1.2	501.9	
3.8	MODESTO		BLACK SHALE	5.5	503.1	
-1.7	MODESTO		GRAY SHALE	1.1	508.6	
-2.8	MODESTO		DARK GRAY SHALE	4.9	509.7	
-7.7	MODESTO		BLACK SHALE	1.4	514.6	
-9.1	MODESTO		DARK GRAY SHALE	8.3	516.0	
-17.4	MODESTO		DARK GRAY SHALE	5.3	524.3	
-22.7	MODESTO		BLACK SHALE	0.9	529.6	
-23.6	CARBONDALE	DANVILLE	COAL	1.5	530.5	

-25.1	CARBONDALE		BLACK SHALE	3.0	532.0	
-28.1	CARBONDALE		GRAY SHALE	1.8	535.0	
-29.9	CARBONDALE		DARK GRAY SHALE	2.4	536.8	
-32.3	CARBONDALE		BLACK SHALE	3.8	539.2	
-36.1	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	3.3	543.0	
-39.4	CARBONDALE		GRAY SANDSTONE	11.8	546.3	
-51.2	CARBONDALE		BLACK SHALE	2.0	558.1	
-53.2	CARBONDALE		DARK GRAY SHALE	1.8	560.1	
-54.9	CARBONDALE		COAL	0.1	561.8	
-55.0	CARBONDALE		BLACK SHALE	3.3	561.9	
-58.3	CARBONDALE	ANVIL ROCK	SANDSTONE	2.5	565.2	
-60.8	CARBONDALE	ANVIL ROCK	SANDSTONE	12.8	567.7	
-73.6	CARBONDALE	ANVIL ROCK	DARK GRAY SHALE	0.3	580.5	
-73.9	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	1.8	580.8	
-75.8	CARBONDALE		GRAY SHALE	8.0	582.7	
-83.8	CARBONDALE		BROWN SANDSTONE	0.2	590.7	
-83.9	CARBONDALE	JAMESTOWN	COAL	0.1	590.8	
-84.0	CARBONDALE		DARK GRAY SHALE	0.2	590.9	
-84.2	CARBONDALE	BRERETON	BLACK LIMESTONE	4.3	591.1	
-88.5	CARBONDALE	ANNA	BLACK SHALE	2.6	595.4	
-91.1	CARBONDALE	ENERGY	GRAY SHALE	4.7	598.0	
-95.8	CARBONDALE	ENERGY	GRAY SHALE	14.1	602.7	
-109.9	CARBONDALE	HERRIN	COAL	6.6	616.8	
-116.4	CARBONDALE		UNDERCLAY	3.7	623.3	
-120.1	CARBONDALE		GRAY LIMESTONE	4.1	627.0	
-124.2	CARBONDALE		GRAY SHALE	8.6	631.1	
-132.8	CARBONDALE		GRAY LIMESTONE	1.3	639.7	
-134.1	CARBONDALE	BRIAR HILL	COAL	0.4	641.0	
-134.5	CARBONDALE		BLACK SHALE	1.4	641.4	
-135.9	CARBONDALE	DYKERSBURG	GRAY SHALE	4.3	642.8	
-140.3	CARBONDALE	DYKERSBURG	GRAY SHALE	10.9	647.2	
-151.2	CARBONDALE	DYKERSBURG	GRAY SANDSTONE	1.8	658.1	
-152.9	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	7.0	659.8	GRAY
-159.9	CARBONDALE	DYKERSBURG	GRAY SHALE	20.8	666.8	
-180.7	CARBONDALE	DYKERSBURG	GRAY SHALE	1.2	687.6	
-181.9	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	3.0	688.8	LIGHT TO DARK GRAY
-184.9	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	14.8	691.8	GRAY
-199.7	CARBONDALE	DYKERSBURG	GRAY SHALE	7.4	706.6	
-207.1	CARBONDALE	SPRINGFIELD	COAL	4.5	714.0	
-211.6	CARBONDALE		NO RECORD	5.5	718.5	

MAPID: 19900009000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790817 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.849741 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 449.5 **LOGGED (FT.):** 556.6 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 27 **WELL TYPE:** Coal Test

COMMENT: COMBINED CORE STUDY & DRILL LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
449.5	PLEISTOCENE		BROWN SANDSTONE	32.0	0.0	
417.5	PLEISTOCENE		CLAY	12.0	32.0	
405.5	MODESTO		GRAY SHALE	8.4	44.0	
397.1	MODESTO		GRAY SHALE	22.6	52.4	
374.5	MODESTO		DARK GRAY SHALE	2.3	75.0	
372.2	MODESTO		BLACK LIMESTONE	1.0	77.3	
371.2	MODESTO		UNDERCLAY	18.8	78.3	LIGHT GRAY
352.5	MODESTO		GRAY SANDSTONE	0.5	97.0	
352.0	MODESTO		SHALE & SANDSTONE	3.5	97.5	
348.5	MODESTO		GRAY SHALE	3.8	101.0	
344.7	MODESTO		GRAY SHALE	0.4	104.8	
344.3	MODESTO		GRAY SHALE	5.8	105.2	
338.5	MODESTO		COAL	1.3	111.0	
337.2	MODESTO		GRAY SHALE	2.8	112.3	
334.5	MODESTO		GRAY SHALE	1.5	115.0	
333.0	MODESTO		BLACK SHALE	3.7	116.5	
329.3	MODESTO		GRAY SANDSTONE	5.9	120.2	
323.4	MODESTO		SHALE & SANDSTONE	1.1	126.1	
322.3	MODESTO		GRAY SHALE	4.0	127.2	
318.3	MODESTO		BLACK SHALE	0.7	131.2	
317.7	MODESTO		GRAY SANDSTONE	0.5	131.8	
317.2	MODESTO		GRAY SHALE	9.5	132.3	
307.7	MODESTO		GRAY SHALE	8.2	141.8	
299.5	MODESTO		GRAY SANDSTONE	0.3	150.0	
299.2	MODESTO		GRAY SHALE	28.3	150.3	
270.8	MODESTO		GRAY SHALE	5.3	178.7	
265.5	MODESTO		GRAY SHALE	10.0	184.0	
255.5	MODESTO		DARK GRAY SHALE	3.8	194.0	
251.7	MODESTO		GRAY LIMESTONE	0.7	197.8	
251.1	MODESTO		BLACK SHALE	2.0	198.4	
249.1	MODESTO		GRAY LIMESTONE	1.2	200.4	
247.9	MODESTO		DARK GRAY SHALE	2.4	201.6	
245.5	MODESTO		GRAY SHALE	11.0	204.0	
234.5	MODESTO		NO RECORD	39.0	215.0	
195.5	MODESTO		GRAY SANDSTONE	27.0	254.0	
168.5	MODESTO		CONGLOMERATE	0.2	281.0	LIGHT GRAY
168.3	MODESTO		BLACK SHALE	8.8	281.2	
159.5	MODESTO		UNKNOWN	75.8	290.0	
83.7	MODESTO		DARK GRAY SHALE	2.6	365.8	

81.1	MODESTO		BLACK SHALE	0.3	368.4	
80.7	MODESTO		SHALE	0.8	368.8	
80.0	MODESTO		BLACK SHALE	1.9	369.5	
78.1	MODESTO		COAL	0.8	371.4	
77.3	MODESTO		BLACK SHALE	3.3	372.2	
74.0	MODESTO		GRAY SANDSTONE	23.0	375.5	
51.0	MODESTO		GRAY SANDSTONE	2.8	398.5	
48.2	MODESTO		DARK GRAY SHALE	3.8	401.3	
44.5	MODESTO		COAL	0.4	405.0	
44.1	MODESTO		DARK GRAY SHALE	0.8	405.4	
43.3	MODESTO		GRAY LIMESTONE	2.6	406.2	
40.7	MODESTO		BLACK SHALE	0.5	408.8	
40.2	MODESTO		GREEN SHALE	1.8	409.3	
38.5	MODESTO		BLACK SHALE	0.3	411.0	
38.2	MODESTO		BLACK SHALE	1.7	411.3	
36.5	MODESTO		GREEN SHALE	2.3	413.0	
34.2	MODESTO		BLACK SHALE	1.7	415.3	
32.5	MODESTO	POND CREEK	COAL	1.8	417.0	
30.7	MODESTO		UNDERCLAY	1.3	418.8	GRAY
29.3	MODESTO		BLACK SHALE	4.6	420.2	
24.7	MODESTO		GRAY SHALE	3.6	424.8	
21.2	MODESTO		BONE COAL	0.1	428.3	
21.1	MODESTO		BLACK SHALE	2.6	428.4	
18.5	MODESTO		GREEN SHALE	2.6	431.0	
15.9	MODESTO		GREEN SHALE	0.8	433.6	
15.1	MODESTO		GRAY SHALE	0.7	434.4	
14.4	MODESTO		GREEN SHALE	0.5	435.1	
13.9	MODESTO	PIASA	GRAY LIMESTONE	3.0	435.6	
10.9	MODESTO	PIASA	GRAY LIMESTONE	2.0	438.6	
8.9	MODESTO		GRAY SANDSTONE	4.0	440.6	
4.9	MODESTO		GRAY SHALE	1.5	444.6	
3.4	MODESTO		DARK GRAY SHALE	3.9	446.1	
-0.5	CARBONDALE	DANVILLE	COAL	0.2	450.0	
-0.7	CARBONDALE		GRAY SHALE	1.0	450.2	
-1.7	CARBONDALE		GRAY SANDSTONE	2.6	451.2	
-4.3	CARBONDALE		SHALE & SILTSTONE	12.3	453.8	DARK GRAY
-16.5	CARBONDALE		DARK GRAY SHALE	55.8	466.0	
-72.3	CARBONDALE		SHALE & SANDSTONE	13.2	521.8	
-85.5	CARBONDALE		GRAY SANDSTONE	9.8	535.0	
-95.3	CARBONDALE		DARK GRAY SHALE	11.8	544.8	

MAPID: 19900009000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790817 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.849741 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 595.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-47.0	CARBONDALE	HERRIN	COAL	5.6	497.0	
-69.0	CARBONDALE	BRIAR HILL	COAL	0.6	519.0	
-137.0	CARBONDALE	SPRINGFIELD	COAL	4.5	587.0	

MAPID: 19901946000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' N line, 330' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.815893 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.862118 **DATE COLLECTED:** 2 / 0 / 1957

SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 1735.0 **LOG TYPE:** Electric Log

SOURCE: PHILLIPS PETROLEUM CO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-329.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	778.0	
-385.0	SPOON	DAVIS	UNCLASSIFIED	-	834.0	
-1286.0	BASE OF PENN.		UNCLASSIFIED	-	1735.0	

MAPID: 19900011000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.806841 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.847802 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 465.8 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 26 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
72.0	MODESTO	PIASA	LIMESTONE	0.3	368.0	
71.7	MODESTO		BLACK SHALE	4.1	368.3	
67.6	CARBONDALE	DANVILLE	COAL	1.8	372.4	
65.8	CARBONDALE		SHALE & SILTSTONE	4.7	374.2	
61.2	CARBONDALE		SHALE & SILTSTONE	13.6	378.8	
47.6	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	392.4	
46.6	CARBONDALE	LAWSON	SHALE & SANDSTONE	15.6	393.4	
31.0	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	13.8	409.0	
17.2	CARBONDALE	LAWSON	DARK GRAY SHALE	3.4	422.8	
13.8	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	2.0	426.2	
11.8	CARBONDALE	LAWSON	DARK GRAY SHALE	8.3	428.2	
3.4	CARBONDALE	CONANT	CALCAREOUS SHALE	0.2	436.6	
3.3	CARBONDALE	JAMESTOWN	COAL	0.2	436.7	
3.1	CARBONDALE		GRAY SHALE	0.3	436.9	
2.8	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.8	437.2	
-2.0	CARBONDALE	ANNA	BLACK SHALE	11.9	442.0	
-13.9	CARBONDALE	ENERGY	DARK GRAY SHALE	4.0	453.9	
-17.9	CARBONDALE	ENERGY	GRAY SHALE	16.1	457.9	
-19.0	CARBONDALE	HERRIN	COAL	6.8	459.0	

MAPID: 19900011000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.806841 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.847802 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 554.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
68.0	CARBONDALE	DANVILLE	COAL	1.8	372.0	
48.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	392.0	
46.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SILTSTONE	34.0	394.0	
-20.0	CARBONDALE	HERRIN	COAL	6.8	460.0	
-54.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	25.0	494.0	
-104.0	CARBONDALE	SPRINGFIELD	COAL	4.1	544.0	

MAPID: 19900012000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809221 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.835275 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 466.1 **LOGGED (FT.):** 527.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 32 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
466.1	PLEISTOCENE		UNCONSOLIDATED	26.0	0.0	
440.1	MODESTO		GRAY SHALE	2.0	26.0	
438.1	MODESTO		BLACK SHALE	5.8	28.0	
432.3	MODESTO		GRAY SHALE	2.3	33.8	
430.0	MODESTO		GRAY SHALE	2.1	36.1	
427.9	MODESTO		COAL	0.7	38.2	
427.3	MODESTO		DARK GRAY SHALE	6.2	38.8	
421.1	MODESTO		GRAY SANDSTONE	11.0	45.0	
410.1	MODESTO		GRAY SHALE	13.0	56.0	
397.1	MODESTO		GRAY SHALE	34.0	69.0	
363.1	MODESTO		GRAY SHALE	5.0	103.0	
358.1	MODESTO		GRAY SHALE	13.8	108.0	
344.3	MODESTO		LIMESTONE	0.8	121.8	
343.5	MODESTO		BLACK SHALE	0.3	122.6	
343.3	MODESTO		GRAY SHALE	13.2	122.8	
330.1	MODESTO		SHALE & SANDSTONE	7.5	136.0	
322.6	MODESTO		GRAY SANDSTONE	2.0	143.5	
320.6	MODESTO		SANDSTONE/SHALE	1.2	145.5	
319.4	MODESTO		GRAY SANDSTONE	5.3	146.7	
314.1	MODESTO		GRAY SANDSTONE	7.0	152.0	
307.1	MODESTO		SANDSTONE/SHALE	4.7	159.0	
302.4	MODESTO		GRAY SANDSTONE	4.3	163.7	
298.1	MODESTO		GRAY SHALE	23.8	168.0	
274.3	MODESTO		GRAY SANDSTONE	0.8	191.8	
273.4	MODESTO		GRAY SANDSTONE	2.8	192.7	
270.7	MODESTO		SANDSTONE/SHALE	0.7	195.4	
270.0	MODESTO		WHITE SANDSTONE	12.8	196.1	
257.3	MODESTO		WHITE SANDSTONE	4.3	208.8	
253.0	MODESTO		WHITE SANDSTONE	15.4	213.1	
237.6	MODESTO		WHITE SANDSTONE	6.5	228.5	
231.1	MODESTO		GRAY SANDSTONE	4.8	235.0	
226.3	MODESTO		DARK SANDSTONE	0.3	239.8	
226.0	MODESTO		GRAY SHALE	26.0	240.1	
200.0	MODESTO		BLACK LIMESTONE	0.8	266.1	
199.3	MODESTO		GRAY SHALE	2.7	266.8	
196.6	MODESTO		BLACK SHALE	1.8	269.5	
194.8	MODESTO		GRAY SHALE	2.6	271.3	
192.3	MODESTO		SANDSTONE/SHALE	0.7	273.8	
191.6	MODESTO		GRAY SHALE	1.0	274.5	

190.6	MODESTO		GREEN SHALE	1.7	275.5	
188.9	MODESTO		SHALE & SANDSTONE	17.8	277.2	
171.1	MODESTO		DARK GRAY SHALE	6.2	295.0	
164.9	MODESTO		DARK GRAY SHALE	10.3	301.2	
154.7	MODESTO		BLACK SHALE	1.1	311.4	
153.6	MODESTO		BLACK SHALE	0.3	312.5	
153.3	MODESTO		DARK GRAY SHALE	2.2	312.8	
151.1	MODESTO		BLACK SHALE	1.7	315.0	
149.4	MODESTO		DARK GRAY SHALE	0.6	316.7	
148.8	MODESTO		GRAY SANDSTONE	0.8	317.3	
148.0	MODESTO		COAL	1.1	318.1	
146.9	MODESTO		GRAY SHALE	1.8	319.2	
145.2	MODESTO		GRAY SILTSTONE	12.1	320.9	
133.1	MODESTO		GRAY LIMESTONE	0.3	333.0	
132.8	MODESTO		GRAY SHALE	0.3	333.3	
132.5	MODESTO		GRAY SHALE	2.8	333.6	
129.8	MODESTO		GRAY SILTSTONE	5.3	336.3	
124.4	MODESTO		GRAY SHALE	5.0	341.7	
119.4	MODESTO		GRAY LIMESTONE	3.3	346.7	
116.1	MODESTO		GRAY SHALE	3.1	350.0	
113.0	MODESTO		BLACK SHALE	1.4	353.1	
111.6	MODESTO	POND CREEK	COAL	1.1	354.5	
110.5	MODESTO		GRAY SILTSTONE	5.2	355.6	
105.3	MODESTO		GRAY SANDSTONE	1.5	360.8	
103.8	MODESTO		GRAY SILTSTONE	2.5	362.3	
101.3	MODESTO		DARK GRAY SHALE	3.8	364.8	
97.6	MODESTO		GREEN SHALE	5.1	368.5	
92.5	MODESTO	PIASA	BROWN LIMESTONE	4.0	373.6	
88.5	MODESTO		SANDSTONE/SHALE	4.4	377.6	
84.1	MODESTO		GRAY SANDSTONE	0.6	382.0	
83.5	MODESTO		GRAY SANDSTONE	1.8	382.6	
81.8	MODESTO		SANDSTONE/SHALE	0.3	384.3	
81.4	MODESTO		DARK GRAY SHALE	5.7	384.7	
75.8	MODESTO		GRAY SANDSTONE	0.3	390.3	
75.4	MODESTO		SHALE & SANDSTONE	1.0	390.7	
74.4	CARBONDALE	DANVILLE	COAL	0.3	391.7	
74.2	CARBONDALE		DARK GRAY SHALE	0.2	391.9	
74.0	CARBONDALE		DARK GRAY SHALE	26.1	392.1	
47.9	CARBONDALE		DARK GRAY SHALE	0.3	418.2	
47.6	CARBONDALE		HARD SHALE	0.8	418.5	
46.8	CARBONDALE	ALLENBY	BONE COAL	0.3	419.3	
46.5	CARBONDALE	BANKSTON FORK	BLACK LIMESTONE	0.8	419.6	
45.8	CARBONDALE		GRAY SHALE	1.6	420.3	
44.2	CARBONDALE		HARD SHALE	6.8	421.9	
37.4	CARBONDALE	BRERETON	GRAY LIMESTONE	5.3	428.7	
32.1	CARBONDALE	ANNA	BLACK SHALE	4.8	434.0	
27.3	CARBONDALE	HERRIN	COAL	10.0	438.8	ORIGINAL LOG STATES 5.33' COAL
17.3	CARBONDALE		UNDERCLAY	5.0	448.8	GRAY

12.3	CARBONDALE		GRAY LIMESTONE	1.4	453.8
10.9	CARBONDALE		DARK GRAY SHALE	0.5	455.2
10.4	CARBONDALE		GRAY LIMESTONE	0.3	455.7
10.1	CARBONDALE		GRAY SHALE	1.0	456.0
9.1	CARBONDALE		GRAY SHALE	3.7	457.0
5.4	CARBONDALE		SANDSTONE/SHALE	2.9	460.7
2.5	CARBONDALE		SANDSTONE/SHALE	4.0	463.6
-1.5	CARBONDALE		GRAY SANDSTONE	2.0	467.6
-3.5	CARBONDALE		SANDSTONE/SHALE	8.1	469.6
-11.6	CARBONDALE	DYKERSBURG	GRAY SILTSTONE	17.3	477.7
-28.9	CARBONDALE	DYKERSBURG	GRAY SHALE	4.6	495.0
-33.5	CARBONDALE	DYKERSBURG	GRAY SHALE	17.8	499.6
-51.2	CARBONDALE	SPRINGFIELD	COAL	5.0	517.3
-56.2	CARBONDALE		UNDERCLAY	4.1	522.3
-60.2	CARBONDALE		GRAY LIMESTONE	0.7	526.3

MAPID: 19900012000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809221 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.835275 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 527.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
112.0	CARBONDALE	DANVILLE	COAL	1.1	354.0	
105.0	CARBONDALE	SS BELOW NO. 7		1.5	361.0	
92.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	374.0	
88.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SILTSTONE	14.0	378.0	
27.0	CARBONDALE	HERRIN	COAL	5.3	439.0	
5.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SILTSTONE	17.0	461.0	
-51.0	CARBONDALE	SPRINGFIELD	COAL	4.9	517.0	

MAPID: 19900014000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790817 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.835292 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 506.0 **LOGGED (FT.):** 488.6 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP 33 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
103.2	CARBONDALE	DANVILLE	COAL	1.2	402.8	
102.0	CARBONDALE		GRAY SHALE	11.3	404.0	
90.7	CARBONDALE	ALLENBY	COAL	0.4	415.3	
90.2	CARBONDALE		CLAYSTONE	1.1	415.8	
89.2	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	8.0	416.8	
81.2	CARBONDALE	LAWSON	SILTY SHALE	2.5	424.8	
78.7	CARBONDALE	LAWSON	SANDSTONE	9.0	427.3	
69.7	CARBONDALE	LAWSON	GRAY SHALE	6.5	436.3	
63.2	CARBONDALE	LAWSON	DARK GRAY SHALE	21.0	442.8	
42.2	CARBONDALE	LAWSON	SILTY SHALE	1.7	463.8	
40.5	CARBONDALE	CONANT	CALCAREOUS SHALE	0.5	465.5	
40.0	CARBONDALE	JAMESTOWN	COAL	0.3	466.0	
39.7	CARBONDALE		BLACK SHALE	10.8	466.3	
28.8	CARBONDALE	BRERETON	LIMESTONE	3.3	477.2	
25.5	CARBONDALE	ANNA	BLACK SHALE	2.5	480.5	
23.0	CARBONDALE	HERRIN	COAL	5.6	483.0	

MAPID: 19900014000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790817 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.835292 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 506.0 **LOGGED (FT.):** 578.0 **LOG TYPE:** Drillers Log
SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
103.0	CARBONDALE	DANVILLE	COAL	1.2	403.0	
83.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.3	423.0	
79.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	14.0	427.0	
23.0	CARBONDALE	HERRIN	COAL	5.6	483.0	
1.0	CARBONDALE	VERMILIONVILLE	SHALE & SANDSTONE	21.0	505.0	
-57.0	CARBONDALE	SPRINGFIELD	COAL	4.2	563.0	

MAPID: 19902114000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.783893 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.835293 **DATE COLLECTED:** 10 / 0 / 1957

SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 1710.0 **LOG TYPE:** Electric Log

SOURCE: PACIFIC OPRTNG **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-248.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	720.0	
-314.0	SPOON	DAVIS	UNCLASSIFIED	-	786.0	
-1238.0	BASE OF PENN.		UNCLASSIFIED	-	1710.0	

MAPID: 19900016000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764501 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.839764 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 509.9 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 12 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
103.0	MODESTO	PIASA	LIMESTONE	2.0	402.0	
101.0	MODESTO		DARK GRAY SHALE	7.7	404.0	
93.3	CARBONDALE	DANVILLE	COAL	1.9	411.7	
91.4	CARBONDALE		GRAY SHALE	16.4	413.6	
75.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	430.0	
71.5	CARBONDALE	LAWSON	SILTY SHALE	18.5	433.5	
53.0	CARBONDALE	LAWSON	SANDSTONE	30.5	452.0	
22.5	CARBONDALE	JAMESTOWN	COAL	0.2	482.5	
22.3	CARBONDALE		BLACK SHALE	0.3	482.7	
22.0	CARBONDALE	BRERETON	LIMESTONE	5.0	483.0	
17.0	CARBONDALE	ANNA	BLACK SHALE	3.0	488.0	
14.0	CARBONDALE	ENERGY	GRAY SHALE	12.8	491.0	
1.2	CARBONDALE	ENERGY	BLACK SHALE	0.5	503.8	
1.0	CARBONDALE	HERRIN	COAL	5.9	504.0	

MAPID: 19900016000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764501 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.839764 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 604.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
93.0	CARBONDALE	DANVILLE	COAL	1.9	412.0	
75.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	430.0	
53.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	30.0	452.0	
1.0	CARBONDALE	HERRIN	COAL	5.8	504.0	
-31.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	22.0	536.0	
-94.0	CARBONDALE	SPRINGFIELD	COAL	4.5	599.0	

MAPID: 19900018000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: HARCO **LONGITUDE:** -88.746376 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.846934 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 535.8 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 7 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
29.0	MODESTO	PIASA	LIMESTONE	3.5	429.0	
25.5	MODESTO		DARK GRAY SHALE	6.0	432.5	
19.5	CARBONDALE	DANVILLE	BONE COAL	2.2	438.5	
17.3	CARBONDALE		ROCK	13.2	440.7	
4.2	CARBONDALE	ALLENBY	BONE COAL	0.3	453.8	
3.8	CARBONDALE		CLAYSTONE	6.5	454.2	
-2.7	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	460.7	
-10.2	CARBONDALE	LAWSON	SILTY SHALE	7.0	468.2	
-17.2	CARBONDALE	LAWSON	DARK GRAY SHALE	5.0	475.2	
-22.2	CARBONDALE	LAWSON	SANDSTONE	10.0	480.2	
-32.2	CARBONDALE	LAWSON	DARK GRAY SHALE	12.7	490.2	
-44.8	CARBONDALE	JAMESTOWN	BONE COAL	0.2	502.8	
-45.0	CARBONDALE		DARK GRAY SHALE	12.2	503.0	
-57.2	CARBONDALE	BRERETON	LIMESTONE	4.2	515.2	
-61.3	CARBONDALE	ANNA	BLACK SHALE	5.0	519.3	
-66.3	CARBONDALE	ENERGY	GRAY SHALE	5.0	524.3	
-71.3	CARBONDALE	ENERGY	GRAY SHALE	6.3	529.3	
-77.7	CARBONDALE	ENERGY	DARK GRAY SHALE	3.5	535.7	
-71.0	CARBONDALE	HERRIN	COAL	6.8	529.0	

MAPID: 19900018000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.746376 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.846934 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 617.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
19.0	CARBONDALE	DANVILLE	COAL	2.2	439.0	
-4.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	462.0	
-23.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	10.0	481.0	
-71.0	CARBONDALE	HERRIN	COAL	6.8	529.0	
-152.0	CARBONDALE	SPRINGFIELD	COAL	4.4	610.0	

MAPID: 19902598000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** 990' N line, 330' E line of SW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.74978 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.842415 **DATE COLLECTED:** 9 / 0 / 1973

SURFACE ELEVATION (FT.): 512.0 **LOGGED (FT.):** 1788.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-326.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	838.0	
-390.0	SPOON	DAVIS	UNCLASSIFIED	-	902.0	
-1276.0	BASE OF PENN.		UNCLASSIFIED	-	1788.0	

MAPID: 19923880000C **VERSION:** 1 **PROJECT:** NCRDS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.749778 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.847892 **DATE COLLECTED:** 6 / 7 / 2000

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 909.0 **LOG TYPE:** Other Core Study

SOURCE: MID-CONTINENT METHANE DDH-5 **WELL TYPE:** Coal Test

COMMENT: CORE #C-14951; DESCRIBED BY D. MORSE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNKNOWN	505.0	0.0	
-35.0			BLACK SHALE	3.0	505.0	
-38.0			UNKNOWN	22.1	508.0	CORE MISSING
-60.1			MUDSTONE	0.5	530.1	
-60.6			MUDSTONE	2.4	530.6	WHITE CALCAREOUS CONCRETIONS
-63.0			UNKNOWN	77.0	533.0	CORE MISSING
-140.0			GRAY SHALE	3.3	610.0	CALCAREOUS
-143.3			COAL	0.2	613.3	GLASSY
-143.5			COAL	4.5	613.5	SAMPLE REMOVED
-148.0			MUDSTONE	1.2	618.0	CARBONACEOUS
-149.2			UNKNOWN	67.8	619.2	CORE MISSING
-217.0			BLACK SHALE	5.1	687.0	SLIGHTLY CALCAREOUS
-222.1			COAL	0.6	692.1	
-222.7			UNKNOWN	1.8	692.7	MISSING
-224.5				3.5	694.5	POSSIBLE ROOTS
-228.0			SILTSTONE	5.0	698.0	
-233.0			UNKNOWN	32.0	703.0	CORE MISSING
-265.0			GRAY SHALE	4.5	735.0	
-269.5			COAL	1.5	739.5	SAMPLE REMOVED
-271.0				0.1	741.0	COALLY TRANSITIONS TO UCLAY
-271.1			MUDSTONE	0.9	741.1	ROOTS
-272.0			SILTSTONE	3.6	742.0	POSSIBLE BIOTURBATION
-275.6			GRAY SHALE	4.8	745.6	FISSILE
-280.4			BLACK SHALE	1.2	750.4	BRACHIOPODS
-281.6			COAL	0.3	751.6	
-281.8			MUDSTONE	1.1	751.8	LEAF IMPRESSIONS
-282.9			GRAY SHALE	0.7	752.9	BIOTURBATED
-283.6			UNKNOWN	46.4	753.6	CORE MISSING
-330.0			DARK SHALE	3.0	800.0	FISSLE
-333.0			DARK SHALE	3.1	803.0	
-336.1			COAL	0.5	806.1	SAMPLE REMOVED
-336.6			SILTSTONE	1.4	806.6	
-338.0			CLAYSTONE & SILTSTONE	1.0	808.0	SCATTERED PLANT FRAGMENTS
-339.0			SILTSTONE	0.8	809.0	
-339.8			SANDSTONE	2.1	809.8	RIPPLE BEDDED, MICACEOUS
-341.9			UNKNOWN	38.1	811.9	CORE MISSING
-380.0			DARK SHALE	5.9	850.0	RARE BRACHIOPODS
-385.9			UNKNOWN	3.1	855.9	MISSING

-389.0	CLAYSTONE & SILTSTONE	2.3	859.0	CARBONACEOUS
-391.3	COAL	1.9	861.3	UNSURE COAL THICKNESS
-393.2	CLAYSTONE & SILTSTONE	0.8	863.2	
-394.0	CLAYSTONE & SILTSTONE	2.0	864.0	
-396.0	UNKNOWN	34.0	866.0	CORE MISSING
-430.0	DARK SHALE	1.8	900.0	
-431.8	BLACK SHALE	0.9	901.8	FISSILE
-432.7	COAL	0.3	902.7	WEATHERED
-433.0	CLAYSTONE & SILTSTONE	2.1	903.0	
-435.1	LIMESTONE	0.4	905.1	
-435.5	CLAYSTONE & SILTSTONE	0.6	905.5	FOSSILIFEROUS
-436.1		1.0	906.1	NON-FISSILE
-437.1	LIMESTONE	0.5	907.1	
-437.6	CLAYSTONE & SILTSTONE	1.4	907.6	

MAPID: 19900019000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.740635 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.835116 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 532.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
143.0	CARBONDALE	DANVILLE	COAL	1.5	346.0	
134.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	2.0	355.0	
119.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	370.0	
108.0	CARBONDALE	ANVIL ROCK		35.0	381.0	
54.0	CARBONDALE	HERRIN	COAL	5.8	435.0	
19.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	9.0	470.0	
-39.0	CARBONDALE	SPRINGFIELD	COAL	4.1	528.0	

MAPID: 19900020000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 660' E line of NE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.727969 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.838866 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 449.7 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 15 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
101.0	MODESTO	PIASA	LIMESTONE	3.0	357.0	
98.0	MODESTO		GRAY SHALE	6.9	360.0	
91.1	CARBONDALE	DANVILLE	COAL	1.8	366.9	
89.3	CARBONDALE		DARK GRAY SHALE	12.7	368.7	
76.7	CARBONDALE	ALLENBY	COAL	0.3	381.3	
76.4	CARBONDALE		CLAYSTONE	5.4	381.6	
71.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	387.0	
65.0	CARBONDALE	LAWSON	GRAY SHALE	5.0	393.0	
60.0	CARBONDALE	LAWSON	SANDSTONE	11.0	398.0	
49.0	CARBONDALE	LAWSON	DARK GRAY SHALE	3.0	409.0	
46.0	CARBONDALE	LAWSON	SANDSTONE	14.0	412.0	
32.0	CARBONDALE	LAWSON	DARK GRAY SHALE	11.0	426.0	
21.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	437.0	
16.0	CARBONDALE	ANNA	BLACK SHALE	2.0	442.0	
14.0	CARBONDALE	HERRIN	COAL	5.7	444.0	

MAPID: 19923922000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 56' S line, 27' W line of SW SW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.743953 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.834346 **DATE COLLECTED:** 4 / 12 / 1977

SURFACE ELEVATION (FT.): 544.6 **LOGGED (FT.):** 609.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO X-20 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
544.6	PLEISTOCENE		CLAY	8.0	0.0	
536.6	PLEISTOCENE		SILT	2.0	8.0	
534.6	PLEISTOCENE		SAND	4.0	10.0	RED
530.6			SHALE	3.0	14.0	
527.6			DARK GRAY SHALE	2.0	17.0	
525.6			GRAY SHALE	16.0	19.0	
509.6			SANDY SHALE	5.0	35.0	
504.6			DARK GRAY SHALE	28.0	40.0	
476.6			BLACK SHALE	2.0	68.0	
474.6			LIMESTONE	1.0	70.0	
473.6			GRAY SHALE	11.0	71.0	
462.6			SANDY SHALE	37.0	82.0	
425.6	MODESTO	WOMAC	COAL	2.0	119.0	CORRELATION UNCERTAIN
423.6	MODESTO		UNDERCLAY	1.0	121.0	
422.6	MODESTO		SANDY SHALE	46.0	122.0	
376.6	MODESTO		LIMESTONE	1.0	168.0	
375.6	MODESTO		SANDY SHALE	92.0	169.0	
283.6	MODESTO		DARK SHALE	39.0	261.0	
244.6	MODESTO		SANDY SHALE	104.0	300.0	
140.6	MODESTO	PIASA	LIMESTONE	3.0	404.0	
137.6			SHALE	27.0	407.0	
110.6	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	434.0	
105.6	CARBONDALE		SANDY SHALE	31.0	439.0	
74.6	CARBONDALE		SANDSTONE	12.5	470.0	
62.1	CARBONDALE		BLACK SHALE	1.0	482.5	
61.1	CARBONDALE	BRERETON	LIMESTONE	6.5	483.5	BLACK
54.6	CARBONDALE	ANNA	BLACK SHALE	4.0	490.0	
50.6	CARBONDALE	ANNA	SANDY SHALE	7.5	494.0	
43.1	CARBONDALE	ANNA	BLACK SHALE	1.5	501.5	
41.6	CARBONDALE	HERRIN	COAL	5.5	503.0	
36.1	CARBONDALE		UNDERCLAY	2.0	508.5	
34.1	CARBONDALE		SHALE	3.0	510.5	SANDY
31.1	CARBONDALE		GRAY SHALE	2.5	513.5	
28.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	5.0	516.0	
23.6	CARBONDALE		SANDY SHALE	74.0	521.0	
-50.4	CARBONDALE	SPRINGFIELD	COAL	4.0	595.0	
-54.4	CARBONDALE		UNDERCLAY	3.5	599.0	
-57.9	CARBONDALE		GRAY SHALE	6.5	602.5	

MAPID: 19923923000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 100' N line, 250' W line of NW SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.734015 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.837629 **DATE COLLECTED:** 7 / 3 / 1984

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 530.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO 84-16 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.0	PLEISTOCENE		CLAY	17.0	0.0	
508.0			BLACK SHALE	2.0	17.0	
506.0			LIMESTONE	2.0	19.0	GRAY
504.0			SHALE	7.0	21.0	
497.0			SANDY SHALE	16.0	28.0	
481.0			SANDY SHALE	18.0	44.0	
463.0	MODESTO	WOMAC	COAL	1.0	62.0	CORRELATION UNCERTAIN
462.0	MODESTO		SHALE	64.0	63.0	
398.0	MODESTO		LIMESTONE	1.0	127.0	
397.0	MODESTO		SHALE	26.0	128.0	
371.0	MODESTO		SANDY SHALE	18.0	154.0	
353.0	MODESTO		SANDSTONE	2.0	172.0	
351.0	MODESTO		SHALY SANDSTONE	5.0	174.0	
346.0	MODESTO		GRAY SHALE	5.0	179.0	
341.0	MODESTO		SANDY DARK SHALE	1.0	184.0	
340.0	MODESTO	TRIVOLI	SANDSTONE	81.0	185.0	
259.0	MODESTO		SANDY SHALE	8.0	266.0	
251.0	MODESTO		SANDY DARK SHALE	27.0	274.0	
224.0	MODESTO		DARK SHALE	39.0	301.0	
185.0	MODESTO		SANDSTONE	10.0	340.0	
175.0	MODESTO	PIASA	LIMESTONE	2.0	350.0	
173.0			SANDY SHALE	35.0	352.0	
138.0	CARBONDALE		SANDSTONE	4.0	387.0	
134.0	CARBONDALE		SANDY SHALE	47.0	391.0	
87.0	CARBONDALE	BRERETON	LIMESTONE	3.0	438.0	
84.0	CARBONDALE	BRERETON	BLACK SHALE & LIMESTONE	1.0	441.0	
83.0	CARBONDALE	ANNA	BLACK SHALE	2.0	442.0	
81.0	CARBONDALE	HERRIN	COAL	6.0	444.0	
75.0	CARBONDALE		UNDERCLAY	4.0	450.0	
71.0	CARBONDALE		SANDSTONE	7.0	454.0	
64.0	CARBONDALE		SANDY SHALE	11.0	461.0	
53.0	CARBONDALE		SHALE & SANDSTONE	8.0	472.0	
45.0	CARBONDALE		SANDSTONE	26.0	480.0	
19.0	CARBONDALE		SHALE & SANDSTONE	11.0	506.0	
8.0	CARBONDALE	SPRINGFIELD	COAL	6.0	517.0	
2.0	CARBONDALE		SHALE	7.0	523.0	

MAPID: 19900021000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: HARCO **LONGITUDE:** -88.712749 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.842476 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 402.7 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 6 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
138.0	MODESTO	PIASA	LIMESTONE	3.0	308.0	
135.0	MODESTO		DARK GRAY SHALE	6.7	311.0	
128.3	CARBONDALE	DANVILLE	COAL	1.7	317.7	
126.7	CARBONDALE		GRAY SHALE	21.0	319.3	
105.7	CARBONDALE	ALLENBY	COAL	0.7	340.3	
105.0	CARBONDALE		DARK GRAY SHALE	5.0	341.0	
100.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	346.0	
95.0	CARBONDALE	LAWSON	SANDSTONE	4.0	351.0	
91.0	CARBONDALE	LAWSON	SILTY SHALE	4.0	355.0	
87.0	CARBONDALE	LAWSON	SANDSTONE	6.0	359.0	
81.0	CARBONDALE	LAWSON	SILTY SHALE	7.0	365.0	
74.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	13.0	372.0	
61.0	CARBONDALE		CALCAREOUS SHALE	5.0	385.0	
56.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	390.0	
51.0	CARBONDALE	ANNA	BLACK SHALE	2.8	395.0	
49.0	CARBONDALE	HERRIN	COAL	5.7	397.0	

MAPID: 19900021000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: HARCO **LONGITUDE:** -88.712749 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.842476 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 501.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
128.0	CARBONDALE	DANVILLE	COAL	1.7	318.0	
100.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	346.0	
95.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	34.0	351.0	
48.0	CARBONDALE	HERRIN	COAL	5.7	398.0	
-49.0	CARBONDALE	SPRINGFIELD	COAL	4.3	495.0	

MAPID: 19901913000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' N line, 330' W line

QUADRANGLE: HARCO **LONGITUDE:** -88.724483 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.848077 **DATE COLLECTED:** 12 / 0 / 1955

SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 3128.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD., ROBERTS MAY ET **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-246.0	CARBONDALE	HOUCHIN CREEK	COAL	2.8	705.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-371.0	CARBONDALE	COLCHESTER	COAL	0.5	830.0	
-414.0	CARBONDALE	DEKOVEN	COAL	3.5	873.0	
-421.0	CARBONDALE	LOWER DEKOVEN	COAL	1.6	880.0	
-431.0	CARBONDALE	DAVIS	COAL	4.0	890.0	
-461.0	TRADEWATER	SEAHORNE LS	LIMESTONE	1.0	920.0	

MAPID: 19901936000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.712762 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.835223 **DATE COLLECTED:** 8 / 0 / 1956

SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 3166.0 **LOG TYPE:** Electric Log

SOURCE: MISKELL J H, HORN 1 **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-133.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	582.0	
-	CARBONDALE	SURVANT	COAL	1.6		
-251.0	CARBONDALE	COLCHESTER	COAL	0.5	700.0	
-306.0	CARBONDALE	DEKOVEN	COAL	3.5	755.0	
-314.0	CARBONDALE	LOWER DEKOVEN	COAL	1.8	763.0	
-325.0	CARBONDALE	DAVIS	COAL	3.5	774.0	
-371.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	820.0	

MAPID: 19901936000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW SE
QUADRANGLE: HARCO **LONGITUDE:** -88.712762 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.835223 **DATE COLLECTED:** 8 / 0 / 1956
SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 1675.0 **LOG TYPE:** Electric Log
SOURCE: MISKELL J H **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-251.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	700.0	
-326.0	SPOON	DAVIS	UNCLASSIFIED	-	775.0	
-1226.0	BASE OF PENN.		UNCLASSIFIED	-	1675.0	

MAPID: 19900022000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: HARCO **LONGITUDE:** -88.717443 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.826057 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 422.0 **LOGGED (FT.):** 346.5 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 13 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
180.0	MODESTO	PIASA	LIMESTONE	3.4	242.0	
176.6	MODESTO		GRAY SHALE	5.8	245.4	
170.8	CARBONDALE	DANVILLE	COAL	1.8	251.2	
169.0	CARBONDALE		SHALE & SANDSTONE	18.4	253.0	
150.6	CARBONDALE	ALLENBY	BONE COAL	0.3	271.4	
150.3	CARBONDALE		CLAYSTONE	3.3	271.7	
147.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.8	275.0	
143.2	CARBONDALE	LAWSON	GRAY SHALE	4.0	278.8	
139.2	CARBONDALE	LAWSON	SHALE & SANDSTONE	47.0	282.8	
92.2	CARBONDALE	JAMESTOWN	BONE COAL	0.3	329.8	
91.9	CARBONDALE		CALCAREOUS SHALE	3.3	330.1	
88.7	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.1	333.3	
85.6	CARBONDALE	ANNA	BLACK SHALE	3.6	336.4	
82.0	CARBONDALE	ENERGY	GRAY SHALE	1.5	340.0	
81.0	CARBONDALE	HERRIN	COAL	5.5	341.0	

MAPID: 19900022000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: HARCO **LONGITUDE:** -88.717443 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.826057 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 422.0 **LOGGED (FT.):** 446.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
171.0	CARBONDALE	DANVILLE	COAL	1.8	251.0	
161.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	261.0	
147.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.8	275.0	
139.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	47.0	283.0	
81.0	CARBONDALE	HERRIN	COAL	5.5	341.0	
58.0	CARBONDALE	BRIAR HILL	COAL	0.7	364.0	
-18.0	CARBONDALE	SPRINGFIELD	COAL	4.4	440.0	

MAPID: 19900024000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: HARCO **LONGITUDE:** -88.738271 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.822285 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 353.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 4 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
211.0	MODESTO	PIASA	LIMESTONE	3.0	236.0	
208.0	MODESTO		GRAY SHALE	6.0	239.0	
202.0	CARBONDALE	DANVILLE	COAL	2.0	245.0	
200.0	CARBONDALE		SHALE & SANDSTONE	21.0	247.0	
179.0	CARBONDALE	ALLENBY	BONE COAL	0.7	268.0	
178.3	CARBONDALE		GRAY SHALE	7.3	268.7	
171.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	276.0	
165.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	19.0	282.0	
146.0	CARBONDALE	LAWSON	SANDSTONE	31.0	301.0	
115.0	CARBONDALE	JAMESTOWN	COAL	0.5	332.0	
114.5	CARBONDALE		DARK GRAY SHALE	7.5	332.5	
107.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.5	340.0	
103.5	CARBONDALE	ANNA	BLACK SHALE	3.5	343.5	
100.0	CARBONDALE	HERRIN	COAL	6.0	347.0	

MAPID: 19900024000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: HARCO **LONGITUDE:** -88.738271 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.822285 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 449.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
202.0	CARBONDALE	DANVILLE	COAL	2.0	245.0	
200.0	CARBONDALE	SS BELOW NO. 7	SHALY SANDSTONE	18.0	247.0	
171.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	276.0	
165.0	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	50.0	282.0	
100.0	CARBONDALE	HERRIN	COAL	6.0	347.0	
77.0	CARBONDALE	BRIAR HILL	COAL	0.5	370.0	
3.0	CARBONDALE	SPRINGFIELD	COAL	4.5	444.0	

MAPID: 19900024000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: HARCO **LONGITUDE:** -88.738271 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.822285 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 449.4 **LOG TYPE:** Drillers Log

SOURCE: DI HATTERMAN **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
447.0	PLEISTOCENE		UNCONSOLIDATED	11.3	0.0	
435.7	MODESTO		SANDSTONE	125.7	11.3	
310.0	MODESTO		GRAY SHALE	21.0	137.0	
289.0	MODESTO		LIMESTONE	2.0	158.0	
287.0	MODESTO		GRAY SHALE	30.0	160.0	
257.0	MODESTO	POND CREEK	COAL	0.5	190.0	
256.5	MODESTO		GRAY SHALE	5.5	190.5	
251.0	MODESTO		SHALY SANDSTONE	35.0	196.0	
216.0	MODESTO		SHALE	2.7	231.0	
213.3	MODESTO		SANDSTONE	2.3	233.7	
211.0	MODESTO	PIASA	LIMESTONE	3.0	236.0	
208.0	MODESTO		GRAY SHALE	6.0	239.0	
202.0	CARBONDALE	DANVILLE	COAL	2.0	245.0	
200.0	CARBONDALE		SHALY SANDSTONE	18.0	247.0	
182.0	CARBONDALE		SOFT SHALE	3.0	265.0	
179.0	CARBONDALE	ALLENBY	BONE COAL	0.7	268.0	
178.3	CARBONDALE		GRAY SHALE	7.3	268.7	
171.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	276.0	
165.0	CARBONDALE		SHALY SANDSTONE	19.0	282.0	
146.0	CARBONDALE		SANDSTONE	31.0	301.0	
115.0	CARBONDALE	JAMESTOWN	COAL	0.5	332.0	
114.5	CARBONDALE		HARD SHALE	7.5	332.5	
107.0	CARBONDALE	BRERETON	LIMESTONE	3.5	340.0	
103.5	CARBONDALE	ANNA	BLACK SHALE	3.5	343.5	
100.0	CARBONDALE	HERRIN	COAL	3.8	347.0	
96.2	CARBONDALE	HERRIN	BLACK SHALE	0.1	350.8	
96.1	CARBONDALE	HERRIN	COAL	0.9	350.9	
95.2	CARBONDALE	HERRIN	UNKNOWN	0.1	351.8	
95.2	CARBONDALE	HERRIN	COAL	1.2	351.8	
94.0	CARBONDALE		UNDERCLAY	1.0	353.0	
93.0	CARBONDALE		CLAYSTONE	16.0	354.0	BLUE
77.0	CARBONDALE	BRIAR HILL	COAL	0.5	370.0	
76.5	CARBONDALE		GRAY SHALE	41.5	370.5	
35.0	CARBONDALE		SANDY SHALE	32.3	412.0	
2.7	CARBONDALE	SPRINGFIELD	COAL	4.5	444.3	
-1.8	CARBONDALE		UNDERCLAY	0.7	448.8	

MAPID: 19902590000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.733659 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.822313 **DATE COLLECTED:** 8 / 0 / 1973

SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 3065.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD., ROBERTS **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-80.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	516.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-189.0	CARBONDALE	COLCHESTER	COAL	0.5	625.0	
-246.0	CARBONDALE	DEKOVEN	COAL	2.8	682.0	
-254.0	CARBONDALE	LOWER DEKOVEN	COAL	1.3	690.0	
-264.0	CARBONDALE	DAVIS	COAL	3.0	700.0	
-313.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	749.0	

MAPID: 19902590000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.733659 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.822313 **DATE COLLECTED:** 8 / 0 / 1973

SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 1610.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-189.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	625.0	
-264.0	SPOON	DAVIS	UNCLASSIFIED	-	700.0	
-1174.0	BASE OF PENN.		UNCLASSIFIED	-	1610.0	

MAPID: 19923243000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 25' N line, 100' W line of SW SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.734453 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.821316 **DATE COLLECTED:** 9 / 15 / 1981

SURFACE ELEVATION (FT.): 438.0 **LOGGED (FT.):** 432.5 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO 81-34 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
438.0	PLEISTOCENE		CLAY	19.5	0.0	
418.5	MODESTO	TRIVOLI	SANDSTONE	8.1	19.5	
410.4	MODESTO	TRIVOLI	SANDY SHALE	3.9	27.6	
406.5	MODESTO	TRIVOLI	SANDSTONE	46.9	31.5	WHITE
359.6	MODESTO	TRIVOLI	SANDSTONE	55.9	78.4	GRAY
303.7	MODESTO	TRIVOLI	SANDY SHALE	7.5	134.3	
296.2	MODESTO		SANDY SHALE	13.9	141.8	
282.3	MODESTO		SANDY DARK SHALE	8.3	155.7	
274.0	MODESTO		SANDSTONE	5.0	164.0	
269.0	MODESTO	POND CREEK	COAL	2.2	169.0	
266.8	MODESTO		SHALE	14.6	171.2	
252.2	MODESTO		SANDSTONE	45.2	185.8	
207.0	MODESTO	DEGRAFF	COAL	1.7	231.0	
205.3	MODESTO		SHALE	3.1	232.7	
202.2	MODESTO		SANDY SHALE	7.3	235.8	
194.9	MODESTO		SANDSTONE	17.2	243.1	
177.7	MODESTO	PIASA	LIMESTONE	8.7	260.3	
169.0	CARBONDALE	ANVIL ROCK	SHALE	0.8	269.0	
168.2	CARBONDALE	ANVIL ROCK	SANDSTONE	14.3	269.8	
153.9	CARBONDALE	ANVIL ROCK	SANDY SHALE	1.9	284.1	
152.0	CARBONDALE	ANVIL ROCK	SANDSTONE	31.5	286.0	
120.5	CARBONDALE	ANVIL ROCK	SHALE	0.9	317.5	
119.6	CARBONDALE	CONANT	LIMESTONE	0.2	318.4	
119.4	CARBONDALE	JAMESTOWN	COAL	0.3	318.6	
119.1	CARBONDALE		SHALE	1.2	318.9	
117.9	CARBONDALE		BLACK SHALE	2.3	320.1	
115.6	CARBONDALE	BRERETON	LIMESTONE	5.0	322.4	
110.6	CARBONDALE	ANNA	BLACK SHALE	4.7	327.4	
105.9	CARBONDALE	HERRIN	COAL	5.1	332.1	
100.8	CARBONDALE		UNDERCLAY	3.6	337.2	
97.2	CARBONDALE		SANDSTONE	1.2	340.8	
96.0	CARBONDALE	HIGGINSVILLE	LIMESTONE & SHALE	8.8	342.0	
87.2	CARBONDALE	BRIAR HILL	COAL	0.5	350.8	
86.7	CARBONDALE		SANDY DARK SHALE	1.8	351.3	
84.9	CARBONDALE	ST. DAVID	LIMESTONE	1.9	353.1	GRAY
83.0	CARBONDALE	DYKERSBURG	SANDY SHALE	14.0	355.0	
69.0	CARBONDALE	DYKERSBURG	SHALY SANDSTONE	8.1	369.0	
60.9	CARBONDALE	DYKERSBURG	SANDSTONE	3.9	377.1	GRAY
57.0	CARBONDALE	DYKERSBURG	SANDY SHALE	27.0	381.0	

30.0	CARBONDALE	DYKERSBURG	SHALE	14.0	408.0
16.0	CARBONDALE	SPRINGFIELD	COAL	3.5	422.0
12.5	CARBONDALE		UNDERCLAY	7.0	425.5

MAPID: 19923924000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.726831 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.83337 **DATE COLLECTED:** 2 / 15 / 1981

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 271.7 **LOG TYPE:** Drillers Log

SOURCE: PHEONIX MINING CO LOG X **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0	PLEISTOCENE		CLAY	9.0	0.0	
451.0	MODESTO		SHALE	3.0	9.0	
448.0	MODESTO		GRAY SHALE	3.0	12.0	
445.0	MODESTO	WOMAC	COAL	2.0	15.0	CORRELATION UNCERTAIN
443.0	MODESTO		SHALE	11.0	17.0	
432.0	MODESTO		SANDY SHALE	68.0	28.0	
364.0	MODESTO		LIMESTONE	1.8	96.0	
362.2	MODESTO		SANDY SHALE	62.2	97.8	
300.0	MODESTO		LIMESTONE	1.7	160.0	
298.3	MODESTO		SANDY SHALE	62.3	161.7	
236.0	MODESTO		COAL	0.5	224.0	
235.5	MODESTO		SHALE	12.5	224.5	
223.0	MODESTO		LIMESTONE	1.3	237.0	
221.7	MODESTO		SHALE	16.7	238.3	
205.0	MODESTO		DARK SHALE	16.7	255.0	

MAPID: 19923925000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 50' S line, 325' W line of NE SW NW

QUADRANGLE: HARCO **LONGITUDE:** -88.740628 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.828838 **DATE COLLECTED:** 8 / 14 / 1989

SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO BH1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
475.0	PLEISTOCENE		CLAY	29.6	0.0	
445.4	MODESTO		SHALE	4.4	29.6	
441.0	MODESTO		GRAY SHALE	24.0	34.0	
417.0	MODESTO		DARK SHALE	1.0	58.0	
416.0	MODESTO		LIMESTONE	1.0	59.0	
415.0	MODESTO		GRAY SHALE	2.0	60.0	

MAPID: 19923926000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 300' S line, 200' E line of SW NW NW

QUADRANGLE: HARCO **LONGITUDE:** -88.742467 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.831355 **DATE COLLECTED:** 7 / 13 / 1989

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 54.9 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LD1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
505.0	PLEISTOCENE		CLAY	13.0	0.0	
492.0	MODESTO		SHALE	11.0	13.0	
481.0	MODESTO		GRAY SHALE	26.5	24.0	
454.5	MODESTO	WOMAC	COAL	4.4	50.5	CORRELATION UNCERTAIN

MAPID: 19923927000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 100' N line, 75' W line of NW NW NW

QUADRANGLE: HARCO **LONGITUDE:** -88.743818 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.833912 **DATE COLLECTED:** 7 / 14 / 1989

SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 125.8 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LD3 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
540.0	PLEISTOCENE		CLAY	13.6	0.0	
526.4	MODESTO		SHALE	16.4	13.6	
510.0	MODESTO		GRAY SHALE	28.0	30.0	
482.0	MODESTO		BLACK SHALE	2.0	58.0	
480.0	MODESTO		LIMESTONE	1.6	60.0	
478.4	MODESTO		GRAY SHALE	57.9	61.6	
420.5	MODESTO	WOMAC	COAL	4.1	119.5	CORRELATION UNCERTAIN
416.4	MODESTO		GRAY SHALE	2.2	123.6	

MAPID: 19923928000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 175' N line, 300' E line of SW NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.738215 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.831903 **DATE COLLECTED:** 7 / 22 / 1989

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 53.7 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LD4 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.0	PLEISTOCENE		CLAY	11.0	0.0	
514.0	MODESTO		SHALE	14.0	11.0	
500.0	MODESTO		GRAY SHALE	24.3	25.0	
475.7	MODESTO	WOMAC	COAL	2.1	49.3	CORRELATION UNCERTAIN
473.6	MODESTO		GRAY SHALE	2.3	51.4	

MAPID: 19923929000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 300' S line, 75' W line of NE NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.73692 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.83322 **DATE COLLECTED:** 7 / 27 / 1989

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 116.4 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LD9 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
565.0	PLEISTOCENE		CLAY	7.0	0.0	
558.0			SANDSTONE	8.0	7.0	
550.0			GRAY SHALE	8.0	15.0	
542.0			SANDSTONE	3.0	23.0	
539.0			SANDY SHALE	12.0	26.0	WITH SANDSTONE
527.0			LIMESTONE	0.6	38.0	
526.4			GRAY SHALE	29.0	38.6	
497.4			BLACK SHALE	2.0	67.6	
495.4			LIMESTONE	1.0	69.6	
494.4	MODESTO		SANDY SHALE	24.4	70.6	
470.0	MODESTO		SANDY SHALE	18.0	95.0	
452.0	MODESTO	WOMAC	COAL	1.8	113.0	CORRELATION UNCERTAIN
450.2	MODESTO		UNDERCLAY	0.2	114.8	
450.0	MODESTO		GRAY SHALE	1.4	115.0	

MAPID: 19900025000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754256 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.825977 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 538.0 **LOGGED (FT.):** 458.8 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 10 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
192.0	MODESTO	PIASA	LIMESTONE	2.0	346.0	
190.0	MODESTO		DARK GRAY SHALE	7.2	348.0	
182.8	CARBONDALE	DANVILLE	COAL	1.8	355.2	
181.0	CARBONDALE		DARK GRAY SHALE	16.0	357.0	
165.0	CARBONDALE	ALLENBY	COAL	0.3	373.0	
164.7	CARBONDALE		GRAY SHALE	5.0	373.3	
159.7	CARBONDALE	BANKSTON FORK	LIMESTONE	5.7	378.3	UPPER BENCH
154.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	2.0	384.0	SHALE PARTING
152.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	386.0	LOWER BENCH
151.0	CARBONDALE	LAWSON	SANDSTONE	5.0	387.0	
146.0	CARBONDALE	LAWSON	SILTY SHALE	5.0	392.0	
141.0	CARBONDALE	LAWSON	SANDSTONE	38.5	397.0	
102.5	CARBONDALE		BLACK SHALE	4.0	435.5	
98.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	10.5	439.5	
88.0	CARBONDALE	ANNA	BLACK SHALE	3.1	450.0	
85.0	CARBONDALE	HERRIN	COAL	5.8	453.0	

MAPID: 19900025000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754256 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.825977 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 538.0 **LOGGED (FT.):** 550.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
183.0	CARBONDALE	DANVILLE	COAL	1.8	355.0	
160.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.7	378.0	
151.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SILTSTONE	48.0	387.0	
85.0	CARBONDALE	HERRIN	COAL	5.8	453.0	
-7.0	CARBONDALE	SPRINGFIELD	COAL	4.3	545.0	

MAPID: 19900025000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754256 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.825977 **DATE COLLECTED:** 6 / 19 / 1923

SURFACE ELEVATION (FT.): 538.0 **LOGGED (FT.):** 550.4 **LOG TYPE:** Other Core Study

SOURCE: MADISON COAL CORP 77 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
538.0	PLEISTOCENE		CLAY	10.0	0.0	
528.0	MODESTO		SHALE	11.0	10.0	
517.0	MODESTO		SANDY SHALE	11.0	21.0	
506.0	MODESTO		LIMESTONE	0.2	32.0	
505.8	MODESTO		SANDY SHALE	0.3	32.2	
505.6	MODESTO	WOMAC	COAL	0.5	32.4	
505.1	MODESTO		GRAY SHALE	1.1	32.9	
504.0	MODESTO		SHALE	71.0	34.0	
433.0	MODESTO		GRAY SHALE	13.0	105.0	
420.0	MODESTO		SANDY SHALE	2.0	118.0	
418.0	MODESTO		LIMESTONE	1.0	120.0	
417.0	MODESTO		SHALE	8.0	121.0	
409.0	MODESTO		SANDSTONE	96.0	129.0	
313.0	MODESTO		SANDSTONE	32.0	225.0	PTGS
281.0	MODESTO		SANDY SHALE	12.0	257.0	
269.0	MODESTO		SHALE	0.3	269.0	
268.7	MODESTO		SHALE	13.8	269.3	
255.0	MODESTO		SANDY SHALE	4.0	283.0	
251.0	MODESTO		SHALE	0.3	287.0	
250.7	MODESTO		SANDY SHALE	10.6	287.3	
240.1	MODESTO		BLACK SHALE	2.8	297.9	
237.2	MODESTO	POND CREEK	COAL/SANDSTONE	0.5	300.8	
236.7	MODESTO		ARGILACEOUS SHALE	6.8	301.3	
230.0	MODESTO		LIMESTONE	22.0	308.0	
208.0	MODESTO		BLUE SHALE	15.0	330.0	
193.0	MODESTO		GRAY SHALE	1.0	345.0	
192.0	MODESTO	PIASA	SANDY LIMESTONE	2.0	346.0	
190.0	MODESTO		SHALE	7.2	348.0	
182.8	CARBONDALE	DANVILLE	BONE COAL	1.8	355.2	
181.0	CARBONDALE		SHALE	10.0	357.0	
171.0	CARBONDALE		SHALE	2.0	367.0	
169.0	CARBONDALE		SHALE	4.0	369.0	
165.0	CARBONDALE	ALLENBY	COAL/SANDSTONE	0.3	373.0	
164.7	CARBONDALE		SHALE	5.0	373.3	
159.7	CARBONDALE	BANKSTON FORK	LIMESTONE	5.7	378.3	
154.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	384.0	
152.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	386.0	
151.0	CARBONDALE		SANDSTONE	5.0	387.0	
146.0	CARBONDALE		SANDSTONE/SHALE	5.0	392.0	

141.0	CARBONDALE		SANDSTONE	38.5	397.0
102.5	CARBONDALE		BLACK SHALE	4.0	435.5
98.5	CARBONDALE	BRERETON	SANDY LIMESTONE	10.5	439.5
88.0	CARBONDALE		SHALE	3.1	450.0
84.9	CARBONDALE	HERRIN	COAL	0.2	453.1
84.7	CARBONDALE	HERRIN	COAL	4.0	453.3
80.8	CARBONDALE	HERRIN	PYRITE	0.0	457.2
80.7	CARBONDALE	HERRIN	COAL	0.3	457.3
80.5	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	457.5
80.4	CARBONDALE	HERRIN	COAL	1.3	457.6
79.1	CARBONDALE		GRAY SHALE	2.3	458.9
76.7	CARBONDALE		LIMESTONE	9.8	461.3
67.0	CARBONDALE		BLUE SHALE	0.2	471.0
66.8	CARBONDALE		BLUE SHALE	3.0	471.2
63.8	CARBONDALE		SHALE	63.8	474.2
0.0	CARBONDALE		SHALE	7.3	538.0
-7.3	CARBONDALE	SPRINGFIELD	COAL	0.5	545.3
-7.7	CARBONDALE	SPRINGFIELD	PYRITE	0.1	545.7
-7.8	CARBONDALE	SPRINGFIELD	SHALY COAL	3.8	545.8
-11.5	CARBONDALE		SANDY CLAYSTONE	0.9	549.5

MAPID: 19901889000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE

QUADRANGLE: HARCO **LONGITUDE:** -88.7452 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.825942 **DATE COLLECTED:** 11 / 0 / 1955

SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 1660.0 **LOG TYPE:** Electric Log

SOURCE: MORAN, E. F., INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-187.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	670.0	
-311.0	SPOON	DAVIS	UNCLASSIFIED	-	794.0	
-1177.0	BASE OF PENN.		UNCLASSIFIED	-	1660.0	

MAPID: 19923227000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 75' N line, 325' W line of SE SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.745171 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.821144 **DATE COLLECTED:** 8 / 27 / 1981

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 464.5 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO 81-30 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0	PLEISTOCENE		CLAY	12.0	0.0	
448.0	MODESTO		SHALE	2.0	12.0	
446.0	MODESTO		BLACK SHALE	1.4	14.0	
444.6	MODESTO		LIMESTONE	2.6	15.4	GRAY
442.0	MODESTO	TRIVOLI	SANDSTONE	139.0	18.0	
303.0	MODESTO		SANDY SHALE	1.0	157.0	
302.0	MODESTO		BLACK SHALE	1.0	158.0	
301.0	MODESTO		SANDSTONE	2.0	159.0	GRAY
299.0	MODESTO		SANDY SHALE	9.0	161.0	
290.0	MODESTO	POND CREEK	COAL	0.4	170.0	
289.6	MODESTO		SHALE	2.6	170.4	
287.0	MODESTO		LIMESTONE & SHALE	8.8	173.0	
278.2	MODESTO		SANDY DARK SHALE	19.2	181.8	
259.0	MODESTO		BLACK SHALE	1.0	201.0	
258.0	MODESTO		SANDY SHALE	0.5	202.0	
257.5	MODESTO	DEGRAFF	COAL	0.9	202.5	
256.6	MODESTO		SHALE	2.6	203.4	
254.0	MODESTO		SANDSTONE	4.0	206.0	
250.0	MODESTO	PIASA	LIMESTONE & SHALE	4.0	210.0	
246.0	MODESTO		SANDY SHALE	18.0	214.0	
228.0	MODESTO		GRAY SHALE	16.0	232.0	
212.0	MODESTO		SANDY SHALE	12.0	248.0	
200.0	CARBONDALE	DANVILLE	COAL	1.5	260.0	
198.5	CARBONDALE		SHALE	5.7	261.5	
192.9	CARBONDALE		SANDSTONE	3.8	267.1	
189.1	CARBONDALE		SANDY SHALE	21.0	270.9	
168.1	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	291.9	
161.1	CARBONDALE		SANDY SHALE	2.0	298.9	
159.1	CARBONDALE		SANDSTONE	38.5	300.9	GRAY
120.6	CARBONDALE		SHALE	2.8	339.4	
117.8	CARBONDALE	BRERETON	LIMESTONE	0.3	342.2	
117.5	CARBONDALE	BRERETON	BLACK SHALE	0.8	342.5	
116.7	CARBONDALE	BRERETON	LIMESTONE	0.8	343.3	
115.9	CARBONDALE	BRERETON	LIMESTONE & SHALE	2.9	344.1	
113.0	CARBONDALE	BRERETON	LIMESTONE	3.3	347.0	
109.7	CARBONDALE	ANNA	BLACK SHALE	3.9	350.3	
105.8	CARBONDALE	ANNA	SHALE	1.3	354.2	
104.5	CARBONDALE	ANNA	BLACK SHALE	0.8	355.5	
103.7	CARBONDALE	HERRIN	COAL	5.4	356.3	

98.3	CARBONDALE		SHALE	3.8	361.7
94.5	CARBONDALE		SANDSTONE	6.4	365.5
88.1	CARBONDALE	HIGGINSVILLE	LIMESTONE	5.5	371.9
82.6	CARBONDALE		SANDSTONE	3.8	377.4
78.9	CARBONDALE		LIMESTONE & SHALE	2.8	381.1
76.1	CARBONDALE		SANDY SHALE	6.1	383.9
70.0	CARBONDALE		SANDSTONE	30.8	390.0
39.2	CARBONDALE		SHALY SANDSTONE	37.5	420.8
1.7	CARBONDALE	SPRINGFIELD	COAL	4.7	458.3
-3.0	CARBONDALE		SHALE	1.5	463.0

MAPID: 19923930000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.752017 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.831459 **DATE COLLECTED:** 5 / 11 / 1982

SURFACE ELEVATION (FT.): 560.0 **LOGGED (FT.):** 323.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO LOG Y **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
560.0	PLEISTOCENE		CLAY	5.5	0.0	
554.5	MODESTO		SANDSTONE	26.5	5.5	BROWN
528.0	MODESTO		SHALE	1.8	32.0	
526.2	MODESTO		SANDSTONE	0.2	33.8	
526.0	MODESTO		SANDY SHALE	38.0	34.0	
488.0	MODESTO		DARK SHALE	2.0	72.0	
486.0	MODESTO		LIMESTONE	2.0	74.0	
484.0	MODESTO		SHALE	26.5	76.0	
457.5	MODESTO	WOMAC	COAL	0.5	102.5	CORRELATION UNCERTAIN
457.0	MODESTO		SHALE	77.0	103.0	
380.0	MODESTO		DARK SHALE	2.5	180.0	
377.5	MODESTO		LIMESTONE	0.5	182.5	
377.0	MODESTO		SANDY SHALE	8.8	183.0	
368.2	MODESTO		SANDSTONE	34.2	191.8	
334.0	MODESTO		SANDY SHALE	48.0	226.0	
286.0	MODESTO		SANDSTONE	49.0	274.0	

MAPID: 19923931000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 50' N line, 50' E line of NE SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.744218 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.82304 **DATE COLLECTED:** 8 / 2 / 1989

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 61.5 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO SC#2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		CLAY	21.0	0.0	
449.0	PLEISTOCENE		SAND & GRAVEL	3.0	21.0	
446.0	PLEISTOCENE		CLAY	6.0	24.0	
440.0	MODESTO		SHALE	10.3	30.0	
429.7	MODESTO		BLACK SHALE	0.7	40.3	
429.0	MODESTO		LIMESTONE	1.6	41.0	
427.4	MODESTO		GRAY SHALE	3.4	42.6	
424.0	MODESTO	TRIVOLI	SANDSTONE	15.5	46.0	

MAPID: 19923932000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 280' S line, 135' E line of SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.753602 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.827662 **DATE COLLECTED:** 2 / 7 / 1977

SURFACE ELEVATION (FT.): 565.3 **LOGGED (FT.):** 608.0 **LOG TYPE:** Drillers Log

SOURCE: PHOENIX MINING CO R20 **WELL TYPE:** Coal Test

COMMENT: PERMIT 270; MINE #1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
565.3	PLEISTOCENE		CLAY	10.0	0.0	
555.3	PLEISTOCENE		SILT	2.0	10.0	
553.3			SANDSTONE	1.0	12.0	
552.3			BROWN SHALE	8.0	13.0	
544.3			GRAY SHALE	25.0	21.0	
519.3			BLACK SHALE	2.0	46.0	
517.3			LIMESTONE	1.0	48.0	BROWN
516.3			GRAY SHALE	16.0	49.0	
500.3			GRAY SHALE	13.0	65.0	
487.3			SANDY SHALE	44.0	78.0	
443.3			SANDSTONE	10.0	122.0	GRAY
433.3			SANDY SHALE	14.0	132.0	
419.3			SHALY SANDSTONE	4.0	146.0	GRAY
415.3			SANDY SHALE	9.0	150.0	
406.3			LIMESTONE	1.0	159.0	
405.3	MODESTO		SHALY SANDSTONE	16.0	160.0	GRAY
389.3	MODESTO		SANDSTONE	45.0	176.0	LIGHT GRAY
344.3	MODESTO		SANDY SHALE	23.0	221.0	
321.3	MODESTO		SANDSTONE	48.0	244.0	GRAY
273.3	MODESTO		SANDY SHALE	28.0	292.0	
245.3	MODESTO		SHALY SANDSTONE	15.0	320.0	LIGHT GRAY
230.3	MODESTO		SANDY SHALE	7.0	335.0	
223.3	MODESTO		BLACK SHALE	2.0	342.0	
221.3	MODESTO	DEGRAFF	COAL	2.0	344.0	
219.3	MODESTO		SANDY SHALE	46.0	346.0	
173.3	MODESTO	PIASA	LIMESTONE	3.0	392.0	
170.3	MODESTO		SHALE	11.0	395.0	
159.3	CARBONDALE		SANDSTONE	15.0	406.0	
144.3	CARBONDALE		UNKNOWN	2.0	421.0	CANNOT READ LOG
142.3	CARBONDALE		UNKNOWN	3.0	423.0	CANNOT READ LOG
139.3	CARBONDALE	CONANT	LIMESTONE	6.0	426.0	LIGHT GRAY
133.3	CARBONDALE		GRAY SHALE	30.0	432.0	
103.3	CARBONDALE		GRAY SHALE	16.0	462.0	
87.3	CARBONDALE	ANNA	BLACK SHALE	15.0	478.0	
72.3	CARBONDALE	HERRIN	COAL	5.5	493.0	
66.8	CARBONDALE		UNDERCLAY	2.5	498.5	
64.3	CARBONDALE		GRAY SHALE	87.0	501.0	
-22.7	CARBONDALE	SPRINGFIELD	COAL	4.3	588.0	
-27.0	CARBONDALE		UNDERCLAY	2.5	592.3	

-29.5	CARBONDALE	GRAY SHALE	13.2	594.8

MAPID: 19900026000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.767907 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.829712 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 534.0 **LOG TYPE:** Drillers Log

SOURCE: WS MONTZ 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
492.0	PLEISTOCENE		SOIL	2.0	0.0	
490.0	PLEISTOCENE		CLAY	8.0	2.0	RED
482.0	MODESTO		SANDSTONE	11.0	10.0	
471.0	MODESTO		SHALE	1.5	21.0	
469.5	MODESTO	WOMAC	COAL	0.5	22.5	
469.0	MODESTO		SHALE	27.0	23.0	
442.0	MODESTO		SHALE	70.0	50.0	
372.0	MODESTO		LIMESTONE	1.0	120.0	
371.0	MODESTO		BLUE SHALE	0.7	121.0	
370.3	MODESTO		COAL	0.3	121.7	
370.0	MODESTO		SANDY SHALE	28.0	122.0	
342.0	MODESTO		SANDSTONE	6.0	150.0	
336.0	MODESTO		SANDY SHALE	14.0	156.0	
322.0	MODESTO		SHALY SANDSTONE	4.0	170.0	
318.0	MODESTO		SHALY SANDSTONE	74.0	174.0	
244.0	MODESTO		SANDSTONE	12.0	248.0	
232.0	MODESTO		LIMESTONE AND SANDSTONE	3.0	260.0	
229.0	MODESTO		SHALE	13.0	263.0	
216.0	MODESTO		BLUE SHALE	22.0	276.0	
194.0	MODESTO	POND CREEK	COAL	1.0	298.0	
193.0	MODESTO		UNDERCLAY	1.0	299.0	
192.0	MODESTO		SHALE	4.0	300.0	
188.0	MODESTO		SANDSTONE	4.0	304.0	
184.0	MODESTO		SHALE	75.0	308.0	
109.0	MODESTO		SHALE	7.0	383.0	
102.0	MODESTO		BLUE SHALE	6.0	390.0	
96.0	MODESTO	PIASA	SHALY LIMESTONE	1.0	396.0	
95.0	CARBONDALE	DANVILLE	COAL	0.7	397.0	
94.3	CARBONDALE		SANDSTONE	3.3	397.7	
91.0	CARBONDALE		UNDERCLAY	0.5	401.0	
90.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	401.5	
88.5	CARBONDALE		BLUE SHALE	24.5	403.5	
64.0	CARBONDALE		LIMESTONE	1.0	428.0	
63.0	CARBONDALE		LIGHT SHALE	3.0	429.0	
60.0	CARBONDALE		BLUE SHALE	4.0	432.0	
56.0	CARBONDALE	BRERETON	LIMESTONE	11.0	436.0	
45.0	CARBONDALE	ANNA	BLACK SHALE	5.2	447.0	
39.8	CARBONDALE	HERRIN	COAL	4.7	452.2	

35.1	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	456.9
35.1	CARBONDALE	HERRIN	COAL	2.1	456.9
33.0	CARBONDALE		UNDERCLAY & LIMESTONE	1.5	459.0
31.4	CARBONDALE		SHALE	66.8	460.6
-35.4	CARBONDALE	SPRINGFIELD	COAL	4.3	527.4
-39.7	CARBONDALE		UNDERCLAY	2.3	531.7

MAPID: 19900026000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.767907 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.829712 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 534.0 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
95.0	CARBONDALE	DANVILLE	COAL	0.7	397.0	
90.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	402.0	
40.0	CARBONDALE	HERRIN	COAL	6.8	452.0	
32.0	CARBONDALE	DYKERSBURG	SHALE	67.0	460.0	
-35.0	CARBONDALE	SPRINGFIELD	COAL	4.3	527.0	

MAPID: 19902346000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' N line, 330' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.76339 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.833324 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 483.3 **LOG TYPE:** Electric Log

SOURCE: BAYER PETROLEUM CO. James 1 **WELL TYPE:** Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
138.0	MODESTO	PIASA	LIMESTONE	3.0	369.0	
135.0	MODESTO		GRAY SHALE	6.5	372.0	
128.5	CARBONDALE	DANVILLE	COAL	2.0	378.5	
126.5	CARBONDALE		DARK GRAY SHALE	13.0	380.5	
113.5	CARBONDALE	ALLENBY	COAL	0.7	393.5	
112.8	CARBONDALE		GRAY SHALE	4.0	394.2	
108.8	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	398.2	
102.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	47.0	404.2	
55.8	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	451.2	
50.8	CARBONDALE	ANNA	BLACK SHALE	4.0	456.2	
46.8	CARBONDALE	ENERGY	GRAY SHALE	9.5	460.2	
30.0	CARBONDALE	HERRIN	COAL	6.3	477.0	

MAPID: 19902346000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' N line, 330' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.76339 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.833324 **DATE COLLECTED:** 7 / 0 / 1958

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 1725.0 **LOG TYPE:** Electric Log

SOURCE: BAYER PETRO. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-253.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	760.0	
-328.0	SPOON	DAVIS	UNCLASSIFIED	-	835.0	
-1218.0	BASE OF PENN.		UNCLASSIFIED	-	1725.0	

MAPID: 19900027000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** SE SE SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.794957 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820241 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 531.2 **LOGGED (FT.):** 504.9 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 39 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
531.2	MODESTO		SHALE & SILTSTONE	89.5	0.0	GRAY
441.7	MODESTO		GRAY SHALE	18.5	89.5	
423.2	MODESTO		SHALE & SANDSTONE	14.3	108.0	
408.9	MODESTO		DARK GRAY SHALE	1.7	122.3	
407.2	MODESTO		GRAY LIMESTONE	1.0	124.0	
406.2	MODESTO		GRAY SHALE	5.0	125.0	
401.2	MODESTO		SANDSTONE/SHALE	15.0	130.0	GRAY
386.2	MODESTO		GRAY SANDSTONE	9.0	145.0	
377.2	MODESTO		GRAY SANDSTONE	0.5	154.0	
376.7	MODESTO		GRAY SANDSTONE	10.5	154.5	
366.2	MODESTO		GRAY SANDSTONE	19.0	165.0	
347.2	MODESTO		SANDSTONE/SHALE	11.3	184.0	DARK GRAY
335.9	MODESTO		SANDSTONE/SHALE	3.7	195.3	DARK GRAY
332.2	MODESTO		GRAY SHALE	4.3	199.0	
327.9	MODESTO		GRAY SANDSTONE	17.8	203.3	
310.2	MODESTO		BLACK SHALE	0.4	221.0	
309.8	MODESTO		BROWN LIMESTONE	0.7	221.4	
309.1	MODESTO		SANDSTONE/LIMESTONE	2.9	222.1	LIGHT GRAY
306.2	MODESTO		SHALE & SILTSTONE	16.3	225.0	GRAY
289.9	MODESTO		BLACK SHALE	3.6	241.3	
286.4	MODESTO		GRAY SHALE	20.6	244.8	
265.8	MODESTO		DARK GRAY SHALE	4.6	265.4	
261.2	MODESTO		GRAY SHALE	8.2	270.0	
253.0	MODESTO		GRAY SHALE	6.8	278.2	
246.2	MODESTO		GRAY SHALE	5.0	285.0	
241.2	MODESTO		DARK GRAY SHALE	8.4	290.0	
232.8	MODESTO		BLACK SHALE	1.5	298.4	
231.3	MODESTO		BLACK SHALE	0.2	299.9	
231.1	MODESTO	POND CREEK	COAL	0.6	300.1	
230.5	MODESTO		UNDERCLAY	2.3	300.7	GRAY
228.2	MODESTO		CALCAREOUS SHALE	2.5	303.0	
225.7	MODESTO		BLACK SHALE	0.3	305.5	
225.4	MODESTO		GRAY SANDSTONE	3.5	305.8	
221.9	MODESTO		CALCAREOUS SHALE	9.0	309.3	
212.9	MODESTO		GRAY SHALE	1.0	318.3	
211.9	MODESTO		DARK GRAY SHALE	0.7	319.3	
211.2	MODESTO		CALCAREOUS SHALE	1.5	320.0	
209.7	MODESTO		SANDSTONE/SHALE	3.9	321.5	LIGHT GRAY
205.8	MODESTO		GRAY SANDSTONE	0.7	325.4	

205.1	MODESTO		SANDSTONE/SHALE	3.5	326.1	GRAY
201.6	MODESTO		GRAY SANDSTONE	2.0	329.6	
199.6	MODESTO		BLACK SHALE	4.4	331.6	
195.2	MODESTO		BLACK SHALE	5.8	336.0	
189.4	MODESTO		GRAY SHALE	13.3	341.8	
176.1	MODESTO		BLACK SHALE	0.1	355.1	
176.0	MODESTO		DARK GRAY SHALE	0.3	355.2	
175.8	MODESTO		COAL	0.3	355.4	
175.5	MODESTO		GRAY SHALE	1.8	355.7	
173.8	MODESTO		GRAY LIMESTONE	0.8	357.4	
172.9	MODESTO		DARK GRAY SHALE	0.3	358.3	
172.6	MODESTO		BLACK SHALE	0.5	358.6	
172.1	MODESTO		GRAY SHALE	2.0	359.1	
170.1	MODESTO		DARK GRAY SHALE	5.2	361.1	
164.9	MODESTO		GRAY LIMESTONE	0.6	366.3	
164.4	CARBONDALE	DANVILLE	COAL	1.6	366.8	
162.8	CARBONDALE		BLACK SHALE	2.2	368.4	
160.6	CARBONDALE		SHALE & SANDSTONE	2.3	370.6	
158.3	CARBONDALE		DARK GRAY SHALE	5.0	372.9	
153.3	CARBONDALE	ALLENBY	COAL	0.3	377.9	
152.9	CARBONDALE	ALLENBY	BLACK SHALE	2.3	378.3	
150.7	CARBONDALE	ALLENBY	COAL	0.7	380.5	
150.0	CARBONDALE		GRAY SHALE	3.8	381.2	
146.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	5.3	385.0	
140.9	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	3.8	390.3	
137.2	CARBONDALE		SHALE & SANDSTONE	2.9	394.0	
134.3	CARBONDALE		DARK GRAY SHALE	26.8	396.9	
107.4	CARBONDALE		BLACK LIMESTONE	0.7	423.8	
106.8	CARBONDALE	JAMESTOWN	COAL	0.3	424.4	LIGHT GRAY
106.4	CARBONDALE		DARK GRAY SHALE	0.7	424.8	
105.8	CARBONDALE		BLACK LIMESTONE	0.3	425.4	
105.4	CARBONDALE		BLACK LIMESTONE	0.3	425.8	
105.1	CARBONDALE		DARK GRAY SHALE	6.9	426.1	
98.2	CARBONDALE	BRERETON	GRAY LIMESTONE	4.3	433.0	
93.9	CARBONDALE	ANNA	DARK GRAY SHALE	1.0	437.3	
92.9	CARBONDALE	ANNA	BLACK SHALE	2.4	438.3	
90.5	CARBONDALE	HERRIN	COAL	5.7	440.7	
84.9	CARBONDALE		UNDERCLAY	3.2	446.3	LIGHT GRAY
81.7	CARBONDALE		BLACK SHALE	1.2	449.5	
80.5	CARBONDALE		GRAY SHALE	0.8	450.7	
79.7	CARBONDALE		GRAY SHALE	3.3	451.5	
76.4	CARBONDALE		GRAY LIMESTONE	1.3	454.8	
75.0	CARBONDALE		GRAY SHALE	2.6	456.2	
72.4	CARBONDALE		GRAY SHALE	1.5	458.8	
70.9	CARBONDALE		BLACK SHALE	1.0	460.3	
69.9	CARBONDALE		SHALE & SANDSTONE	8.0	461.3	
61.9	CARBONDALE		SHALE & SANDSTONE	32.4	469.3	
29.5	CARBONDALE		BLACK SHALE	3.3	501.7	

MAPID: 19900027000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** SE SE SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.794957 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.820241 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 531.0 **LOGGED (FT.):** 537.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
164.0	CARBONDALE	DANVILLE	COAL	1.6	367.0	
160.0	CARBONDALE	SS BELOW NO. 7	SHALE & SANDSTONE	2.3	371.0	
146.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	385.0	
137.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	6.7	394.0	
90.0	CARBONDALE	HERRIN	COAL	5.7	441.0	
70.0	CARBONDALE	CANTON	SHALE & SANDSTONE	40.0	461.0	
3.0	CARBONDALE	SPRINGFIELD	COAL	3.9	528.0	

MAPID: 19902077000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.78852 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.833475 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 468.5 **LOG TYPE:** Electric Log

SOURCE: SUN OIL CO. Roberts 1 **WELL TYPE:** Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
132.0	MODESTO	PIASA	LIMESTONE	3.5	381.0	
128.5	MODESTO		GRAY SHALE	5.7	384.5	
122.8	CARBONDALE	DANVILLE	COAL	1.5	390.2	
121.3	CARBONDALE		GRAY SHALE	7.3	391.7	
114.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	399.0	
106.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	42.0	407.0	
64.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	449.0	
59.0	CARBONDALE	ANNA	BLACK SHALE	3.5	454.0	
51.0	CARBONDALE	HERRIN	COAL	6.5	462.0	

MAPID: 19902187000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.793165 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.829824 **DATE COLLECTED:** 9 / 0 / 1959

SURFACE ELEVATION (FT.): 501.0 **LOGGED (FT.):** 1745.0 **LOG TYPE:** Electric Log

SOURCE: MUTUAL OIL & GAS CO. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-234.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	735.0	
-319.0	SPOON	DAVIS	UNCLASSIFIED	-	820.0	
-1244.0	BASE OF PENN.		UNCLASSIFIED	-	1745.0	

MAPID: 19900028000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.805829 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.82163 **DATE COLLECTED:** 5 / 0 / 1905

SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 482.0 **LOG TYPE:** Drillers Log

SOURCE: COLP COAL COMPANY 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
502.0	PLEISTOCENE		SOIL	1.0	0.0	GRAY
501.0	PLEISTOCENE		BROWN SANDSTONE	6.0	1.0	
495.0	PLEISTOCENE		SAND	5.0	7.0	RED
490.0	PLEISTOCENE		CLAY & GRAVEL	1.0	12.0	
489.0	MODESTO		BLUE SHALE	1.0	13.0	
488.0	MODESTO		SANDSTONE/SHALE	18.6	14.0	
469.4	MODESTO	WOMAC	COAL	1.1	32.6	
468.3	MODESTO		SANDSTONE/SHALE	9.3	33.7	
459.0	MODESTO		SANDSTONE	1.0	43.0	
458.0	MODESTO		BLUE SHALE	20.0	44.0	
438.0	MODESTO		SANDSTONE/SHALE	26.0	64.0	
412.0	MODESTO		SANDSTONE/SHALE	19.0	90.0	
393.0	MODESTO		BLUE SHALE	13.0	109.0	
380.0	MODESTO		SHALE	1.0	122.0	
379.0	MODESTO		BLACK SHALE	1.0	123.0	
378.0	MODESTO		BLUE SHALE	14.0	124.0	
364.0	MODESTO	CHAPEL	COAL	0.4	138.0	
363.6	MODESTO		BLUE SHALE	4.0	138.4	
359.6	MODESTO		UNDERCLAY	0.6	142.4	
359.0	MODESTO		SANDSTONE	39.0	143.0	
320.0	MODESTO		SHALY SANDSTONE	17.0	182.0	
303.0	MODESTO		SANDSTONE/SHALE	53.0	199.0	
250.0	MODESTO		BLUE SHALE	12.0	252.0	
238.0	MODESTO		COAL	0.1	264.0	
237.9	MODESTO		COAL WITH SHALE	1.9	264.1	
236.0	MODESTO		LIMESTONE	2.0	266.0	
234.0	MODESTO		SANDSTONE/SHALE	12.0	268.0	
222.0	MODESTO		BLUE SHALE	14.0	280.0	
208.0	MODESTO		BLACK SHALE	2.8	294.0	
205.2	MODESTO	POND CREEK	COAL	0.7	296.8	
204.5	MODESTO		SHALE	9.5	297.5	
195.0	MODESTO		SANDSTONE	13.0	307.0	
182.0	MODESTO		SANDSTONE/SHALE	10.0	320.0	
172.0	MODESTO		BLUE SHALE	13.0	330.0	
159.0	MODESTO		BLACK SHALE	1.0	343.0	
158.0	MODESTO	PIASA	LIMESTONE	3.0	344.0	
155.0	MODESTO		BLUE SHALE	10.4	347.0	
144.6	CARBONDALE	DANVILLE	COAL	0.6	357.4	
144.0	CARBONDALE	DANVILLE	COAL	0.8	358.0	

143.2	CARBONDALE		SHALE	2.2	358.8
141.0	CARBONDALE		BLUE SHALE	3.0	361.0
138.0	CARBONDALE		SANDSTONE/SHALE	7.0	364.0
131.0	CARBONDALE	ALLENBY	COAL	0.3	371.0
130.7	CARBONDALE		BLUE SHALE	2.8	371.3
128.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	374.0
123.0	CARBONDALE		SANDSTONE/SHALE	5.0	379.0
118.0	CARBONDALE		SANDSTONE	6.5	384.0
111.5	CARBONDALE	JAMESTOWN	COAL	0.5	390.5
111.0	CARBONDALE		SHALY SANDSTONE	3.0	391.0
108.0	CARBONDALE		SANDSTONE/SHALE	30.3	394.0
77.7	CARBONDALE		SHALE	0.7	424.3
77.0	CARBONDALE		BLACK SHALE	10.0	425.0
67.0	CARBONDALE	BRERETON	BLUE LIMESTONE	8.0	435.0
59.0	CARBONDALE	ANNA	BLACK SHALE	4.5	443.0
54.5	CARBONDALE	HERRIN	COAL	7.5	447.5
47.0	CARBONDALE		UNDERCLAY	0.7	455.0
46.3	CARBONDALE		SANDSTONE/SHALE	26.3	455.7

MAPID: 19900030000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809238 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.820729 **DATE COLLECTED:** 0 / 0 / 1923

SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 470.5 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP 38 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
161.0	MODESTO	PIASA	LIMESTONE	2.6	367.0	
158.4	MODESTO		GRAY SHALE	6.2	369.6	
152.2	CARBONDALE	DANVILLE	COAL	2.1	375.8	
150.2	CARBONDALE		GRAY SHALE	6.4	377.8	
143.8	CARBONDALE	ALLENBY	BONE COAL	0.2	384.2	
143.6	CARBONDALE		SANDSTONE/SILTSTONE	11.5	384.4	
132.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	395.9	
125.9	CARBONDALE	LAWSON	SANDSTONE	5.3	402.1	
120.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	4.6	407.3	
116.1	CARBONDALE	LAWSON	BONE COAL	0.3	411.9	
115.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	5.2	412.2	
110.7	CARBONDALE	LAWSON	DARK GRAY SHALE	31.7	417.3	
79.0	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.6	449.0	
78.4	CARBONDALE	JAMESTOWN	BONE COAL	0.5	449.6	
77.9	CARBONDALE		BLACK SHALE	9.0	450.1	
68.9	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	7.4	459.1	
61.5	CARBONDALE	ANNA	BLACK SHALE	2.3	466.5	
64.0	CARBONDALE	HERRIN	COAL	6.5	464.0	

MAPID: 19900030000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809238 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.820729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 557.0 **LOG TYPE:** Drillers Log

SOURCE: MADISON COAL CORP **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
152.0	CARBONDALE	DANVILLE	COAL	2.1	376.0	
143.0	CARBONDALE	SS BELOW NO. 7	SANDSTONE/SHALE	7.0	385.0	
136.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	392.0	
130.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SILTSTONE	15.0	398.0	
64.0	CARBONDALE	HERRIN	COAL	6.5	464.0	
-15.0	CARBONDALE	SPRINGFIELD	COAL	4.0	543.0	

MAPID: 19900030000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809238 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.820729 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 528.4 **LOGGED (FT.):** 557.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP 38 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
528.4	PLEISTOCENE		BROWN SANDSTONE	31.0	0.0	
497.4	MODESTO		GRAY SHALE	4.0	31.0	
493.4	MODESTO		BROWN SANDSTONE	5.0	35.0	
488.4	MODESTO		SHALE & SANDSTONE	7.5	40.0	
480.9	MODESTO		GRAY SHALE	5.5	47.5	
475.4	MODESTO	WOMAC	COAL	0.6	53.0	
474.8	MODESTO		SANDSTONE/SHALE	1.8	53.6	GRAY TO DARK GRAY
473.0	MODESTO		GRAY SANDSTONE	9.7	55.4	
463.3	MODESTO		DARK GRAY SHALE	21.9	65.1	
441.4	MODESTO		BLACK SHALE	9.5	87.0	
431.9	MODESTO		SANDSTONE/SHALE	19.5	96.5	LIGHT GRAY
412.4	MODESTO		GRAY SHALE	6.4	116.0	
406.0	MODESTO		GRAY SHALE	5.6	122.4	
400.4	MODESTO		GRAY SHALE	13.8	128.0	
386.6	MODESTO		GRAY SHALE	0.8	141.8	
385.8	MODESTO		BLACK SHALE	0.8	142.6	
385.0	MODESTO		BLACK LIMESTONE	0.5	143.4	
384.5	MODESTO		BLACK SHALE	0.3	143.9	
384.1	MODESTO		BLACK SHALE	0.2	144.3	
384.0	MODESTO		GRAY LIMESTONE	0.7	144.4	
383.3	MODESTO		BLACK SHALE	1.9	145.1	
381.4	MODESTO		GRAY SHALE	12.0	147.0	
369.4	MODESTO		GRAY SHALE	5.0	159.0	
364.4	MODESTO		DARK GRAY SHALE	0.8	164.0	
363.6	MODESTO		GRAY SHALE	3.6	164.8	
360.0	MODESTO		GRAY SHALE	0.7	168.4	
359.3	MODESTO		SANDSTONE/SHALE	3.0	169.1	LIGHT TO DARK GRAY
356.3	MODESTO		GRAY SANDSTONE	0.5	172.1	
355.8	MODESTO		SANDSTONE/SHALE	1.5	172.6	LIGHT TO DARK GRAY
354.3	MODESTO		GRAY SANDSTONE	30.7	174.1	
323.6	MODESTO		GRAY SANDSTONE	15.1	204.8	
308.6	MODESTO		CONGLOMERATE	0.6	219.8	
308.0	MODESTO		GRAY SANDSTONE	0.8	220.4	
307.1	MODESTO		CONGLOMERATE	0.5	221.3	
306.6	MODESTO		SHALE & SILTSTONE	19.3	221.8	LIGHT GRAY
287.4	MODESTO		BLACK SHALE	7.0	241.0	
280.4	MODESTO		GRAY SHALE	28.0	248.0	
252.4	MODESTO		GRAY SHALE	2.0	276.0	
250.4	MODESTO		DARK GRAY SHALE	2.0	278.0	

248.4	MODESTO		GRAY SHALE	2.8	280.0	
245.6	MODESTO		BLACK SHALE	2.5	282.8	
243.1	MODESTO		SHALE & SANDSTONE	8.1	285.3	
235.1	MODESTO		GRAY SHALE	6.4	293.3	
228.6	MODESTO		GRAY SHALE	12.0	299.8	
216.6	MODESTO		GRAY SHALE	1.8	311.8	
214.9	MODESTO		BLACK SHALE	2.5	313.5	
212.4	MODESTO	POND CREEK	COAL	0.8	316.0	
211.6	MODESTO		UNDERCLAY	4.5	316.8	GRAY
207.1	MODESTO		BLACK SHALE	1.5	321.3	
205.6	MODESTO		GRAY SHALE	4.0	322.8	
201.6	MODESTO		BLACK SHALE	0.5	326.8	
201.1	MODESTO		BLACK SHALE	2.2	327.3	
198.9	MODESTO		GRAY SANDSTONE	3.5	329.5	
195.4	MODESTO		SHALE & SANDSTONE	6.7	333.0	
188.7	MODESTO		GRAY SHALE	10.1	339.7	
178.6	MODESTO		GRAY SHALE	3.0	349.8	
175.6	MODESTO		GRAY SHALE	11.8	352.8	
163.8	MODESTO		COAL	0.2	364.6	
163.6	MODESTO		GREEN SHALE	2.5	364.8	
161.1	MODESTO	PIASA	GRAY LIMESTONE	2.6	367.3	
158.6	MODESTO		DARK GRAY SHALE	0.7	369.8	
157.9	MODESTO		GRAY SHALE	5.5	370.5	
152.4	CARBONDALE	DANVILLE	COAL	2.1	376.0	
150.3	CARBONDALE		UNDERCLAY	0.9	378.1	GRAY
149.4	CARBONDALE		BLACK SHALE	1.8	379.0	
147.6	CARBONDALE		GRAY SHALE	3.8	380.8	
143.9	CARBONDALE		COAL	0.2	384.5	
143.7	CARBONDALE		BLACK SHALE	0.7	384.7	
143.1	CARBONDALE		GRAY SANDSTONE	0.4	385.3	
142.6	CARBONDALE		GRAY SANDSTONE	1.3	385.8	
141.4	CARBONDALE		BLACK SHALE	1.2	387.0	
140.2	CARBONDALE		DARK GRAY SHALE	0.5	388.2	
139.7	CARBONDALE		GRAY SHALE	2.9	388.7	
136.8	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.2	391.6	
130.6	CARBONDALE		GRAY SANDSTONE	5.3	397.8	
125.4	CARBONDALE		SHALE & SANDSTONE	3.1	403.0	
122.3	CARBONDALE		DARK GRAY SHALE	1.5	406.1	
120.8	CARBONDALE		COAL	0.3	407.6	
120.6	CARBONDALE		SHALE & SANDSTONE	4.7	407.8	
115.9	CARBONDALE		GRAY SANDSTONE	0.5	412.5	
115.4	CARBONDALE		DARK GRAY SHALE	9.2	413.0	
106.2	CARBONDALE		DARK GRAY SHALE	22.5	422.2	
83.7	CARBONDALE		GRAY LIMESTONE	0.6	444.7	
83.1	CARBONDALE	JAMESTOWN	COAL	0.5	445.3	
82.6	CARBONDALE		DARK GRAY SHALE	9.0	445.8	
73.6	CARBONDALE	BRERETON	GRAY LIMESTONE	5.8	454.8	
67.8	CARBONDALE	BRERETON	GRAY LIMESTONE	1.6	460.6	

66.2	CARBONDALE	ANNA	BLACK SHALE	2.3	462.2	
63.9	CARBONDALE	HERRIN	COAL	6.5	464.5	
57.4	CARBONDALE		UNDERCLAY	8.5	471.0	LIGHT GRAY
48.9	CARBONDALE		BLACK SHALE	1.5	479.5	
47.4	CARBONDALE		BROWN LIMESTONE	0.5	481.0	
46.9	CARBONDALE		SHALE & SANDSTONE	9.3	481.5	
37.6	CARBONDALE		GRAY SHALE	7.0	490.8	
30.6	CARBONDALE		GRAY SHALE	11.8	497.8	
18.8	CARBONDALE		SHALE & SILTSTONE	21.7	509.6	GRAY
-2.9	CARBONDALE		NO RECORD	25.8	531.3	

MAPID: 19902185000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.806955 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.820723 **DATE COLLECTED:** 8 / 0 / 1959

SURFACE ELEVATION (FT.): 504.0 **LOGGED (FT.):** 1690.0 **LOG TYPE:** Electric Log

SOURCE: MUTUAL OIL & GAS CO. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-216.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	720.0	
-306.0	SPOON	DAVIS	UNCLASSIFIED	-	810.0	
-1186.0	BASE OF PENN.		UNCLASSIFIED	-	1690.0	

MAPID: 19900031000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.816169 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.813225 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 548.8 **LOGGED (FT.):** 465.0 **LOG TYPE:** Survey Core Study

SOURCE: MADISON COAL CORP. 57 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
548.8	MODESTO		GRAY LIMESTONE	12.5	0.0	
536.3	MODESTO		GRAY SHALE	8.0	12.5	
528.3	MODESTO		BLACK SHALE	2.5	20.5	
525.8	MODESTO		GRAY SANDSTONE	4.7	23.0	
521.1	MODESTO		BLACK SHALE	5.3	27.7	
515.8	MODESTO		GRAY SANDSTONE	1.0	33.0	
514.8	MODESTO		GRAY SHALE	7.0	34.0	
507.8	MODESTO		GRAY SANDSTONE	1.0	41.0	
506.8	MODESTO		GRAY SHALE	0.5	42.0	
506.3	MODESTO	WOMAC	COAL	1.0	42.5	
505.3	MODESTO		UNDERCLAY	0.5	43.5	GRAY
504.8	MODESTO		BROWN SHALE	1.7	44.0	
503.1	MODESTO		GRAY SANDSTONE	8.6	45.7	
494.5	MODESTO		GRAY SHALE	5.8	54.3	
488.8	MODESTO		GRAY SHALE	14.3	60.0	
474.5	MODESTO		SHALE & SILTSTONE	20.3	74.3	GRAY
454.1	MODESTO		GRAY SHALE	1.3	94.7	
452.8	MODESTO		GRAY SHALE	9.0	96.0	
443.8	MODESTO		GRAY SHALE	22.0	105.0	
421.8	MODESTO		DARK GRAY SHALE	1.2	127.0	
420.6	MODESTO		BLACK SHALE	0.7	128.2	
420.0	MODESTO		GRAY LIMESTONE	0.7	128.8	
419.3	MODESTO		DARK GRAY SHALE	2.0	129.5	
417.3	MODESTO		SHALE & SANDSTONE	5.8	131.5	
411.5	MODESTO		SANDSTONE	3.3	137.3	
408.2	MODESTO		SHALE & SANDSTONE	2.9	140.6	
405.3	MODESTO		DARK GRAY SHALE	8.2	143.5	
397.1	MODESTO		GRAY SHALE	2.0	151.7	
395.1	MODESTO		DARK GRAY SHALE	2.4	153.7	
392.7	MODESTO		GRAY SANDSTONE	15.1	156.1	
377.6	MODESTO		GRAY SANDSTONE	41.8	171.2	
335.8	MODESTO		GRAY SANDSTONE	10.5	213.0	
325.3	MODESTO		GRAY SHALE	3.0	223.5	
322.3	MODESTO		GRAY SHALE	12.5	226.5	
309.8	MODESTO		GRAY SHALE	12.0	239.0	
297.8	MODESTO		GRAY SHALE	17.0	251.0	
280.8	MODESTO		BLACK SHALE	2.0	268.0	
278.8	MODESTO		DARK GRAY SHALE	1.0	270.0	
277.8	MODESTO		BLACK SHALE	1.3	271.0	

276.5	MODESTO		GRAY SHALE	1.5	272.3	
275.0	MODESTO		BLACK SHALE	0.5	273.8	
274.5	MODESTO		GRAY LIMESTONE	1.0	274.3	
273.5	MODESTO		SHALE & SANDSTONE	7.7	275.3	
265.8	MODESTO		GRAY SHALE	7.0	283.0	
258.8	MODESTO		NO RECORD	52.0	290.0	
206.8	MODESTO		BLACK SHALE	2.3	342.0	
204.5	MODESTO		DARK GRAY SHALE	13.4	344.3	
191.1	MODESTO		DARK GRAY SHALE	6.0	357.7	
185.1	MODESTO		BROWN SHALE	0.2	363.7	
184.9	MODESTO		COAL	0.0	363.9	
184.9	MODESTO		UNDERCLAY	0.3	363.9	GREEN-GRAY
184.5	MODESTO	PIASA	GRAY LIMESTONE	0.4	364.3	
184.1	MODESTO	PIASA	GRAY LIMESTONE	2.6	364.7	
181.5	MODESTO		GREEN SHALE	0.3	367.3	
181.3	MODESTO		BLACK SHALE	0.8	367.5	
180.5	MODESTO		GRAY SHALE	1.8	368.3	
178.6	MODESTO		GRAY LIMESTONE	0.5	370.2	
178.1	MODESTO		DARK GRAY SHALE	1.0	370.7	
177.1	CARBONDALE	DANVILLE	COAL	1.7	371.7	
175.5	CARBONDALE		BLACK SHALE	3.4	373.3	
172.0	CARBONDALE		DARK GRAY SHALE	0.8	376.8	
171.2	CARBONDALE		GRAY SHALE	3.1	377.6	
168.1	CARBONDALE		DARK GRAY SHALE	0.8	380.7	
167.3	CARBONDALE		DARK GRAY SHALE	0.7	381.5	
166.6	CARBONDALE		BLACK SHALE	0.5	382.2	
166.1	CARBONDALE		GRAY SHALE	2.1	382.7	
164.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.8	384.8	
157.3	CARBONDALE		GRAY SHALE	1.0	391.5	
156.3	CARBONDALE		SHALE & SANDSTONE	3.2	392.5	
153.1	CARBONDALE		DARK GRAY SHALE	0.3	395.7	
152.8	CARBONDALE		GRAY SHALE	5.0	396.0	
147.8	CARBONDALE		GRAY SANDSTONE	0.5	401.0	
147.3	CARBONDALE		DARK GRAY SHALE	20.5	401.5	
126.8	CARBONDALE		DARK GRAY SHALE	14.4	422.0	
112.4	CARBONDALE	CONANT	BLACK LIMESTONE	0.7	436.4	
111.7	CARBONDALE	JAMESTOWN	COAL	0.4	437.1	
111.3	CARBONDALE		DARK GRAY SHALE	5.0	437.5	
106.3	CARBONDALE	BRERETON	GRAY LIMESTONE	7.7	442.5	
98.6	CARBONDALE	ANNA	BLACK SHALE	4.2	450.2	
94.5	CARBONDALE	HERRIN	COAL	5.6	454.3	
88.9	CARBONDALE		UNDERCLAY	5.1	459.9	GRAY

MAPID: 19902151000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.804767 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.815191 **DATE COLLECTED:** 9 / 0 / 1958

SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 1700.0 **LOG TYPE:** Electric Log

SOURCE: O'NEAL, C. E. & CO. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-207.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	730.0	
-277.0	SPOON	DAVIS	UNCLASSIFIED	-	800.0	
-1177.0	BASE OF PENN.		UNCLASSIFIED	-	1700.0	

MAPID: 19902151000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.804767 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.815191 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 3125.0 **LOG TYPE:** Electric Log

SOURCE: O'NEAL, C. E. & CO. **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
69.0	CARBONDALE	HERRIN	COAL	5.0	454.0	
-15.0	CARBONDALE	SPRINGFIELD	COAL	4.0	538.0	
-89.0	CARBONDALE	HOUCHIN CREEK	COAL	-	612.0	

MAPID: 19902509000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 300' N line, 425' W line of SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.811363 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.807758 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 396.3 **LOG TYPE:** Survey Core Study

SOURCE: FREEMAN UNITED 04-03-71 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
212.2	MODESTO	PIASA	NODULAR LIMESTONE	4.7	317.8	
207.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.3	322.5	LOWER BENCH
200.2	CARBONDALE	LAWSON	SANDSTONE	1.3	329.8	
198.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	3.2	331.1	
195.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	5.0	334.3	
190.7	CARBONDALE	LAWSON	GRAY SHALE	31.1	339.3	
159.7	CARBONDALE	CONANT	CALCAREOUS SHALE	0.6	370.3	
159.1	CARBONDALE	JAMESTOWN	COAL	0.3	370.9	
158.8	CARBONDALE		CARBONACEOUS SHALE	2.3	371.2	
156.5	CARBONDALE	BRERETON	LIMESTONE	4.2	373.5	
152.3	CARBONDALE	ANNA	BLACK SHALE	7.8	377.7	
144.6	CARBONDALE	ENERGY	GRAY SHALE	0.8	385.4	
143.8	CARBONDALE	ENERGY	MOTTLED SHALE	2.8	386.2	
141.0	CARBONDALE	ENERGY	CARBONACEOUS SHALE	1.0	389.0	
140.0	CARBONDALE	HERRIN	COAL	6.3	390.0	

MAPID: 19900032000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786289 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.815238 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 402.7 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 16 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
209.0	MODESTO	PIASA	LIMESTONE	3.0	314.0	
206.0	MODESTO		DARK GRAY SHALE	7.8	317.0	
198.2	CARBONDALE	DANVILLE	COAL	1.6	324.8	
196.6	CARBONDALE		GRAY SHALE	17.6	326.4	
179.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	344.0	
172.0	CARBONDALE	LAWSON	GRAY SHALE	2.0	351.0	
170.0	CARBONDALE	LAWSON	SILTY SHALE	8.0	353.0	
162.0	CARBONDALE	LAWSON	GRAY SHALE	21.3	361.0	
140.7	CARBONDALE	JAMESTOWN	BONE COAL	0.3	382.3	
140.4	CARBONDALE		BLACK SHALE	8.4	382.6	
132.0	CARBONDALE	BRERETON	LIMESTONE	4.0	391.0	
128.0	CARBONDALE	ANNA	BLACK SHALE	2.8	395.0	
126.0	CARBONDALE	HERRIN	COAL	5.7	397.0	

MAPID: 19900032000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786289 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.815238 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 493.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
198.0	CARBONDALE	DANVILLE	COAL	1.6	325.0	
179.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	344.0	
125.0	CARBONDALE	HERRIN	COAL	5.7	398.0	
98.0	CARBONDALE	CANTON	SHALY SANDSTONE	30.0	425.0	
36.0	CARBONDALE	SPRINGFIELD	COAL	4.0	487.0	

MAPID: 19900032000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NE SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786289 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.815238 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 523.2 **LOGGED (FT.):** 493.0 **LOG TYPE:** Drillers Log

SOURCE: GS ROBERTS 16 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
523.2	PLEISTOCENE		CLAY	5.0	0.0	
518.2	PLEISTOCENE		SAND/CLAY	10.0	5.0	
508.2	PLEISTOCENE		CLAY	6.0	15.0	
502.2	PLEISTOCENE		CLAYSTONE & SHALE	9.0	21.0	
493.2	MODESTO		SHALE	33.0	30.0	
460.2	MODESTO		DARK SHALE	9.0	63.0	
451.2	MODESTO		LIMESTONE	1.0	72.0	
450.2	MODESTO		SANDSTONE	33.0	73.0	
417.2	MODESTO		SHALY SANDSTONE	35.0	106.0	
382.2	MODESTO		SANDSTONE	19.0	141.0	
363.2	MODESTO		SHALY SANDSTONE	38.0	160.0	
325.2	MODESTO		SANDSTONE	2.0	198.0	
323.2	MODESTO		SHALE	19.0	200.0	
304.2	MODESTO		DARK SHALE	5.0	219.0	
299.2	MODESTO		SHALE	30.0	224.0	
269.2	MODESTO		BLACK SHALE	3.7	254.0	
265.5	MODESTO	POND CREEK	COAL	0.7	257.7	
264.9	MODESTO		UNDERCLAY	1.7	258.3	
263.2	MODESTO		SHALE	8.0	260.0	
255.2	MODESTO		SANDSTONE	6.0	268.0	
249.2	MODESTO		SHALE	2.0	274.0	
247.2	MODESTO		SHALE	14.0	276.0	
233.2	MODESTO		SHALE	16.0	290.0	
217.2	MODESTO		DARK SHALE	8.0	306.0	
209.2	MODESTO	PIASA	LIMESTONE	3.0	314.0	
206.2	MODESTO		DARK SHALE	7.8	317.0	
198.4	CARBONDALE	DANVILLE	COAL	1.6	324.8	
196.8	CARBONDALE		SHALE	17.6	326.4	
179.2	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	344.0	
172.2	CARBONDALE		SHALE	2.0	351.0	
170.2	CARBONDALE		SHALE	8.0	353.0	
162.2	CARBONDALE		SHALE	21.3	361.0	
140.9	CARBONDALE	JAMESTOWN	COAL	0.3	382.3	
140.6	CARBONDALE		BLACK SHALE	8.4	382.6	
132.2	CARBONDALE	BRERETON	LIMESTONE	4.0	391.0	
128.2	CARBONDALE	ANNA	BLACK SHALE	2.8	395.0	
125.4	CARBONDALE	HERRIN	COAL	3.4	397.8	
122.0	CARBONDALE	HERRIN	BONE COAL	0.0	401.2	
121.9	CARBONDALE	HERRIN	COAL	1.0	401.3	

121.0	CARBONDALE	HERRIN	BLACK SHALE	0.2	402.2
120.8	CARBONDALE	HERRIN	COAL	1.1	402.4
119.7	CARBONDALE		UNDERCLAY	4.5	403.5
115.2	CARBONDALE		DARK SHALE	2.0	408.0
113.2	CARBONDALE		LIMESTONE	2.0	410.0
111.2	CARBONDALE		DARK SHALE	13.0	412.0
98.2	CARBONDALE		SHALY SANDSTONE	30.0	425.0
68.2	CARBONDALE		SHALE	32.2	455.0
36.0	CARBONDALE	SPRINGFIELD	COAL	4.0	487.2
32.1	CARBONDALE		UNDERCLAY	1.9	491.1

MAPID: 19922602000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.784082 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.806155 **DATE COLLECTED:** 3 / 0 / 1973

SURFACE ELEVATION (FT.): 514.0 **LOGGED (FT.):** 1635.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-136.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	650.0	
-201.0	SPOON	DAVIS	UNCLASSIFIED	-	715.0	
-1121.0	BASE OF PENN.		UNCLASSIFIED	-	1635.0	

MAPID: 19900033000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 660' N line, 0' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.771305 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.817885 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 516.1 **LOGGED (FT.):** 479.0 **LOG TYPE:** Drillers Log

SOURCE: FM ROBERTS 17 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
516.1	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
502.1	MODESTO		GRAY SHALE	88.0	14.0	
414.1	MODESTO		SANDSTONE	78.0	102.0	
336.1	MODESTO		DARK SHALE	21.0	180.0	
315.1	MODESTO		SHALE	5.0	201.0	
310.1	MODESTO		SHALE	12.0	206.0	
298.1	MODESTO		SHALE & SILTSTONE	25.0	218.0	BLACK
273.1	MODESTO	POND CREEK	COAL	1.3	243.0	
271.8	MODESTO		UNDERCLAY	4.8	244.3	
267.1	MODESTO		SHALE	18.0	249.0	
249.1	MODESTO	PIASA	LIMESTONE	1.3	267.0	
247.8	MODESTO	PIASA	LIMESTONE	7.8	268.3	
240.1			SANDSTONE	15.0	276.0	
225.1			SHALE	25.0	291.0	
200.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	316.0	
193.6	CARBONDALE		SHALE	20.0	322.5	
173.6	CARBONDALE	ANVIL ROCK	SANDSTONE	21.5	342.5	
152.1	CARBONDALE	JAMESTOWN	COAL	0.1	364.0	
152.0	CARBONDALE		BLACK SHALE	9.7	364.1	
142.3	CARBONDALE	BRERETON	LIMESTONE	5.2	373.8	
137.1	CARBONDALE	ANNA	BLACK SHALE	3.2	379.0	
133.9	CARBONDALE	HERRIN	COAL	3.0	382.2	
130.9	CARBONDALE	HERRIN	BONE COAL	0.0	385.2	
130.8	CARBONDALE	HERRIN	COAL	1.2	385.3	
129.7	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	386.4	
129.6	CARBONDALE	HERRIN	COAL	1.0	386.5	
128.6	CARBONDALE		UNDERCLAY	7.5	387.5	
121.1	CARBONDALE		SHALE	8.0	395.0	
113.1	CARBONDALE	BRIAR HILL	BONE COAL	0.4	403.0	
112.7	CARBONDALE		SHALE	50.6	403.4	
62.1	CARBONDALE		GRAY SHALE	18.5	454.0	
43.6	CARBONDALE	SPRINGFIELD	COAL	4.3	472.5	
39.3	CARBONDALE		UNDERCLAY	2.3	476.8	

MAPID: 19900033000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 660' N line, 0' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.771305 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.817885 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 387.3 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 17 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
200.2	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	315.8	
193.7	CARBONDALE	LAWSON	SILTY SHALE	20.0	322.3	
173.7	CARBONDALE	LAWSON	SANDSTONE	21.5	342.3	
152.2	CARBONDALE	JAMESTOWN	BONE COAL	0.1	363.8	
152.0	CARBONDALE		DARK GRAY SHALE	9.7	364.0	
142.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.2	373.7	
137.2	CARBONDALE	ANNA	BLACK SHALE	3.2	378.8	
134.0	CARBONDALE	HERRIN	COAL	5.3	382.0	

MAPID: 19900034000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.77028 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.806002 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 508.9 **LOGGED (FT.):** 445.0 **LOG TYPE:** Drillers Log

SOURCE: TM MITCHEL 25 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.9	PLEISTOCENE		UNCONSOLIDATED	31.0	0.0	
477.9	MODESTO		SHALE	10.0	31.0	
467.9	MODESTO		SANDSTONE	94.0	41.0	
373.9	MODESTO		SHALE & SILTSTONE	16.0	135.0	
357.9	MODESTO		UNDERCLAY	2.0	151.0	
355.9	MODESTO		LIMESTONE	1.3	153.0	
354.6	MODESTO		SHALE	14.8	154.3	
339.9	MODESTO		SHALE & SILTSTONE	20.3	169.0	BLACK
319.6	MODESTO	POND CREEK	COAL	0.7	189.3	
318.9	MODESTO		UNDERCLAY	4.0	190.0	
314.9	MODESTO		SHALE	10.0	194.0	
304.9	MODESTO		SHALE	18.0	204.0	
286.9	MODESTO		SHALE	24.7	222.0	
262.2	MODESTO		CLAYSTONE	0.3	246.7	
261.9	CARBONDALE	DANVILLE	COAL	1.8	247.0	
260.1	CARBONDALE		UNDERCLAY	3.3	248.8	
256.9	CARBONDALE		DARK SHALE	6.0	252.0	
250.9	CARBONDALE		SHALY SANDSTONE	7.0	258.0	
243.9	CARBONDALE		BLACK SHALE	2.5	265.0	
241.4	CARBONDALE	ALLENBY	COAL	0.3	267.5	
241.1	CARBONDALE	ALLENBY	UNDERCLAY	1.3	267.8	
239.9	CARBONDALE	ALLENBY	COAL	0.3	269.0	
239.6	CARBONDALE		UNDERCLAY	1.0	269.3	
238.6	CARBONDALE	BANKSTON FORK	LIMESTONE	1.7	270.3	
236.9	CARBONDALE		DARK SHALE	20.0	272.0	
216.9	CARBONDALE	ANVIL ROCK	SANDSTONE	38.5	292.0	
178.4	CARBONDALE	JAMESTOWN	COAL	0.1	330.5	
178.3	CARBONDALE		BLACK SHALE	6.0	330.6	
172.3	CARBONDALE	BRERETON	LIMESTONE	6.7	336.6	
165.6	CARBONDALE	ANNA	BLACK SHALE	4.3	343.3	
161.3	CARBONDALE	HERRIN	COAL	5.9	347.6	
155.4	CARBONDALE		UNDERCLAY	6.5	353.5	
148.9	CARBONDALE		CALCAREOUS SHALE	7.0	360.0	
141.9	CARBONDALE		SANDY SHALE	42.0	367.0	
99.9	CARBONDALE		SHALE	30.0	409.0	
69.9	CARBONDALE	SPRINGFIELD	COAL	4.5	439.0	WITH SULFUR BANDS
65.4	CARBONDALE		UNDERCLAY	1.5	443.5	

MAPID: 19900034000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.77028 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.806002 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 445.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
262.0	CARBONDALE	DANVILLE	COAL	1.8	247.0	
251.0	CARBONDALE	SS BELOW NO. 7	SHALY SANDSTONE	7.0	258.0	
239.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.7	270.0	
217.0	CARBONDALE	ANVIL ROCK		38.5	292.0	
161.0	CARBONDALE	HERRIN	COAL	5.8	348.0	
70.0	CARBONDALE	SPRINGFIELD	COAL	4.5	439.0	

MAPID: 19902110000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 990' W line of SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.777126 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.807933 **DATE COLLECTED:** 9 / 0 / 1957

SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 1650.0 **LOG TYPE:** Electric Log

SOURCE: DUNCAN, WALTER **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-126.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	642.0	
-194.0	SPOON	DAVIS	UNCLASSIFIED	-	710.0	
-1134.0	BASE OF PENN.		UNCLASSIFIED	-	1650.0	

MAPID: 19900035000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.755419 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.810398 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 497.4 **LOGGED (FT.):** 449.0 **LOG TYPE:** Drillers Log

SOURCE: TM MITCHELL 18 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
497.4	PLEISTOCENE		CLAY	22.0	0.0	
475.4	MODESTO		SHALE	10.0	22.0	
465.4	MODESTO		SHALE	8.0	32.0	
457.4	MODESTO		SHALY SANDSTONE	20.0	40.0	
437.4	MODESTO		SHALE	12.0	60.0	
425.4	MODESTO		SHALY SANDSTONE	8.0	72.0	
417.4	MODESTO		SANDSTONE	76.0	80.0	
341.4	MODESTO		SHALE	11.0	156.0	
330.4	MODESTO		DARK SHALE	17.0	167.0	
313.4	MODESTO		BLACK SHALE	2.3	184.0	
311.1	MODESTO	POND CREEK	COAL	0.5	186.3	
310.6	MODESTO		UNDERCLAY	4.2	186.8	
306.4	MODESTO		BLUE SHALE	13.0	191.0	
293.4	MODESTO		SANDSTONE	22.0	204.0	
271.4	MODESTO		DARK SHALE	6.0	226.0	
265.4	MODESTO		BLUE SHALE	2.0	232.0	
263.4	MODESTO	PIASA	LIMESTONE	3.0	234.0	
260.4	MODESTO		SHALE	4.4	237.0	
256.0	CARBONDALE	DANVILLE	COAL	1.1	241.4	
254.9	CARBONDALE		SHALE	4.5	242.5	
250.4	CARBONDALE		SANDSTONE	3.0	247.0	
247.4	CARBONDALE		SHALE	11.0	250.0	
236.4	CARBONDALE		SHALY SANDSTONE	9.0	261.0	
227.4	CARBONDALE		SHALE	4.0	270.0	
223.4	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	274.0	
221.4	CARBONDALE		SHALE	2.0	276.0	
219.4	CARBONDALE		SHALE	10.0	278.0	
209.4	CARBONDALE	ANVIL ROCK	SANDSTONE	35.0	288.0	
174.4	CARBONDALE	ANVIL ROCK	SHALE	2.0	323.0	
172.4	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	325.0	
164.4	CARBONDALE	JAMESTOWN	COAL	0.3	333.0	
164.1	CARBONDALE		BLACK SHALE	9.8	333.3	
154.4	CARBONDALE	BRERETON	LIMESTONE	3.0	343.0	
151.4	CARBONDALE	ANNA	BLACK SHALE	2.5	346.0	
148.9	CARBONDALE	HERRIN	COAL	1.9	348.5	
147.0	CARBONDALE	HERRIN	PYRITE	0.1	350.4	
146.9	CARBONDALE	HERRIN	COAL	2.3	350.5	
144.6	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	352.8	
144.5	CARBONDALE	HERRIN	COAL	1.3	352.9	

143.2	CARBONDALE		UNDERCLAY	2.8	354.2
140.4	CARBONDALE		BLUE LIMESTONE	13.0	357.0
127.4	CARBONDALE		SHALY SANDSTONE	41.0	370.0
86.4	CARBONDALE		SANDSTONE	2.0	411.0
84.4	CARBONDALE		SHALE	30.8	413.0
53.6	CARBONDALE	SPRINGFIELD	COAL	3.4	443.8
50.1	CARBONDALE		UNDERCLAY	1.8	447.3

MAPID: 19900035000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.755419 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.810398 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 497.0 **LOGGED (FT.):** 449.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
256.0	CARBONDALE	DANVILLE	COAL	1.1	241.0	
250.0	CARBONDALE	SS BELOW NO. 7	SANDSTONE/SHALE	23.0	247.0	
223.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	274.0	
209.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	45.0	288.0	
149.0	CARBONDALE	HERRIN	COAL	5.7	348.0	
127.0	CARBONDALE	CANTON	SHALY SANDSTONE	43.0	370.0	
53.0	CARBONDALE	SPRINGFIELD	COAL	3.4	444.0	

MAPID: 19901955000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SE SE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.745213 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.813069 **DATE COLLECTED:** 4 / 0 / 1957

SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 1650.0 **LOG TYPE:** Electric Log

SOURCE: GULF OIL CORPORATION **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-203.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	680.0	
-263.0	SPOON	DAVIS	UNCLASSIFIED	-	740.0	
-1173.0	BASE OF PENN.		UNCLASSIFIED	-	1650.0	

MAPID: 19902304000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.757621 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.819594 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 400.3 **LOG TYPE:** Survey Core Study

SOURCE: AYRSHIRE COLLIERIES L-419 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
191.1	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	317.9	LOWER BENCH
184.1	CARBONDALE	LAWSON	GRAY SHALE	7.5	324.9	
176.6	CARBONDALE	LAWSON	GRAY SHALE	8.0	332.4	
168.6	CARBONDALE	LAWSON	GRAY SHALE	10.0	340.4	
158.6	CARBONDALE	LAWSON	SANDSTONE	31.6	350.4	
127.0	CARBONDALE	JAMESTOWN	BLACK SHALE	0.9	382.0	
126.1	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	9.7	382.9	
116.4	CARBONDALE	ANNA	BLACK SHALE	2.4	392.6	
114.0	CARBONDALE	HERRIN	COAL	5.3	395.0	

MAPID: 19900036000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.732555 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.806746 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 351.7 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 20 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
261.0	MODESTO	PIASA	LIMESTONE	4.5	241.0	
256.5	MODESTO		BLACK SHALE	5.2	245.5	
251.3	CARBONDALE	DANVILLE	COAL	1.9	250.7	
249.4	CARBONDALE		SHALE & SANDSTONE	18.4	252.6	
231.0	CARBONDALE	ALLENBY	BONE COAL	0.5	271.0	
230.5	CARBONDALE		DARK GRAY SHALE	3.5	271.5	
227.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	275.0	
221.0	CARBONDALE	LAWSON	SILTY SHALE	11.0	281.0	
210.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	11.0	292.0	
199.0	CARBONDALE	LAWSON	SANDSTONE	24.5	303.0	
174.5	CARBONDALE	LAWSON	SILTY SHALE	3.5	327.5	
171.0	CARBONDALE	LAWSON	DARK GRAY SHALE	0.8	331.0	
170.2	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.7	331.8	
169.5	CARBONDALE	JAMESTOWN	BLACK SHALE	3.5	332.5	
166.0	CARBONDALE		DARK GRAY SHALE	4.5	336.0	
161.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.5	340.5	
158.0	CARBONDALE	ANNA	BLACK SHALE	2.3	344.0	
156.0	CARBONDALE	HERRIN	COAL	5.7	346.0	

MAPID: 19900036000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.732555 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.806746 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 448.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
251.0	CARBONDALE	DANVILLE	COAL	1.9	251.0	
232.0	CARBONDALE	SS BELOW NO. 7		1.0	270.0	
227.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	275.0	
210.0	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	36.0	292.0	
156.0	CARBONDALE	HERRIN	COAL	5.7	346.0	
60.0	CARBONDALE	SPRINGFIELD	COAL	4.3	442.0	

MAPID: 19900036000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.732555 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.806746 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 447.5 **LOG TYPE:** Drillers Log

SOURCE: JW CARMICAL 20 **WELL TYPE:** Coal Test

COMMENT: THIS LOG USED BY CORINTH COAL CO.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
502.0	PLEISTOCENE		CLAY	29.7	0.0	
472.3	MODESTO		RED SANDSTONE	5.8	29.7	
466.6	MODESTO		SHALY SANDSTONE	73.6	35.4	
393.0	MODESTO		SANDSTONE	52.1	109.0	
340.9	MODESTO		COAL	0.1	161.1	
340.8	MODESTO		LIMESTONE	0.8	161.2	
340.0	MODESTO		LIMESTONE	1.2	162.0	
338.8	MODESTO		SHALE	1.8	163.2	
337.0	MODESTO		SHALE	7.0	165.0	
330.0	MODESTO		DARK SHALE	21.0	172.0	
309.0	MODESTO	POND CREEK	COAL	0.5	193.0	
308.5	MODESTO		SHALE	2.5	193.5	
306.0	MODESTO		LIMESTONE	1.0	196.0	
305.0	MODESTO		SANDSTONE	4.3	197.0	
300.7	MODESTO		GRAY SHALE	2.7	201.3	
298.0	MODESTO		SHALE	7.0	204.0	
291.0	MODESTO		SANDSTONE	3.0	211.0	
288.0	MODESTO		SHALE	19.0	214.0	
269.0	MODESTO		DARK SHALE	6.0	233.0	
263.0	MODESTO		SHALE	2.0	239.0	
261.0	MODESTO	PIASA	LIMESTONE	4.5	241.0	
256.5	MODESTO		BLACK SHALE	5.2	245.5	
251.3	CARBONDALE	DANVILLE	COAL	1.9	250.7	
249.4	CARBONDALE		SHALE	16.4	252.6	
233.0	CARBONDALE		DARK SHALE	1.0	269.0	
232.0	CARBONDALE		SANDSTONE	1.0	270.0	
231.0	CARBONDALE	ALLENBY	COAL	0.5	271.0	
230.5	CARBONDALE		DARK SHALE	3.5	271.5	
227.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	275.0	
221.0	CARBONDALE		SHALE	11.0	281.0	
210.0	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	11.0	292.0	
199.0	CARBONDALE	ANVIL ROCK	SANDSTONE	24.5	303.0	
174.5	CARBONDALE		SHALE	3.5	327.5	
171.0	CARBONDALE		DARK SHALE	0.8	331.0	
170.2	CARBONDALE		LIMESTONE	0.7	331.8	
169.5	CARBONDALE		DARK SHALE	3.5	332.5	
166.0	CARBONDALE		BLUE LIMESTONE	2.5	336.0	
163.5	CARBONDALE		DARK SHALE	2.0	338.5	
161.5	CARBONDALE	BRERETON	BLUE LIMESTONE	3.5	340.5	

158.0	CARBONDALE	ANNA	DARK SHALE	2.3	344.0
155.7	CARBONDALE	HERRIN	COAL	3.1	346.3
152.7	CARBONDALE	HERRIN	BLACK SHALE	1.0	349.3
151.7	CARBONDALE	HERRIN	COAL	0.1	350.3
151.6	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	350.4
151.6	CARBONDALE	HERRIN	COAL	1.5	350.4
150.1	CARBONDALE		UNDERCLAY	0.9	351.9
149.2	CARBONDALE		CLAYSTONE	2.2	352.8
147.0	CARBONDALE		LIMESTONE	2.0	355.0
145.0	CARBONDALE		BLACK SHALE	12.0	357.0
133.0	CARBONDALE		SHALE	13.0	369.0
120.0	CARBONDALE		SHALE	18.0	382.0
102.0	CARBONDALE		BLUE SHALE	20.0	400.0
82.0	CARBONDALE		BLUE SHALE	22.5	420.0
59.5	CARBONDALE	SPRINGFIELD	COAL	0.1	442.5
59.4	CARBONDALE	SPRINGFIELD	BLACK SHALE	0.1	442.6
59.3	CARBONDALE	SPRINGFIELD	COAL	2.1	442.7
57.2	CARBONDALE	SPRINGFIELD	PYRITE	0.0	444.8
57.2	CARBONDALE	SPRINGFIELD	COAL	0.4	444.8
56.8	CARBONDALE	SPRINGFIELD	PYRITE	0.1	445.2
56.7	CARBONDALE	SPRINGFIELD	COAL	1.4	445.3
55.2	CARBONDALE		UNDERCLAY	0.8	446.8

MAPID: 19901950000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW

QUADRANGLE: HARCO **LONGITUDE:** -88.742917 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.813068 **DATE COLLECTED:** 4 / 0 / 1957

SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 1670.0 **LOG TYPE:** Electric Log

SOURCE: DAYTON WARD W **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-189.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	675.0	
-244.0	SPOON	DAVIS	UNCLASSIFIED	-	730.0	
-1184.0	BASE OF PENN.		UNCLASSIFIED	-	1670.0	

MAPID: 19902150000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.738277 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.816772 **DATE COLLECTED:** 8 / 0 / 1958

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 3100.0 **LOG TYPE:** Electric Log

SOURCE: HOWARD ELLIS M, MANN RICHARD 1 **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-67.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	555.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-178.0	CARBONDALE	COLCHESTER	COAL	0.5	666.0	
-234.0	CARBONDALE	DEKOVEN	COAL	3.0	722.0	
-240.0	CARBONDALE	LOWER DEKOVEN	COAL	1.8	728.0	
-252.0	CARBONDALE	DAVIS	COAL	3.8	740.0	
-297.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	785.0	

MAPID: 19923369000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.731365 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.811332 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Nuclear Log

SOURCE: **WELL TYPE:**

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-50.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	538.0	
-	CARBONDALE	SURVANT	COAL	1.6		
-176.0	CARBONDALE	COLCHESTER	COAL	0.5	664.0	
-206.0	CARBONDALE	DEKOVEN	COAL	3.5	694.0	
-214.0	CARBONDALE	LOWER DEKOVEN	COAL	2.0	702.0	
-225.0	CARBONDALE	DAVIS	COAL	3.5	713.0	
-270.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	758.0	

MAPID: 19900037000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: HARCO **LONGITUDE:** -88.718619 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.814139 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 330.6 **LOG TYPE:** Drillers Log
SOURCE: CORINTH COAL 19 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
236.1	CARBONDALE	DANVILLE	COAL	1.6	225.9	
234.5	CARBONDALE	LAWSON	SILTY SHALE	23.5	227.5	
211.0	CARBONDALE	LAWSON	SANDSTONE	62.5	251.0	
148.5	CARBONDALE	JAMESTOWN	BONE COAL	0.3	313.5	
148.2	CARBONDALE		LIMESTONE W/ SHALE	2.7	313.8	
145.6	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.6	316.4	
140.0	CARBONDALE	ANNA	BLACK SHALE	3.0	322.0	
137.0	CARBONDALE	HERRIN	COAL	5.6	325.0	

MAPID: 19900037000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: HARCO **LONGITUDE:** -88.718619 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.814139 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 427.0 **LOG TYPE:** Drillers Log
SOURCE: CORINTH COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
236.0	CARBONDALE	DANVILLE	COAL	1.6	226.0	
211.0	CARBONDALE	ANVIL ROCK		62.5	251.0	
137.0	CARBONDALE	HERRIN	COAL	5.6	325.0	
40.0	CARBONDALE	SPRINGFIELD	COAL	4.4	422.0	

MAPID: 19900037000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.718619 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.814139 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 427.0 **LOG TYPE:** Drillers Log

SOURCE: CORINTH COAL CO. 19 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
462.0	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
434.0	MODESTO		SANDSTONE	21.0	28.0	
413.0	MODESTO		SHALE	8.0	49.0	
405.0	MODESTO		SANDSTONE	47.0	57.0	
358.0	MODESTO		SHALE	8.5	104.0	
349.5	MODESTO		SANDSTONE	9.5	112.5	
340.0	MODESTO		DARK SHALE	24.5	122.0	
315.5	MODESTO		SHALE	2.0	146.5	
313.5	MODESTO		UNDERCLAY & LIMESTONE	6.0	148.5	
307.5	MODESTO		SHALE	6.0	154.5	
301.5	MODESTO		DARK SHALE	14.0	160.5	
287.5	MODESTO		BLACK SHALE	4.5	174.5	
283.0	MODESTO	POND CREEK	COAL	0.9	179.0	
282.1	MODESTO		SHALE	14.1	179.9	
268.0	MODESTO		SHALY SANDSTONE	26.0	194.0	
242.0	MODESTO		SANDSTONE	6.0	220.0	
236.0	CARBONDALE	DANVILLE	COAL	1.6	226.0	
234.4	CARBONDALE		SHALE	23.4	227.6	
211.0	CARBONDALE	ANVIL ROCK	SANDSTONE	62.5	251.0	
148.5	CARBONDALE	JAMESTOWN	COAL	0.3	313.5	
148.2	CARBONDALE		BLACK SHALE	0.3	313.8	
148.0	CARBONDALE		LIMESTONE	0.4	314.0	
147.6	CARBONDALE		BLACK SHALE	2.0	314.4	
145.6	CARBONDALE	BRERETON	LIMESTONE	5.6	316.4	
140.0	CARBONDALE	ANNA	BLACK SHALE	3.0	322.0	
137.0	CARBONDALE	HERRIN	COAL	3.1	325.0	
133.9	CARBONDALE	HERRIN	UNCLASSIFIED	0.2	328.1	
133.8	CARBONDALE	HERRIN	COAL	2.4	328.2	
131.4	CARBONDALE		SHALE	17.4	330.6	
114.0	CARBONDALE		DARK SHALE	36.0	348.0	
78.0	CARBONDALE		GRAY SHALE	37.5	384.0	
40.5	CARBONDALE	SPRINGFIELD	COAL	4.4	421.5	
36.1	CARBONDALE		UNDERCLAY	1.1	425.9	

MAPID: 19901890000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.712757 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.818761 **DATE COLLECTED:** 11 / 0 / 1955

SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 3142.0 **LOG TYPE:** Electric Log

SOURCE: MORAN, E. F., INC., EDWARDS LEE **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-72.0	CARBONDALE	HOUCHIN CREEK	COAL	2.8	500.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-196.0	CARBONDALE	COLCHESTER	COAL	0.5	624.0	
-238.0	CARBONDALE	DEKOVEN	COAL	3.0	666.0	
-245.0	CARBONDALE	LOWER DEKOVEN	COAL	2.5	673.0	
-256.0	CARBONDALE	DAVIS	COAL	3.0	684.0	
-304.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	732.0	

MAPID: 19901890000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.712757 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.818761 **DATE COLLECTED:** 11 / 0 / 1955

SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 1605.0 **LOG TYPE:** Electric Log

SOURCE: MORAN, E. F., INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-197.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	625.0	
-259.0	SPOON	DAVIS	UNCLASSIFIED	-	687.0	
-1177.0	BASE OF PENN.		UNCLASSIFIED	-	1605.0	

MAPID: 19902113000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SW

QUADRANGLE: HARCO **LONGITUDE:** -88.724485 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.805899 **DATE COLLECTED:** 10 / 0 / 1957

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 3113.0 **LOG TYPE:** Electric Log

SOURCE: CANTERBURY, J. V., BENTON FRANK ETAL **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-8.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	500.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-118.0	CARBONDALE	COLCHESTER	COAL	0.5	610.0	
-168.0	CARBONDALE	DEKOVEN	COAL	3.0	660.0	
-175.0	CARBONDALE	LOWER DEKOVEN	COAL	1.6	667.0	
-187.0	CARBONDALE	DAVIS	COAL	3.7	679.0	
-228.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	720.0	

MAPID: 19900038000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:**

QUADRANGLE: HARCO **LONGITUDE:** -88.716373 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.797681 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 445.0 **LOG TYPE:** Drillers Log

SOURCE: AR BYRD 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
505.0	PLEISTOCENE		BROWN SANDSTONE	23.0	0.0	
482.0	PLEISTOCENE		GRAVEL	3.0	23.0	
479.0	PLEISTOCENE		CLAY	2.0	26.0	
477.0	MODESTO		BROWN SANDSTONE	5.0	28.0	
472.0	MODESTO		SANDSTONE	37.0	33.0	
435.0	MODESTO		SANDSTONE	78.0	70.0	
357.0	MODESTO		SANDSTONE	7.0	148.0	
350.0	MODESTO		SHALE	2.0	155.0	
348.0	MODESTO		GRAY LIMESTONE	6.0	157.0	
342.0	MODESTO		SANDSTONE/SHALE	7.0	163.0	
335.0	MODESTO		DARK SHALE	20.0	170.0	
315.0	MODESTO		BLACK SHALE	8.0	190.0	
307.0	MODESTO	POND CREEK	COAL	1.0	198.0	
306.0	MODESTO		UNDERCLAY	4.0	199.0	
302.0	MODESTO		SANDSTONE	2.0	203.0	
300.0	MODESTO		SHALE	42.0	205.0	
258.0	MODESTO	PIASA	LIMESTONE	4.0	247.0	
254.0	MODESTO		DARK SHALE	4.2	251.0	
249.8	CARBONDALE	DANVILLE	COAL	1.8	255.2	
248.0	CARBONDALE		UNDERCLAY	3.0	257.0	
245.0	CARBONDALE		SANDSTONE/SHALE	3.0	260.0	
242.0	CARBONDALE		SHALE	2.0	263.0	
240.0	CARBONDALE		SANDSTONE/SHALE	3.0	265.0	
237.0	CARBONDALE		DARK SHALE	4.0	268.0	
233.0	CARBONDALE		COAL	0.4	272.0	
232.6	CARBONDALE		SHALE	2.6	272.4	
230.0	CARBONDALE	ALLENBY	COAL	0.5	275.0	
229.5	CARBONDALE		UNDERCLAY	2.5	275.5	
227.0	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	10.0	278.0	
217.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	11.0	288.0	
206.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	27.0	299.0	
179.0	CARBONDALE		DARK SHALE	2.6	326.0	
176.4	CARBONDALE	JAMESTOWN	COAL	0.2	328.6	
176.2	CARBONDALE		SHALE	0.3	328.8	
176.0	CARBONDALE		SHALE	2.0	329.0	
174.0	CARBONDALE	BRERETON	GRAY LIMESTONE	4.0	331.0	
170.0	CARBONDALE		DARK SHALE	5.0	335.0	
165.0	CARBONDALE	HERRIN	COAL	6.3	340.0	
158.7	CARBONDALE		UNDERCLAY	2.7	346.3	

156.0	CARBONDALE	HIGGINSVILLE	BLUE LIMESTONE	8.0	349.0
148.0	CARBONDALE		CALCAREOUS SHALE	5.0	357.0
143.0	CARBONDALE		SHALE	44.0	362.0
99.0	CARBONDALE		DARK SHALE	31.7	406.0
67.3	CARBONDALE	SPRINGFIELD	COAL	4.2	437.7
63.2	CARBONDALE		UNDERCLAY	3.2	441.8

MAPID: 19900039000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:**

QUADRANGLE: HARCO **LONGITUDE:** -88.716373 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.797681 **DATE COLLECTED:** 3 / 16 / 1906

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 418.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 103 **WELL TYPE:** Coal Test

COMMENT: NO QTRS LISTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
490.0	MODESTO		SANDSTONE	106.0	10.0	
384.0	MODESTO		SHALE	14.0	116.0	
370.0	MODESTO		BLACK SHALE	25.0	130.0	
345.0	MODESTO	POND CREEK	COAL	0.4	155.0	
344.6	MODESTO		SHALE	42.0	155.4	
302.6	MODESTO		SANDSTONE	22.6	197.4	
280.0	MODESTO		BLACK SHALE	8.0	220.0	
272.0	CARBONDALE	DANVILLE	COAL	2.0	228.0	
270.0	CARBONDALE		UNDERCLAY	1.0	230.0	
269.0	CARBONDALE		SANDSTONE/SHALE	7.0	231.0	
262.0	CARBONDALE		BLACK SHALE	3.0	238.0	
259.0	CARBONDALE	ALLENBY	COAL	0.3	241.0	
258.7	CARBONDALE		SHALE	4.0	241.3	
254.7	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	245.3	
251.7	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	11.8	248.3	
240.0	CARBONDALE		SANDSTONE	36.0	260.0	
204.0	CARBONDALE		DARK SHALE	3.0	296.0	
201.0	CARBONDALE	BRERETON	BLACK LIMESTONE	2.0	299.0	
199.0	CARBONDALE	ENERGY	DARK SHALE	14.0	301.0	
185.0	CARBONDALE	HERRIN	COAL	5.5	315.0	
179.5	CARBONDALE		UNDERCLAY	2.0	320.5	
177.5	CARBONDALE		SHALE	20.5	322.5	
157.0	CARBONDALE		DARK SHALE	23.0	343.0	
134.0	CARBONDALE		SHALE	16.0	366.0	
118.0	CARBONDALE		DARK SHALE	30.5	382.0	
87.5	CARBONDALE	SPRINGFIELD	COAL	4.2	412.5	
83.3	CARBONDALE		UNDERCLAY	1.3	416.7	

MAPID: 19901406000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 439' N line, 100' W line of NE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.711407 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.796484 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 294.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 40-10 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
314.0	MODESTO	PIASA	LIMESTONE	1.0	161.0	
313.0	MODESTO		CARBONACEOUS SHALE	24.0	162.0	
289.0	CARBONDALE	DANVILLE	COAL	2.0	186.0	
287.0	CARBONDALE		GRAY SHALE	5.0	188.0	
282.0	CARBONDALE	GALUM	LIMESTONE	4.0	193.0	
278.0	CARBONDALE		CALCAREOUS SHALE	37.5	197.0	
240.5	CARBONDALE	BANKSTON FORK	LIMESTONE	9.5	234.5	UPPER BENCH
231.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	0.5	244.0	SHALE PARTING
230.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	244.5	LOWER BENCH
228.5	CARBONDALE	LAWSON	COAL WITH SHALE PARTINGS	8.5	246.5	
220.0	CARBONDALE	LAWSON	CLAYSTONE	0.5	255.0	
219.5	CARBONDALE	LAWSON	MOTTLED SHALE	2.0	255.5	
217.5	CARBONDALE	LAWSON	SILTY SHALE	15.0	257.5	
202.5	CARBONDALE	LAWSON	MOTTLED SHALE	1.8	272.5	
200.7	CARBONDALE	CONANT	NODULAR LIMESTONE	0.8	274.3	
199.9	CARBONDALE	JAMESTOWN	COAL	0.3	275.1	
199.7	CARBONDALE		LIMESTONE W/ SHALE	6.6	275.3	
193.1	CARBONDALE	BRERETON	LIMESTONE	3.8	281.9	
189.2	CARBONDALE	ANNA	BLACK SHALE	3.3	285.8	
186.0	CARBONDALE	HERRIN	COAL	5.3	289.0	

MAPID: 19901923000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: HARCO **LONGITUDE:** -88.708276 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.80406 **DATE COLLECTED:** 5 / 0 / 1956
SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 3067.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L., DUTY D L ETAL **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-11.0	CARBONDALE	HOUCHIN CREEK	COAL	2.5	494.0	
-	CARBONDALE	SURVANT	COAL	1.6		
-129.0	CARBONDALE	COLCHESTER	COAL	0.5	612.0	
-179.0	CARBONDALE	DEKOVEN	COAL	3.0	662.0	
-187.0	CARBONDALE	LOWER DEKOVEN	COAL	1.8	670.0	
-197.0	CARBONDALE	DAVIS	COAL	3.8	680.0	
-252.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	735.0	

MAPID: 19901923000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: HARCO **LONGITUDE:** -88.708276 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.80406 **DATE COLLECTED:** 5 / 0 / 1956
SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 1640.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Dry Hole
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-132.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	615.0	
-197.0	SPOON	DAVIS	UNCLASSIFIED	-	680.0	
-1157.0	BASE OF PENN.		UNCLASSIFIED	-	1640.0	

MAPID: 19902097000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW
QUADRANGLE: HARCO **LONGITUDE:** -88.717517 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.796766 **DATE COLLECTED:** 8 / 0 / 1957
SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 3090.0 **LOG TYPE:** Electric Log
SOURCE: KEYSTONE OIL CO, THORNBURG GERTIE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-6.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	472.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-120.0	CARBONDALE	COLCHESTER	COAL	0.5	586.0	
-174.0	CARBONDALE	DEKOVEN	COAL	3.0	640.0	
-179.0	CARBONDALE	LOWER DEKOVEN	COAL	1.8	645.0	
-189.0	CARBONDALE	DAVIS	COAL	3.5	655.0	
-242.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	708.0	

MAPID: 19923497000C **VERSION:** 1 **PROJECT:** NCRDS92

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.712704 **GEOLOGIST:** COATS
CONFIDENTIAL: N **LATITUDE:** 37.791485 **DATE COLLECTED:** 6 / 27 / 1984
SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 286.0 **LOG TYPE:** Company map
SOURCE: MIDWEST MINING & CONSTRUCTION D **WELL TYPE:** Coal Test
COMMENT: FROM PERMIT 60, REV 1, APPDX 4, FIG 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
214.3	CARBONDALE	HERRIN	COAL	5.4	280.7	

MAPID: 19923498000C **VERSION:** 1 **PROJECT:** NCRDS92

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:**
QUADRANGLE: HARCO **LONGITUDE:** -88.711723 **GEOLOGIST:** COATS
CONFIDENTIAL: N **LATITUDE:** 37.796572 **DATE COLLECTED:** 6 / 27 / 1984
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 389.0 **LOG TYPE:** Company map
SOURCE: MIDWEST MINING & CONSTRUCTION NO.10WAB **WELL TYPE:** Coal Test
COMMENT: FROM PERMIT 60, REV 1, APPDX 4, FIG 15

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
90.1	CARBONDALE	SPRINGFIELD	COAL	4.2	384.9	

MAPID: 19926125000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.71406 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.792224 **DATE COLLECTED:** 5 / 26 / 1977

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 336.7 **LOG TYPE:** Drillers Log

SOURCE: WESTERN FUELS ASSOCIATION 1977-D **WELL TYPE:** Coal Test

COMMENT: PERMIT 60

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			UNKNOWN	281.0	0.0	NOT ON LOG
-	CARBONDALE	HERRIN	COAL	3.6	281.0	
-	CARBONDALE	HERRIN	PYRITE	0.1	284.6	
-	CARBONDALE	HERRIN	COAL	0.6	284.6	
-	CARBONDALE	HERRIN	BLACK SHALE & COAL	0.1	285.2	
-	CARBONDALE	HERRIN	COAL	0.4	285.2	
-	CARBONDALE	HERRIN	PYRITE	0.1	285.6	
-	CARBONDALE	HERRIN	COAL	0.6	285.7	
-	CARBONDALE		UNDERCLAY	1.1	286.3	
-	CARBONDALE		SHALE	6.8	287.4	SILTY, ARGILACEOUS LIMESTONE INCLUSIONS
-	CARBONDALE		ARGILLACEOUS LIMESTONE	1.5	294.2	DARK GRAY
-	CARBONDALE		SHALE	0.3	295.6	DARK GRAY; SLIGHTLY CARBONACEOUS
-	CARBONDALE		LIMESTONE	0.2	295.9	
-	CARBONDALE		SHALE	3.5	296.0	FISSILE IN PARTS
-	CARBONDALE		SILTSTONE	2.1	299.5	WITH GRAY CALCAREOUS SAND LAMS
-	CARBONDALE		COAL	0.8	301.6	
-	CARBONDALE		CARBONACEOUS SILTSTONE	0.3	302.3	
-	CARBONDALE		BLACK SHALE	0.1	302.6	
-	CARBONDALE		SILTSTONE	0.2	302.7	
-	CARBONDALE		COAL	0.6	302.8	
-	CARBONDALE		SANDSTONE	2.3	303.4	FINE GR; MINOR FLOW STRUCTURES
-	CARBONDALE		CARBONACEOUS SHALE	0.6	305.7	DARK GRAY; SOME SMALL PYRITE NODS
-	CARBONDALE		SHALE	2.3	306.2	WITH SAND
-	CARBONDALE		SANDSTONE	25.3	308.5	SHALE LAMINAE
-	CARBONDALE		SILTSTONE	2.9	333.8	

MAPID: 19900041000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.726734 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.793058 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 443.7 **LOGGED (FT.):** 324.0 **LOG TYPE:** Drillers Log

SOURCE: OA HARKER 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.7	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
442.7	PLEISTOCENE		CLAY	12.0	1.0	
430.7	PLEISTOCENE		SAND & GRAVEL	10.0	13.0	
420.7	PLEISTOCENE		CLAY & GRAVEL	12.0	23.0	
408.7	PLEISTOCENE		GRAVEL	5.0	35.0	
403.7	PLEISTOCENE		CLAY & GRAVEL	9.3	40.0	
394.4	MODESTO		SANDSTONE	1.7	49.3	
392.7	MODESTO		BLUE SHALE	4.0	51.0	
388.7	MODESTO		SANDSTONE/SHALE	10.0	55.0	
378.7	MODESTO		BLUE SHALE	19.5	65.0	
359.2	MODESTO		BLACK SHALE	5.8	84.5	
353.4	MODESTO	POND CREEK	COAL	0.7	90.3	
352.7	MODESTO		UNDERCLAY	4.0	91.0	
348.7	MODESTO		BLUE SHALE	5.0	95.0	
343.7	MODESTO		SANDSTONE	1.0	100.0	
342.7	MODESTO		SANDSTONE/SHALE	6.0	101.0	
336.7	MODESTO		GRAY SHALE	27.5	107.0	
309.2	MODESTO	PIASA	LIMESTONE	2.5	134.5	
306.7	MODESTO		BLUE SHALE	5.0	137.0	
301.7	MODESTO		BLACK SHALE	2.0	142.0	
299.7	CARBONDALE	DANVILLE	COAL	0.7	144.0	
299.0	CARBONDALE		UNDERCLAY	0.3	144.7	
298.7	CARBONDALE		SANDSTONE/SHALE	4.5	145.0	
294.2	CARBONDALE		BLACK SHALE	1.5	149.5	
292.7	CARBONDALE		GRAY SHALE	2.0	151.0	
290.7	CARBONDALE		SANDSTONE/SHALE	3.0	153.0	
287.7	CARBONDALE		BLUE SHALE	10.0	156.0	
277.7	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	166.0	
270.7	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	4.0	173.0	
266.7	CARBONDALE	ANVIL ROCK	BLUE SHALE	3.0	177.0	
263.7	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	11.0	180.0	
252.7	CARBONDALE	ANVIL ROCK	SANDSTONE	7.0	191.0	
245.7	CARBONDALE		GRAY SHALE	5.0	198.0	
240.7	CARBONDALE		BLUE SHALE	9.5	203.0	
231.2	CARBONDALE		LIMESTONE	0.5	212.5	
230.7	CARBONDALE		BLACK SHALE	4.0	213.0	
226.7	CARBONDALE	BRERETON	LIMESTONE	4.5	217.0	
222.2	CARBONDALE	ANNA	BLACK SHALE	2.5	221.5	
219.7	CARBONDALE	HERRIN	COAL	4.1	224.0	

215.6	CARBONDALE	HERRIN	UNCLASSIFIED	0.0	228.1
215.5	CARBONDALE	HERRIN	COAL	0.8	228.2
214.7	CARBONDALE		UNDERCLAY	2.0	229.0
212.7	CARBONDALE		SHALE	4.0	231.0
208.7	CARBONDALE		GRAY SHALE	4.0	235.0
204.7	CARBONDALE		SANDY SHALE	2.0	239.0
202.7	CARBONDALE		GRAY SHALE	7.0	241.0
195.7	CARBONDALE		UNDERCLAY	0.4	248.0
195.3	CARBONDALE		SANDY SHALE	46.6	248.4
148.7	CARBONDALE		BLUE SHALE	24.0	295.0
124.7	CARBONDALE	SPRINGFIELD	COAL	4.0	319.0
120.7	CARBONDALE		UNDERCLAY	1.0	323.0

MAPID: 19900041000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.726734 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.793058 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 324.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
300.0	CARBONDALE	DANVILLE	COAL	8.0	144.0	
278.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	166.0	
264.0	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	18.0	180.0	
220.0	CARBONDALE	HERRIN	COAL	5.0	224.0	
125.0	CARBONDALE	SPRINGFIELD	COAL	4.0	319.0	

MAPID: 19900042000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: HARCO **LONGITUDE:** -88.727938 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.803132 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 429.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
274.0	CARBONDALE	DANVILLE	COAL	1.8	247.0	
247.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	274.0	
219.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	10.0	302.0	
195.0	CARBONDALE	HERRIN	COAL	5.4	326.0	
171.0	CARBONDALE	BRIAR HILL	COAL	0.8	350.0	
170.0	CARBONDALE	CANTON	SHALY SANDSTONE	40.0	351.0	
98.0	CARBONDALE	SPRINGFIELD	COAL	4.3	423.0	

MAPID: 19902299000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 735' S line, 0' W line of NW SW
QUADRANGLE: HARCO **LONGITUDE:** -88.743998 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.795887 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 275.7 **LOG TYPE:** Survey Core Study
SOURCE: AYRSHIRE COLLIERIES I-276-Z **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
257.0	MODESTO	PIASA	LIMESTONE	4.5	201.0	
252.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	205.5	LOWER BENCH
246.0	CARBONDALE	LAWSON	GRAY SHALE	3.0	212.0	
243.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	21.0	215.0	
222.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	4.3	236.0	
217.7	CARBONDALE	LAWSON	GRAY SHALE	0.8	240.3	
216.9	CARBONDALE	LAWSON	SHALE & SANDSTONE	16.6	241.1	
200.3	CARBONDALE	JAMESTOWN	BONE COAL	0.3	257.7	
200.0	CARBONDALE		GRAY SHALE	0.4	258.0	
199.6	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.8	258.4	
193.7	CARBONDALE	ANNA	BLACK SHALE	5.8	264.3	
188.0	CARBONDALE	HERRIN	COAL	5.7	270.0	

MAPID: 19922752000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 990' E line of SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.729031 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.793049 **DATE COLLECTED:** 10 / 0 / 1977

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 2991.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD., MOULTON **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
51.0	CARBONDALE	HOUCHIN CREEK	COAL	1.6	400.0	
-	CARBONDALE	SURVANT	COAL	3.0		
-52.0	CARBONDALE	COLCHESTER	COAL	0.5	503.0	
-113.0	CARBONDALE	DEKOVEN	COAL	3.0	564.0	
-118.0	CARBONDALE	LOWER DEKOVEN	COAL	1.2	569.0	
-129.0	CARBONDALE	DAVIS	COAL	3.0	580.0	
-174.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	625.0	

MAPID: 19922752000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 990' E line of SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.729031 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.793049 **DATE COLLECTED:** 10 / 0 / 1977

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 1540.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-54.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	505.0	
-129.0	SPOON	DAVIS	UNCLASSIFIED	-	580.0	
-1089.0	BASE OF PENN.		UNCLASSIFIED	-	1540.0	

MAPID: 19900043000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** SE SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.754282 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.791154 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 319.0 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL CO. 1-A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0	PLEISTOCENE		CLAY	23.0	0.0	
477.0	PLEISTOCENE		SAND & GRAVEL	6.0	23.0	
471.0	MODESTO		SHALE	6.0	29.0	
465.0	MODESTO		SANDSTONE	75.0	35.0	
390.0	MODESTO		SHALE	5.0	110.0	
385.0	MODESTO		GRAY SHALE	20.0	115.0	
365.0	MODESTO		SHALE	5.0	135.0	
360.0	MODESTO		DARK SHALE	20.0	140.0	
340.0	MODESTO	POND CREEK	COAL	0.5	160.0	
339.5	MODESTO		SHALE	12.5	160.5	
327.0	MODESTO		SANDSTONE	8.0	173.0	
319.0	MODESTO		GRAY SHALE	26.0	181.0	
293.0	MODESTO	PIASA	LIMESTONE	5.0	207.0	
288.0	MODESTO		SHALE	4.2	212.0	
283.8	MODESTO		LIMESTONE	0.8	216.2	
283.0	MODESTO		SANDSTONE	29.0	217.0	
254.0	CARBONDALE	DANVILLE	COAL	1.0	246.0	
253.0	CARBONDALE		CALCAREOUS SHALE	4.0	247.0	
249.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	251.0	
243.0	CARBONDALE	ANVIL ROCK	SANDSTONE	4.0	257.0	
239.0	CARBONDALE	ANVIL ROCK	SHALE	8.0	261.0	
231.0	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	269.0	
228.0	CARBONDALE	ANVIL ROCK	SHALE	4.0	272.0	
224.0	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	276.0	
218.0	CARBONDALE		SHALE	10.0	282.0	
208.0	CARBONDALE		DARK SHALE	4.5	292.0	
203.5	CARBONDALE		COAL	0.5	296.5	
203.0	CARBONDALE		DARK SHALE	7.0	297.0	
196.0	CARBONDALE	BRERETON	BLUE LIMESTONE	3.0	304.0	
193.0	CARBONDALE	ANNA	BLACK SHALE	4.0	307.0	
189.0	CARBONDALE	HERRIN	COAL	5.8	311.0	
183.2	CARBONDALE		UNDERCLAY	2.3	316.8	

MAPID: 19900044000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.750861 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.795711 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 466.8 **LOGGED (FT.):** 390.0 **LOG TYPE:** Drillers Log

SOURCE: JM POTTER 21 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
466.8	PLEISTOCENE		SAND/CLAY	27.0	0.0	
439.8	MODESTO		SANDSTONE	36.0	27.0	
403.8	MODESTO		SHALE	32.0	63.0	
371.8	MODESTO		SHALE	12.0	95.0	
359.8	MODESTO		COAL	0.3	107.0	
359.5	MODESTO		GRAY SHALE	4.8	107.3	
354.8	MODESTO		CALCAREOUS SHALE	13.0	112.0	
341.8	MODESTO		DARK SHALE	18.2	125.0	
323.6	MODESTO	POND CREEK	COAL	1.1	143.2	
322.5	MODESTO		SHALE	5.8	144.3	
316.8	MODESTO		LIMESTONE	1.0	150.0	
315.8	MODESTO		SHALE	9.0	151.0	
306.8	MODESTO		SANDSTONE	32.0	160.0	
274.8	MODESTO	PIASA	LIMESTONE	4.0	192.0	
270.8	MODESTO		DARK SHALE	5.2	196.0	
265.6	CARBONDALE	DANVILLE	COAL	1.8	201.2	
263.8	CARBONDALE		SHALE	7.0	203.0	
256.8	CARBONDALE		SANDSTONE	5.0	210.0	
251.8	CARBONDALE		SANDSTONE	2.0	215.0	
249.8	CARBONDALE		DARK SHALE	3.0	217.0	
246.8	CARBONDALE	ALLENBY	COAL	0.5	220.0	
246.3	CARBONDALE	ALLENBY	DARK SHALE	0.5	220.5	
245.8	CARBONDALE	ALLENBY	COAL	0.5	221.0	
245.3	CARBONDALE		SHALE	2.5	221.5	
242.8	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	224.0	
236.8	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	11.0	230.0	
225.8	CARBONDALE	ANVIL ROCK	SHALE	8.0	241.0	
217.8	CARBONDALE	ANVIL ROCK	SANDSTONE	9.0	249.0	
208.8	CARBONDALE		SHALE	13.0	258.0	
195.8	CARBONDALE		DARK SHALE	13.0	271.0	
182.8	CARBONDALE	BRERETON	LIMESTONE	4.0	284.0	
178.8	CARBONDALE	ANNA	BLACK SHALE	4.2	288.0	
174.6	CARBONDALE	HERRIN	COAL	3.2	292.2	
171.5	CARBONDALE	HERRIN	BLACK SHALE	0.2	295.3	
171.4	CARBONDALE	HERRIN	COAL	1.2	295.4	
170.2	CARBONDALE	HERRIN	PYRITE	0.0	296.6	
170.2	CARBONDALE	HERRIN	COAL	1.0	296.6	
169.1	CARBONDALE	HERRIN	PYRITE	0.1	297.7	
169.0	CARBONDALE	HERRIN	COAL	0.5	297.8	

168.5	CARBONDALE		UNDERCLAY	2.7	298.3
165.8	CARBONDALE		CALCAREOUS SHALE	6.0	301.0
159.8	CARBONDALE		BLUE SHALE	3.5	307.0
156.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.0	310.5
154.3	CARBONDALE		DARK SHALE	3.5	312.5
150.8	CARBONDALE		SHALE	13.0	316.0
137.8	CARBONDALE		SHALY SANDSTONE	5.0	329.0
132.8	CARBONDALE		SHALE	17.0	334.0
115.8	CARBONDALE		DARK SHALE	33.9	351.0
81.9	CARBONDALE	SPRINGFIELD	COAL	4.3	384.9
77.6	CARBONDALE		UNKNOWN	0.8	389.2

MAPID: 19900044000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.750861 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.795711 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 467.0 **LOGGED (FT.):** 390.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
266.0	CARBONDALE	DANVILLE	COAL	1.8	201.0	
257.0	CARBONDALE	SS BELOW NO. 7	SANDSTONE/SHALE	7.0	210.0	
243.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	224.0	
237.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	28.0	230.0	
175.0	CARBONDALE	HERRIN	COAL	6.2	292.0	
138.0	CARBONDALE	CANTON	SHALY SANDSTONE	5.0	329.0	
82.0	CARBONDALE	SPRINGFIELD	COAL	4.3	385.0	

MAPID: 19902127000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.756579 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.798482 **DATE COLLECTED:** 12 / 0 / 1957

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 1580.0 **LOG TYPE:** Electric Log

SOURCE: MITCHELL, Q. B. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-107.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	595.0	
-182.0	SPOON	DAVIS	UNCLASSIFIED	-	670.0	
-1092.0	BASE OF PENN.		UNCLASSIFIED	-	1580.0	

MAPID: 19902306000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 0' S line, 0' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.762327 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.790256 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 347.3 **LOG TYPE:** Survey Core Study

SOURCE: AYRSHIRE COLLIERIES L-17 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
150.5	MODESTO	PIASA	LIMESTONE	1.7	274.5	
148.8	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	276.2	LOWER BENCH
139.8	CARBONDALE	LAWSON	GRAY SHALE	3.1	285.2	
136.7	CARBONDALE	LAWSON	SILTY SHALE	4.0	288.3	
132.7	CARBONDALE	LAWSON	GRAY SHALE	29.9	292.3	
102.8	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.5	322.2	
102.3	CARBONDALE	JAMESTOWN	BONE COAL	0.6	322.7	
101.7	CARBONDALE		LIMESTONE W/ SHALE	10.7	323.3	
91.1	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.3	333.9	
87.8	CARBONDALE	ANNA	BLACK SHALE	3.8	337.2	
84.0	CARBONDALE	HERRIN	COAL	6.3	341.0	

MAPID: 19922750000C **VERSION:** 1 **PROJECT:** NCRDS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.74977 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.803934 **DATE COLLECTED:** 6 / 7 / 2000

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 754.8 **LOG TYPE:** Other Core Study

SOURCE: MID-CONTINENT METHANE DDH-4 **WELL TYPE:** Coal Test

COMMENT: LOGGED BY KOROSE, NORTH; CORE #C-14948

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNKNOWN	326.0	0.0	
174.0	SHELBURN		LIMESTONE	1.1	326.0	FOSSILIFEROUS
172.9	SHELBURN		BLACK SHALE	6.7	327.1	CALCAREOUS
166.2	SHELBURN	BRERETON	LIMESTONE	2.7	333.8	BRACHIOPODS
163.5	CARBONDALE	ANNA	BLACK SHALE	1.0	336.5	FAINTLY CALCAREOUS
162.5	CARBONDALE	ANNA	BLACK SHALE	2.5	337.5	#6 COAL MISSING
160.0	CARBONDALE		UNKNOWN	91.0	340.0	NO CORE
69.0	CARBONDALE		SHALE	5.1	431.0	CALCAREOUS, CARBONACEOUS PLANT
63.9	CARBONDALE		GRAY SHALE	0.6	436.1	CARBONACEOUS PLANT MATERIAL
63.3	CARBONDALE		DARK SHALE	0.2	436.7	
63.1	CARBONDALE	SPRINGFIELD	COAL	0.2	436.9	
63.0	CARBONDALE	SPRINGFIELD	COAL	4.0	437.0	REMOVED BY COMPANY
59.0	CARBONDALE	SPRINGFIELD	COAL	0.3	441.0	
58.7	CARBONDALE		UNKNOWN	68.7	441.3	NO CORE
-10.0	CARBONDALE		GRAY SHALE	2.2	510.0	
-12.2	CARBONDALE		BLACK SHALE	4.4	512.2	CARBONACEOUS PLANT FRAGMENTS
-16.6	CARBONDALE		COAL	1.9	516.6	REMOVED BY COMPANY
-18.5	CARBONDALE			1.5	518.5	CARBONACEOUS PLANT MAT ROOTLETS
-20.0	CARBONDALE		SILTSTONE	0.5	520.0	
-20.5	CARBONDALE		UNKNOWN	39.5	520.5	NO CORE
-60.0	CARBONDALE		DARK SHALE	2.0	560.0	PLANT IMPRESSIONS
-62.0	CARBONDALE		BLACK SHALE	0.7	562.0	
-62.7	CARBONDALE	SURVANT	COAL	0.3	562.7	
-63.0	CARBONDALE	SURVANT	COAL	2.0	563.0	REMOVED BY COMPANY
-65.0	CARBONDALE			0.6	565.0	PLANT MAT, ROOTLETS
-65.6	CARBONDALE		GRAY SILTSTONE	2.7	565.6	PLANT FRAGMENTS
-68.3	CARBONDALE		SILTY SHALE	2.4	568.3	PLANT FRAGMENTS
-70.7	CARBONDALE		UNKNOWN	61.3	570.7	NO CORE
-132.0	CARBONDALE		BLACK SHALE	0.5	632.0	FOSSIL IMPRINTS, CARB. PLANT IMPRESSIONS
-132.5	CARBONDALE		COAL	1.6	632.5	"BONY", REMOVED BY COMPANY
-134.1	CARBONDALE		BLACK SHALE	1.6	634.1	CARB. PLANT MATERIAL
-135.7	CARBONDALE	COLCHESTER	COAL	1.1	635.7	REMOVED BY COMPANY
-136.8	CARBONDALE		DARK SHALE	0.2	636.8	SOME CARBONACEOUS MATERIAL
-136.9	CARBONDALE		SILTSTONE	1.9	636.9	PLANT FRAGMENTS
-138.8	CARBONDALE		SANDSTONE	13.4	638.8	MICACEOUS
-152.2	CARBONDALE		UNKNOWN	10.8	652.2	NO CORE
-163.0	CARBONDALE		SANDSTONE	3.0	663.0	MICACEOUS

-166.0	CARBONDALE		UNKNOWN	6.0	666.0	NO CORE
-172.0	CARBONDALE		SANDSTONE	3.0	672.0	MICACEOUS
-175.0	CARBONDALE		UNKNOWN	9.0	675.0	NO CORE
-184.0	CARBONDALE		DARK SHALE	1.5	684.0	
-185.5	CARBONDALE		COAL	2.0	685.5	REMOVED BY COMPANY
-187.5	CARBONDALE		BLACK SHALE	0.3	687.5	CARBONACEOUS PLANT FRAGMENTS
-187.8	CARBONDALE		BLACK SHALE	1.5	687.8	CARBONACEOUS PLANT FRAGMENTS
-189.3	CARBONDALE		DARK SHALE	2.3	689.3	PLANT FRAGMENTS
-191.6	CARBONDALE			1.2	691.6	MICACEOUS
-192.8	CARBONDALE		COAL	2.0	692.8	REMOVED BY COMPANY
-194.8	CARBONDALE			2.6	694.8	PLANT FRAGMENTS, ROOTLETS
-197.4	CARBONDALE		SILTSTONE	1.1	697.4	WEAKLY CALCAREOUS
-198.5	CARBONDALE		BLACK SHALE	2.2	698.5	CARBONACEOUS PLANT MATERIAL
-200.7	CARBONDALE		BLACK SHALE	1.6	700.7	CARBONACEOUS FRAGMENTS
-202.3	CARBONDALE	DAVIS	COAL	3.7	702.3	REMOVED BY COMPANY
-206.0	TRADEWATER			2.0	706.0	PLANT FRAGMENTS, ROOTLETS
-208.0	TRADEWATER		UNKNOWN	32.0	708.0	NO CORE
-240.0	TRADEWATER			3.0	740.0	PLANT IMPRESSIONS, MICACEOUS
-243.0	TRADEWATER		SILTSTONE	6.0	743.0	
-249.0	TRADEWATER		BLACK SHALE	4.1	749.0	PYRITE, CALCITE REPLACEMENT OF FOSSILS
-253.1	TRADEWATER		BLACK SHALE	0.4	753.1	CARBONIZED PLANT FRAGMENTS
-253.5	TRADEWATER		CLAYSTONE & SILTSTONE	1.3	753.5	PLANT FRAGMENTS

MAPID: 19900045000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764615 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.792123 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 526.4 **LOGGED (FT.):** 434.0 **LOG TYPE:** Drillers Log

SOURCE: CORINTH COAL CO. 23 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
526.4	PLEISTOCENE		CLAY	20.0	0.0	
506.4	MODESTO		SANDSTONE	9.0	20.0	
497.4	MODESTO		SHALY SANDSTONE	6.0	29.0	
491.4	MODESTO		SANDSTONE	94.0	35.0	
397.4	MODESTO		SANDSTONE/SHALE	13.5	129.0	GRAY
383.9	MODESTO		COAL	0.1	142.5	
383.8	MODESTO		GRAY SHALE	4.4	142.6	
379.4	MODESTO		SHALE	8.0	147.0	
371.4	MODESTO		SANDSTONE/SHALE	18.0	155.0	
353.4	MODESTO		DARK SHALE	5.8	173.0	
347.6	MODESTO	POND CREEK	COAL	1.1	178.8	
346.5	MODESTO		GRAY SHALE	4.1	179.9	
342.4	MODESTO		SANDSTONE	12.0	184.0	
330.4	MODESTO		SHALE	2.0	196.0	
328.4	MODESTO		BLUE SHALE	16.0	198.0	
312.4	MODESTO		SHALE	16.0	214.0	
296.4	MODESTO		SANDY SHALE	25.0	230.0	
271.4	MODESTO		DARK SHALE	4.0	255.0	
267.4	MODESTO		COAL	0.2	259.0	
267.2	MODESTO		DARK SHALE	6.7	259.2	
260.6	MODESTO		COAL	0.6	265.8	
260.0	MODESTO		DARK SHALE	0.8	266.4	
259.2	CARBONDALE	DANVILLE	COAL	2.0	267.2	
257.3	CARBONDALE		BLACK SHALE	1.1	269.1	
256.1	CARBONDALE		SHALE & SANDSTONE	2.9	270.3	
253.2	CARBONDALE		SHALE	2.5	273.2	
250.7	CARBONDALE		SANDSTONE	0.5	275.7	
250.2	CARBONDALE		GRAY SHALE	1.5	276.2	
248.7	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	277.7	
240.9	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	6.5	285.5	
234.4	CARBONDALE		SHALE	32.0	292.0	
202.4	CARBONDALE	CONANT	LIMESTONE	0.3	324.0	
202.1	CARBONDALE	JAMESTOWN	COAL WITH SHALE	0.3	324.3	
201.7	CARBONDALE		LIMESTONE	0.3	324.7	
201.4	CARBONDALE		DARK SHALE	5.3	325.0	
196.1	CARBONDALE	BRERETON	GRAY LIMESTONE	0.7	330.3	
195.4	CARBONDALE	ANNA	DARK SHALE	4.0	331.0	
191.4	CARBONDALE	ANNA	SHALE	2.5	335.0	
188.9	CARBONDALE	ANNA	DARK SHALE	0.8	337.5	

188.1	CARBONDALE	HERRIN	COAL	2.7	338.3
185.5	CARBONDALE	HERRIN	BLACK SHALE	0.0	340.9
185.5	CARBONDALE	HERRIN	COAL	0.1	340.9
185.3	CARBONDALE	HERRIN	BLACK SHALE	0.4	341.1
185.0	CARBONDALE	HERRIN	BLACK SHALE	0.1	341.4
184.8	CARBONDALE	HERRIN	COAL	2.4	341.6
182.5	CARBONDALE		GREEN SHALE	2.3	343.9
180.2	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.0	346.2
174.2	CARBONDALE		DARK SHALE	3.8	352.2
170.4	CARBONDALE	BRIAR HILL	COAL	0.5	356.0
169.9	CARBONDALE		DARK SHALE	3.3	356.5
166.6	CARBONDALE	ST. DAVID	LIMESTONE	0.8	359.8
165.9	CARBONDALE	DYKERSBURG	DARK SHALE	0.5	360.5
165.4	CARBONDALE	DYKERSBURG	SHALE	5.0	361.0
160.4	CARBONDALE	DYKERSBURG	SHALE	13.0	366.0
147.4	CARBONDALE	DYKERSBURG	SHALY SANDSTONE	4.0	379.0
143.4	CARBONDALE	DYKERSBURG	SHALE	12.0	383.0
131.4	CARBONDALE	DYKERSBURG	DARK SHALE	33.9	395.0
97.5	CARBONDALE	SPRINGFIELD	COAL	0.5	428.9
97.0	CARBONDALE	SPRINGFIELD	PYRITE	0.1	429.4
96.9	CARBONDALE	SPRINGFIELD	COAL	0.5	429.5
96.4	CARBONDALE	SPRINGFIELD	PYRITE	0.1	430.0
96.3	CARBONDALE	SPRINGFIELD	PYRITE	0.1	430.1
96.1	CARBONDALE	SPRINGFIELD	COAL	2.9	430.3
93.2	CARBONDALE		UNDERCLAY	0.8	433.2

MAPID: 19900046000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW NW SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.779505 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.796939 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 426.0 **LOGGED (FT.):** 337.2 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 2 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
183.0	MODESTO	PIASA	LIMESTONE	3.0	243.0	
180.0	MODESTO		DARK GRAY SHALE	6.0	246.0	
174.0	CARBONDALE	DANVILLE	COAL	2.5	252.0	
171.5	CARBONDALE		SILTY SHALE	12.5	254.5	
159.0	CARBONDALE	ALLENBY	COAL	0.5	267.0	
158.5	CARBONDALE		GRAY SHALE	6.5	267.5	
152.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	274.0	
142.0	CARBONDALE	LAWSON	SILTY SHALE	24.0	284.0	
118.0	CARBONDALE	LAWSON	DARK GRAY SHALE	8.0	308.0	
110.0	CARBONDALE	CONANT	CALCAREOUS SHALE	0.5	316.0	
109.5	CARBONDALE	JAMESTOWN	BONE COAL	2.5	316.5	
107.0	CARBONDALE		BLACK SHALE	5.5	319.0	
101.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.0	324.5	
97.5	CARBONDALE	ANNA	BLACK SHALE	4.3	328.5	
94.0	CARBONDALE	HERRIN	COAL	5.2	332.0	

MAPID: 19900046000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW NW SW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.779505 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.796939 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 526.0 **LOGGED (FT.):** 426.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
274.0	CARBONDALE	DANVILLE	COAL	-	252.0	
252.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	274.0	
194.0	CARBONDALE	HERRIN	COAL	5.1	332.0	
159.0	CARBONDALE	CANTON		19.0	367.0	
105.0	CARBONDALE	SPRINGFIELD	COAL	4.3	421.0	

MAPID: 19900046000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.779505 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796939 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 526.3 **LOGGED (FT.):** 426.0 **LOG TYPE:** Drillers Log

SOURCE: R SMILEY 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
526.3	PLEISTOCENE		UNCONSOLIDATED	1.0	0.0	
525.3	PLEISTOCENE		BROWN SANDSTONE	19.0	1.0	
506.3	PLEISTOCENE		CLAY & GRAVEL	8.0	20.0	
498.3	MODESTO		SANDSTONE	4.0	28.0	
494.3	MODESTO		SHALY SANDSTONE	17.0	32.0	
477.3	MODESTO		SANDSTONE	30.0	49.0	
447.3	MODESTO		SHALY SANDSTONE	21.0	79.0	
426.3	MODESTO		SANDSTONE	15.0	100.0	
411.3	MODESTO		SANDSTONE/SHALE	34.0	115.0	
377.3	MODESTO		DARK SHALE	3.0	149.0	
374.3	MODESTO		COAL	0.3	152.0	
374.0	MODESTO		BLUE SHALE	7.7	152.3	
366.3	MODESTO		SHALY SANDSTONE	13.0	160.0	
353.3	MODESTO		SHALE	18.0	173.0	
335.3	MODESTO		BLACK SHALE	3.0	191.0	
332.3	MODESTO	POND CREEK	COAL	1.3	194.0	
331.0	MODESTO		UNDERCLAY	2.8	195.3	
328.3	MODESTO		SHALE	2.0	198.0	
326.3	MODESTO		UNDERCLAY	2.0	200.0	
324.3	MODESTO		SHALY SANDSTONE	10.0	202.0	
314.3	MODESTO		SANDSTONE	9.0	212.0	
305.3	MODESTO		SHALE	4.0	221.0	
301.3	MODESTO		SHALE	0.5	225.0	
300.8	MODESTO		SHALY SANDSTONE	4.5	225.5	
296.3	MODESTO		SANDSTONE	8.0	230.0	
288.3	MODESTO		BLACK SHALE	3.0	238.0	
285.3	MODESTO		BONE COAL	0.5	241.0	
284.8	MODESTO		UNDERCLAY	0.5	241.5	
284.3	MODESTO		BLUE SHALE	1.0	242.0	
283.3	MODESTO	PIASA	LIMESTONE	3.0	243.0	
280.3	MODESTO		BLUE SHALE	6.0	246.0	
274.3	CARBONDALE	DANVILLE	COAL	2.5	252.0	
271.8	CARBONDALE		UNDERCLAY	0.5	254.5	
271.3	CARBONDALE		SHALE	11.0	255.0	
260.3	CARBONDALE		SHALE	1.0	266.0	
259.3	CARBONDALE	ALLENBY	COAL	0.5	267.0	
258.8	CARBONDALE		BLUE SHALE	6.5	267.5	
252.3	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	10.0	274.0	
242.3	CARBONDALE		SHALE	24.0	284.0	

218.3	CARBONDALE		BLUE SHALE	8.0	308.0	
210.3	CARBONDALE	CONANT	LIMESTONE	0.5	316.0	
209.8	CARBONDALE		BLACK SHALE	2.5	316.5	
207.3	CARBONDALE		BLACK SHALE	5.5	319.0	
201.8	CARBONDALE	BRERETON	LIMESTONE	4.0	324.5	
197.8	CARBONDALE	ANNA	BLACK SHALE	4.3	328.5	
193.5	CARBONDALE	HERRIN	COAL	2.8	332.8	
190.7	CARBONDALE	HERRIN	BLACK SHALE	0.2	335.6	
190.5	CARBONDALE	HERRIN	COAL	2.2	335.8	LOWER 6 IN. BONY
188.4	CARBONDALE		UNDERCLAY	2.1	337.9	
186.3	CARBONDALE		SHALE	16.8	340.0	
169.5	CARBONDALE	HIGGINSVILLE	LIMESTONE	0.3	356.8	
169.3	CARBONDALE		SANDSTONE/SHALE	10.0	357.0	
159.3	CARBONDALE		SHALY SANDSTONE	18.8	367.0	
140.5	CARBONDALE		BLUE SHALE	14.5	385.8	
126.0	CARBONDALE		SANDSTONE/SHALE	20.3	400.3	
105.6	CARBONDALE	SPRINGFIELD	COAL	0.8	420.7	NOT CORED
104.9	CARBONDALE	SPRINGFIELD	COAL	3.5	421.4	
101.4	CARBONDALE		UNDERCLAY	1.1	424.9	

MAPID: 19902108000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 380' N line, 330' W line of NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.77029 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.804039 **DATE COLLECTED:** 8 / 0 / 1957

SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 1610.0 **LOG TYPE:** Electric Log

SOURCE: CARTER OIL COMPANY **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-126.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	635.0	
-191.0	SPOON	DAVIS	UNCLASSIFIED	-	700.0	
-1101.0	BASE OF PENN.		UNCLASSIFIED	-	1610.0	

MAPID: 19900047000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786431 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.798779 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 314.8 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 22 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
279.0	MODESTO	PIASA	LIMESTONE	4.0	217.0	
275.0	MODESTO		DARK GRAY SHALE	7.9	221.0	
267.1	CARBONDALE	DANVILLE	COAL	1.8	228.9	
265.3	CARBONDALE		SILTY SHALE	14.7	230.7	
250.7	CARBONDALE	ALLENBY	COAL	0.3	245.3	
250.3	CARBONDALE		CALCAREOUS SHALE	5.3	245.7	
245.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	251.0	
235.0	CARBONDALE	LAWSON	SILTY SHALE	19.0	261.0	
216.0	CARBONDALE	LAWSON	GRAY SHALE	14.3	280.0	
201.7	CARBONDALE	JAMESTOWN	BONE COAL	0.3	294.3	
201.4	CARBONDALE		DARK GRAY SHALE	8.4	294.6	
193.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.0	303.0	
190.0	CARBONDALE	ANNA	BLACK SHALE	3.9	306.0	
187.0	CARBONDALE	HERRIN	COAL	5.8	309.0	

MAPID: 19900047000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786431 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.798779 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 402.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
267.0	CARBONDALE	DANVILLE	COAL	1.8	229.0	
245.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	251.0	
186.0	CARBONDALE	HERRIN	COAL	5.6	310.0	
100.0	CARBONDALE	SPRINGFIELD	COAL	4.3	396.0	

MAPID: 19900047000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** SE SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786431 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.798779 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 495.8 **LOGGED (FT.):** 401.5 **LOG TYPE:** Drillers Log

SOURCE: GG RAY 22 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.8	PLEISTOCENE		SAND/CLAY	20.0	0.0	
475.8	PLEISTOCENE		GRAVEL	0.5	20.0	
475.3	MODESTO		SANDSTONE	63.5	20.5	
411.8	MODESTO		SHALE	32.0	84.0	
379.8	MODESTO		SHALE	16.0	116.0	
363.8	MODESTO		COAL	0.1	132.0	
363.7	MODESTO		UNDERCLAY	2.9	132.1	
360.8	MODESTO		LIMESTONE	10.0	135.0	
350.8	MODESTO		SHALE	17.0	145.0	
333.8	MODESTO		BLACK SHALE	3.5	162.0	
330.3	MODESTO	POND CREEK	COAL	0.8	165.5	
329.5	MODESTO		SHALE	3.8	166.3	
325.8	MODESTO		SHALE	11.0	170.0	
314.8	MODESTO		SHALE	1.0	181.0	
313.8	MODESTO		SHALE	14.0	182.0	
299.8	MODESTO		SHALE	21.0	196.0	
278.8	MODESTO	PIASA	LIMESTONE	4.0	217.0	
274.8	MODESTO		DARK SHALE	7.9	221.0	
266.9	CARBONDALE	DANVILLE	COAL	1.8	228.9	
265.1	CARBONDALE		UNDERCLAY	2.3	230.7	
262.8	CARBONDALE		SHALE	10.0	233.0	
252.8	CARBONDALE	ALLENBY	COAL	0.5	243.0	
252.3	CARBONDALE	ALLENBY	BLACK SHALE	1.8	243.5	
250.5	CARBONDALE	ALLENBY	COAL	0.3	245.3	
250.1	CARBONDALE	BANKSTON FORK	LIMESTONE	5.3	245.7	
244.8	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	251.0	
234.8	CARBONDALE		SHALE	19.0	261.0	
215.8	CARBONDALE		GRAY SHALE	14.3	280.0	
201.5	CARBONDALE	JAMESTOWN	COAL	0.3	294.3	
201.2	CARBONDALE		DARK SHALE	8.4	294.6	
192.8	CARBONDALE	BRERETON	LIMESTONE	3.0	303.0	
189.8	CARBONDALE	ANNA	SHALE	3.9	306.0	
185.9	CARBONDALE	HERRIN	COAL	2.9	309.9	
183.0	CARBONDALE	HERRIN	PYRITE	0.1	312.8	
182.9	CARBONDALE	HERRIN	COAL	1.4	312.9	
181.5	CARBONDALE	HERRIN	COAL	1.4	314.3	
180.1	CARBONDALE		UNDERCLAY	4.3	315.7	
175.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.0	320.0	
169.8	CARBONDALE		SHALE	59.0	326.0	

110.8	CARBONDALE		GRAY SHALE	11.5	385.0
99.3	CARBONDALE	SPRINGFIELD	COAL	0.8	396.5
98.5	CARBONDALE	SPRINGFIELD	PYRITE	0.0	397.3
98.5	CARBONDALE	SPRINGFIELD	COAL	3.5	397.3
95.0	CARBONDALE		UNDERCLAY	0.7	400.8

MAPID: 19900048000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.782972 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796025 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 437.2 **LOG TYPE:** Drillers Log

SOURCE: OA HARKER 9 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
520.0	PLEISTOCENE		CLAY	27.0	0.0	
493.0	PLEISTOCENE		SAND	8.0	27.0	
485.0	MODESTO		BLACK SHALE	10.0	35.0	
475.0	MODESTO		COAL	2.0	45.0	
473.0	MODESTO		SANDSTONE	3.0	47.0	
470.0	MODESTO		SHALE & SILTSTONE	18.0	50.0	
452.0	MODESTO	CHAPEL	COAL	1.2	68.0	
450.8	MODESTO		SHALE & SILTSTONE	80.0	69.2	
370.8	MODESTO		BLACK SHALE	3.2	149.2	
367.7	MODESTO	POND CREEK	COAL	2.3	152.3	
365.3	MODESTO		SHALE & SILTSTONE	40.0	154.7	GRAY
325.3	MODESTO		SHALE & SILTSTONE	20.0	194.7	BLACK
305.3	MODESTO		SANDSTONE	8.0	214.7	
297.3	MODESTO		BLACK SHALE	8.0	222.7	
289.3	MODESTO	PIASA	LIMESTONE	3.0	230.7	
286.3	MODESTO		SHALE & SILTSTONE	12.0	233.7	BLACK
274.3	CARBONDALE	DANVILLE	COAL	4.0	245.7	
270.3	CARBONDALE		SANDSTONE	8.3	249.7	
262.0	CARBONDALE		SHALE & SILTSTONE	18.0	258.0	
244.0	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	276.0	
232.0	CARBONDALE		SHALE & SILTSTONE	23.0	288.0	GRAY
209.0	CARBONDALE		BLACK SHALE	10.0	311.0	
199.0	CARBONDALE	BRERETON	LIMESTONE	3.0	321.0	
196.0	CARBONDALE	ANNA	BLACK SHALE	8.2	324.0	
187.8	CARBONDALE	HERRIN	COAL	8.3	332.2	
179.5	CARBONDALE		UNDERCLAY	2.0	340.5	
177.5	CARBONDALE		SANDSTONE/SHALE	66.0	342.5	
111.5	CARBONDALE		SHALE & SILTSTONE	23.0	408.5	BLACK
88.5	CARBONDALE	SPRINGFIELD	COAL	5.7	431.5	

MAPID: 19900049000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.782972 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.796025 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 409.0 **LOG TYPE:** Drillers Log

SOURCE: ROLLA HOLLAND 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY & GRAVEL	26.0	0.0	
-	MODESTO		SANDSTONE/SHALE	4.0	26.0	
-	MODESTO		SANDSTONE	68.0	30.0	
-	MODESTO		GRAY SHALE	17.0	98.0	
-	MODESTO		DARK SHALE	10.0	115.0	
-	MODESTO		GRAY SHALE	20.0	125.0	
-	MODESTO		SHALE	12.0	145.0	
-	MODESTO	POND CREEK	COAL	0.8	157.0	
-	MODESTO		SHALE	12.2	157.8	
-	MODESTO		SANDSTONE	8.0	170.0	
-	MODESTO		SHALE	29.0	178.0	
-	MODESTO	PIASA	LIMESTONE	4.0	207.0	
-	MODESTO		DARK SHALE	3.0	211.0	
-	MODESTO		GRAY SHALE	2.3	214.0	
-	CARBONDALE	DANVILLE	COAL	2.1	216.3	
-	CARBONDALE		SANDSTONE/SHALE	24.7	218.3	
-	CARBONDALE	ALLENBY	COAL	0.4	243.0	
-	CARBONDALE		UNDERCLAY	1.6	243.4	
-	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	7.0	245.0	
-	CARBONDALE		SANDSTONE	3.0	252.0	
-	CARBONDALE		SHALE	25.0	255.0	
-	CARBONDALE		DARK SHALE	16.5	280.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	296.5	
-	CARBONDALE		UNDERCLAY	3.0	297.0	
-	CARBONDALE	ENERGY	DARK SHALE	7.5	300.0	
-	CARBONDALE	HERRIN	COAL	6.5	307.5	
-	CARBONDALE		UNDERCLAY	2.0	314.0	
-	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.0	316.0	
-	CARBONDALE		SANDSTONE/SHALE	37.0	325.0	
-	CARBONDALE		DARK SHALE	39.7	362.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	401.7	
-	CARBONDALE		UNDERCLAY	3.0	406.0	

MAPID: 19902149000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.786431 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.796946 **DATE COLLECTED:** 5 / 0 / 1958

SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 1605.0 **LOG TYPE:** Electric Log

SOURCE: BARTMES, ROSS **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-80.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	608.0	
-150.0	SPOON	DAVIS	UNCLASSIFIED	-	678.0	
-1077.0	BASE OF PENN.		UNCLASSIFIED	-	1605.0	

MAPID: 19902576000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.781755 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.804349 **DATE COLLECTED:** 6 / 0 / 1973

SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 1630.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-114.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	630.0	
-186.0	SPOON	DAVIS	UNCLASSIFIED	-	702.0	
-1114.0	BASE OF PENN.		UNCLASSIFIED	-	1630.0	

MAPID: 19900050000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.810604 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.795883 **DATE COLLECTED:** 0 / 0 / 1904

SURFACE ELEVATION (FT.): 519.0 **LOGGED (FT.):** 458.2 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
519.0	PLEISTOCENE		UNCONSOLIDATED	38.8	0.0	
480.2	MODESTO		BROWN SANDSTONE	8.0	38.8	
472.2	MODESTO		GRAY SANDSTONE	10.3	46.8	
462.0	MODESTO		BLUE LIMESTONE	3.4	57.0	
458.6	MODESTO		GRAY SANDSTONE	9.0	60.4	
449.6	MODESTO		SHALE & SILTSTONE	34.5	69.4	
415.1	MODESTO		BLACK SHALE	1.5	103.9	
413.6	MODESTO		BLACK SHALE	1.5	105.4	
412.1	MODESTO		BLACK SHALE	2.5	106.9	
409.6	MODESTO		BLACK SHALE	2.0	109.4	
407.6	MODESTO		SHALE & SILTSTONE	20.8	111.4	
386.7	MODESTO		BLACK SHALE	10.0	132.3	
376.8	MODESTO		BLACK SHALE	2.0	142.2	
374.8	MODESTO	POND CREEK	COAL	0.3	144.2	
374.5	MODESTO		UNDERCLAY	1.7	144.5	
372.8	MODESTO		LIMESTONE	3.0	146.2	
369.8	MODESTO		GRAY SANDSTONE	24.0	149.2	
345.8	MODESTO		SHALE & SILTSTONE	14.8	173.2	
331.0	MODESTO		BLACK SHALE	0.5	188.0	
330.5	MODESTO	PIASA	LIMESTONE	2.7	188.5	
327.8	MODESTO		BLACK SHALE	1.7	191.2	
326.2	MODESTO		BLACK SHALE	1.1	192.8	
325.1	MODESTO		BLACK SHALE	5.4	193.9	
319.7	CARBONDALE	DANVILLE	COAL	1.7	199.3	
318.0	CARBONDALE		SHALE & SILTSTONE	11.6	201.0	BLUE
306.4	CARBONDALE	ALLENBY	COAL	0.8	212.6	
305.6	CARBONDALE		BLACK SHALE	2.3	213.4	
303.3	CARBONDALE	BANKSTON FORK	LIMESTONE	7.3	215.7	
296.0	CARBONDALE		BLACK SHALE	4.0	223.0	
292.0	CARBONDALE		SANDSTONE	8.5	227.0	
283.5	CARBONDALE		SHALE & SILTSTONE	30.3	235.5	BLUE
253.2	CARBONDALE		DARK SANDSTONE	2.7	265.8	
250.5	CARBONDALE		LIMESTONE	4.5	268.5	
246.0	CARBONDALE		BLACK SHALE	2.5	273.0	
243.5	CARBONDALE	BRERETON	LIMESTONE	1.0	275.5	
242.5	CARBONDALE	ANNA	BLACK SHALE	0.6	276.5	
241.9	CARBONDALE	ANNA	BLACK SHALE	4.8	277.1	
237.1	CARBONDALE	ANNA	BLACK SHALE	4.4	281.9	
232.7	CARBONDALE	HERRIN	COAL	4.4	286.3	

228.2	CARBONDALE		BLACK SHALE	10.0	290.8	
218.2	CARBONDALE	HIGGINSVILLE	BLUE LIMESTONE	1.0	300.8	
217.2	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	2.0	301.8	
215.2	CARBONDALE	HIGGINSVILLE	BLACK SHALE	1.0	303.8	
214.2	CARBONDALE	HIGGINSVILLE	BLUE LIMESTONE	1.0	304.8	
213.2	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	63.3	305.8	BLUE
150.0	CARBONDALE	SPRINGFIELD	COAL	3.1	369.0	
146.9	CARBONDALE		UNDERCLAY	2.0	372.1	
144.9	CARBONDALE		WHITE LIMESTONE	12.0	374.1	
132.9	CARBONDALE		WHITE SANDSTONE	8.0	386.1	
124.9	CARBONDALE		SHALE & SILTSTONE	43.0	394.1	BLUE
81.9	CARBONDALE	EXCELLO	BLACK SHALE	5.3	437.1	
76.7	CARBONDALE	HOUCHIN CREEK	COAL	1.0	442.3	
75.7	CARBONDALE		BLACK SHALE	2.0	443.3	
73.7	CARBONDALE		LIMESTONE	10.8	445.3	
62.8	CARBONDALE		BLACK SHALE	2.0	456.2	

MAPID: 19901415000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 350' S line, 40' W line of SW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.817324 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.798565 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 442.7 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR COAL CO 8 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
196.2	MODESTO	PIASA	LIMESTONE	3.3	350.8	
193.0	MODESTO		GRAY SHALE	6.4	354.0	
186.6	CARBONDALE	DANVILLE	COAL	2.1	360.4	
184.5	CARBONDALE		SHALE & SANDSTONE	3.8	362.5	
180.7	CARBONDALE	ALLENBY	COAL	0.5	366.3	
180.2	CARBONDALE		CLAYSTONE	4.6	366.8	
175.6	CARBONDALE	BANKSTON FORK	LIMESTONE	7.1	371.4	LOWER BENCH
168.5	CARBONDALE	LAWSON	GRAY SHALE	12.0	378.5	
156.5	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	1.5	390.5	
155.0	CARBONDALE	LAWSON	GRAY SHALE	24.2	392.0	
130.8	CARBONDALE	CONANT	LIMESTONE	0.6	416.2	
130.2	CARBONDALE	JAMESTOWN	COAL	0.4	416.8	
129.8	CARBONDALE		BLACK SHALE	6.1	417.2	
123.7	CARBONDALE	BRERETON	LIMESTONE	9.9	423.3	
113.8	CARBONDALE	ANNA	BLACK SHALE	3.8	433.2	
110.0	CARBONDALE	HERRIN	COAL	5.7	437.0	

MAPID: 19902263000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' S line, 330' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.800332 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.791392 **DATE COLLECTED:** 3 / 0 / 1964

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 1540.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-55.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	580.0	
-125.0	SPOON	DAVIS	UNCLASSIFIED	-	650.0	
-1015.0	BASE OF PENN.		UNCLASSIFIED	-	1540.0	

MAPID: 19990018000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 500' S line, 0' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.799167 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.799189 **DATE COLLECTED:** 2 / 28 / 1950

SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 329.8 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO DH#7 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
483.0	MODESTO		SANDSTONE	19.1	25.0	
463.9	MODESTO		SILTY SHALE	36.1	44.1	
427.8	MODESTO		BLACK SHALE	2.5	80.2	
425.3	MODESTO	POND CREEK	COAL	0.5	82.7	
424.8	MODESTO		UNDERCLAY	4.7	83.2	
420.1	MODESTO		CLAYSTONE	5.4	87.9	
414.7	MODESTO		SANDSTONE	16.0	93.3	
398.7	MODESTO		SILTY SHALE	27.5	109.3	
371.2	MODESTO	DEGRAFF	COAL	0.1	136.8	
371.1	MODESTO		UNDERCLAY	1.1	136.9	
370.0	MODESTO	PIASA	LIMESTONE	2.0	138.0	
368.0	MODESTO		CLAYSTONE	2.1	140.0	
365.9	MODESTO		GRAY SHALE	3.2	142.1	
362.7	CARBONDALE	DANVILLE	COAL	1.6	145.3	
361.1	CARBONDALE		SILTY SHALE	1.4	146.9	
359.7	CARBONDALE		SANDSTONE	2.1	148.3	
357.6	CARBONDALE		GRAY SHALE	4.2	150.4	
353.4	CARBONDALE	ALLENBY	COAL	0.1	154.6	
353.3	CARBONDALE		GRAY SHALE	3.0	154.7	
350.3	CARBONDALE		CLAYSTONE	1.4	157.7	
348.9	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	159.1	
341.1	CARBONDALE		GRAY SHALE	9.8	166.9	
331.3	CARBONDALE	ANVIL ROCK	SANDSTONE	43.6	176.7	
287.7	CARBONDALE		GRAY SHALE	2.1	220.3	
285.6	CARBONDALE	CONANT	LIMESTONE	1.8	222.4	
283.8	CARBONDALE		GRAY SHALE	0.6	224.2	
283.2	CARBONDALE	BRERETON	LIMESTONE	6.1	224.8	
277.1	CARBONDALE	ANNA	BLACK SHALE	4.4	230.9	
272.7	CARBONDALE	HERRIN	COAL	4.9	235.3	
267.8	CARBONDALE		UNDERCLAY	1.6	240.2	
266.2	CARBONDALE		GRAY SHALE	16.2	241.8	
250.0	CARBONDALE	BRIAR HILL	COAL	0.8	258.0	
249.2	CARBONDALE		GRAY SHALE	1.8	258.8	
247.4	CARBONDALE	ST. DAVID	LIMESTONE	1.1	260.6	
246.3	CARBONDALE	DYKERSBURG	GRAY SHALE	13.0	261.7	
233.3	CARBONDALE	DYKERSBURG	SANDSTONE	0.6	274.7	
232.7	CARBONDALE	DYKERSBURG	SANDY SHALE	15.8	275.3	
216.9	CARBONDALE	DYKERSBURG	SILTY SHALE	33.2	291.1	

183.7	CARBONDALE	SPRINGFIELD	COAL	3.9	324.3
179.8	CARBONDALE		UNDERCLAY	1.6	328.2

MAPID: 19990025000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of NE SE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.801464 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.794135 **DATE COLLECTED:** 8 / 24 / 1976

SURFACE ELEVATION (FT.): 526.0 **LOGGED (FT.):** 260.7 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO #3PORTAL **WELL TYPE:** Coal Test

COMMENT: PERMIT #40, ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
526.0	PLEISTOCENE		UNCONSOLIDATED	7.8	0.0	
518.2	PLEISTOCENE		CLAY	0.8	7.8	
517.4	MODESTO		SANDSTONE	1.0	8.6	
516.4	MODESTO		CLAYSTONE	1.0	9.6	
515.4	MODESTO		SANDY SHALE	3.9	10.6	
511.5	MODESTO		ARGILLACEOUS SANDSTONE	4.0	14.5	
507.5	MODESTO		SILTSTONE	0.8	18.5	
506.7	MODESTO		BROWN SANDSTONE	4.2	19.3	
502.5	MODESTO		SANDSTONE	1.8	23.5	WHITE
500.7	MODESTO		SANDSTONE	33.0	25.3	
467.7	MODESTO		GRAY SHALE	2.9	58.3	
464.8	MODESTO		CLAYSTONE	4.0	61.2	
460.8	MODESTO		GRAY SHALE	28.4	65.2	
432.4	MODESTO		BLACK SHALE	3.1	93.6	
429.3	MODESTO	POND CREEK	COAL	0.3	96.7	
429.0	MODESTO		CLAYSTONE	5.4	97.0	
423.6	MODESTO		LIMESTONE	0.8	102.4	BROWN
422.8	MODESTO		CLAYSTONE	4.8	103.2	
418.0	MODESTO		SILTSTONE	6.0	108.0	
412.0	MODESTO		SILTSTONE	6.2	114.0	
405.8	MODESTO		SILTY SHALE	7.5	120.2	
398.3	MODESTO		GRAY SHALE	17.8	127.7	
380.5	MODESTO		BLACK SHALE	0.3	145.5	
380.2	MODESTO	DEGRAFF	COAL	0.4	145.8	
379.8	MODESTO		CLAYSTONE	1.0	146.2	
378.8	MODESTO	PIASA	LIMESTONE	2.8	147.2	
376.0	MODESTO		CLAYSTONE	1.0	150.0	
375.0	MODESTO		GRAY SHALE	3.2	151.0	
371.8	MODESTO		BLACK SHALE	3.2	154.2	
368.6	CARBONDALE	DANVILLE	COAL	4.5	157.4	
364.1	CARBONDALE		CLAYSTONE	2.7	161.9	
361.4	CARBONDALE		SILTSTONE	2.0	164.6	
359.4	CARBONDALE	ALLENBY	COAL	1.0	166.6	
358.4	CARBONDALE		CLAYSTONE	1.8	167.6	
356.6	CARBONDALE		SILTY SHALE	2.9	169.4	
353.7	CARBONDALE		SILTSTONE	2.8	172.3	GRAY
350.9	CARBONDALE		GRAY SHALE	0.4	175.1	
350.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	175.5	GRAY

344.7	CARBONDALE		GRAY SHALE	2.5	181.3	
342.2	CARBONDALE		SILTSTONE	12.8	183.8	
329.4	CARBONDALE	ANVIL ROCK	SANDSTONE	44.3	196.6	
285.1	CARBONDALE		LIMESTONE	0.6	240.9	GRAY
284.5	CARBONDALE		GRAY SHALE	4.8	241.5	
279.7	CARBONDALE	BRERETON	LIMESTONE	4.4	246.3	GRAY
275.3	CARBONDALE	ANNA	BLACK SHALE	3.0	250.7	
272.3	CARBONDALE	ANNA	LIMESTONE	0.6	253.7	
271.7	CARBONDALE	ANNA	BLACK SHALE	0.4	254.3	
271.3	CARBONDALE	HERRIN	COAL	5.8	254.7	
265.5	CARBONDALE		CLAYSTONE	0.2	260.5	

MAPID: 19900051000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** NE SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809531 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.785858 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 323.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		BROWN SANDSTONE	15.0	0.0	
465.0	PLEISTOCENE		CLAY	30.0	15.0	BLUE
435.0	MODESTO		BLUE SHALE	2.0	45.0	
433.0	MODESTO		DARK SHALE	4.0	47.0	
429.0	MODESTO		BLACK SHALE	13.0	51.0	
416.0	MODESTO		SHALE	1.0	64.0	
415.0	MODESTO		GRAY SHALE	10.0	65.0	
405.0	MODESTO		DARK SHALE	24.0	75.0	
381.0	MODESTO		LIMESTONE	9.0	99.0	
372.0	MODESTO		GRAY LIMESTONE	3.0	108.0	
369.0	MODESTO		SANDSTONE/SHALE	7.0	111.0	
362.0	MODESTO		DARK SHALE	24.0	118.0	
338.0	MODESTO	PIASA	GRAY LIMESTONE	3.0	142.0	
335.0	MODESTO		DARK SHALE	4.0	145.0	
331.0	CARBONDALE	DANVILLE	COAL	1.1	149.0	
329.9	CARBONDALE		UNDERCLAY	6.9	150.1	
323.0	CARBONDALE		SANDSTONE	5.0	157.0	
318.0	CARBONDALE		DARK SHALE	6.0	162.0	
312.0	CARBONDALE	ALLENBY	COAL	0.3	168.0	
311.7	CARBONDALE		UNDERCLAY	0.7	168.3	
311.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	169.0	
302.0	CARBONDALE		DARK SHALE	37.0	178.0	
265.0	CARBONDALE	BRERETON	LIMESTONE	5.0	215.0	
260.0	CARBONDALE	ANNA	BLACK SHALE	6.0	220.0	
254.0	CARBONDALE	HERRIN	COAL	7.1	226.0	
246.9	CARBONDALE		SHALE	2.9	233.1	
244.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.0	236.0	
236.0	CARBONDALE		DARK SHALE	5.0	244.0	
231.0	CARBONDALE		LIMESTONE	2.0	249.0	
229.0	CARBONDALE	BRIAR HILL	COAL	0.8	251.0	
228.2	CARBONDALE		DARK SHALE	2.2	251.8	
226.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	254.0	
224.0	CARBONDALE	DYKERSBURG	DARK SHALE	58.8	256.0	
165.2	CARBONDALE	SPRINGFIELD	COAL	0.3	314.8	4'6"
165.0	CARBONDALE	SPRINGFIELD	COAL	4.3	315.0	
160.7	CARBONDALE		UNDERCLAY	3.8	319.3	

MAPID: 19901044000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** 345' N line, 390' W line of SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.80715 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.778431 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2944.0 **LOG TYPE:** Electric Log

SOURCE: ARROW DRILLING CO. **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	CARBONDALE	DANVILLE	COAL	-	174.0	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	-	206.0	
-	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	36.0	212.0	
-	CARBONDALE	HERRIN	COAL	-	280.0	
-	CARBONDALE	BRIAR HILL	COAL	-	304.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.0	366.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	-	440.0	

MAPID: 19901410000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of SW SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.806127 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.78494 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 232.5 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR COAL CO 3 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
340.5	MODESTO	PIASA	LIMESTONE	1.4	139.5	
339.1	MODESTO		GRAY SHALE	5.3	140.9	
333.9	CARBONDALE	DANVILLE	COAL	1.9	146.1	
332.0	CARBONDALE		SHALE & SANDSTONE	16.0	148.0	
316.0	CARBONDALE	ALLENBY	BONE COAL	0.6	164.0	
315.4	CARBONDALE		CLAYSTONE	1.0	164.6	
314.4	CARBONDALE	BANKSTON FORK	LIMESTONE	6.7	165.6	
307.7	CARBONDALE	LAWSON	GRAY SHALE	8.9	172.3	
298.8	CARBONDALE	LAWSON	SHALE & SILTSTONE	4.7	181.2	
294.1	CARBONDALE	LAWSON	GRAY SHALE	9.8	185.9	
284.4	CARBONDALE	LAWSON	SHALE & SILTSTONE	7.8	195.6	
276.6	CARBONDALE	LAWSON	GRAY SHALE	8.3	203.4	
268.2	CARBONDALE	CONANT	CALCAREOUS SHALE	0.3	211.8	
267.9	CARBONDALE	JAMESTOWN	COAL	0.3	212.1	
267.6	CARBONDALE		GRAY SHALE	1.1	212.4	
266.5	CARBONDALE	BRERETON	LIMESTONE	3.3	213.5	
263.2	CARBONDALE	ANNA	BLACK SHALE	5.1	216.8	
258.2	CARBONDALE	ENERGY	GRAY SHALE	4.1	221.8	
254.1	CARBONDALE	ENERGY	BLACK SHALE	1.1	225.9	
253.0	CARBONDALE	HERRIN	COAL	5.5	227.0	

MAPID: 19901872000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809569 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.783986 **DATE COLLECTED:** 8 / 0 / 1955

SURFACE ELEVATION (FT.): 506.0 **LOGGED (FT.):** 1435.0 **LOG TYPE:** Electric Log

SOURCE: ARROW DRILLING CO. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-19.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	525.0	
-94.0	SPOON	DAVIS	UNCLASSIFIED	-	600.0	
-929.0	BASE OF PENN.		UNCLASSIFIED	-	1435.0	

MAPID: 19990023000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** 0' N line, 0' E line of NW SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.810768 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.779361 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 362.1 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL CO. DH-14 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.0	PLEISTOCENE		CLAY	83.0	0.0	
412.0	MODESTO		GRAY SHALE	10.8	83.0	
401.2	MODESTO		SANDSTONE	0.8	93.8	
400.4	MODESTO		GRAY SHALE	12.5	94.6	
387.9	MODESTO		CARBONACEOUS SHALE	0.5	107.1	
387.4	MODESTO		UNDERCLAY	2.1	107.6	
385.3	MODESTO		SHALY SANDSTONE	13.0	109.7	
372.3	MODESTO		GRAY SHALE	17.6	122.7	
354.7	MODESTO		BLACK SHALE	2.5	140.3	
352.2	MODESTO		GRAY SHALE	2.1	142.8	
350.1	MODESTO	POND CREEK	COAL	0.7	144.9	
349.4	MODESTO		UNDERCLAY	4.1	145.6	
345.3	MODESTO		LIMESTONE	0.5	149.7	GRAY
344.8	MODESTO		SHALE	2.8	150.2	
342.0	MODESTO		SILTSTONE	2.0	153.0	
340.0	MODESTO		SANDSTONE	6.8	155.0	
333.2	MODESTO		GRAY SHALE	25.5	161.8	
307.7	MODESTO	DEGRAFF	COAL	0.1	187.3	
307.6	MODESTO		GRAY SHALE	1.3	187.4	
306.3	MODESTO	PIASA	LIMESTONE	3.0	188.7	GRAY
303.3	MODESTO		GRAY SHALE	4.8	191.7	
298.5	CARBONDALE	DANVILLE	COAL	2.0	196.5	
296.5	CARBONDALE		UNDERCLAY	1.3	198.5	
295.2	CARBONDALE		GRAY SHALE	1.3	199.8	
293.9	CARBONDALE		SANDSTONE	1.3	201.1	
292.6	CARBONDALE		GRAY SHALE	6.8	202.4	
285.8	CARBONDALE		COAL	0.1	209.2	
285.7	CARBONDALE		UNDERCLAY	0.3	209.3	
285.4	CARBONDALE		SANDSTONE	4.4	209.6	
281.0	CARBONDALE		GRAY SHALE	0.8	214.0	
280.2	CARBONDALE	ALLENBY	COAL	0.5	214.8	
279.7	CARBONDALE		UNDERCLAY	2.1	215.3	
277.6	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	217.4	GRAY
274.6	CARBONDALE		GRAY SHALE	1.5	220.4	
273.1	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	221.9	
265.1	CARBONDALE		GRAY SHALE	3.0	229.9	
262.1	CARBONDALE		COAL	0.3	232.9	
261.8	CARBONDALE		GRAY SHALE	22.5	233.2	
239.3	CARBONDALE	CONANT	LIMESTONE	0.3	255.7	

239.0	CARBONDALE	JAMESTOWN	COAL	0.2	256.0
238.8	CARBONDALE		BLACK SHALE	0.6	256.2
238.2	CARBONDALE	BRERETON	LIMESTONE	2.1	256.8
236.1	CARBONDALE	ANNA	BLACK SHALE	2.8	258.9
233.3	CARBONDALE	ENERGY	GRAY SHALE	10.6	261.7
222.7	CARBONDALE	HERRIN	COAL	5.7	272.3
217.0	CARBONDALE		GRAY SHALE	21.9	278.0
195.1	CARBONDALE	BRIAR HILL	COAL	1.4	299.9
193.7	CARBONDALE		GRAY SHALE	4.4	301.3
189.3	CARBONDALE	ST. DAVID	LIMESTONE	1.5	305.7
187.8	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	307.2
186.8	CARBONDALE	DYKERSBURG	GRAY SHALE	48.3	308.2
138.5	CARBONDALE	SPRINGFIELD	COAL	4.2	356.5
134.3	CARBONDALE		UNDERCLAY	1.4	360.7

MAPID: 19990024000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** 100' N line, 200' E line of SE SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.809107 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.784657 **DATE COLLECTED:** 6 / 21 / 1960

SURFACE ELEVATION (FT.): 497.6 **LOGGED (FT.):** 322.2 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-85-60 **WELL TYPE:** Coal Test

COMMENT: PERMIT 40; DELTA #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
497.6	PLEISTOCENE		CLAY	5.0	0.0	
492.6	PLEISTOCENE		CLAY	5.0	5.0	
487.6	PLEISTOCENE		SAND	2.0	10.0	
485.6	PLEISTOCENE		CLAY	35.0	12.0	
450.6	PLEISTOCENE		CLAY	5.0	47.0	
445.6	MODESTO		GRAY SHALE	4.6	52.0	
441.0	MODESTO		SANDY SHALE	16.0	56.6	
425.0	MODESTO		GRAY SHALE	15.6	72.6	
409.4	MODESTO		BLACK SHALE	2.4	88.2	
407.0	MODESTO		SANDY SHALE	4.1	90.6	
402.9	MODESTO		CALCAREOUS SHALE	1.2	94.7	
401.7	MODESTO		SANDY SHALE	16.8	95.9	
384.9	MODESTO		GREEN SHALE	24.5	112.7	
360.4	MODESTO	PIASA	LIMESTONE	2.1	137.2	
358.3			GREEN SHALE	18.1	139.3	
340.2			WHITE SANDSTONE	8.1	157.4	
332.1			SANDY SHALE	3.1	165.5	
329.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.1	168.6	
326.9	CARBONDALE		SANDY SHALE	20.6	170.7	
306.3	CARBONDALE		GRAY SHALE	22.5	191.3	
283.8	CARBONDALE	BRERETON	LIMESTONE	2.3	213.8	
281.5	CARBONDALE	ANNA	BLACK SHALE	7.7	216.1	
273.8	CARBONDALE		GRAY SHALE	5.0	223.8	
268.8	CARBONDALE	ANNA	BLACK SHALE	1.8	228.8	
267.0	CARBONDALE	HERRIN	COAL	5.5	230.6	
261.5	CARBONDALE		UNDERCLAY	1.0	236.1	
260.5	CARBONDALE		SANDY SHALE	4.1	237.1	
256.4	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.1	241.2	
255.3	CARBONDALE		SANDY SHALE	26.3	242.3	
229.0	CARBONDALE		GRAY SHALE	9.9	268.6	
219.1	CARBONDALE		SANDY SHALE	3.9	278.5	
215.2	CARBONDALE		GRAY SHALE	35.1	282.4	
180.1	CARBONDALE	SPRINGFIELD	COAL	3.8	317.5	
176.4	CARBONDALE		GREEN SHALE	1.0	321.2	

MAPID: 19900052000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.783014 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.788657 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 558.0 **LOGGED (FT.):** 247.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY 1 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
403.0	MODESTO	PIASA	LIMESTONE	3.0	155.0	
400.0	MODESTO		DARK GRAY SHALE	9.0	158.0	
391.0	CARBONDALE	DANVILLE	COAL	2.0	167.0	
389.0	CARBONDALE		ARGILLACEOUS SANDSTONE	13.0	169.0	
376.0	CARBONDALE	ALLENBY	COAL	0.3	182.0	
375.7	CARBONDALE		GRAY SHALE	4.7	182.3	
371.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	187.0	
362.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	4.0	196.0	
358.0	CARBONDALE	LAWSON	SILTY SHALE	21.0	200.0	
337.0	CARBONDALE	LAWSON	DARK GRAY SHALE	7.0	221.0	
330.0	CARBONDALE	JAMESTOWN	BONE COAL	0.5	228.0	
329.5	CARBONDALE		DARK GRAY SHALE	9.0	228.5	
320.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	3.0	237.5	
317.5	CARBONDALE	ANNA	BLACK SHALE	1.5	240.5	
316.0	CARBONDALE	HERRIN	COAL	5.0	242.0	

MAPID: 19900052000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.783014 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.788657 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 558.0 **LOGGED (FT.):** 490.0 **LOG TYPE:** Drillers Log

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
391.0	CARBONDALE	DANVILLE	COAL	2.0	167.0	
389.0	CARBONDALE	SS BELOW NO. 7	SHALY SANDSTONE	13.0	169.0	
371.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	187.0	
362.0	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	4.0	196.0	
316.0	CARBONDALE	HERRIN	COAL	5.0	242.0	
295.0	CARBONDALE	BRIAR HILL	COAL	0.5	263.0	
227.0	CARBONDALE	SPRINGFIELD	COAL	4.3	331.0	
220.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	22.0	338.0	
102.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	456.0	

MAPID: 19900052000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.783014 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.788657 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 557.6 **LOGGED (FT.):** 490.0 **LOG TYPE:** Drillers Log

SOURCE: ZR MITCHELL 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
557.6	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
546.6	MODESTO		BROWN SANDSTONE	4.0	11.0	
542.6	MODESTO		RED SANDSTONE	3.0	15.0	
539.6	MODESTO		BROWN SANDSTONE	7.0	18.0	
532.6	MODESTO		GRAY SANDSTONE	20.0	25.0	
512.6	MODESTO		SHALE	13.0	45.0	
499.6	MODESTO		BLACK SHALE	0.5	58.0	
499.1	MODESTO		COAL	0.2	58.5	
498.9	MODESTO		UNDERCLAY	1.3	58.7	
497.6	MODESTO		BLUE SHALE	10.0	60.0	
487.6	MODESTO		SHALE	26.0	70.0	
461.6	MODESTO		BLACK SHALE	4.0	96.0	
457.6	MODESTO	POND CREEK	COAL	0.5	100.0	
457.1	MODESTO		UNDERCLAY	0.5	100.5	
456.6	MODESTO		SHALY SANDSTONE	34.0	101.0	
422.6	MODESTO		SANDSTONE	5.0	135.0	
417.6	MODESTO		BLUE SHALE	15.0	140.0	
402.6	MODESTO	PIASA	LIMESTONE	3.0	155.0	
399.6	MODESTO		BLUE SHALE	5.5	158.0	
394.1	MODESTO		UNDERCLAY	1.5	163.5	
392.6	MODESTO		BLACK SHALE	2.0	165.0	
390.6	CARBONDALE	DANVILLE	COAL	2.0	167.0	
388.6	CARBONDALE		SHALY SANDSTONE	13.0	169.0	
375.6	CARBONDALE	ALLENBY	COAL	0.3	182.0	
375.3	CARBONDALE		UNDERCLAY	0.7	182.3	
374.6	CARBONDALE		GRAY SHALE	4.0	183.0	
370.6	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	187.0	
361.6	CARBONDALE		SHALY SANDSTONE	4.0	196.0	
357.6	CARBONDALE		SHALE	21.0	200.0	
336.6	CARBONDALE		BLUE SHALE	7.0	221.0	
329.6	CARBONDALE	JAMESTOWN	COAL	0.5	228.0	
329.1	CARBONDALE		BLUE SHALE	7.5	228.5	
321.6	CARBONDALE		BLACK SHALE	1.5	236.0	
320.1	CARBONDALE	BRERETON	LIMESTONE	3.0	237.5	
317.1	CARBONDALE	ANNA	BLACK SHALE	1.5	240.5	
315.6	CARBONDALE	HERRIN	COAL	5.0	242.0	
310.6	CARBONDALE		UNDERCLAY	0.4	247.0	
310.2	CARBONDALE		SHALE	1.6	247.4	
308.6	CARBONDALE		BLUE SHALE	13.0	249.0	

295.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.0	262.0
294.6	CARBONDALE		BLACK SHALE	0.2	263.0
294.4	CARBONDALE	BRIAR HILL	COAL	0.5	263.2
293.9	CARBONDALE	ST. DAVID	LIMESTONE	1.3	263.7
292.6	CARBONDALE	DYKERSBURG	SHALE	66.3	265.0
226.3	CARBONDALE	SPRINGFIELD	COAL	4.3	331.3
222.1	CARBONDALE		BLUE SHALE	2.5	335.5
219.6	CARBONDALE		SANDSTONE	16.0	338.0
203.6	CARBONDALE		SANDSTONE	6.0	354.0
197.6	CARBONDALE		SHALE	17.0	360.0
180.6	CARBONDALE		BLUE SHALE	25.0	377.0
155.6	CARBONDALE		SHALE	38.0	402.0
117.6	CARBONDALE		BLUE SHALE	7.0	440.0
110.6	CARBONDALE		SANDSTONE	7.0	447.0
103.6	CARBONDALE		BLUE SHALE	2.0	454.0
101.6	CARBONDALE	SURVANT - UPPER	COAL	2.0	456.0
99.6	CARBONDALE		UNDERCLAY	0.5	458.0
99.1	CARBONDALE		SHALE	3.5	458.5
95.6	CARBONDALE		BLACK SHALE	3.0	462.0
92.6	CARBONDALE	SURVANT - LOWER	COAL	0.5	465.0
92.1	CARBONDALE		SHALE	6.5	465.5
85.6	CARBONDALE		BLUE SHALE	18.0	472.0

MAPID: 19900053000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** 59' N line, 868' E line of NE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.78371 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.790326 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 540.7 **LOGGED (FT.):** 250.0 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL CO. 3B **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.7	PLEISTOCENE		BROWN SANDSTONE	12.0	0.0	
528.7	MODESTO		SANDSTONE	45.0	12.0	
483.7	MODESTO		GRAY SHALE	33.0	57.0	
450.7	MODESTO		SHALE	10.0	90.0	
440.7	MODESTO		BLACK SHALE	3.0	100.0	
437.7	MODESTO	POND CREEK	COAL	1.0	103.0	
436.7	MODESTO		SANDY CLAYSTONE	1.5	104.0	
435.2	MODESTO		SANDSTONE	7.5	105.5	
427.7	MODESTO		DARK SHALE	2.0	113.0	
425.7	MODESTO		GRAY LIMESTONE	2.0	115.0	
423.7	MODESTO		BLUE SHALE	11.0	117.0	
412.7	MODESTO		SHALE	29.0	128.0	
383.7	MODESTO	PIASA	GRAY LIMESTONE	3.0	157.0	
380.7	MODESTO		BLUE SHALE	1.0	160.0	
379.7	MODESTO		BLACK SHALE	1.0	161.0	
378.7	MODESTO		BLUE SHALE	2.0	162.0	
376.7	MODESTO		BLACK SHALE	3.3	164.0	
373.4	CARBONDALE	DANVILLE	COAL	2.5	167.3	
370.9	CARBONDALE		SANDY CLAYSTONE	1.3	169.8	
369.7	CARBONDALE		SANDSTONE	2.0	171.0	
367.7	CARBONDALE		SANDSTONE	6.0	173.0	
361.7	CARBONDALE		BLUE SHALE	1.0	179.0	
360.7	CARBONDALE		COAL	0.3	180.0	
360.4	CARBONDALE		SANDY CLAYSTONE	1.8	180.3	
358.7	CARBONDALE	ALLENBY	COAL	1.0	182.0	
357.7	CARBONDALE		DARK CLAYSTONE	3.5	183.0	
354.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	7.5	186.5	
346.7	CARBONDALE		GRAY SHALE	10.0	194.0	
336.7	CARBONDALE		SHALE	5.0	204.0	
331.7	CARBONDALE		DARK SHALE	7.0	209.0	
324.7	CARBONDALE		BLUE SHALE	12.0	216.0	
312.7	CARBONDALE	CONANT	LIMESTONE	0.5	228.0	
312.2	CARBONDALE	JAMESTOWN	COAL	0.5	228.5	
311.7	CARBONDALE		SHALE & SILTSTONE	13.8	229.0	BLACK
297.9	CARBONDALE	HERRIN	COAL	5.3	242.8	
292.6	CARBONDALE		UNDERCLAY	1.9	248.1	

MAPID: 19902274000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.791161 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.784045 **DATE COLLECTED:** 5 / 0 / 1964

SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 1482.0 **LOG TYPE:** Electric Log

SOURCE: MORRIS, EUGENE F. **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-13.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	520.0	
-88.0	SPOON	DAVIS	UNCLASSIFIED	-	595.0	
-975.0	BASE OF PENN.		UNCLASSIFIED	-	1482.0	

MAPID: 19990011000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** 50' S line, 50' E line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.785518 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.786955 **DATE COLLECTED:** 5 / 13 / 1982

SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 370.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-6-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
550.0	PLEISTOCENE		CLAY	15.0	0.0	
535.0			SANDSTONE	24.0	15.0	
511.0	MODESTO		GRAY SHALE	6.0	39.0	
505.0	MODESTO		SANDSTONE	24.0	45.0	
481.0	MODESTO		GRAY SHALE	11.0	69.0	
470.0	MODESTO		SANDSTONE	17.0	80.0	
453.0	MODESTO		BROWN SANDSTONE	1.0	97.0	
452.0	MODESTO		GRAY SHALE	11.0	98.0	
441.0	MODESTO		BLACK SHALE	1.0	109.0	
440.0	MODESTO	POND CREEK	COAL	1.0	110.0	
439.0	MODESTO		GRAY SHALE	4.0	111.0	
435.0	MODESTO		SANDSTONE	5.0	115.0	
430.0	MODESTO		SANDY SHALE	13.5	120.0	
416.5	MODESTO		SANDSTONE	5.5	133.5	
411.0	MODESTO		SANDY SHALE	24.0	139.0	
387.0	MODESTO	PIASA	LIMESTONE	4.0	163.0	BROWN
383.0	MODESTO		GRAY SHALE	5.0	167.0	
378.0	MODESTO		BLACK SHALE	1.0	172.0	
377.0	CARBONDALE	DANVILLE	COAL	2.0	173.0	APPROXIMATE THICKNESS
375.0	CARBONDALE		UNDERCLAY	1.0	175.0	
374.0	CARBONDALE		SANDSTONE	11.0	176.0	
363.0	CARBONDALE		GRAY SHALE	6.0	187.0	
357.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.5	193.0	BROWN
348.5	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	40.5	201.5	
308.0	CARBONDALE	BRERETON	LIMESTONE	3.1	242.0	GRAY
304.9	CARBONDALE	ANNA	BLACK SHALE	3.5	245.1	
301.4	CARBONDALE	HERRIN	COAL	5.3	248.6	
296.1	CARBONDALE		UNDERCLAY	1.1	253.9	
295.0	CARBONDALE		GRAY SHALE	1.6	255.0	
293.4	CARBONDALE		CORE LOSS	0.4	256.6	
293.0	CARBONDALE		SANDSTONE	32.0	257.0	
261.0	CARBONDALE		SHALY SANDSTONE	52.0	289.0	
209.0	CARBONDALE		GRAY SHALE	1.5	341.0	
207.5	CARBONDALE	SPRINGFIELD	COAL	4.0	342.5	APPROXIMATE THICKNESS
203.5	CARBONDALE		CORE LOSS	2.5	346.5	MAY INCLUDE SOME COAL
201.0	CARBONDALE		GRAY SHALE	5.0	349.0	
196.0	CARBONDALE		SANDY SHALE	16.0	354.0	

MAPID: 19990013000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** 200' N line, 100' E line of SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790336 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.786259 **DATE COLLECTED:** 5 / 20 / 1982

SURFACE ELEVATION (FT.): 544.7 **LOGGED (FT.):** 355.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-8-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
544.7	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
528.7			SANDSTONE	19.0	16.0	
509.7	MODESTO		SANDY SHALE	4.0	35.0	
505.7	MODESTO	TRIVOLI	SANDSTONE	12.0	39.0	
493.7	MODESTO		GRAY SHALE	8.0	51.0	
485.7	MODESTO		SANDY SHALE	45.0	59.0	
440.7	MODESTO		LIMESTONE	1.0	104.0	GRAY
439.7	MODESTO		SANDY SHALE	41.0	105.0	
398.7	MODESTO	PIASA	LIMESTONE	3.0	146.0	BROWN
395.7	MODESTO		GRAY SHALE	2.0	149.0	
393.7	MODESTO		SANDY SHALE	3.0	151.0	
390.7	MODESTO		GRAY SHALE	4.5	154.0	
386.2	CARBONDALE	DANVILLE	COAL	2.0	158.5	APPROXIMATE THICKNESS
384.2	CARBONDALE		GRAY SHALE	6.5	160.5	
377.7	CARBONDALE		SHALY SANDSTONE	12.5	167.0	
365.2	CARBONDALE	BANKSTON FORK	LIMESTONE	9.5	179.5	TAN
355.7	CARBONDALE		SANDY SHALE	4.0	189.0	
351.7	CARBONDALE		SANDSTONE	3.0	193.0	
348.7	CARBONDALE		SANDY SHALE	32.0	196.0	
316.7	CARBONDALE	BRERETON	LIMESTONE	2.0	228.0	GRAY
314.7	CARBONDALE	ANNA	BLACK SHALE	3.6	230.0	
311.1	CARBONDALE	ANNA	GRAY SHALE	0.2	233.6	
310.9	CARBONDALE	ANNA	BLACK SHALE	1.8	233.8	
309.1	CARBONDALE	HERRIN	COAL	5.3	235.6	
303.8	CARBONDALE		UNDERCLAY	1.7	240.9	
302.1	CARBONDALE		SANDSTONE	30.4	242.6	
271.7	CARBONDALE		SHALY SANDSTONE	51.8	273.0	
219.9	CARBONDALE	SPRINGFIELD	COAL	4.2	324.8	
215.7	CARBONDALE		UNDERCLAY	4.1	329.0	
211.6	CARBONDALE		SANDSTONE	21.9	333.1	

MAPID: 19900054000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** NW NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.765774 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.782118 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 558.5 **LOGGED (FT.):** 147.0 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL CO. 5B **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
558.5	PLEISTOCENE		BROWN SANDSTONE	8.0	0.0	
550.5	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	37.0	8.0	
513.5	CARBONDALE	ANVIL ROCK	BLUE SHALE	53.0	45.0	
460.5	CARBONDALE	ANVIL ROCK	DARK SHALE	2.0	98.0	
458.5	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	100.0	
452.5	CARBONDALE		SANDY SHALE	15.0	106.0	
437.5	CARBONDALE		BLUE SHALE	4.0	121.0	
433.5	CARBONDALE		BLACK SHALE	6.0	125.0	
427.5	CARBONDALE	BRERETON	BLUE LIMESTONE	8.5	131.0	
419.0	CARBONDALE	HERRIN	COAL	5.8	139.5	419 ALT. AT TOP OF COAL
413.2	CARBONDALE		DARK CLAYSTONE	1.8	145.3	

MAPID: 19900055000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763474 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.783914 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 187.8 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL 2-B **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
432.0	MODESTO	PIASA	LIMESTONE	1.5	104.0	
430.5	CARBONDALE		SILTY SHALE	7.3	105.5	
423.2	CARBONDALE	ALLENBY	COAL	0.3	112.8	
423.0	CARBONDALE		SILTY SHALE	5.0	113.0	
418.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	118.0	
409.0	CARBONDALE	LAWSON	SILTY SHALE	12.0	127.0	
397.0	CARBONDALE	LAWSON	SANDSTONE	8.0	139.0	
389.0	CARBONDALE	LAWSON	SILTY SHALE	10.0	147.0	
379.0	CARBONDALE	LAWSON	GRAY SHALE	12.0	157.0	
367.0	CARBONDALE	LAWSON	DARK GRAY SHALE	7.0	169.0	
360.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	2.0	176.0	
358.0	CARBONDALE	ANNA	BLACK SHALE	3.8	178.0	
354.0	CARBONDALE	HERRIN	COAL	5.8	182.0	

MAPID: 19900055000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763474 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.783914 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 282.0 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
418.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	118.0	
397.0	CARBONDALE	ANVIL ROCK		8.0	139.0	
354.0	CARBONDALE	HERRIN	COAL	5.8	182.0	
314.0	CARBONDALE	CANTON	SANDSTONE/SHALE	25.0	222.0	
259.0	CARBONDALE	SPRINGFIELD	COAL	4.6	277.0	

MAPID: 19900055000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.763474 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.783914 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 282.0 **LOG TYPE:** Drillers Log

SOURCE: COSGRAVE COAL CO. 2B **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
536.0	PLEISTOCENE		BROWN SANDSTONE	33.0	0.0	
503.0	MODESTO		SANDSTONE	69.5	33.0	
433.5	CARBONDALE	DANVILLE	COAL	0.5	102.5	
433.0	CARBONDALE		UNDERCLAY	1.0	103.0	
432.0	CARBONDALE		GRAY LIMESTONE	1.5	104.0	
430.5	CARBONDALE		SANDY SHALE	5.5	105.5	
425.0	CARBONDALE		BLUE SHALE	1.8	111.0	
423.2	CARBONDALE	ALLENBY	COAL	0.3	112.8	
423.0	CARBONDALE		SHALE	5.0	113.0	
418.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	9.0	118.0	
409.0	CARBONDALE		SANDY SHALE	7.0	127.0	
402.0	CARBONDALE		DARK SHALE	5.0	134.0	
397.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	139.0	
389.0	CARBONDALE		SHALE	10.0	147.0	
379.0	CARBONDALE		GRAY SHALE	12.0	157.0	
367.0	CARBONDALE		DARK SHALE	7.0	169.0	
360.0	CARBONDALE	BRERETON	BLUE LIMESTONE	2.0	176.0	
358.0	CARBONDALE	ANNA	BLACK SHALE	3.8	178.0	
354.2	CARBONDALE	HERRIN	COAL	5.8	181.8	ALT. TOP 536-182
348.4	CARBONDALE		UNDERCLAY	1.4	187.6	
347.0	CARBONDALE		SHALE	4.0	189.0	
343.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.0	193.0	
339.0	CARBONDALE		DARK SHALE	10.0	197.0	
329.0	CARBONDALE		SHALE	5.0	207.0	
324.0	CARBONDALE		DARK SHALE	10.0	212.0	
314.0	CARBONDALE		SANDSTONE	25.0	222.0	
289.0	CARBONDALE	DYKERSBURG	BLUE SHALE	30.0	247.0	
259.0	CARBONDALE	SPRINGFIELD	COAL	4.6	277.0	
254.4	CARBONDALE		UNDERCLAY	0.4	281.6	

MAPID: 19902005000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.772679 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.780351 **DATE COLLECTED:** 7 / 0 / 1950

SURFACE ELEVATION (FT.): 563.0 **LOGGED (FT.):** 1410.0 **LOG TYPE:** Electric Log

SOURCE: ABSHER & BOOTH **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
98.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	465.0	
30.0	SPOON	DAVIS	UNCLASSIFIED	-	533.0	
-847.0	BASE OF PENN.		UNCLASSIFIED	-	1410.0	

MAPID: 19902562000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764624 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.788468 **DATE COLLECTED:** 8 / 0 / 1912

SURFACE ELEVATION (FT.): 526.4 **LOGGED (FT.):** 435.0 **LOG TYPE:** Drillers Log

SOURCE: SULLIVAN MACHINE CO 23 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
526.4	PLEISTOCENE		CLAY	20.0	0.0	
506.4	MODESTO		SANDSTONE	109.0	20.0	
397.4	MODESTO		SANDY SHALE	13.5	129.0	
383.9	MODESTO		COAL	0.1	142.5	
383.8	MODESTO		GRAY SHALE	4.4	142.6	
379.4	MODESTO		SANDSTONE/SHALE	26.0	147.0	
353.4	MODESTO		UNKNOWN	5.8	173.0	
347.6	MODESTO		COAL	1.1	178.8	
346.5	MODESTO		GRAY SHALE	4.1	179.9	
342.4	MODESTO		SANDSTONE	12.0	184.0	
330.4	MODESTO		SANDSTONE/SHALE	2.0	196.0	
328.4	MODESTO		BLUE SHALE	16.0	198.0	
312.4	MODESTO		SANDSTONE/SHALE	41.0	214.0	
271.4	MODESTO		DARK SHALE	4.0	255.0	
267.4	MODESTO		COAL	0.2	259.0	
267.2	MODESTO		DARK SHALE	6.7	259.2	
260.6	CARBONDALE	DANVILLE	COAL	0.6	265.8	
260.0	CARBONDALE	DANVILLE	DARK SHALE	0.8	266.4	
259.2	CARBONDALE	DANVILLE	COAL	1.9	267.2	
257.4	CARBONDALE		BLACK SHALE	1.1	269.0	
256.2	CARBONDALE		SANDSTONE/SHALE	2.9	270.2	
253.3	CARBONDALE		DARK SHALE	2.5	273.1	
250.9	CARBONDALE		SANDSTONE	0.5	275.5	
250.4	CARBONDALE		GRAY SHALE	1.5	276.0	
248.9	CARBONDALE	BANKSTON FORK	LIMESTONE	7.8	277.5	
241.1	CARBONDALE		SANDSTONE	6.5	285.3	
234.6	CARBONDALE		DARK SHALE	32.0	291.8	
202.6	CARBONDALE		LIMESTONE	0.3	323.8	
202.2	CARBONDALE	JAMESTOWN	COAL	0.3	324.2	
201.9	CARBONDALE		LIMESTONE	0.3	324.5	
201.6	CARBONDALE		DARK SHALE	5.3	324.8	
196.2	CARBONDALE		GRAY LIMESTONE	0.8	330.2	
195.4	CARBONDALE		DARK SHALE	4.0	331.0	
191.4	CARBONDALE		SHALE	2.5	335.0	
188.9	CARBONDALE		DARK SHALE	0.8	337.5	
188.1	CARBONDALE	HERRIN	COAL	2.7	338.3	
185.5	CARBONDALE	HERRIN	BLACK SHALE	0.0	340.9	
185.5	CARBONDALE	HERRIN	COAL	0.1	340.9	
185.3	CARBONDALE	HERRIN	BLACK SHALE	0.5	341.1	

184.9	CARBONDALE	HERRIN	BLACK SHALE	0.2	341.5
184.7	CARBONDALE	HERRIN	COAL	2.2	341.7
182.5	CARBONDALE		GREEN SHALE	2.3	343.9
180.2	CARBONDALE		CALCAREOUS SHALE	7.0	346.2
173.2	CARBONDALE		DARK SHALE	3.8	353.2
169.4	CARBONDALE	BRIAR HILL	COAL	0.5	357.0
168.9	CARBONDALE		DARK SHALE	3.3	357.5
165.6	CARBONDALE		LIMESTONE	0.8	360.8
164.9	CARBONDALE		DARK SHALE	0.5	361.5
164.4	CARBONDALE		SHALE	5.0	362.0
159.4	CARBONDALE		SANDSTONE/SHALE	13.0	367.0
146.4	CARBONDALE		SANDSTONE	4.0	380.0
142.4	CARBONDALE		SANDSTONE/SHALE	12.0	384.0
130.4	CARBONDALE		DARK SHALE	33.9	396.0
96.5	CARBONDALE	SPRINGFIELD	COAL	0.5	429.9
95.9	CARBONDALE	SPRINGFIELD	PYRITE	0.1	430.5
95.9	CARBONDALE	SPRINGFIELD	COAL	0.5	430.5
95.4	CARBONDALE	SPRINGFIELD	PYRITE	0.1	431.0
95.3	CARBONDALE	SPRINGFIELD	COAL	0.1	431.1
95.2	CARBONDALE	SPRINGFIELD	PYRITE	0.1	431.2
95.1	CARBONDALE	SPRINGFIELD	COAL	2.9	431.3
92.2	CARBONDALE		CLAYSTONE	0.8	434.2

MAPID: 19990012000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 100' S line, 150' E line of NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.772053 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.779712 **DATE COLLECTED:** 5 / 26 / 1982

SURFACE ELEVATION (FT.): 565.8 **LOGGED (FT.):** 295.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-9-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
565.8	PLEISTOCENE		CLAY	6.0	0.0	
559.8	PLEISTOCENE		SANDY CLAY	15.0	6.0	
544.8	MODESTO	POND CREEK	COAL	1.0	21.0	
543.8	MODESTO		GRAY SHALE	7.0	22.0	
536.8	MODESTO		SANDSTONE	42.0	29.0	
494.8	MODESTO		GRAY SHALE	6.5	71.0	
488.3	MODESTO	PIASA	LIMESTONE	2.5	77.5	GRAY
485.8	MODESTO		GRAY SHALE	3.0	80.0	
482.8	CARBONDALE	DANVILLE	COAL	2.0	83.0	APPROXIMATE THICKNESS
480.8	CARBONDALE		GRAY SHALE	4.0	85.0	
476.8	CARBONDALE		SANDSTONE	9.0	89.0	
467.8	CARBONDALE		SANDY SHALE	18.5	98.0	
449.3	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	116.5	TAN
441.3	CARBONDALE		GRAY SHALE	2.5	124.5	
438.8	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	127.0	
430.8	CARBONDALE		SANDY SHALE	28.0	135.0	
402.8	CARBONDALE		GRAY SHALE	5.0	163.0	
397.8	CARBONDALE	BRERETON	LIMESTONE	3.2	168.0	GRAY
394.6	CARBONDALE	ANNA	BLACK SHALE	3.8	171.2	
390.8	CARBONDALE	HERRIN	COAL	5.2	175.0	
385.6	CARBONDALE		UNDERCLAY	2.0	180.2	
383.6	CARBONDALE		SANDSTONE	8.8	182.2	GREEN
374.8	CARBONDALE		SANDSTONE	76.0	191.0	
298.8	CARBONDALE		GRAY SHALE	2.8	267.0	
296.0	CARBONDALE	SPRINGFIELD	COAL	4.4	269.8	
291.6	CARBONDALE		UNDERCLAY	2.9	274.2	
288.7	CARBONDALE		GRAY SHALE	3.9	277.1	
284.8	CARBONDALE		SANDSTONE	14.0	281.0	

MAPID: 19990014000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 200' N line, 150' W line of NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.775607 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.782562 **DATE COLLECTED:** 5 / 17 / 1982

SURFACE ELEVATION (FT.): 572.8 **LOGGED (FT.):** 340.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-7-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
572.8	PLEISTOCENE		SOIL	0.5	0.0	
572.3	PLEISTOCENE		CLAY	11.5	0.5	
560.8	PLEISTOCENE		CLAY	4.0	12.0	
556.8			SANDSTONE	25.0	16.0	
531.8	MODESTO		SANDY SHALE	18.0	41.0	
513.8	MODESTO		GRAY SHALE	4.0	59.0	
509.8	MODESTO		BLACK SHALE	2.0	63.0	
507.8	MODESTO		SANDY SHALE	8.0	65.0	
499.8	MODESTO		SANDSTONE	46.0	73.0	
453.8	MODESTO	PIASA	LIMESTONE	3.5	119.0	BROWN
450.3	MODESTO		GRAY SHALE	3.5	122.5	
446.8	CARBONDALE		BLACK SHALE	1.0	126.0	
445.8	CARBONDALE	DANVILLE	COAL	2.0	127.0	APPROXIMATE THICKNESS
443.8	CARBONDALE		SANDY SHALE	24.5	129.0	
419.3	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	153.5	TAN
411.8	CARBONDALE	ANVIL ROCK	SANDSTONE	42.0	161.0	
369.8	CARBONDALE	BRERETON	LIMESTONE	3.4	203.0	GRAY
366.4	CARBONDALE	ANNA	BLACK SHALE	3.5	206.4	
362.9	CARBONDALE	HERRIN	COAL	5.1	209.9	
357.8	CARBONDALE		UNDERCLAY	2.3	215.0	
355.5	CARBONDALE		SANDSTONE	0.7	217.3	
354.8	CARBONDALE		SANDY SHALE	7.5	218.0	
347.3	CARBONDALE		LIMESTONE	1.5	225.5	GRAY
345.8	CARBONDALE		GRAY SHALE	32.0	227.0	
313.8	CARBONDALE		SANDY SHALE	45.5	259.0	
268.3	CARBONDALE		GRAY SHALE	0.6	304.5	
267.7	CARBONDALE	SPRINGFIELD	COAL	4.3	305.1	
263.4	CARBONDALE		UNDERCLAY	3.6	309.4	
259.8	CARBONDALE		GRAY SHALE	4.0	313.0	
255.8	CARBONDALE		SANDY SHALE	23.0	317.0	

MAPID: 19990021000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 400' N line, 700' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764758 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.785548 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 553.5 **LOGGED (FT.):** 147.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.#5B **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
553.5	PLEISTOCENE		CLAY	8.0	0.0	
545.5	PLEISTOCENE		SAND	37.0	8.0	
508.5	CARBONDALE		SANDY SHALE	55.0	45.0	
453.5	CARBONDALE		SANDSTONE	6.0	100.0	
447.5	CARBONDALE		SANDY SHALE	15.0	106.0	
432.5	CARBONDALE		SHALE	4.0	121.0	
428.5	CARBONDALE		BLACK SHALE	6.0	125.0	
422.5	CARBONDALE	BRERETON	LIMESTONE	4.0	131.0	
418.5	CARBONDALE	ANNA	BLACK SHALE	4.5	135.0	
414.0	CARBONDALE	HERRIN	COAL	5.8	139.5	
408.2	CARBONDALE		UNDERCLAY	1.7	145.3	

MAPID: 19990022000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 25' S line, 70' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.762564 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.783069 **DATE COLLECTED:** 0 / 0 / 1918

SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 282.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO H2B **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
536.0	PLEISTOCENE		CLAY	33.0	0.0	
503.0	PLEISTOCENE		SAND	69.5	33.0	
433.5	CARBONDALE	DANVILLE	COAL	0.5	102.5	
433.0	CARBONDALE		UNDERCLAY	1.0	103.0	
432.0	CARBONDALE	GALUM	LIMESTONE	1.5	104.0	GRAY
430.5	CARBONDALE		SANDY SHALE	5.5	105.5	
425.0	CARBONDALE		SHALE	1.8	111.0	
423.2	CARBONDALE	ALLENBY	COAL	0.2	112.8	
423.0	CARBONDALE		SANDY SHALE	5.0	113.0	
418.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	118.0	GRAY
409.0	CARBONDALE		SANDY SHALE	12.0	127.0	
397.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	139.0	
389.0	CARBONDALE		SANDY SHALE	10.0	147.0	
379.0	CARBONDALE		GRAY SHALE	19.0	157.0	
360.0	CARBONDALE	BRERETON	LIMESTONE	2.0	176.0	
358.0	CARBONDALE	ANNA	BLACK SHALE	3.8	178.0	
354.2	CARBONDALE	HERRIN	COAL	5.8	181.8	
348.4	CARBONDALE		UNDERCLAY	1.4	187.6	
347.0	CARBONDALE		SANDY SHALE	4.0	189.0	
343.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.0	193.0	
339.0	CARBONDALE		SHALE	25.0	197.0	
314.0	CARBONDALE		SANDSTONE	25.0	222.0	
289.0	CARBONDALE		SANDY SHALE	30.0	247.0	
259.0	CARBONDALE	SPRINGFIELD	COAL	4.6	277.0	
254.4	CARBONDALE		UNDERCLAY	0.4	281.6	

MAPID: 19900057000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.751988 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.780254 **DATE COLLECTED:** 5 / 24 / 1955

SURFACE ELEVATION (FT.): 546.4 **LOGGED (FT.):** 354.8 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. 156 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
292.4	CARBONDALE	HERRIN	COAL	4.0	254.0	
195.4	CARBONDALE	SPRINGFIELD	UNKNOWN	3.8	351.0	

MAPID: 19900058000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.74623 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.788407 **DATE COLLECTED:** 9 / 0 / 1906

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 381.2 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 160 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
492.0	PLEISTOCENE		CLAY	8.5	0.0	
483.5	MODESTO		SANDSTONE	80.5	8.5	
403.0	MODESTO		DARK SHALE	19.0	89.0	
384.0	MODESTO		SHALY SANDSTONE	10.0	108.0	
374.0	MODESTO		BLUE SHALE	26.5	118.0	
347.5	MODESTO	POND CREEK	COAL	0.5	144.5	
347.0	MODESTO		GRAY SHALE	3.0	145.0	
344.0	MODESTO		SANDY SHALE	38.0	148.0	
306.0	MODESTO	PIASA	LIMESTONE	5.0	186.0	
301.0	MODESTO		DARK SHALE	5.8	191.0	
295.2	CARBONDALE	DANVILLE	COAL	2.0	196.8	
293.2	CARBONDALE		SANDY SHALE	6.0	198.8	
287.2	CARBONDALE		BLUE SHALE	5.8	204.8	
281.3	CARBONDALE	ALLENBY	COAL	0.6	210.7	
280.7	CARBONDALE		GRAY SHALE	11.4	211.3	
269.3	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	222.7	
262.3	CARBONDALE		SANDSTONE/SHALE	3.5	229.7	
258.8	CARBONDALE	ANVIL ROCK	SANDSTONE	2.5	233.2	
256.3	CARBONDALE	ANVIL ROCK	SANDSTONE	13.0	235.7	
243.3	CARBONDALE		SANDY SHALE	16.0	248.7	
227.3	CARBONDALE		BLUE SHALE	2.0	264.7	
225.3	CARBONDALE		BLACK SHALE	7.0	266.7	
218.3	CARBONDALE	BRERETON	LIMESTONE	3.0	273.7	
215.3	CARBONDALE	ANNA	BLACK SHALE	4.1	276.7	
211.2	CARBONDALE	HERRIN	COAL	5.0	280.8	
206.2	CARBONDALE		UNDERCLAY	2.0	285.8	
204.2	CARBONDALE		SANDSTONE/SHALE	4.9	287.8	
199.3	CARBONDALE		SANDY SHALE	10.0	292.7	
189.3	CARBONDALE	BRIAR HILL	COAL	1.3	302.7	
188.0	CARBONDALE		SANDY SHALE	2.7	304.0	
185.3	CARBONDALE	ST. DAVID	LIMESTONE	1.0	306.7	
184.3	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	33.0	307.7	
151.3	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	36.0	340.7	
115.3	CARBONDALE	SPRINGFIELD	COAL	4.5	376.7	

MAPID: 19900058000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.74623 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.788407 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 382.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR RR **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
295.0	CARBONDALE	DANVILLE	COAL	2.0	197.0	
270.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	222.0	
259.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	16.0	233.0	
211.0	CARBONDALE	HERRIN	COAL	5.0	281.0	
189.0	CARBONDALE	BRIAR HILL	COAL	1.3	303.0	
184.0	CARBONDALE	CANTON	SANDSTONE/SHALE	33.0	308.0	
115.0	CARBONDALE	SPRINGFIELD	COAL	4.5	377.0	

MAPID: 19900059000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 0' N line, 660' E line of SE

QUADRANGLE: HARCO **LONGITUDE:** -88.746242 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.782963 **DATE COLLECTED:** 9 / 1 / 1906

SURFACE ELEVATION (FT.): 544.6 **LOGGED (FT.):** 373.5 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R. R. 157 **WELL TYPE:** Coal Test

COMMENT: ELEV SOURCE = SALINE COUNTY COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
544.6	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
539.6	MODESTO		SANDSTONE	74.0	5.0	
465.6	MODESTO		BLACK SHALE	18.0	79.0	
447.6	MODESTO		CLAYSTONE	5.0	97.0	
442.6	MODESTO		LIMESTONE	2.0	102.0	
440.6	MODESTO		SHALE	12.0	104.0	
428.6	MODESTO		DARK SHALE	21.8	116.0	
406.8	MODESTO	POND CREEK	COAL	0.3	137.8	
406.6	MODESTO		SHALE	10.0	138.0	
396.6	MODESTO		SANDY SHALE	6.0	148.0	
390.6	MODESTO		SANDSTONE	4.0	154.0	
386.6	MODESTO		DARK SHALE	26.5	158.0	
360.1	MODESTO		BLACK SHALE	1.0	184.5	
359.1	MODESTO		CLAYSTONE & SILTSTONE	0.7	185.5	
358.4	MODESTO	PIASA	LIMESTONE	2.8	186.2	
355.6	MODESTO		LIGHT SHALE	1.0	189.0	
354.6	MODESTO		DARK SHALE	4.5	190.0	
350.1	CARBONDALE	DANVILLE	COAL	1.2	194.5	
348.9	CARBONDALE		LIGHT SHALE	7.3	195.7	
341.6	CARBONDALE		SANDSTONE	3.0	203.0	
338.6	CARBONDALE		BLACK SHALE	10.0	206.0	
328.6	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	7.0	216.0	
321.6	CARBONDALE		BLUE SHALE	7.0	223.0	
314.6	CARBONDALE		SANDY SHALE	16.5	230.0	
298.1	CARBONDALE		UNKNOWN	1.0	246.5	
297.1	CARBONDALE		SANDY SHALE	6.5	247.5	
290.6	CARBONDALE		BLACK SHALE	5.0	254.0	
285.6	CARBONDALE		LIMESTONE	1.0	259.0	
284.6	CARBONDALE		BLUE SHALE	5.0	260.0	
279.6	CARBONDALE	BRERETON	BLACK LIMESTONE	4.0	265.0	
275.6	CARBONDALE	ANNA	BLACK SHALE	1.5	269.0	
274.1	CARBONDALE	HERRIN	COAL	3.8	270.5	
270.3	CARBONDALE		CLAYSTONE & SILTSTONE	7.8	274.3	
262.6	CARBONDALE		DARK SHALE	24.0	282.0	
238.6	CARBONDALE		SANDY SHALE	23.0	306.0	
215.6	CARBONDALE		DARK SHALE	38.7	329.0	
176.9	CARBONDALE	SPRINGFIELD	COAL	3.8	367.7	
173.1	CARBONDALE		CLAYSTONE & SILTSTONE	2.0	371.5	

MAPID: 19900059000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 0' N line, 660' E line of SE

QUADRANGLE: HARCO **LONGITUDE:** -88.746242 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.782963 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): 545.0 **LOGGED (FT.):** 274.8 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR RR 157 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
359.0	MODESTO	PIASA	LIMESTONE	2.8	186.0	
356.2	MODESTO		DARK GRAY SHALE	5.5	188.8	
350.7	CARBONDALE	DANVILLE	COAL	1.2	194.3	
349.5	CARBONDALE		SHALE & SANDSTONE	20.3	195.5	
329.2	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	215.8	
322.2	CARBONDALE	LAWSON	UNCONSOLIDATED	7.0	222.8	
315.2	CARBONDALE	LAWSON	SILTY SHALE	16.5	229.8	
298.7	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	1.0	246.3	
297.7	CARBONDALE	LAWSON	SILTY SHALE	6.5	247.3	
291.2	CARBONDALE	LAWSON	BLACK SHALE	5.0	253.8	
286.2	CARBONDALE	CONANT	LIMESTONE	1.0	258.8	
285.2	CARBONDALE		BLACK SHALE	5.0	259.8	
280.2	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.0	264.8	
276.2	CARBONDALE	ANNA	BLACK SHALE	1.5	268.8	
274.0	CARBONDALE	HERRIN	COAL	3.8	271.0	

MAPID: 19901928000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.761175 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.783905 **DATE COLLECTED:** 8 / 0 / 1956

SURFACE ELEVATION (FT.): 532.0 **LOGGED (FT.):** 1595.0 **LOG TYPE:** Electric Log

SOURCE: COOMBS JOHN R **WELL TYPE:** Dry Hole

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-98.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	630.0	
-153.0	SPOON	DAVIS	UNCLASSIFIED	-	685.0	
-1063.0	BASE OF PENN.		UNCLASSIFIED	-	1595.0	

MAPID: 19900062000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SE SW

QUADRANGLE: HARCO **LONGITUDE:** -88.738214 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.776637 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): 531.1 **LOGGED (FT.):** 237.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 109 **WELL TYPE:** Coal Test

COMMENT: ELEV SOURCE SALINE COUNTY COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
531.1	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
519.1	MODESTO		SANDSTONE	5.0	12.0	
514.1	MODESTO		SHALE & SILTSTONE	30.0	17.0	
484.1	MODESTO	PIASA	LIMESTONE	4.0	47.0	
480.1	MODESTO		BLACK SHALE	6.0	51.0	
474.1	CARBONDALE	DANVILLE	COAL	1.5	57.0	
472.6	CARBONDALE		CLAYSTONE & SILTSTONE	5.5	58.5	
467.1	CARBONDALE		SANDY SHALE	7.0	64.0	
460.1	CARBONDALE		BLACK SHALE	5.3	71.0	
454.8	CARBONDALE	ALLENBY	COAL	0.7	76.3	
454.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	77.0	
447.6	CARBONDALE		CLAYSTONE & SILTSTONE	1.5	83.5	
446.1	CARBONDALE		SHALE	35.0	85.0	
411.1	CARBONDALE	BRERETON	LIMESTONE	1.5	120.0	
409.6	CARBONDALE	ANNA	BLACK SHALE	6.0	121.5	
403.6	CARBONDALE	ENERGY	SHALE	7.0	127.5	
396.6	CARBONDALE	HERRIN	COAL	5.0	134.5	
391.6	CARBONDALE		CLAYSTONE & SILTSTONE	4.5	139.5	
387.1	CARBONDALE		SHALE	17.0	144.0	
370.1	CARBONDALE	BRIAR HILL	COAL	0.8	161.0	
369.3	CARBONDALE		SHALE	2.3	161.8	
367.1	CARBONDALE	ST. DAVID	LIMESTONE	1.0	164.0	
366.1	CARBONDALE	DYKERSBURG	SANDY SHALE	66.0	165.0	
300.1	CARBONDALE	SPRINGFIELD	COAL	4.3	231.0	
295.8	CARBONDALE		CLAYSTONE & SILTSTONE	1.7	235.3	

MAPID: 19900062000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: HARCO **LONGITUDE:** -88.738214 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.776637 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 531.0 **LOGGED (FT.):** 237.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
396.0	CARBONDALE	HERRIN	COAL	5.0	135.0	
370.0	CARBONDALE	BRIAR HILL	COAL	0.8	161.0	
300.0	CARBONDALE	SPRINGFIELD	COAL	4.3	231.0	

MAPID: 19900063000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: HARCO **LONGITUDE:** -88.737049 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.788437 **DATE COLLECTED:** 9 / 25 / 1906
SURFACE ELEVATION (FT.): 522.0 **LOGGED (FT.):** 397.0 **LOG TYPE:** Drillers Log
SOURCE: A. J. WEBBER 165 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
522.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
502.0	MODESTO		SANDSTONE	41.0	20.0	
461.0	MODESTO		SANDY SHALE	79.0	61.0	
382.0	MODESTO		BLACK SHALE	23.0	140.0	
359.0	MODESTO		GRAY SHALE	16.0	163.0	
343.0	MODESTO		DARK SHALE	10.0	179.0	
333.0	MODESTO	PIASA	LIMESTONE	9.0	189.0	
324.0	MODESTO		BLACK SHALE	12.0	198.0	
312.0	CARBONDALE	DANVILLE	COAL	2.0	210.0	
310.0	CARBONDALE		GRAY SHALE	4.0	212.0	
306.0	CARBONDALE		SANDY SHALE	4.0	216.0	
302.0	CARBONDALE		DARK SHALE	9.0	220.0	
293.0	CARBONDALE		CALCAREOUS SHALE	10.0	229.0	
283.0	CARBONDALE		SANDY SHALE	12.0	239.0	
271.0	CARBONDALE	ANVIL ROCK	SANDSTONE	20.0	251.0	
251.0	CARBONDALE		GRAY SHALE	4.0	271.0	
247.0	CARBONDALE	BRERETON	LIMESTONE	5.0	275.0	
242.0	CARBONDALE	ENERGY	BLUE SHALE	17.0	280.0	
225.0	CARBONDALE	HERRIN	COAL	6.5	297.0	
218.5	CARBONDALE		SHALE	8.5	303.5	VARIEGATED
210.0	CARBONDALE		SANDY SHALE	80.0	312.0	
130.0	CARBONDALE	SPRINGFIELD	COAL	4.4	392.0	
125.6	CARBONDALE		CLAYSTONE & SILTSTONE	0.6	396.4	

MAPID: 19900064000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE SE
QUADRANGLE: HARCO **LONGITUDE:** -88.72787 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.781225 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 525.7 **LOGGED (FT.):** 372.4 **LOG TYPE:** Drillers Log
SOURCE: GUARANTEE TRUST CO. #107 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
246.7	CARBONDALE	HERRIN	COAL	5.8	279.0	
157.7	CARBONDALE	SPRINGFIELD	COAL	4.4	368.0	

MAPID: 19901888000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW
QUADRANGLE: HARCO **LONGITUDE:** -88.742795 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.783876 **DATE COLLECTED:** 11 / 0 / 1955
SURFACE ELEVATION (FT.): 549.0 **LOGGED (FT.):** 3125.0 **LOG TYPE:** Electric Log
SOURCE: CALVERT DRILLING, INC., MITCHELL HENRY E **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
67.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	482.0	
-	CARBONDALE	SURVANT	COAL	0.8		
-51.0	CARBONDALE	COLCHESTER	COAL	0.5	600.0	
-90.0	CARBONDALE	DEKOVEN	COAL	3.0	639.0	
-94.0	CARBONDALE	LOWER DEKOVEN	COAL	1.2	643.0	
-103.0	CARBONDALE	DAVIS	COAL	3.8	652.0	
-157.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	706.0	

MAPID: 19901888000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW
QUADRANGLE: HARCO **LONGITUDE:** -88.742795 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.783876 **DATE COLLECTED:** 11 / 0 / 1955
SURFACE ELEVATION (FT.): 549.0 **LOGGED (FT.):** 1605.0 **LOG TYPE:** Electric Log
SOURCE: CALVERT DRILLING, INC. **WELL TYPE:** Dry Hole
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-51.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	600.0	
-106.0	SPOON	DAVIS	UNCLASSIFIED	-	655.0	
-1056.0	BASE OF PENN.		UNCLASSIFIED	-	1605.0	

MAPID: 19902300000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1000' S line, 175' W line of NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.738734 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.789376 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 497.0 **LOGGED (FT.):** 265.4 **LOG TYPE:** Survey Core Study

SOURCE: AYRSHIRE COLLIERIES 153EC **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
295.5	MODESTO	PIASA	LIMESTONE	4.5	201.5	
291.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.4	206.0	UPPER BENCH
281.6	CARBONDALE	BANKSTON FORK	CLAYSTONE	0.2	215.4	SHALE PARTING
281.4	CARBONDALE	BANKSTON FORK	LIMESTONE	1.8	215.6	LOWER BENCH
279.7	CARBONDALE	LAWSON	GRAY SHALE	1.3	217.3	
278.3	CARBONDALE	LAWSON	SANDSTONE	9.8	218.7	
268.5	CARBONDALE	LAWSON	SILTY SHALE	15.6	228.5	
252.9	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.4	244.1	
252.5	CARBONDALE		CARBONACEOUS SHALE	0.2	244.5	
252.3	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	244.7	
247.3	CARBONDALE	ANNA	BLACK SHALE	5.2	249.7	
242.2	CARBONDALE	ENERGY	GRAY SHALE	5.2	254.8	
237.0	CARBONDALE	HERRIN	COAL	5.4	260.0	

MAPID: 19922749000C **VERSION:** 1 **PROJECT:** NCRDS92

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.738204 **GEOLOGIST:** C TREWORGY

CONFIDENTIAL: N **LATITUDE:** 37.783895 **DATE COLLECTED:** 5 / 31 / 1977

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 669.1 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR 84351 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
565.0			UNCLASSIFIED	430.0	0.0	GEOPHYSICAL LOG AVAILABLE
135.0	CARBONDALE		GRAY SHALE	23.0	430.0	
112.0	CARBONDALE		DARK GRAY SHALE	9.8	453.0	
102.2	CARBONDALE		DARK GRAY SHALE	9.6	462.8	
92.6	CARBONDALE		DARK GRAY SHALE	2.6	472.4	
90.0	CARBONDALE		DARK GRAY SHALE	0.5	475.0	BRACHIOPOD FRAGMENTS NOTED
89.5	CARBONDALE	EXCELLO	BLACK SHALE	1.1	475.5	
88.4	CARBONDALE	EXCELLO	BLACK SHALE	0.4	476.6	INTERLAMINATIONS OF MDGY CALC SILTSTONE
88.0	CARBONDALE	EXCELLO	BLACK SHALE	3.2	477.0	FINELY SILTY W/ PLANT FRAGMENTS
84.8	CARBONDALE	HOUCHIN CREEK	COAL	2.0	480.2	
82.9	CARBONDALE		GRAY SHALE	0.6	482.1	VERY SILTY WITH PLANT FRAGMENTS
82.3	CARBONDALE		DARK GRAY SHALE	1.4	482.7	
80.9	CARBONDALE		DARK GRAY SHALE	0.9	484.1	
80.0	CARBONDALE		GRAY SANDSTONE	3.7	485.0	
76.3	CARBONDALE		GRAY SANDSTONE	1.2	488.7	WITH SHALE INTERLAMINATIONS
75.1	CARBONDALE		GRAY SHALE	1.5	489.9	WITH ALTERNATING LGY SILTSTONE
73.6	CARBONDALE		GRAY SHALE	1.8	491.4	WITH ALTERNATING LGY SILTSTONE
71.8	CARBONDALE		GRAY SILTSTONE	1.8	493.2	
70.0	CARBONDALE		GRAY SILTSTONE	0.7	495.0	WITH SOME SHALE INCLUSIONS
69.3	CARBONDALE		GRAY SILTSTONE	4.0	495.7	WITH DGY SHALE INTERBEDDING
65.3	CARBONDALE		DARK GRAY SHALE	1.7	499.7	SILTY; 0.15' ZONE OF SH/ST MIXING
63.6	CARBONDALE		DARK GRAY SHALE	0.6	501.4	
63.0	CARBONDALE		DARK GRAY SHALE	1.1	502.0	W/ SOME LARGE SILTY CLAYSTONE FRAGMENTS
61.9	CARBONDALE		DARK GRAY SHALE	3.9	503.1	W/ FINE INTERLAMINATIONS OF: GY ST
58.0	CARBONDALE		DARK GRAY SHALE	4.3	507.0	W/ FINE INTERLAMINATIONS OF: GY ST
53.7	CARBONDALE		DARK GRAY SHALE	9.8	511.3	MINOR PLANT FRAGMENTS INTERSPERSED
43.9	CARBONDALE		DARK GRAY SHALE	7.6	521.1	WITH LBR CLAY NODULES
36.3	CARBONDALE	SURVANT	COAL	1.4	528.7	
34.9	CARBONDALE		GRAY SILTSTONE	0.4	530.1	
34.6	CARBONDALE		GRAY SILTSTONE	3.3	530.4	W/ FINE INTERLAMINATIONS OF DGY SH
31.3	CARBONDALE		GRAY SILTSTONE	1.6	533.7	SILTSTONE AND SHALE INTERLAMINATIONS
29.7	CARBONDALE		DARK GRAY SHALE	4.9	535.3	WITH SOME FOSSIL FRAGGMENTS
24.9	CARBONDALE		DARK GRAY SHALE	2.7	540.1	FOSSILIFEROUS
22.2	CARBONDALE		DARK GRAY SHALE	7.2	542.8	WITH INTERLAMINATIONS OF MGY ST
15.1	CARBONDALE		DARK GRAY SHALE	4.1	549.9	WITH INTERLAMINATIONS OF MGY ST
11.0	CARBONDALE		DARK GRAY SHALE	5.6	554.0	SOME INTERLAMINATIONS OF ST
5.4	CARBONDALE		DARK GRAY SHALE	9.8	559.6	CLAYSTONE BANDS UP TO 0.05'

-4.4	CARBONDALE		DARK GRAY SHALE	9.7	569.4	W/ LBR CLYST BAND AT 569.9'
-14.1	CARBONDALE		DARK GRAY SHALE	4.4	579.1	W/ LBR CLAY BANDS
-18.5	CARBONDALE		LIMESTONE	0.2	583.5	FOSSIL FRAGMENTS; BROWNISH GRAY COLOR
-18.7	CARBONDALE		DARK GRAY SHALE	5.2	583.7	W/ LBR CLAY BANDS; FOSSILIFEROUS TOP .1'
-23.9	CARBONDALE		DARK GRAY SHALE	4.2	588.9	SLIGHTLY CALCAREOUS AT BASE W/ FOSSIL
-28.1	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.2	593.1	CALCAREOUS IN UPPER 0.2'
-30.3	CARBONDALE	COLCHESTER	COAL	0.6	595.3	
-30.9	SPOON		GRAY SILTSTONE	0.5	595.9	CARBONACEOUS PLANT FRAGMENTS
-31.3	SPOON		GRAY SANDSTONE	2.1	596.3	W/ SHALE INTERLAMINATIONS
-33.4	SPOON		GRAY SANDSTONE	9.9	598.4	0.4' THICK MICACEOUS SHALE BAND
-43.3	SPOON		GRAY SANDSTONE	9.9	608.3	W/ MICACEOUS SHALE BAND & LBR CLAY BAND
-53.2	SPOON		GRAY SANDSTONE	3.7	618.2	W/ MICACEOUS SHALE LAMINATIONS
-56.8	SPOON		BLACK SHALE	0.3	621.8	WITH LGY SILTSTONE LAMINATION
-57.1	SPOON		BLACK SHALE	3.4	622.1	W/ MICACEOUS SHALE INTERLAMINATIONS
-60.4	SPOON		DARK GRAY SHALE	2.6	625.4	FINELY SILTY AND MICACEOUS
-63.0	SPOON		GRAY SILTSTONE	5.8	628.0	
-68.8	SPOON		GRAY SHALE	4.1	633.8	
-72.9	SPOON		GRAY SHALE	3.7	637.9	WITH SEVERAL SMALL CLAY BALLS
-76.6	SPOON	DEKOVEN	COAL	2.6	641.6	DEKOVEN UPPER BRANCH COAL
-79.2	SPOON		BLACK SHALE	1.0	644.2	WITH COAL STREAKS AND PLANT FRAGMENTS
-80.2	SPOON		DARK GRAY SHALE	2.2	645.2	OCCASIONAL SHELL CASTS & SILTSTONE LENSE
-82.3	SPOON		DARK GRAY SHALE	1.9	647.3	
-84.2	SPOON	DEKOVEN	COAL	1.6	649.2	DEKOVEN - LOWER BRANCH
-85.8	SPOON		UNDERCLAY	2.0	650.8	
-87.8	SPOON		DARK GRAY SHALE	0.8	652.8	
-88.6	SPOON		DARK GRAY SHALE	0.8	653.6	
-89.3	SPOON		BLACK SHALE	2.2	654.3	OCCASIONAL COAL STREAKS
-91.5	SPOON		BLACK SHALE	0.4	656.5	
-91.9	SPOON		DARK GRAY SHALE	0.9	656.9	
-92.8	SPOON	DAVIS	COAL	3.7	657.8	
-96.5	SPOON		UNDERCLAY	2.0	661.5	CRUMPLED AND BROKEN
-98.5	SPOON		CLAYSTONE	5.6	663.5	CRUMPLED; SOME LIMESTONE LENSES

MAPID: 19900065000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.709514 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.781299 **DATE COLLECTED:** 7 / 25 / 1905

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 218.2 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 45 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.0	PLEISTOCENE		UNCONSOLIDATED	39.0	0.0	
404.0	MODESTO		SHALE	25.0	39.0	
379.0	MODESTO	POND CREEK	COAL	0.5	64.0	
378.5	MODESTO		UNDERCLAY	2.4	64.5	
376.1	MODESTO		SHALE	50.0	66.9	
326.1	MODESTO		COAL	0.3	116.9	
325.8	MODESTO	PIASA	LIMESTONE	4.0	117.2	
321.8	MODESTO	PIASA	LIMESTONE	9.0	121.2	
312.8	CARBONDALE	DANVILLE	COAL	1.8	130.2	
311.0	CARBONDALE		UNDERCLAY	1.0	132.0	
310.0	CARBONDALE		SHALE	16.0	133.0	
294.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	149.0	
285.0	CARBONDALE		SHALE	8.0	158.0	
277.0	CARBONDALE		SHALE	12.0	166.0	
265.0	CARBONDALE	ANVIL ROCK	SANDSTONE	21.5	178.0	
243.5	CARBONDALE	BRERETON	LIMESTONE	4.0	199.5	
239.5	CARBONDALE	ANNA	BLACK SHALE	5.0	203.5	
234.5	CARBONDALE	HERRIN	COAL	6.5	208.5	
228.0	CARBONDALE	HERRIN	BLACK SHALE	0.2	215.0	
227.8	CARBONDALE	HERRIN	COAL	0.3	215.2	
227.6	CARBONDALE		UNDERCLAY	2.8	215.4	

MAPID: 19901402000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 8S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** 31' S line, 67' W line of SE NE
QUADRANGLE: HARCO **LONGITUDE:** -88.711563 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.783201 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 217.2 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 40-7 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
306.6	MODESTO	PIASA	LIMESTONE	3.5	125.4	
303.1	CARBONDALE	DANVILLE	COAL	2.0	128.9	
301.1	CARBONDALE		GRAY SHALE	23.5	130.9	
277.6	CARBONDALE	BANKSTON FORK	LIMESTONE	8.5	154.4	
269.1	CARBONDALE	LAWSON	GRAY SHALE	37.5	162.9	
231.6	CARBONDALE	CONANT	LIMESTONE	1.2	200.4	
230.4	CARBONDALE		BLACK SHALE	4.9	201.6	
225.5	CARBONDALE	BRERETON	LIMESTONE	3.3	206.5	
222.2	CARBONDALE	ANNA	BLACK SHALE	3.3	209.8	
219.0	CARBONDALE	HERRIN	COAL	4.2	213.0	

MAPID: 19900224000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** NE NW NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.051632 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.772407 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 46.5 **LOG TYPE:** Drillers Log
SOURCE: TE SAVAGE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
390.0	CARBONDALE	SPRINGFIELD	COAL	4.5	42.0	

MAPID: 19900228000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW SW SW
QUADRANGLE: HERRIN **LONGITUDE:** -89.094524 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.765668 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 431.3 **LOG TYPE:** Drillers Log
SOURCE: HV FERRELL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
436.5	CARBONDALE	HERRIN	COAL	5.0	23.5	TOP OF COAL MAY BE ERODED
393.1	CARBONDALE	SPRINGFIELD	COAL	3.6	66.9	
318.0	CARBONDALE	HOUCHIN CREEK	COAL	2.1	142.0	
283.0	CARBONDALE	SURVANT	COAL	2.0	177.0	
219.0	CARBONDALE	COLCHESTER	COAL	2.0	241.0	
191.4	CARBONDALE	DEKOVEN	COAL	1.6	268.6	
147.0	CARBONDALE	LOWER DEKOVEN	COAL	1.0	313.0	
129.4	CARBONDALE	DAVIS	COAL	4.1	330.6	
57.4	TRADEWATER		COAL	1.6	402.6	
32.2	TRADEWATER	MURPHYSBORO	COAL	3.4	427.8	

MAPID: 19900229000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: HERRIN **LONGITUDE:** -89.089904 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.761083 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 438.0 **LOG TYPE:** Drillers Log
SOURCE: HV FERRELL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
338.0	CARBONDALE	HOUCHIN CREEK	COAL	1.0	107.0	
298.5	CARBONDALE	SURVANT	COAL	2.5	146.5	
237.0	CARBONDALE	COLCHESTER	COAL	2.0	208.0	
166.2	CARBONDALE	DEKOVEN	COAL	1.9	278.8	
144.8	CARBONDALE	DAVIS	COAL	3.8	300.2	
54.0	TRADEWATER	MURPHYSBORO	COAL	3.0	391.0	UPPER
15.5	TRADEWATER	MURPHYSBORO	COAL	8.5	429.5	LOWER

MAPID: 19990123000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 250' S line, 930' W line of NE
QUADRANGLE: GRAYVILLE **LONGITUDE:** -89.101944 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.768347 **DATE COLLECTED:** 9 / 28 / 1980
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 55.3 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 20 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
445.0	PLEISTOCENE		CLAY	27.0	0.0	
418.0	CARBONDALE		SANDY SHALE	4.7	27.0	
413.3	CARBONDALE		GRAY SHALE	3.3	31.7	
410.0	CARBONDALE	ST. DAVID	LIMESTONE	1.6	35.0	
408.4	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	36.6	
404.2	CARBONDALE	DYKERSBURG	GRAY SHALE	10.3	40.8	
393.9	CARBONDALE	SPRINGFIELD	COAL	3.8	51.1	
390.2	CARBONDALE		UNDERCLAY	0.5	54.8	

MAPID: 19990124000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 380' N line, 1000' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.108699 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773074 **DATE COLLECTED:** 9 / 19 / 1980
SURFACE ELEVATION (FT.): 446.9 **LOGGED (FT.):** 63.7 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 10 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
446.9	PLEISTOCENE		CLAY	31.8	0.0	
415.1	CARBONDALE		LIMESTONE	2.6	31.8	
412.6	CARBONDALE		GRAY SHALE	13.3	34.3	
399.2	CARBONDALE	ST. DAVID	LIMESTONE	0.8	47.7	
398.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	48.5	
394.6	CARBONDALE	TURNER MINE	LIMESTONE	0.7	52.3	
393.9	CARBONDALE	TURNER MINE	BLACK SHALE	2.2	53.0	
391.7	CARBONDALE	DYKERSBURG	GRAY SHALE	4.5	55.2	
387.2	CARBONDALE	SPRINGFIELD	COAL	3.5	59.7	
383.7	CARBONDALE		UNDERCLAY	0.5	63.2	

MAPID: 19990125000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 550' S line, 925' W line of NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.101967 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.769175 **DATE COLLECTED:** 9 / 28 / 1980
SURFACE ELEVATION (FT.): 422.1 **LOGGED (FT.):** 56.8 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 19 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
422.1	PLEISTOCENE		CLAY	22.0	0.0	
400.1	CARBONDALE		SANDSTONE	2.1	22.0	
398.0	CARBONDALE		SANDY LIMESTONE	3.8	24.1	
394.3	CARBONDALE		GRAY SHALE	13.2	27.8	
381.1	CARBONDALE	ST. DAVID	LIMESTONE	1.8	41.0	
379.3	CARBONDALE	TURNER MINE	BLACK SHALE	6.2	42.8	
373.1	CARBONDALE	DYKERSBURG	GRAY SHALE	3.3	49.0	
369.8	CARBONDALE	SPRINGFIELD	COAL	3.9	52.3	
365.8	CARBONDALE		UNDERCLAY	0.5	56.3	

MAPID: 19990126000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 375' N line, 600' W line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.112685 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773096 **DATE COLLECTED:** 9 / 6 / 1980
SURFACE ELEVATION (FT.): 429.8 **LOGGED (FT.):** 50.2 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 6 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
429.8	PLEISTOCENE		CLAY	5.5	0.0	BROWN
424.3	PLEISTOCENE		CLAY	20.8	5.5	GRAY
403.5	PLEISTOCENE		CLAY	3.7	26.3	BROWN
399.8	CARBONDALE		LIMESTONE	0.8	30.0	
399.0	CARBONDALE		BLACK SHALE	4.4	30.8	
394.5	CARBONDALE	ST. DAVID	LIMESTONE	0.8	35.3	
393.8	CARBONDALE	TURNER MINE	BLACK SHALE	1.1	36.0	
392.7	CARBONDALE	DYKERSBURG	GRAY SHALE	9.3	37.1	
383.5	CARBONDALE	SPRINGFIELD	COAL	3.3	46.3	
380.1	CARBONDALE		UNDERCLAY	0.5	49.7	

MAPID: 19990127000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 380' N line, 880' W line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.111711 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773079 **DATE COLLECTED:** 9 / 8 / 1980
SURFACE ELEVATION (FT.): 433.9 **LOGGED (FT.):** 53.3 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 7 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
433.9	PLEISTOCENE		CLAY	29.7	0.0	
404.2	CARBONDALE		GRAY SHALE	2.9	29.7	
401.3	CARBONDALE		DARK SHALE	5.1	32.6	
396.2	CARBONDALE	ST. DAVID	LIMESTONE	2.7	37.7	
393.6	CARBONDALE	TURNER MINE	BLACK SHALE	8.9	40.3	
384.6	CARBONDALE	SPRINGFIELD	COAL	3.5	49.3	
381.1	CARBONDALE		UNDERCLAY	0.5	52.8	

MAPID: 19990128000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 500' N line, 710' E line of NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.107689 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.77274 **DATE COLLECTED:** 9 / 20 / 1980
SURFACE ELEVATION (FT.): 450.5 **LOGGED (FT.):** 67.2 **LOG TYPE:** Drillers Log
SOURCE: WILLIAMSON COAL CO. 11 **WELL TYPE:** Coal Test
COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.5	PLEISTOCENE		CLAY	29.5	0.0	
421.0	CARBONDALE		SANDSTONE	3.0	29.5	
418.0	CARBONDALE		SANDY LIMESTONE	1.2	32.5	
416.8	CARBONDALE		GRAY SHALE	15.3	33.7	
401.6	CARBONDALE	ST. DAVID	LIMESTONE	0.9	48.9	
400.7	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	49.8	
394.7	CARBONDALE	DYKERSBURG	GRAY SHALE	7.2	55.8	
387.5	CARBONDALE	SPRINGFIELD	COAL	3.7	63.0	
383.8	CARBONDALE		UNDERCLAY	0.5	66.7	

MAPID: 19990129000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 1075' N line, 80' E line of NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.105482 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.771147 **DATE COLLECTED:** 9 / 22 / 1980

SURFACE ELEVATION (FT.): 443.4 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COAL CO. 14 **WELL TYPE:** Coal Test

COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.4	PLEISTOCENE		CLAY	34.7	0.0	
408.7	CARBONDALE		GRAY SHALE	1.5	34.7	
407.2	CARBONDALE	ST. DAVID	LIMESTONE	0.8	36.2	
406.4	CARBONDALE	TURNER MINE	BLACK SHALE	7.5	37.0	
398.9	CARBONDALE	DYKERSBURG	GRAY SHALE	7.5	44.5	
391.4	CARBONDALE	SPRINGFIELD	COAL	3.5	52.0	
387.9	CARBONDALE		UNDERCLAY	0.5	55.5	

MAPID: 19990130000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 375' N line, 350' W line of NW

QUADRANGLE: HERRIN **LONGITUDE:** -89.113554 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.773096 **DATE COLLECTED:** 9 / 5 / 1980

SURFACE ELEVATION (FT.): 426.6 **LOGGED (FT.):** 45.8 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT: PERMIT #95 MINE #2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
426.6	PLEISTOCENE		CLAY	6.3	0.0	
420.3	PLEISTOCENE		CLAY	7.1	6.3	GRAY
413.2	PLEISTOCENE		CLAY	14.0	13.4	BROWN
399.2	CARBONDALE	TURNER MINE	BLACK SHALE	4.8	27.4	
394.4	CARBONDALE	DYKERSBURG	GRAY SHALE	9.3	32.2	
385.1	CARBONDALE	SPRINGFIELD	COAL	3.8	41.5	
381.3	PLEISTOCENE		UNDERCLAY	0.5	45.3	

MAPID: 19901046000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 5 **QUARTERS/FOOTAGES:** 660' N line, 0' W line of NW NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.13314 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773346 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 430.6 **LOGGED (FT.):** 31.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 143 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.6	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
414.6	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	16.0	
409.6	CARBONDALE	DYKERSBURG	GRAY SHALE	7.0	21.0	
402.6	CARBONDALE	SPRINGFIELD	COAL	3.9	28.0	

MAPID: 19901047000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 5 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: DE SOTO **LONGITUDE:** -89.126692 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773383 **DATE COLLECTED:** 1 / 0 / 1926
SURFACE ELEVATION (FT.): 413.2 **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 146 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
413.2	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
398.2			BLACK SHALE	3.0	15.0	
395.2			ROCK	0.5	18.0	
394.7			BLACK SHALE	1.5	18.5	
393.2			GRAY SHALE	3.0	20.0	
390.2			ROCK	2.0	23.0	
388.2			SHALE	2.0	25.0	
386.2			SANDSTONE	28.0	27.0	

MAPID: 19923569000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 5 **QUARTERS/FOOTAGES:** 1190' N line, 1450' E line

QUADRANGLE: HERRIN **LONGITUDE:** -89.119767 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.770831 **DATE COLLECTED:** 5 / 30 / 1984

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 34.0 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 161 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.2	0.0	
-	PLEISTOCENE		CLAY	4.8	17.2	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.3	22.0	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	2.3	27.3	SOFT
-	CARBONDALE	SPRINGFIELD	COAL	3.7	29.6	
-	CARBONDALE		UNDERCLAY	0.8	33.3	

MAPID: 19923570000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 5 **QUARTERS/FOOTAGES:** 280' N line, 2140' W line

QUADRANGLE: DE SOTO **LONGITUDE:** -89.1264 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.773316 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 33.0 **LOG TYPE:** Drillers Log

SOURCE: WILLIAMSON COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 161 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	17.5	0.0	
-	PLEISTOCENE		SAND & GRAVEL	1.3	17.5	
-	CARBONDALE		SHALE	1.4	18.8	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	20.2	
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.2	21.4	BLACK
-	CARBONDALE	DYKERSBURG	GRAY SHALE	3.2	25.6	
-	CARBONDALE	SPRINGFIELD	COAL	3.5	28.8	
-	CARBONDALE		UNDERCLAY	0.8	32.3	

MAPID: 19900032400M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.078321 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.748005 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 21.0 **LOG TYPE:**
SOURCE: MINE NOTES-YOUNG BROS. C C **WELL TYPE:** Strip Mine
COMMENT: MINED INTO SEC 11

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0			UNKNOWN	12.0	0.0	
418.0	CARBONDALE	HERRIN	COAL	9.0	12.0	

MAPID: 199271A0001F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW SW SW
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.075988 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.747991 **DATE COLLECTED:** 0 / 0 / 1906
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 37.5 **LOG TYPE:**
SOURCE: FLD NOTES-SAVAGE **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	23.0	0.0	
417.0			ROCK	12.0	23.0	
405.0			COAL	2.5	35.0	

MAPID: 19900237000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW NW SW SW
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.057845 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.748441 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 80.5 **LOG TYPE:** Drillers Log
SOURCE: C BRACY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	12.0	0.0	
-	CARBONDALE		SANDSTONE	2.0	12.0	
-	CARBONDALE		SHALE	52.0	14.0	WHITE
-	CARBONDALE		BLUE SHALE	2.0	66.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	4.0	68.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.5	72.0	
-	CARBONDALE		UNDERCLAY	6.0	74.5	

MAPID: 19900237000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW NW SW SW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.057845 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.748441 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 80.5 **LOG TYPE:** Drillers Log

SOURCE: C. BRACY-FARM **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	12.0	0.0	
468.0			ROCK	60.0	12.0	
408.0			COAL	2.5	72.0	
405.5			ROCK	6.0	74.5	

MAPID: 19902312000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** 1640' N line, 1420' E line

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.04494 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.740573 **DATE COLLECTED:** 8 / 0 / 1966

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 170.0 **LOG TYPE:** Drillers Log

SOURCE: Q. RICHEY, DRILLER **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	12.0	0.0	
438.0			ROCK	32.0	12.0	
406.0			COAL	1.0	44.0	
405.0			ROCK	73.0	45.0	
332.0			COAL	2.0	118.0	
330.0			ROCK	36.0	120.0	
294.0			COAL	2.0	156.0	
292.0			ROCK	12.0	158.0	

MAPID: 19900238000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW NW NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.076567 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.744733 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 89.6 **LOG TYPE:** Drillers Log

SOURCE: BELTZ **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	22.0	0.0	
-	CARBONDALE		SANDSTONE	9.0	22.0	
-	CARBONDALE		BLACK SHALE	6.0	31.0	
-	CARBONDALE		LIMESTONE	4.0	37.0	
-	CARBONDALE		COAL	2.5	41.0	
-	TRADEWATER		UNDERCLAY	2.0	43.5	
-	TRADEWATER		BLACK SHALE	5.5	45.4	
-	TRADEWATER		GRAY SHALE	4.5	50.9	
-	TRADEWATER		BLACK SHALE	4.0	55.4	
-	TRADEWATER		COAL	0.8	59.4	10"
-	TRADEWATER		UNDERCLAY	3.0	60.3	
-	TRADEWATER		BLACK SHALE	8.5	63.3	
-	TRADEWATER		COAL	0.8	71.8	
-	TRADEWATER		SHALE	2.0	72.6	
-	TRADEWATER		LIMESTONE	9.0	74.7	
-	TRADEWATER		BLACK SHALE	4.5	83.6	
-	TRADEWATER		COAL	1.5	88.1	

MAPID: 19900238000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW NW NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.076567 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.744733 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 89.6 **LOG TYPE:** Drillers Log

SOURCE: BETTZ FARM **WELL TYPE:** Coal Test

COMMENT: 4.83' COAL REPORTED AT DEPTH OF 372'.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	22.0	0.0	
418.0			ROCK	19.0	22.0	
399.0			COAL	2.5	41.0	
396.5			ROCK	15.9	43.5	
380.6			COAL	0.8	59.4	
379.7			ROCK	11.5	60.3	
368.2			COAL	0.8	71.8	
367.4			ROCK	15.5	72.6	
351.9			COAL	1.5	88.1	
350.4			ROCK	-	89.6	

MAPID: 19900239000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 17 **QUARTERS/FOOTAGES:** NE NW SW

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.129454 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73727 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 366.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0	PLEISTOCENE		UNCONSOLIDATED	53.0	0.0	
347.0	CARBONDALE		SANDSTONE	2.0	53.0	
345.0	CARBONDALE		SHALE	19.0	55.0	
326.0	CARBONDALE	DEKOVEN	COAL	3.0	74.0	
323.0	CARBONDALE		DARK SHALE	4.0	77.0	
319.0	CARBONDALE	DEKOVEN	COAL	2.0	81.0	
317.0	CARBONDALE		SANDY SHALE	40.0	83.0	
277.0	CARBONDALE		BLACK SHALE	10.0	123.0	
267.0	CARBONDALE		BLACK SHALE	6.0	133.0	
261.0	CARBONDALE		BLACK SHALE	2.0	139.0	
259.0	CARBONDALE		LIMESTONE	8.0	141.0	
251.0	CARBONDALE		BLACK SHALE	2.0	149.0	
249.0	CARBONDALE	DAVIS	COAL	1.3	151.0	
247.7	TRADEWATER		SANDY SHALE	6.7	152.3	
241.0	TRADEWATER		SHALE	10.0	159.0	
231.0	TRADEWATER		BLACK SHALE	6.0	169.0	
225.0	TRADEWATER	WISE RIDGE	COAL	1.7	175.0	
223.3	TRADEWATER		SHALE	2.3	176.7	
221.0	TRADEWATER	MT. RORAH	COAL	1.3	179.0	
219.7	TRADEWATER		SANDY SHALE	9.8	180.3	
210.0	TRADEWATER		BLACK SHALE	9.5	190.0	
200.5	TRADEWATER	MURPHYSBORO	COAL	5.0	199.5	
195.5	TRADEWATER		SANDY SHALE	35.5	204.5	
160.0	TRADEWATER		SHALE	81.5	240.0	
78.5	TRADEWATER		COAL	2.0	321.5	
76.5	TRADEWATER		LIMESTONE	23.5	323.5	
53.0	TRADEWATER		SANDSTONE	19.0	347.0	

MAPID: 19900239000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 17 **QUARTERS/FOOTAGES:** NE NW SW

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.129454 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.73727 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 366.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	53.0	0.0	
347.0			SANDSTONE	2.0	53.0	
345.0			SHALE	19.0	55.0	
326.0			COAL	3.0	74.0	
323.0			SHALE	4.0	77.0	
319.0			COAL	2.0	81.0	
317.0			SHALE	40.0	83.0	
277.0			ROCK	28.0	123.0	
249.0			COAL	1.3	151.0	
247.7			ROCK	22.7	152.3	
225.0			COAL	1.7	175.0	
223.3			SHALE	2.3	176.7	
221.0			COAL	1.3	179.0	
219.7			SHALE	9.8	180.3	
210.0			BLACK SHALE	9.5	190.0	
200.5			COAL	6.0	199.5	
194.5			SHALE	116.0	205.5	
78.5			COAL	2.0	321.5	
76.5			ROCK	42.5	323.5	

MAPID: 19901076000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 18 **QUARTERS/FOOTAGES:** 600' S line, 2640' E line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.142128 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.732399 **DATE COLLECTED:** 4 / 0 / 1940

SURFACE ELEVATION (FT.): 411.0 **LOGGED (FT.):** 97.0 **LOG TYPE:** Drillers Log

SOURCE: SOIL CONSERV. SERVICE **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
411.0				40.0	0.0	
371.0			COAL	5.0	40.0	
366.0			ROCK	52.0	45.0	

MAPID: 19900240000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' N line, 660' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.149839 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.729892 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 151.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0	PLEISTOCENE		CLAY	30.0	0.0	
370.0	TRADEWATER		SANDSTONE	5.0	30.0	
365.0	TRADEWATER		SHALE & SILTSTONE	25.0	35.0	BLUE
340.0	TRADEWATER		BLACK SHALE	4.5	60.0	
335.5	TRADEWATER		BLACK SHALE	5.5	64.5	
330.0	TRADEWATER		LIMESTONE	4.0	70.0	
326.0	TRADEWATER		COAL	3.0	74.0	
323.0	TRADEWATER		SHALE & SILTSTONE	60.0	77.0	BLUE
263.0	TRADEWATER		BLACK SHALE	4.0	137.0	
259.0	TRADEWATER	MURPHYSBORO	COAL	8.0	141.0	
251.0	TRADEWATER		UNDERCLAY	2.5	149.0	

MAPID: 19900240000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' N line, 660' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.149839 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.729892 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 151.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	30.0	0.0	
370.0			ROCK	19.0	30.0	
351.0			SHALE	11.0	49.0	
340.0			BLACK SHALE	4.5	60.0	
335.5			SHALE	5.5	64.5	
330.0			LIMESTONE	4.0	70.0	
326.0			COAL	3.0	74.0	
323.0			SHALE	60.0	77.0	
263.0			BLACK SHALE	4.0	137.0	
259.0	SPOON	MURPHYSBORO	COAL	8.0	141.0	
251.0	SPOON		UNDERCLAY	2.5	149.0	

MAPID: 19900241000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1400' S line, 550' W line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.150342 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.720137 **DATE COLLECTED:** 0 / 0 / 1920
SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 105.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 390 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
380.0	PLEISTOCENE		SANDY CLAY	37.0	10.0	BLUE
343.0	PLEISTOCENE		SANDY CLAY	20.0	47.0	BLUE
323.0	TRADEWATER		DARK SHALE	9.0	67.0	
314.0	TRADEWATER	MT. RORAH	COAL	1.0	76.0	
313.0	TRADEWATER		SHALE & SILTSTONE	19.5	77.0	BLACK
293.5	TRADEWATER	MURPHYSBORO	COAL	7.5	96.5	
286.0	TRADEWATER		UNDERCLAY	1.0	104.0	

MAPID: 19900241000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1400' S line, 550' W line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.150342 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.720137 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 105.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
390.0			UNCONSOLIDATED	10.0	0.0	
380.0			CLAYSTONE	57.0	10.0	
323.0			ROCK	9.0	67.0	
314.0			COAL	1.0	76.0	
313.0			BLACK SHALE	19.6	77.0	
293.4			COAL	7.5	96.6	
286.0			UNDERCLAY	1.0	104.0	

MAPID: 19901073000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1170' N line, 750' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.149555 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.727569 **DATE COLLECTED:** 0 / 0 / 1940

SURFACE ELEVATION (FT.): 421.0 **LOGGED (FT.):** 273.0 **LOG TYPE:** Drillers Log

SOURCE: SOIL CONSERV. SERVICE **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
421.0			UNCONSOLIDATED	30.0	0.0	
391.0			ROCK	67.5	30.0	
323.5			COAL	0.5	97.5	
323.0			ROCK	37.0	98.0	
286.0			COAL	1.0	135.0	
285.0			ROCK	137.0	136.0	

MAPID: 19900242000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.123172 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.723441 **DATE COLLECTED:** 8 / 24 / 1920

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 149.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNCONSOLIDATED	68.0	0.0	
322.0	TRADEWATER		SHALE	6.0	68.0	
316.0	TRADEWATER		BLACK SHALE	10.0	74.0	
306.0	TRADEWATER		SHALE	6.0	84.0	
300.0	TRADEWATER		LIMESTONE	3.0	90.0	
297.0	TRADEWATER		SHALE	9.0	93.0	
288.0	TRADEWATER		DARK SHALE	2.0	102.0	
286.0	TRADEWATER	WISE RIDGE	COAL	2.2	104.0	
283.8	TRADEWATER		DARK SHALE	10.7	106.2	
273.2	TRADEWATER	MT. RORAH	COAL	3.9	116.8	
269.2	TRADEWATER		DARK SHALE	10.3	120.8	
259.0	TRADEWATER	MURPHYSBORO	COAL	3.4	131.0	
255.6	TRADEWATER		UNDERCLAY	0.6	134.4	
255.0	TRADEWATER		SHALE	14.0	135.0	

MAPID: 19900242000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.123172 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.723441 **DATE COLLECTED:** 8 / 24 / 1920

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 149.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			UNCONSOLIDATED	68.0	0.0	
-			ROCK	36.0	68.0	
-	SPOON	WISE RIDGE	COAL	2.2	104.0	
-	SPOON		SHALE	10.7	106.2	
-	SPOON		COAL	3.9	116.8	
-	SPOON		SHALE	10.3	120.8	
-	SPOON	MURPHYSBORO	COAL	3.4	131.0	
-	SPOON		UNDERCLAY	0.6	134.4	
-			ROCK	14.0	135.0	

MAPID: 19900243000C **VERSION:** 1 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.100069 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.726896 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 407.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
390.0			UNCONSOLIDATED	30.0	0.0	
360.0	SPOON		SHALE	11.0	30.0	
349.0	SPOON	DEKOVEN	COAL	1.0	41.0	
348.0	SPOON		DARK SHALE	9.0	42.0	
339.0	SPOON	DEKOVEN	COAL	2.7	51.0	
336.3	SPOON		SHALE	40.3	53.7	
296.0	SPOON		BLACK SHALE	8.0	94.0	
288.0	SPOON		SHALE	5.0	102.0	
283.0	SPOON		LIMESTONE	4.0	107.0	
279.0	SPOON		DARK SHALE	7.0	111.0	
272.0	SPOON		SHALE	42.0	118.0	
230.0	SPOON		BLACK SHALE	2.3	160.0	
227.7	SPOON	MURPHYSBORO	COAL	1.6	162.3	UNCERTAIN CORRELATION
226.2	SPOON		SHALE	26.7	163.8	
199.5	SPOON		COAL	1.3	190.5	
198.2	SPOON		SHALE	24.2	191.8	
174.0	SPOON		COAL	1.0	216.0	
173.0	SPOON		UNDERCLAY	1.0	217.0	
172.0	SPOON		SHALE	98.0	218.0	
74.0	SPOON		COAL	1.8	316.0	
72.2	SPOON		LIMESTONE	12.2	317.8	
60.0	SPOON		SHALE	7.0	330.0	
53.0	ABBOTT		SANDSTONE	70.0	337.0	UNCERTAIN CORRELATION

MAPID: 19900243000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.100069 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.726896 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 407.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT: AREA NOW FLOODED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	30.0	0.0	
370.0			ROCK	11.0	30.0	
359.0			COAL	1.0	41.0	
358.0			SHALE	9.0	42.0	
349.0			COAL	2.7	51.0	
346.3			ROCK	108.6	53.7	
237.7			COAL	1.6	162.3	
236.2			ROCK	26.7	163.8	
209.5			COAL	1.3	190.5	
208.2			ROCK	24.2	191.8	
184.0			COAL	1.0	216.0	
183.0			ROCK	99.0	217.0	
84.0			COAL	1.8	316.0	
82.2			ROCK	89.2	317.8	

MAPID: 19900243000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.100069 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726896 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 407.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
390.0	PLEISTOCENE		UNKNOWN	30.0	0.0	
360.0	TRADEWATER		SANDY SHALE	11.0	30.0	
349.0	TRADEWATER	MT. RORAH	COAL	1.0	41.0	
348.0	TRADEWATER		DARK SHALE	9.0	42.0	
339.0	TRADEWATER	MURPHYSBORO	COAL	2.7	51.0	
336.3	TRADEWATER		SHALE	19.3	53.7	
317.0	TRADEWATER		SANDY SHALE	21.0	73.0	
296.0	TRADEWATER		BLACK SHALE	8.0	94.0	
288.0	TRADEWATER		LIMESTONE	5.0	102.0	
283.0	TRADEWATER		LIMESTONE	4.0	107.0	
279.0	TRADEWATER		SHALE	7.0	111.0	
272.0	TRADEWATER		SHALE	42.0	118.0	
230.0	TRADEWATER		BLACK SHALE	2.3	160.0	
227.7	TRADEWATER		COAL	1.6	162.3	
226.2	TRADEWATER		SHALE	16.2	163.8	
210.0	TRADEWATER		DARK SHALE	10.5	180.0	
199.5	TRADEWATER		COAL	1.3	190.5	
198.2	TRADEWATER		SHALE	24.2	191.8	
174.0	TRADEWATER		COAL	1.0	216.0	
173.0	TRADEWATER		UNDERCLAY	1.0	217.0	
172.0	TRADEWATER		SHALE	98.0	218.0	
74.0	TRADEWATER		COAL	1.8	316.0	
72.2	TRADEWATER		LIMESTONE	12.2	317.8	
60.0	TRADEWATER		LIMESTONE	7.0	330.0	
53.0	TRADEWATER		SANDSTONE	70.0	337.0	

MAPID: 199271A0002F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 22 **QUARTERS/FOOTAGES:** SE NW NE NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.089196 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.729022 **DATE COLLECTED:** 0 / 0 / 1933

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 25.6 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-FULLER **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			ROCK	13.0		
-			COAL	1.8		
-			SHALE	0.3		
-			COAL	0.3		
-			ROCK	10.2		

MAPID: 19902313000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** 2500' S line, 2800' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.142733 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.708412 **DATE COLLECTED:** 0 / 0 / 1966

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 270.0 **LOG TYPE:** Drillers Log

SOURCE: GWIN DRILLING CO. **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0			UNCONSOLIDATED	13.0	0.0	
447.0			ROCK	33.0	13.0	
414.0			COAL	1.5	46.0	
412.5			ROCK	39.5	47.5	
373.0			COAL	5.0	87.0	
368.0			ROCK	13.0	92.0	
355.0			COAL	7.0	105.0	
348.0			ROCK	158.0	112.0	

MAPID: 19900082101M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:**

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.142165 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.694069 **DATE COLLECTED:** 7 / 13 / 1954

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 6.3 **LOG TYPE:** Measured section

SOURCE: MINE NOTES-STONEHOUSE, TREGONING C C **WELL TYPE:** Underground mine

COMMENT: 13TH ROOM OFF 1ST EAST ENTRY.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			LIMESTONE	-		
-			SHALE	0.5		
-	SPOON	MURPHYSBORO	COAL	5.5		
-	SPOON		SHALE	0.3		

MAPID: 19900082103M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:**

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.142165 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.694069 **DATE COLLECTED:** 7 / 13 / 1954

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 8.0 **LOG TYPE:** Measured section

SOURCE: MINE NOTES-STONEHOUSE, TREGONING MINE **WELL TYPE:** Underground mine

COMMENT: 50' FROM BASE OF SLOPE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	1.7		
-	SPOON	MURPHYSBORO	COAL	6.0		
-	SPOON		SHALE	0.3		

MAPID: 19900082100M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 2350' S line, 1650' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.146849 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.693186 **DATE COLLECTED:** 0 / 0 / 1957

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Measured section

SOURCE: MINE NOTES-TREGONING C C **WELL TYPE:** Underground mine

COMMENT: DATA FROM D. M. & M. COAL REPORT. 1957

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	55.0	0.0	
425.0	SPOON	MURPHYSBORO	COAL	6.0	55.0	

MAPID: 19900082102M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:**
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.142165 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.694069 **DATE COLLECTED:** 7 / 13 / 1954
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 6.4 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-STONEHOUSE **WELL TYPE:** Underground mine
COMMENT: JUNCTION 1ST AND 2ND E ENTRIES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	0.3		
-	SPOON	MURPHYSBORO	COAL	5.9		
-	SPOON		UNDERCLAY	0.3		

MAPID: 19900089100M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SW SE SW SE
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.138764 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.687052 **DATE COLLECTED:** 5 / 14 / 1977
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 49.0 **LOG TYPE:**
SOURCE: MINE NOTES-NELSON, SIMCO MINE # 1 **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	20.0	0.0	
430.0	SPOON	WISE RIDGE	COAL	2.0	20.0	
428.0	SPOON		ROCK	15.0	22.0	
413.0	SPOON		COAL	1.7	37.0	
411.3	SPOON		ROCK	1.6	38.7	
409.8	SPOON		COAL	1.3	40.2	
408.5	SPOON		ROCK	2.5	41.5	
406.0	SPOON		UNKNOWN	-	44.0	
-	SPOON	MURPHYSBORO	COAL	5.0		

MAPID: 19900400800M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 1050' S line, 1650' W line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.146842 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.689595 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-DOGWOOD MINE, SMITH C C **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNCONSOLIDATED	54.0	0.0	
416.0	SPOON	MURPHYSBORO	COAL	6.0	54.0	

MAPID: 19900422300M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 330' S line, 1050' W line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.148919 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.687636 **DATE COLLECTED:** 0 / 0 / 1934
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: MOA MAP-CLARK C C **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			COAL	-		

MAPID: 19902559000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 1500' S line, 1800' W line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.146322 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.69083 **DATE COLLECTED:** 11 / 22 / 1972
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 260.0 **LOG TYPE:** Drillers Log
SOURCE: JOHN BEARLAND, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	20.0	0.0	
430.0			ROCK	79.0	20.0	
351.0			COAL	6.0	99.0	
345.0			ROCK	155.0	105.0	

MAPID: 199271B0005F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 2200' S line, 2550' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.143721 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.692727 **DATE COLLECTED:** 0 / 0 / 1933

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 88.7 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-FULLER, NUWAY C C **WELL TYPE:** Underground mine

COMMENT: NEW MINE ENTRY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			SANDSTONE	-	0.0	
-			UNKNOWN	25.0		
-			SHALE	5.0		
-			COAL	3.0		
-			SHALE	0.5		
-			CLAYSTONE	1.5		
-			SHALE	22.0		
-			COAL	4.0		
-			SHALE	22.2		
-			COAL	5.5		
-			UNDERCLAY	-		

MAPID: 199271B0004F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 1000' S line, 1500' W line

QUADRANGLE: CARBONDALE **LONGITUDE:** -89.14736 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.689464 **DATE COLLECTED:** 0 / 0 / 1933

SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 18.2 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-FULLER, CLARK C C **WELL TYPE:** Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	7.7		
-	SPOON	MURPHYSBORO	COAL	6.5		
-			UNDERCLAY	1.0		
-			CLAYSTONE	3.0		

MAPID: 19900246000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 2900' S line, 75' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.946595 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.767477 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 102.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 3 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
469.5	CARBONDALE	LAWSON	SANDSTONE	40.0	22.5	
429.5	CARBONDALE	BRERETON	CALCAREOUS SHALE	1.0	62.5	
428.5	CARBONDALE	ANNA	BLACK SHALE	4.0	63.5	
424.5	CARBONDALE	ENERGY	GRAY SHALE	25.5	67.5	
399.0	CARBONDALE	HERRIN	COAL	9.3	93.0	

MAPID: 19900246000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 2900' S line, 75' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.946595 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.767477 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL COMPANY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
492.0			UNCONSOLIDATED	23.0	0.0	
469.0	CARBONDALE		SANDSTONE	40.0	23.0	
429.0	CARBONDALE		SHALE	1.0	63.0	
428.0	CARBONDALE	ANNA	BLACK SHALE	4.0	64.0	
424.0	CARBONDALE	ENERGY	SHALE	25.5	68.0	
398.5	CARBONDALE	HERRIN	COAL	9.3	93.5	
389.2	CARBONDALE		UNDERCLAY	3.5	102.8	
385.7	CARBONDALE		SHALE	30.5	106.3	
355.2	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	136.8	
349.2	CARBONDALE	SPRINGFIELD	COAL	4.4	142.8	
344.7	CARBONDALE		UNDERCLAY	5.6	147.3	
339.2	CARBONDALE		SHALE	64.0	152.8	
275.2	CARBONDALE	EXCELLO	BLACK SHALE	2.3	216.8	
272.8	CARBONDALE	HOUCHIN CREEK	COAL	2.7	219.2	
270.2	CARBONDALE		UNDERCLAY	1.0	221.8	
269.2	CARBONDALE		SHALE	43.0	222.8	
226.2	CARBONDALE		COAL	2.7	265.8	
223.4	CARBONDALE		UNDERCLAY	0.5	268.6	
222.9	CARBONDALE		DARK SHALE	30.3	269.1	
192.7	CARBONDALE		SANDSTONE	20.0	299.3	
172.7	CARBONDALE		DARK SHALE	16.0	319.3	
156.7	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.0	335.3	
154.7	CARBONDALE	COLCHESTER	COAL	1.0	337.3	
153.7	SPOON		UNDERCLAY	2.0	338.3	
151.7	SPOON		SHALE	35.0	340.3	
116.7	SPOON		COAL	2.0	375.3	
114.7	SPOON		UNDERCLAY	1.5	377.3	
113.2	SPOON		DARK SHALE	11.5	378.8	
101.7	SPOON	DEKOVEN	COAL	1.0	390.3	
100.7	SPOON		UNDERCLAY	1.5	391.3	
99.2	SPOON		DARK SHALE	16.5	392.8	
82.7	SPOON		BLACK SHALE	1.0	409.3	
81.7	SPOON	DAVIS	COAL	1.0	410.3	
80.7			UNDERCLAY	1.0	411.3	
79.7			SANDSTONE	9.0	412.3	
70.7			LIMESTONE	3.0	421.3	
67.7			SHALE	35.0	424.3	
32.7			LIMESTONE	3.0	459.3	
29.7			SHALE	6.0	462.3	

23.7	COAL	2.0	468.3
21.7	UNDERCLAY	1.0	470.3
20.7	SHALE	15.0	471.3
5.7	COAL	1.0	486.3
4.7	UNDERCLAY	1.0	487.3
3.7	SHALE	43.0	488.3
-39.3	SANDSTONE	2.0	531.3
-41.3	DARK SHALE	3.0	533.3
-44.3	SANDSTONE	7.0	536.3
-51.3	SHALE	31.5	543.3
-82.8	COAL	0.8	574.8
-83.6	BLACK SHALE	0.3	575.6
-83.8	UNDERCLAY	6.5	575.8
-90.3	DARK SHALE	16.0	582.3
-106.3	COAL	1.7	598.3
-108.0	UNDERCLAY	1.3	600.0
-109.3	SHALE	8.5	601.3
-117.8	SANDSTONE	31.5	609.8
-149.3	SHALE	15.0	641.3
-164.3	COAL	1.0	656.3
-165.3	SANDSTONE/SHALE	196.0	657.3
-361.3	LIMESTONE	24.0	853.3
-385.3	DARK SHALE	29.8	877.3
-415.1	COAL	0.5	907.1
-415.6	UNDERCLAY	4.8	907.6
-420.3	LIMESTONE	5.0	912.3
-425.3	SANDSTONE/SHALE	67.0	917.3
-492.3	LIMESTONE	13.0	984.3
-505.3	BLACK SHALE	18.0	997.3
-523.3	SHALE	3.0	1015.3

MAPID: 19900246000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 2900' S line, 75' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.946595 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.767477 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 1018.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	23.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	23.0	
-	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	17.0	39.0	
-	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	7.0	56.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.0	63.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	64.0	
-	CARBONDALE	ENERGY	SHALE	25.5	68.0	
-	CARBONDALE	HERRIN	COAL	9.3	93.5	
-	CARBONDALE		UNDERCLAY	3.5	102.8	
-	CARBONDALE	HIGGINSVILLE	LIMESTONE	7.5	106.3	
-	CARBONDALE		SHALE	6.0	113.8	
-	CARBONDALE		DARK SHALE	15.8	119.8	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	135.6	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	136.8	
-	CARBONDALE	SPRINGFIELD	COAL	4.4	142.8	
-	CARBONDALE		UNDERCLAY	5.6	147.3	
-	CARBONDALE		SHALE	11.0	152.8	
-	CARBONDALE		SHALE	50.5	163.8	
-	CARBONDALE		DARK SHALE	2.5	214.3	
-	CARBONDALE	EXCELLO	BLACK SHALE	2.3	216.8	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.7	219.2	
-	CARBONDALE		UNDERCLAY	1.0	221.8	
-	CARBONDALE		SHALE	8.0	222.8	
-	CARBONDALE		SHALE	35.0	230.8	
-	CARBONDALE	SURVANT	COAL	2.8	265.8	
-	CARBONDALE		UNDERCLAY	0.5	268.6	
-	CARBONDALE		DARK SHALE	30.3	269.1	
-	CARBONDALE		SANDSTONE	20.0	299.3	
-	CARBONDALE		DARK SHALE	16.0	319.3	
-	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.0	335.3	
-	CARBONDALE	COLCHESTER	COAL	1.0	337.3	
-	CARBONDALE		UNDERCLAY	2.0	338.3	
-	CARBONDALE		LIMESTONE	7.0	340.3	
-	CARBONDALE		DARK SHALE	28.0	347.3	
-	CARBONDALE	DEKOVEN	COAL	2.0	375.3	
-	CARBONDALE		UNDERCLAY	1.5	377.3	
-	CARBONDALE		DARK SHALE	11.5	378.8	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.0	390.3	
-	CARBONDALE		UNDERCLAY	1.5	391.3	

-	CARBONDALE		DARK SHALE	16.5	392.8
-	CARBONDALE		BLACK SHALE	1.0	409.3
-	CARBONDALE	DAVIS	COAL	1.0	410.3
-	TRADEWATER		UNDERCLAY	1.0	411.3
-	TRADEWATER		SANDSTONE	9.0	412.3
-	TRADEWATER	SEAHORNE LS	LIMESTONE	3.0	421.3
-	TRADEWATER		SANDY SHALE	7.0	424.3
-	TRADEWATER		DARK SHALE	23.0	431.3
-	TRADEWATER		DARK SHALE	5.0	454.3
-	TRADEWATER	STONEFORT	LIMESTONE	3.0	459.3
-	TRADEWATER		GREEN SHALE	1.0	462.3
-	TRADEWATER		DARK SHALE	5.0	463.3
-	TRADEWATER	WISE RIDGE	COAL	2.0	468.3
-	TRADEWATER		UNDERCLAY	1.0	470.3
-	TRADEWATER		LIMESTONE	9.0	471.3
-	TRADEWATER		DARK SHALE	6.0	480.3
-	TRADEWATER	MT. RORAH	COAL	1.0	486.3
-	TRADEWATER		UNDERCLAY	1.0	487.3
-	TRADEWATER	CREAL SPRING	LIMESTONE	-	
-	TRADEWATER		SHALE	19.0	512.3
-	TRADEWATER		SANDSTONE	2.0	531.3
-	TRADEWATER		DARK SHALE	3.0	533.3
-	TRADEWATER		SANDSTONE	7.0	536.3
-	TRADEWATER		DARK SHALE	9.0	543.3
-	TRADEWATER		SANDY SHALE	5.0	552.3
-	TRADEWATER		DARK SHALE	17.5	557.3
-	TRADEWATER		COAL	0.8	574.8
-	TRADEWATER		BLACK SHALE	0.3	575.6
-	TRADEWATER		UNDERCLAY	6.5	575.8
-	TRADEWATER		DARK SHALE	16.0	582.3
-	TRADEWATER		COAL	1.7	598.3
-	TRADEWATER		UNDERCLAY	1.3	600.0
-	TRADEWATER		SHALE	8.5	601.3
-	TRADEWATER		SANDSTONE	31.5	609.8
-	TRADEWATER		SHALE	13.0	641.3
-	TRADEWATER		DARK SHALE	2.0	654.3
-	TRADEWATER		COAL	1.0	656.3
-	TRADEWATER		SHALE	36.0	657.3
-	TRADEWATER		SANDSTONE	73.0	693.3
-	TRADEWATER		DARK SHALE	11.0	766.3
-	TRADEWATER		SANDSTONE	2.0	777.3
-	TRADEWATER		SHALE	12.0	779.3
-	TRADEWATER		SANDSTONE	37.0	791.3
-	TRADEWATER		DARK SHALE	11.0	828.3
-	TRADEWATER		LIMESTONE	14.0	839.3
-	TRADEWATER		LIMESTONE	24.0	853.3
-	TRADEWATER		DARK SHALE	29.8	877.3
-	TRADEWATER		COAL	0.5	907.1

-	TRADEWATER	UNDERCLAY	4.8	907.6	
-	TRADEWATER	LIMESTONE	5.0	912.3	
-	TRADEWATER	SANDSTONE	21.0	917.3	
-	TRADEWATER	SHALY SANDSTONE	30.0	938.3	
-	TRADEWATER	SHALY SANDSTONE	16.0	968.3	
-	TRADEWATER	LIMESTONE	13.0	984.3	
-	TRADEWATER	SHALE & SILTSTONE	13.0	997.3	BLACK
-	TRADEWATER	BLACK SHALE	5.0	1010.3	
-	TRADEWATER	LIMESTONE	1.0	1015.3	
-	TRADEWATER	SHALE	2.0	1016.3	

MAPID: 19902007000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 594' S line, 330' E line of SW SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.933949 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.761033 **DATE COLLECTED:** 1 / 0 / 1932

SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 1225.0 **LOG TYPE:** Electric Log

SOURCE: FOWLEY ANNA MYRLE **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-698.0	BASE OF PENN.		UNCLASSIFIED	-	1225.0	

MAPID: 19902050000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	14.5	0.0	
-			LIMESTONE	3.0	14.5	OR BOULDERS
-			SANDSTONE	1.5	17.5	
-			BLACK SHALE	2.8	19.0	
-			SHALE	12.0	21.8	
-			BROWN SANDSTONE	13.0	33.8	
-			UNKNOWN	0.0	46.8	

MAPID: 19902054000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	18.0	0.0	
-	CARBONDALE	HERRIN	COAL	10.0	18.0	TOP ERODED

MAPID: 19902055000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 25.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	9.0	0.0	
-	CARBONDALE		CLAY	6.0	9.0	
-	CARBONDALE		GRAVEL	1.0	15.0	
-	CARBONDALE	HERRIN	COAL	9.0	16.0	TOP ERODED

MAPID: 19902056000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 71.9 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	16.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	16.0	
-	CARBONDALE	BRERETON	LIMESTONE	7.0	32.0	
-	CARBONDALE	ANNA	SHALE & SILTSTONE	13.8	39.0	BLACK
-	CARBONDALE	ENERGY	SHALE	10.6	52.8	
-	CARBONDALE	HERRIN	COAL	8.5	63.4	

MAPID: 19902058000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 58.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	15.0	0.0	
-	PLEISTOCENE		SAND	10.0	15.0	WHITE
-	CARBONDALE		SHALE	4.0	25.0	
-	CARBONDALE		BROWN SANDSTONE	5.4	29.0	
-	CARBONDALE	BRERETON	LIMESTONE	4.0	34.4	
-	CARBONDALE	ANNA	BLACK SHALE	5.0	38.4	
-	CARBONDALE	ENERGY	SHALE	7.0	43.4	
-	CARBONDALE	HERRIN	COAL	8.1	50.4	

MAPID: 19902059000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.937469 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766701 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 43.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	16.0	0.0	
-	PLEISTOCENE		CLAY	17.0	16.0	BLUE
-	CARBONDALE	ANNA	BLACK SHALE	3.0	33.0	
-	CARBONDALE	HERRIN	COAL	7.3	36.0	

MAPID: 19900247000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 660' N line, 660' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963048 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772144 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 543.0 **LOG TYPE:** Drillers Log

SOURCE: CHI., BIG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
466.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
439.0	CARBONDALE		BLACK SHALE	8.0	27.0	
431.0	CARBONDALE	ENERGY	SHALE	30.0	35.0	
401.0	CARBONDALE	ENERGY	SANDSTONE	2.0	65.0	
399.0	CARBONDALE	HERRIN	COAL	8.0	67.0	
391.0	CARBONDALE		UNDERCLAY	2.0	75.0	
389.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.0	77.0	
381.0	CARBONDALE		SHALE	13.0	85.0	
368.0	CARBONDALE	TURNER MINE	BLACK SHALE	7.0	98.0	
361.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	105.0	
356.0	CARBONDALE	SPRINGFIELD	COAL	4.0	110.0	
352.0	CARBONDALE		UNDERCLAY	2.0	114.0	
350.0	CARBONDALE		SHALE	10.0	116.0	
340.0	CARBONDALE		SANDSTONE	10.0	126.0	
330.0	CARBONDALE		SHALE	5.0	136.0	
325.0	CARBONDALE		SANDSTONE	20.0	141.0	
305.0	CARBONDALE		SHALE	7.0	161.0	
298.0	CARBONDALE		SHALE & SILTSTONE	19.0	168.0	GRAY
279.0	CARBONDALE	EXCELLO	BLACK SHALE	5.0	187.0	
274.0	CARBONDALE	HOUCHIN CREEK	COAL	4.0	192.0	
270.0	CARBONDALE		UNDERCLAY	2.0	196.0	
268.0	CARBONDALE		LIMESTONE	10.0	198.0	
258.0	CARBONDALE		BLACK SHALE	10.0	208.0	
248.0	CARBONDALE		SHALE	14.0	218.0	
234.0	CARBONDALE	SURVANT	COAL	1.0	232.0	
233.0	CARBONDALE		SHALE & SILTSTONE	40.0	233.0	
193.0	CARBONDALE		SANDSTONE	20.0	273.0	
173.0	CARBONDALE		SHALE & SILTSTONE	13.0	293.0	
160.0	CARBONDALE		BLACK SHALE	3.0	306.0	
157.0	CARBONDALE		SHALE	14.0	309.0	
143.0	CARBONDALE		SHALE & SILTSTONE	19.0	323.0	
124.0	CARBONDALE	COLCHESTER	COAL	3.0	342.0	
121.0	CARBONDALE		SHALE & SILTSTONE	34.0	345.0	
87.0	CARBONDALE	DEKOVEN	COAL	3.0	379.0	
84.0	CARBONDALE		SHALE & SILTSTONE	11.0	382.0	
73.0	TRADEWATER		SANDSTONE	40.0	393.0	
33.0	TRADEWATER		BLACK SHALE	3.0	433.0	
30.0	TRADEWATER		SHALE	32.0	436.0	
-2.0	TRADEWATER		BLACK SHALE	2.0	468.0	

-4.0	TRADEWATER		BLACK SHALE	1.0	470.0	
-5.0	TRADEWATER	WISE RIDGE	COAL	1.0	471.0	
-6.0	TRADEWATER		SHALE	41.0	472.0	
-47.0	TRADEWATER		ROCK	30.0	513.0	GRAY

MAPID: 19900247000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 660' N line, 660' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963048 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.772144 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 75.0 **LOG TYPE:** Drillers Log

SOURCE: CHICAGO BIG MUDDY COAL **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
439.0	CARBONDALE	ENERGY	DARK GRAY SHALE	8.0	27.0	
431.0	CARBONDALE	ENERGY	GRAY SHALE	30.0	35.0	
401.0	CARBONDALE	ENERGY	SANDSTONE	2.0	65.0	
399.0	CARBONDALE	HERRIN	COAL	8.0	67.0	

MAPID: 19900249000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** NW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.96303 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772163 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 501.0 **LOG TYPE:** Drillers Log

SOURCE: CHI. BIG MUDDY COAL & IRON 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0	PLEISTOCENE		CLAY	2.0	0.0	
454.0	PLEISTOCENE		HARD PAN	28.0	2.0	
426.0	PLEISTOCENE		CLAY	6.0	30.0	
420.0	PLEISTOCENE		SANDY CLAY	13.0	36.0	
407.0	PLEISTOCENE		SAND	4.0	49.0	
403.0	CARBONDALE	HERRIN	COAL	7.7	53.0	TOP OF COAL MAY BE ERODED
395.3	CARBONDALE		UNDERCLAY	2.3	60.7	
393.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.4	63.0	
384.6	CARBONDALE		GRAY SHALE	20.1	71.4	
364.5	CARBONDALE	ST. DAVID	LIMESTONE	1.5	91.5	
363.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.6	93.0	
357.4	CARBONDALE	SPRINGFIELD	COAL	4.0	98.6	
353.4	CARBONDALE		UNDERCLAY	2.3	102.6	
351.2	CARBONDALE		SANDSTONE	2.1	104.8	
349.1	CARBONDALE		GRAY SHALE	7.8	106.9	
341.3	CARBONDALE		SANDSTONE	2.3	114.7	
339.1	CARBONDALE		SANDY SHALE	21.1	116.9	
318.0	CARBONDALE		BLUE SHALE	36.0	138.0	
282.0	CARBONDALE		CONGLOMERATE	0.5	174.0	
281.5	CARBONDALE	EXCELLO	BLACK SHALE	0.5	174.5	
281.0	CARBONDALE	EXCELLO	BLUE LIMESTONE	1.0	175.0	
280.0	CARBONDALE	EXCELLO	BLACK SHALE	3.7	176.0	
276.3	CARBONDALE	HOUCHIN CREEK	COAL	1.9	179.7	
274.4	CARBONDALE		UNDERCLAY	2.4	181.6	
272.0	CARBONDALE		SANDY SHALE	29.0	184.0	
243.0	CARBONDALE		BLUE SHALE	7.0	213.0	
236.0	CARBONDALE	SURVANT	COAL	1.9	220.0	
234.1	CARBONDALE		UNDERCLAY	0.6	221.9	
233.5	CARBONDALE		SANDY SHALE	34.3	222.5	
199.2	CARBONDALE		SANDSTONE	2.8	256.8	
196.3	CARBONDALE		SANDY SHALE	10.3	259.7	
186.0	CARBONDALE		SANDSTONE	20.0	270.0	
166.0	CARBONDALE		DARK SHALE	3.0	290.0	
163.0	CARBONDALE		BLUE SHALE	6.0	293.0	
157.0	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.5	299.0	
154.5	CARBONDALE	COLCHESTER	COAL	0.5	301.5	
154.0	CARBONDALE		UNDERCLAY	2.5	302.0	
151.5	CARBONDALE		LIMESTONE	1.5	304.5	
150.0	CARBONDALE		SANDY LIMESTONE	6.0	306.0	

144.0	CARBONDALE		BLUE SHALE	21.0	312.0
123.0	CARBONDALE		BLUE SHALE	0.6	333.0
122.4	CARBONDALE	DEKOVEN	COAL	2.3	333.6
120.2	CARBONDALE		SANDY SHALE	13.5	335.8
106.7	CARBONDALE	LOWER DEKOVEN	COAL	0.7	349.3
106.0	CARBONDALE		SANDY SHALE	14.4	350.0
91.6	CARBONDALE		BLUE SHALE	2.8	364.4
88.7	CARBONDALE	DAVIS	COAL	2.6	367.3
86.2	TRADEWATER		SANDY SHALE	11.0	369.8
75.2	TRADEWATER		SANDSTONE	37.2	380.8
38.0	TRADEWATER		DARK SHALE	10.2	418.0
27.8	TRADEWATER		SANDY SHALE	7.0	428.2
20.8	TRADEWATER		DARK SHALE	8.0	435.2
12.8	TRADEWATER		SANDSTONE	1.8	443.2
11.0	TRADEWATER		DARK SHALE	9.0	445.0
2.0	TRADEWATER		BLUE SHALE	8.1	454.0
-6.1	TRADEWATER	WISE RIDGE	COAL	1.5	462.1
-7.6	TRADEWATER	WISE RIDGE	UNCLASSIFIED	0.1	463.6
-7.8	TRADEWATER	WISE RIDGE	COAL	0.1	463.8
-7.8	TRADEWATER		UNDERCLAY	1.3	463.8
-9.2	TRADEWATER		SANDSTONE	8.1	465.2
-17.3	TRADEWATER		SANDY SHALE	4.3	473.3
-21.6	TRADEWATER		DARK SHALE	6.0	477.6
-27.6	TRADEWATER		LIMESTONE	1.1	483.6
-28.7	TRADEWATER		GRAY SHALE	16.3	484.7

MAPID: 19901081000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1320' S line, 582' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.963275 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.763184 **DATE COLLECTED:** 0 / 0 / 1910

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 79.0 **LOG TYPE:** Drillers Log

SOURCE: CHI. BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
-	CARBONDALE		ROCK	22.0	18.0	
-	CARBONDALE		BLACK SHALE	5.0	40.0	
-	CARBONDALE	BRERETON	LIMESTONE	5.0	45.0	
-	CARBONDALE	ANNA	BLACK SHALE	5.0	50.0	
-	CARBONDALE	ENERGY	SHALE	20.0	55.0	
-	CARBONDALE	HERRIN	COAL	4.0	75.0	STOPPED DRILLING IN COAL

MAPID: 19901082000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1370' S line, 782' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962578 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.763319 **DATE COLLECTED:** 0 / 0 / 1910
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 100.5 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	22.0	0.0	
-			SHALE	27.5	22.0	
-			SANDSTONE	29.5	49.5	
-			WHITE SANDSTONE	21.5	79.0	

MAPID: 19901083000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1373' S line, 932' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.962056 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.763324 **DATE COLLECTED:** 0 / 0 / 1910
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 159.0 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	22.0	0.0	
-	CARBONDALE		SHALE	22.0	22.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	44.0	
-	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	44.0	60.0	
-	CARBONDALE		SHALE	7.0	104.0	
-	CARBONDALE	BRERETON	LIMESTONE	9.0	111.0	
-	CARBONDALE	ANNA	BLACK SHALE	5.0	120.0	
-	CARBONDALE	ENERGY	SHALE	26.0	125.0	
-	CARBONDALE	HERRIN	COAL	8.0	151.0	

MAPID: 19901085000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1105' N line, 1993' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958404 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.77094 **DATE COLLECTED:** 0 / 0 / 1902

SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 135.2 **LOG TYPE:** Drillers Log

SOURCE: CHI., BIG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.0	PLEISTOCENE		UNCONSOLIDATED	21.7	0.0	
451.3	CARBONDALE	ANVIL ROCK	RED SANDSTONE	34.0	21.7	
417.3	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	9.5	55.7	
407.8	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	1.0	65.2	
406.8	CARBONDALE	ANVIL ROCK	UNKNOWN	0.2	66.2	SOOT VEIN
406.7	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	7.0	66.3	
399.7	CARBONDALE		BLACK SHALE	7.7	73.3	
392.0	CARBONDALE	CONANT	BLUE LIMESTONE	3.5	81.0	
388.5	CARBONDALE		BLACK SHALE	1.0	84.5	
387.5	CARBONDALE	BRERETON	GRAY LIMESTONE	6.5	85.5	
381.0	CARBONDALE	ANNA	BLACK SHALE	4.0	92.0	
377.0	CARBONDALE	ENERGY	SHALE	30.0	96.0	
347.0	CARBONDALE	HERRIN	COAL	9.2	126.0	

MAPID: 19901086000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1085' N line, 1758' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.959224 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.770991 **DATE COLLECTED:** 0 / 0 / 1903
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 136.3 **LOG TYPE:** Drillers Log
SOURCE: CHI., BIG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test
COMMENT: DRLLD 300' D.E. OF SHFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
475.0	PLEISTOCENE		UNCONSOLIDATED	22.4	0.0	
452.6	CARBONDALE		BROWN SANDSTONE	6.0	22.4	
446.6	CARBONDALE	HERRIN	COAL	5.5	28.4	BLACK
441.1	CARBONDALE		UNDERCLAY	3.5	33.9	
437.6	CARBONDALE		BLACK SHALE	1.0	37.4	
436.6	CARBONDALE		SHALE	23.4	38.4	
413.2	CARBONDALE	SPRINGFIELD	COAL	4.0	61.8	
409.2	CARBONDALE		CHERT	3.3	65.8	GRAY
405.8	CARBONDALE		SHALE	0.5	69.2	WHITE
405.3	CARBONDALE		CHERT	1.0	69.7	WHITE
404.3	CARBONDALE		SHALE & SILTSTONE	16.0	70.7	DARK GRAY
388.3	CARBONDALE		BLACK SHALE	5.0	86.7	
383.3	CARBONDALE		SHALE	9.0	91.7	
374.3	CARBONDALE	HOUCHIN CREEK	COAL	3.5	100.7	
370.9	CARBONDALE		SHALE	32.3	104.1	STOPPED IN LIMESTONE

MAPID: 19901087000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 112' N line, 2076' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.95813 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773962 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE A4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-			SANDSTONE	50.0	12.0	DOWN ON EAST SIDE OF FAULT

MAPID: 19901088000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 112' N line, 1960' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958533 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773679 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.8 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE A3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	19.0	0.0	
-			GRAY SHALE	20.0	19.0	
-			CLAYSTONE	9.4	39.0	
-			CLAYSTONE & SILTSTONE	0.3	48.4	

MAPID: 19901089000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 112' N line, 1820' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.959019 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773679 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 51.0 **LOG TYPE:** Drillers Log
SOURCE: CHI., BIG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE		SHALE & SILTSTONE	22.0	20.0	GRAY
-	CARBONDALE	HERRIN	COAL	9.0	42.0	

MAPID: 19901090000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.953779 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.772202 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 69.9 **LOG TYPE:** Drillers Log
SOURCE: CHI., BIG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test
COMMENT: CNTY # BARELY LEGIBLE IN LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	23.0	0.0	
-			BLACK SHALE	7.0	23.0	
-			LIMESTONE	8.0	30.0	
-			BLACK SHALE	2.0	38.0	
-			LIMESTONE	4.5	40.0	
-			BLACK SHALE	7.8	44.5	
-			SHALE & SILTSTONE	17.7	52.3	GRAY

MAPID: 19901114000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:** 1375' N line, 1170' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.950918 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.770237 **DATE COLLECTED:** 0 / 0 / 1901

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log

SOURCE: CHI., BUG MUDDY COAL&COKE CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	CARBONDALE		SHALE	10.0	10.0	AND SAND
-	CARBONDALE		SHALE	4.0	20.0	AND CLAY
-	CARBONDALE		SHALE	32.0	24.0	
-	CARBONDALE	HERRIN	COAL	8.0	56.0	

MAPID: 19902051000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 2 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.956084 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766758 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 117.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
-	CARBONDALE		ROCK	30.3	19.0	GRAY
-	CARBONDALE		SHALE	12.1	49.3	
-	CARBONDALE	CONANT	GRAY LIMESTONE	2.0	61.3	
-	CARBONDALE		BLACK SHALE	1.0	63.3	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	6.5	64.3	
-	CARBONDALE	ANNA	BLACK SHALE	3.5	70.8	
-	CARBONDALE	ENERGY	SHALE	34.3	74.3	
-	CARBONDALE	HERRIN	COAL	8.8	108.7	

MAPID: 19900144000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 2016' S line, 3402' E line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.977137 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.765385 **DATE COLLECTED:** 0 / 0 / 1902
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 47.5 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
455.0	CARBONDALE		HARD PAN	5.0	15.0	
450.0	CARBONDALE		GRAY SHALE	9.0	20.0	
441.0	CARBONDALE	ST. DAVID	GRAY LIMESTONE	1.0	29.0	
440.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	30.0	
436.0	CARBONDALE	DYKERSBURG	SHALE	8.5	34.0	
427.5	CARBONDALE	SPRINGFIELD	COAL	4.0	42.5	
423.5	CARBONDALE		UNDERCLAY	1.0	46.5	

MAPID: 19900152000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** E2 SE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.975805 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.761602 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 76.0 **LOG TYPE:** Drillers Log
SOURCE: CALORIC COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0	PLEISTOCENE		BROWN SANDSTONE	17.0	0.0	
468.0	CARBONDALE		BROWN SANDSTONE	9.0	17.0	
459.0	CARBONDALE		GRAY SHALE	3.0	26.0	
456.0	CARBONDALE		BLUE SHALE	10.0	29.0	
446.0	CARBONDALE		BLACK SHALE	7.0	39.0	
439.0	CARBONDALE		CLAYSTONE	6.5	46.0	
432.5	CARBONDALE	SPRINGFIELD	COAL	4.5	52.5	
428.0	CARBONDALE		GRAY SHALE	3.0	57.0	
425.0	CARBONDALE		SANDY LIMESTONE	16.0	60.0	GRAY
409.0	CARBONDALE		UNCLASSIFIED	0.0	76.0	

MAPID: 19900248000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW NE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.978066 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773508 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 49.0 **LOG TYPE:** Drillers Log
SOURCE: CADY FIELD NOTES **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
395.0	CARBONDALE	SPRINGFIELD	COAL	4.0	45.0	DEPTH FT. MORE OR LESS 45'

MAPID: 19900250000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.966504 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.773239 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 51.7 **LOG TYPE:** Drillers Log
SOURCE: CHI. BIG MUDDY COAL & COKE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
419.0	CARBONDALE	HERRIN	COAL	7.7	40.0	
371.3	CARBONDALE	SPRINGFIELD	COAL	4.0	87.7	

MAPID: 19902045000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 0' N line, 660' E line of SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.967612 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.766812 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 33.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	9.0	0.0	
-	CARBONDALE		BLUE SHALE	4.0	9.0	
-	CARBONDALE		BLUE SHALE	10.0	13.0	
-	CARBONDALE	HERRIN	COAL	8.3	23.0	
-	CARBONDALE		UNDERCLAY	1.7	31.3	

MAPID: 19902045000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 0' N line, 660' E line of SE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.967612 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.766812 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 31.3 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
501.0	CARBONDALE	ENERGY	DARK GRAY SHALE	4.0	9.0	
497.0	CARBONDALE	ENERGY	DARK GRAY SHALE	10.0	13.0	
487.0	CARBONDALE	HERRIN	COAL	8.3	23.0	

MAPID: 19902046000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.974617 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.767049 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 34.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 2 **WELL TYPE:** Coal Test

COMMENT: DRILL HOLE #3 NO GOOD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	17.0	0.0	
-	CARBONDALE		BLACK SHALE	3.0	17.0	
-	CARBONDALE		BLUE SHALE	9.0	20.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.0	29.0	
-	CARBONDALE		UNDERCLAY	2.0	32.0	

MAPID: 19902047000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.974617 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.767049 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 149.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	15.0	0.0	
-	PLEISTOCENE		BROWN SANDSTONE	10.4	15.0	
-	CARBONDALE		GRAY LIMESTONE	6.6	25.4	
-	CARBONDALE		GRAY SHALE	2.0	32.0	
-	CARBONDALE		GRAY SANDSTONE	2.0	34.0	
-	CARBONDALE		BLUE SHALE	10.0	36.0	
-	CARBONDALE		SANDY SHALE	7.0	46.0	
-	CARBONDALE		SANDY SHALE	86.0	53.0	
-	CARBONDALE	HERRIN	COAL	8.3	139.0	
-	CARBONDALE		UNDERCLAY	2.0	147.3	BLUE

MAPID: 19900143000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.992142 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.773709 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 442.0 **LOGGED (FT.):** 46.0 **LOG TYPE:** Drillers Log

SOURCE: BLACK DIAMOND COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
442.0	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
426.0	CARBONDALE	BRIAR HILL	COAL	2.5	16.0	
423.5	CARBONDALE		SANDSTONE	3.0	18.5	
420.5	CARBONDALE		SHALE	20.5	21.5	
400.0	CARBONDALE	SPRINGFIELD	COAL	4.0	42.0	

MAPID: 19900148000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.996881 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.771925 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 50.5 **LOG TYPE:** Drillers Log

SOURCE: BLACK DIAMOND COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
452.0	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
434.0	CARBONDALE		SANDSTONE	8.0	18.0	
426.0	CARBONDALE		SHALE	6.0	26.0	
420.0	CARBONDALE		SANDSTONE	4.0	32.0	
416.0	CARBONDALE		BLACK SHALE	9.0	36.0	
407.0	CARBONDALE	HERRIN	COAL	5.5	45.0	

MAPID: 19900149000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.995696 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772825 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 44.5 **LOG TYPE:** Drillers Log

SOURCE: BLACK DIAMOND COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
403.0	CARBONDALE	SPRINGFIELD	COAL	4.5	40.0	

MAPID: 19900600000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.996879 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.762815 **DATE COLLECTED:** 0 / 0 / 1929
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 50.7 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER COAL CO 13 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0	PLEISTOCENE		SOIL	1.0	0.0	
464.0	PLEISTOCENE		BROWN SANDSTONE	4.5	1.0	
459.5	PLEISTOCENE		BROWN SANDSTONE	10.4	5.5	
449.1	CARBONDALE		BROWN SANDSTONE	6.0	15.9	
443.1	CARBONDALE		SANDY SHALE	7.6	21.9	
435.5	CARBONDALE		BLUE SHALE	6.6	29.5	
428.9	CARBONDALE	ST. DAVID	LIMESTONE	1.8	36.1	
427.1	CARBONDALE	TURNER MINE	BLUE SHALE	5.9	37.9	
421.2	CARBONDALE	DYKERSBURG	GRAY SHALE	2.8	43.8	
418.3	CARBONDALE	SPRINGFIELD	COAL	3.0	46.7	
415.3	CARBONDALE		UNDERCLAY	1.0	49.7	

MAPID: 19900251000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** 660' N line, 660' W line of NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.009946 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.772075 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 37.2 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.0	PLEISTOCENE		CLAY	16.0	0.0	
456.0	CARBONDALE		SANDSTONE	2.0	16.0	
454.0	CARBONDALE	BRERETON	LIMESTONE	5.0	18.0	
449.0	CARBONDALE	ANNA	BLACK SHALE	3.0	23.0	
446.0	CARBONDALE		LIMESTONE W/ SHALE	3.0	26.0	
443.0	CARBONDALE	HERRIN	COAL	4.0	29.0	
439.0	CARBONDALE	HERRIN	COAL	4.2	33.0	

MAPID: 19900251000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** 660' N line, 660' W line of NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.009946 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.772075 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 33.2 **LOG TYPE:** Drillers Log
SOURCE: CRANE B C **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
456.0	CARBONDALE	LAWSON	SANDSTONE	2.0	16.0	
454.0	CARBONDALE	BRERETON	LIMESTONE	5.0	18.0	
449.0	CARBONDALE	ANNA	BLACK SHALE	3.0	23.0	
446.0	CARBONDALE	ENERGY	GRAY SHALE	3.0	26.0	
443.0	CARBONDALE	HERRIN	COAL	4.2	29.0	

MAPID: 19900601000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** NW SE
QUADRANGLE: HERRIN **LONGITUDE:** -89.009845 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.765524 **DATE COLLECTED:** 0 / 0 / 1929
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 82.0 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER 14 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0	PLEISTOCENE		BROWN SANDSTONE	25.0	0.0	
445.0	PLEISTOCENE		SANDY CLAY	18.0	25.0	
427.0			LIMESTONE	5.0	43.0	
422.0			SANDY SHALE	3.0	48.0	
419.0			SANDSTONE	1.5	51.0	
417.5			BLUE SHALE	29.5	52.5	

MAPID: 19901544000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 5 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: HERRIN **LONGITUDE:** -89.018107 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.764532 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 72.8 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
-			SHALE	32.8	40.0	QUIT IN GOOD SHALE

MAPID: 19900602000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.008603 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.755376 **DATE COLLECTED:** 0 / 0 / 1929
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 29.2 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER COAL CO. 12 **WELL TYPE:** Coal Test
COMMENT: OVRBRDN 24.6 C 3.8

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SOIL	1.0	0.0	
479.0	PLEISTOCENE		BROWN SANDSTONE	11.5	1.0	
467.5	PLEISTOCENE		BROWN SANDSTONE	4.5	12.5	
463.0	PLEISTOCENE		BROWN SANDSTONE	4.3	17.0	
458.7	PLEISTOCENE		CLAY	1.0	21.3	BROWN
457.7	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	22.3	
455.5	CARBONDALE	SPRINGFIELD	COAL	3.7	24.5	
451.8	CARBONDALE		UNDERCLAY	1.0	28.2	

MAPID: 19900603000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.009781 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.754429 **DATE COLLECTED:** 0 / 0 / 1929
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER COAL CO. 10 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		SOIL	1.0	0.0	
489.0	PLEISTOCENE		BROWN SANDSTONE	10.5	1.0	
478.5	PLEISTOCENE		BROWN SANDSTONE	12.5	11.5	
466.0			GRAY SHALE	3.2	24.0	
462.8			SANDY SHALE	16.6	27.2	
446.2			BLUE SHALE	16.3	43.8	

MAPID: 19901545000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE SE NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.003298 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757766 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 39.2 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	26.5	0.0	
-	CARBONDALE	ST. DAVID	ROCK	0.8	26.5	
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	27.3	
-	CARBONDALE	DYKERSBURG	BLUE SHALE	7.1	28.3	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	35.4	

MAPID: 19901546000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.013939 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757679 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.3 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.1	0.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.9	22.1	
-	CARBONDALE		UNCLASSIFIED	0.5	24.0	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	24.5	

MAPID: 19901547000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE SW NW
QUADRANGLE: HERRIN **LONGITUDE:** -89.010392 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757708 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 43.4 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	CARBONDALE		BLACK SHALE	5.6	25.0	
-	CARBONDALE		GRAY SHALE	0.8	30.6	
-	CARBONDALE	ST. DAVID	ROCK	1.3	31.4	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.9	32.8	
-	CARBONDALE	SPRINGFIELD	COAL	3.7	39.7	

MAPID: 19901548000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.0039 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.759174 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 40.0 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	32.5	0.0	
-	CARBONDALE	DYKERSBURG	SHALE	3.5	32.5	
-	CARBONDALE	SPRINGFIELD	COAL	1.6	36.0	
-	CARBONDALE		UNDERCLAY	2.4	37.6	

MAPID: 19901549000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NW NE NE
QUADRANGLE: HERRIN **LONGITUDE:** -89.013947 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.759551 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.2 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.2	0.0	
-	CARBONDALE		SANDSTONE	1.9	14.2	
-	CARBONDALE		BROWN SHALE	4.5	16.1	
-	CARBONDALE		GRAY SHALE	7.5	20.6	
-	CARBONDALE		GRAY SHALE	2.4	28.1	
-	CARBONDALE	ST. DAVID	ROCK	1.4	30.5	
-	CARBONDALE	TURNER MINE	BLACK SHALE	7.4	31.9	
-	CARBONDALE		COAL/CLAYSTONE	2.9	39.3	WHITE
-	CARBONDALE	SPRINGFIELD	COAL	3.9	42.3	

MAPID: 19900604000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NW NW SW

QUADRANGLE: HERRIN **LONGITUDE:** -89.001498 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.751633 **DATE COLLECTED:** 0 / 0 / 1929

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 43.3 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 9 **WELL TYPE:** Coal Test

COMMENT: OVRBRDN 38'2 C 3'7

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.0	PLEISTOCENE		SOIL	1.0	0.0	
519.0	PLEISTOCENE		BROWN SANDSTONE	7.5	1.0	
511.5	PLEISTOCENE		BROWN SANDSTONE	3.9	8.5	
507.6	CARBONDALE		SANDSTONE	1.2	12.4	
506.4	CARBONDALE		GRAY SHALE	4.0	13.6	
502.4	CARBONDALE		SANDY SHALE	7.6	17.6	
494.8	CARBONDALE	ST. DAVID	LIMESTONE	1.5	25.2	
493.3	CARBONDALE	TURNER MINE	BLACK SHALE	8.2	26.7	
485.2	CARBONDALE	DYKERSBURG	GRAY SHALE	3.3	34.8	
481.8	CARBONDALE	SPRINGFIELD	COAL	3.6	38.2	
478.2	CARBONDALE		UNDERCLAY	1.5	41.8	

MAPID: 19900605000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SW NW SW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.00206 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749278 **DATE COLLECTED:** 0 / 0 / 1929

SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 52.6 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 8 **WELL TYPE:** Coal Test

COMMENT: C 2'9 OVRBRDN 48'4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
475.0	PLEISTOCENE		SOIL	1.0	0.0	RED
474.0	PLEISTOCENE		BROWN SANDSTONE	11.5	1.0	
462.5	PLEISTOCENE		BROWN SANDSTONE	7.2	12.5	
455.3	PLEISTOCENE		BROWN SANDSTONE	6.3	19.7	
449.0	CARBONDALE	TURNER MINE	BLACK SHALE	22.3	26.0	
426.7	CARBONDALE	SPRINGFIELD	COAL	2.8	48.3	
423.9	CARBONDALE		UNDERCLAY	1.5	51.1	

MAPID: 19900605000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SW NW SW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.00206 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.749278 **DATE COLLECTED:** 0 / 0 / 1929

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 52.6 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0			UNCONSOLIDATED	23.7	0.0	
446.3			ROCK	24.7	23.7	
421.7			COAL	2.8	48.3	
418.9			ROCK	1.5	51.1	

MAPID: 19900606000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.999198 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.755391 **DATE COLLECTED:** 3 / 16 / 1929

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 44.7 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 11 **WELL TYPE:** Coal Test

COMMENT: OVRBRDN 39'9 C 3'5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0	PLEISTOCENE		SOIL	1.0	0.0	
484.0	PLEISTOCENE		BROWN SANDSTONE	8.5	1.0	
475.5	PLEISTOCENE		BROWN SANDSTONE	3.1	9.5	
472.4	PLEISTOCENE		BROWN SANDSTONE	8.2	12.6	
464.2	CARBONDALE		BROWN SHALE	9.8	20.8	
454.5	CARBONDALE	ST. DAVID	LIMESTONE	2.4	30.5	
452.1	CARBONDALE	TURNER MINE	BLACK SHALE	6.8	32.9	
445.2	CARBONDALE	SPRINGFIELD	COAL	3.4	39.8	
441.8	CARBONDALE		UNDERCLAY	1.5	43.2	

MAPID: 19900607000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.991067 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.750645 **DATE COLLECTED:** 3 / 8 / 1929
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 70.3 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER COAL CO. 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SOIL	1.6	0.0	GRAY
478.4	PLEISTOCENE		BROWN SANDSTONE	10.4	1.6	
468.0	PLEISTOCENE		BROWN SANDSTONE	4.5	12.0	
463.5	PLEISTOCENE		BROWN SANDSTONE	2.0	16.5	
461.5			SANDY SHALE	15.7	18.5	
445.8			SANDY SHALE	36.2	34.2	

MAPID: 19900608000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: MARION **LONGITUDE:** -88.996855 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.747847 **DATE COLLECTED:** 3 / 4 / 1929
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 40.0 **LOG TYPE:** Drillers Log
SOURCE: TRUAX-TRAER COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT: OVRBRDN 36.5 AMT C 2'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0	PLEISTOCENE		SOIL	1.6	0.0	GRAY
458.4	PLEISTOCENE		BROWN SANDSTONE	15.6	1.6	
442.8	PLEISTOCENE		BROWN SANDSTONE	2.0	17.2	
440.8	PLEISTOCENE		ROCK	3.7	19.2	BLACK
437.2	PLEISTOCENE		BROWN SANDSTONE	9.1	22.8	
428.1	CARBONDALE		BLUE SHALE	1.3	31.9	
426.7	CARBONDALE	EXCELLO	BLACK SHALE	3.2	33.3	
423.6	CARBONDALE	HOUCHIN CREEK	COAL	2.0	36.4	
421.6	CARBONDALE		UNDERCLAY	1.6	38.4	

MAPID: 19900609000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW

QUADRANGLE: MARION **LONGITUDE:** -88.998005 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746908 **DATE COLLECTED:** 3 / 5 / 1929

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 22.8 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT: AMT C 1/4"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		SOIL	2.0	0.0	GRAY
448.0	PLEISTOCENE		BROWN SANDSTONE	10.4	2.0	
437.6	PLEISTOCENE		BROWN SANDSTONE	7.0	12.4	
430.6	CARBONDALE		COAL	1.4	19.4	#5 OR #4
429.2	CARBONDALE		UNDERCLAY	2.0	20.8	

MAPID: 19900610000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.994544 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.751599 **DATE COLLECTED:** 3 / 7 / 1929

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 63.8 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 6 **WELL TYPE:** Coal Test

COMMENT: OVRBRDN 54.7 AMT C 2.3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		BROWN SANDSTONE	1.7	0.0	
468.3	PLEISTOCENE		BROWN SANDSTONE	8.6	1.7	
459.7	PLEISTOCENE		BROWN SANDSTONE	6.9	10.3	
452.8	CARBONDALE		SANDY SHALE	37.2	17.2	
415.7	CARBONDALE	HANOVER	BLUE LIMESTONE	0.3	54.3	
415.3	CARBONDALE	EXCELLO	BLACK SHALE	5.2	54.7	
410.2	CARBONDALE	HOUCHIN CREEK	COAL	2.3	59.8	
407.8	CARBONDALE		UNDERCLAY	1.6	62.2	

MAPID: 19900611000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SE SW

QUADRANGLE: MARION **LONGITUDE:** -88.994546 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747839 **DATE COLLECTED:** 2 / 27 / 1929

SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 36.8 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: OVRBRDN 32'1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
462.0	PLEISTOCENE		SOIL	1.0	0.0	
461.0	PLEISTOCENE		BROWN SANDSTONE	7.7	1.0	
453.3	PLEISTOCENE		BROWN SANDSTONE	8.3	8.7	
445.0	PLEISTOCENE		BROWN SANDSTONE	14.9	17.0	
430.1	CARBONDALE	EXCELLO	BLACK SHALE	0.2	31.9	
429.9	CARBONDALE	HOUCHIN CREEK	COAL	2.2	32.1	PRTLY WEATHERED
427.7	CARBONDALE		UNDERCLAY	2.5	34.3	

MAPID: 19900612000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: MARION **LONGITUDE:** -88.98647 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746876 **DATE COLLECTED:** 2 / 29 / 1929

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 55.4 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		SOIL	1.5	0.0	GRAY
448.5	PLEISTOCENE		BROWN SANDSTONE	10.3	1.5	
438.2	PLEISTOCENE		BROWN SANDSTONE	6.3	11.8	
431.8	PLEISTOCENE		BROWN SANDSTONE	12.8	18.2	
419.0			SANDY SHALE	13.3	31.0	
405.7			SANDY SHALE	11.2	44.3	

MAPID: 19900613000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SW SE

QUADRANGLE: MARION **LONGITUDE:** -88.989926 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747824 **DATE COLLECTED:** 3 / 0 / 1929

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 41.9 **LOG TYPE:** Drillers Log

SOURCE: TRUAX-TRAER COAL CO. 3 **WELL TYPE:** Coal Test

COMMENT: C TRACE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		SOIL	1.6	0.0	
448.4	PLEISTOCENE		BROWN SANDSTONE	5.0	1.6	
443.4	PLEISTOCENE		CLAY	4.0	6.6	
439.4	PLEISTOCENE		BROWN SANDSTONE	4.0	10.6	
435.4	PLEISTOCENE		CLAY	13.9	14.6	SMALL FRAGMENTS WEATHERED COAL; GRAY
421.5			SANDY SHALE	13.4	28.5	

MAPID: 19901550000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SW NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.00206 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749278 **DATE COLLECTED:** 7 / 0 / 1948

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 38.5 **LOG TYPE:** Drillers Log

SOURCE: MORGAN COAL CO. 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
-	CARBONDALE		SANDSTONE	3.0	11.0	
-	CARBONDALE		BLUE SHALE	10.0	14.0	
-	CARBONDALE	ST. DAVID	ROCK	2.1	24.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	8.7	26.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	0.2	34.7	
-	CARBONDALE	SPRINGFIELD	COAL	3.7	34.9	

MAPID: 19901551000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' N line, 0' E line of NE NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.998045 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.759182 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.1 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE	ST. DAVID	ROCK	1.3	20.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	3.3	21.3	
-	CARBONDALE	SPRINGFIELD	COAL	3.5	24.6	

MAPID: 19902009000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.994533 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.749689 **DATE COLLECTED:** 10 / 0 / 1951
SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 1085.0 **LOG TYPE:** Electric Log
SOURCE: CALVERT DRILLING, INC. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
301.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	160.0	
221.0	SPOON	DAVIS	UNCLASSIFIED	-	240.0	
-624.0	BASE OF PENN.		UNCLASSIFIED	-	1085.0	

MAPID: 19900230000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 530' S line, 640' E line of NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.967525 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757357 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 472.9 **LOGGED (FT.):** 44.1 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 2A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.9			UNCLASSIFIED	40.0	0.0	
432.9	CARBONDALE	SPRINGFIELD	COAL	4.1	40.0	

MAPID: 19900231000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 530' S line, 980' E line of NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.968707 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757382 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 4A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
476.0			UNCLASSIFIED	15.0	0.0	
461.0	CARBONDALE	HERRIN	COAL	3.5	15.0	TOP OF COAL MAY BE ERODED
457.5			UNCLASSIFIED	9.5	18.5	
448.0	CARBONDALE	SPRINGFIELD	COAL	4.0	28.0	

MAPID: 19900232000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 100' S line, 600' E line of NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.967395 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.756166 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 467.2 **LOGGED (FT.):** 32.8 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
467.2			UNCLASSIFIED	28.8	0.0	
438.4	CARBONDALE	SPRINGFIELD	COAL	4.1	28.8	

MAPID: 19900254000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 1000' S line, 665' E line of NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.967599 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.758655 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 71.8 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 7A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.0			UNKNOWN	65.0	0.0	UNRECORDED
430.0	CARBONDALE	HERRIN	COAL	6.8	65.0	

MAPID: 19900255000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 650' S line, 180' E line of NE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.965923 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757656 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 488.2 **LOGGED (FT.):** 38.7 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. 1A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
488.2			UNKNOWN	31.0	0.0	UNRECORDED
457.2	CARBONDALE	HERRIN	COAL	7.7	31.0	

MAPID: 19900614000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 660' S line, 660' E line
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -88.967691 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.7466 **DATE COLLECTED:** 0 / 0 / 1928
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 69.8 **LOG TYPE:** Drillers Log
SOURCE: WILSON H E 20 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
419.3	CARBONDALE	LAWSON	SANDSTONE	21.3	15.7	
398.0	CARBONDALE	LAWSON	DARK GRAY SHALE	2.9	37.0	
395.1	CARBONDALE	BRERETON	LIMESTONE	13.3	39.9	
381.8	CARBONDALE	ENERGY	GRAY SHALE	5.8	53.2	
376.0	CARBONDALE	ENERGY	DARK GRAY SHALE	3.0	59.0	
373.0	CARBONDALE	HERRIN	COAL	7.8	62.0	

MAPID: 19901552000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** NW SW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.982891 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.755271 **DATE COLLECTED:** 7 / 0 / 1948
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 44.0 **LOG TYPE:** Drillers Log
SOURCE: MORGAN COAL CO. 12 **WELL TYPE:** Coal Test
COMMENT: C NT WHR SHLD HV BN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	26.5	0.0	
-	PLEISTOCENE		SAND & GRAVEL	1.4	26.5	
-	CARBONDALE		UNCLASSIFIED	9.4	27.9	SHALE-COAL-UCLY FAULTED-BROKEN UP
-	CARBONDALE		UNCLASSIFIED	0.3	37.3	
-	CARBONDALE		DARK GRAY SHALE	6.4	37.6	

MAPID: 19901553000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** NW NE NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.981085 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.759443 **DATE COLLECTED:** 7 / 0 / 1948

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 35.3 **LOG TYPE:** Drillers Log

SOURCE: MORGAN COAL CO. 11 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
-	CARBONDALE	ST. DAVID	ROCK	1.1	23.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	6.7	24.1	
-	CARBONDALE		COAL/CLAYSTONE	0.9	30.8	WHITE
-	CARBONDALE	SPRINGFIELD	COAL	3.6	31.7	

MAPID: 19900256000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.96069 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.755815 **DATE COLLECTED:** 5 / 1 / 1905

SURFACE ELEVATION (FT.): 370.0 **LOGGED (FT.):** 99.3 **LOG TYPE:** Drillers Log

SOURCE: WM. WHITE 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
370.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
355.0	CARBONDALE		SANDSTONE	35.5	15.0	
319.5	CARBONDALE		SANDSTONE	8.0	50.5	
311.5	CARBONDALE		COAL	1.0	58.5	
310.5	CARBONDALE		LIGHT SHALE	3.3	59.5	
307.2	CARBONDALE		COAL	0.5	62.8	
306.7	CARBONDALE		BLUE LIMESTONE	1.1	63.3	
305.7	CARBONDALE		BLACK SHALE	5.0	64.3	
300.7	CARBONDALE	BRERETON	BLUE LIMESTONE	17.0	69.3	
283.7	CARBONDALE	ANNA	BLACK SHALE	5.0	86.3	
278.7	CARBONDALE	HERRIN	COAL	7.5	91.3	
271.2	CARBONDALE		UNDERCLAY	0.5	98.8	

MAPID: 19900257000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.951442 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.755751 **DATE COLLECTED:** 5 / 21 / 1905

SURFACE ELEVATION (FT.): 366.0 **LOGGED (FT.):** 85.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 4 **WELL TYPE:** Coal Test

COMMENT: BIT BROKE OFF 7' INTO COAL STOPPED HOLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
366.0	PLEISTOCENE		UNCONSOLIDATED	2.5	0.0	
363.5	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	25.0	2.5	
338.5	CARBONDALE	ANVIL ROCK	SANDSTONE	14.0	27.5	
324.5	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	16.0	41.5	
308.5	CARBONDALE		SANDY SHALE	0.6	57.5	
307.9	CARBONDALE	BRERETON	BLACK LIMESTONE	5.6	58.1	
302.3	CARBONDALE	BRERETON	GRAY LIMESTONE	10.3	63.7	
292.1	CARBONDALE	ANNA	BLACK SHALE	4.7	73.9	
287.4	CARBONDALE	ANNA	LIGHT SHALE	0.3	78.6	
287.2	CARBONDALE	HERRIN	COAL	7.0	78.8	

MAPID: 19900258000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.956056 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.752058 **DATE COLLECTED:** 5 / 26 / 1905

SURFACE ELEVATION (FT.): 386.0 **LOGGED (FT.):** 63.1 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
386.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
361.0	CARBONDALE		LIGHT SHALE	7.0	25.0	
354.0	CARBONDALE		DARK SHALE	2.5	32.0	
351.5	CARBONDALE	JAMESTOWN	COAL	0.7	34.5	
350.8	CARBONDALE	BRERETON	SANDY LIMESTONE	6.3	35.2	
344.6	CARBONDALE	ENERGY	LIGHT SHALE	8.3	41.4	
336.3	CARBONDALE	ENERGY	LIGHT SHALE	4.0	49.7	
332.3	CARBONDALE	HERRIN	COAL	9.4	53.7	

MAPID: 19900260000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW SW
QUADRANGLE: MARION **LONGITUDE:** -88.964222 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.747505 **DATE COLLECTED:** 4 / 7 / 1905
SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 43.2 **LOG TYPE:** Drillers Log
SOURCE: EMMA STOCKS 1 **WELL TYPE:** Coal Test
COMMENT: ELEVATION OF COAL 418'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
454.0	PLEISTOCENE		SAND	36.3	0.0	
417.7	CARBONDALE	HERRIN	COAL	6.9	36.3	

MAPID: 19900261000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**
QUADRANGLE: MARION **LONGITUDE:** -88.951377 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74827 **DATE COLLECTED:** 5 / 29 / 1905
SURFACE ELEVATION (FT.): 421.0 **LOGGED (FT.):** 32.5 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
421.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
413.0	CARBONDALE	ENERGY	LIGHT SHALE	2.0	8.0	
411.0	CARBONDALE	ENERGY	BLACK SHALE	3.1	10.0	
407.9	CARBONDALE	ENERGY	LIGHT SHALE	11.0	13.1	
396.9	CARBONDALE	HERRIN	COAL	8.4	24.1	

MAPID: 19900634000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.964177 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.753062 **DATE COLLECTED:** 12 / 19 / 1927
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 41.3 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	PLEISTOCENE		SHALE	22.0	10.0	
-	PLEISTOCENE		SMUT	1.0	32.0	
-	CARBONDALE	HERRIN	COAL	8.3	33.0	

MAPID: 19900635000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.954898 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.752977 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 32.6 **LOG TYPE:** Drillers Log

SOURCE: H.E. WILLSON 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	PLEISTOCENE		BOULDER	0.3	12.0	
-	PLEISTOCENE		CLAY	6.8	12.3	
-	CARBONDALE	ANNA	BLACK SHALE	3.8	19.1	
-	CARBONDALE	HERRIN	COAL/CLAYSTONE	0.8	22.9	WHITE
-	CARBONDALE	HERRIN	COAL	8.8	23.8	
-	CARBONDALE		UNKNOWN	0.0	32.6	

MAPID: 19900636000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 560' S line, 330' E line of SW SW

QUADRANGLE: MARION **LONGITUDE:** -88.961867 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746238 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 21.9 **LOG TYPE:** Drillers Log

SOURCE: H.E. WILLSON 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	17.3	0.0	
-	CARBONDALE	HERRIN	COAL	4.6	17.3	TOP MAY BE ERODED

MAPID: 19900637000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 660' S line, 0' W line of SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.965401 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746567 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 55.9 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.5	0.0	
-	CARBONDALE		SHALE	6.8	20.5	
-	CARBONDALE		LIMESTONE	13.3	27.3	
-	CARBONDALE		SHALE	1.3	40.6	
-	CARBONDALE		BLACK SHALE	4.3	41.9	
-	CARBONDALE	ANNA	BLACK SHALE	1.5	46.3	
-	CARBONDALE	HERRIN	COAL	8.2	47.8	

MAPID: 19900638000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.964236 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.745653 **DATE COLLECTED:** 12 / 24 / 1927
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 63.8 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	24.2	0.0	
-	CARBONDALE		SANDSTONE	3.8	24.2	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	4.1	28.0	
-	CARBONDALE		DARK GRAY SHALE	0.9	32.1	
-	CARBONDALE		GRAY SHALE	16.2	33.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.8	49.2	SHELLY
-	CARBONDALE	ANNA	BLACK SHALE	6.7	51.0	
-	CARBONDALE	HERRIN	COAL	6.1	57.7	

MAPID: 19900639000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 0' S line, 660' W line of SW SW

QUADRANGLE: MARION **LONGITUDE:** -88.963123 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.744712 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 17.1 **LOG TYPE:** Drillers Log

SOURCE: H.E.WILLSON 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
-	CARBONDALE	HERRIN	SMUT	0.6	13.0	
-	CARBONDALE	HERRIN	COAL	3.5	13.6	TOP ERODED
-	CARBONDALE		UNDERCLAY	0.0	17.1	

MAPID: 19900640000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 250' S line, 100' W line of SE SE SW

QUADRANGLE: MARION **LONGITUDE:** -88.958033 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.745323 **DATE COLLECTED:** 12 / 0 / 1927

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.5 **LOG TYPE:** Drillers Log

SOURCE: H.E. WILLSON 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.7	0.0	
-	CARBONDALE		SHALE	1.9	15.7	
-	CARBONDALE		SHALE	1.9	17.6	
-	CARBONDALE		SHALE	9.8	19.5	
-	CARBONDALE		DARK GRAY SHALE	4.6	29.3	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	33.8	BOULDER
-	CARBONDALE	TURNER MINE	BLACK SHALE	7.8	35.2	
-	CARBONDALE		UNKNOWN	0.0	42.9	
-	CARBONDALE	SPRINGFIELD	COAL	3.5	43.0	

MAPID: 19900641000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 600' N line, 100' W line of SE SE SW
QUADRANGLE: MARION **LONGITUDE:** -88.958033 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.744837 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 19.8 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.7	0.0	
-	CARBONDALE	HERRIN	SMUT	2.8	10.7	TOP ERODED
-	CARBONDALE	HERRIN	COAL	1.8	13.4	
-	CARBONDALE	HERRIN	COAL	4.6	15.3	

MAPID: 19900643000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 900' N line, 0' E line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.956047 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.749573 **DATE COLLECTED:** 0 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 69.2 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 10 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	PLEISTOCENE		SAND & GRAVEL	14.0	14.0	
-	PLEISTOCENE		BOULDER	4.8	28.0	BOULDER
-	CARBONDALE		GRAY SHALE	15.0	32.8	
-	CARBONDALE		LIMESTONE	1.8	47.8	SHELLY
-	CARBONDALE		BLACK SHALE	4.1	49.5	
-	CARBONDALE		ROCK	1.2	53.6	
-	CARBONDALE		DARK GRAY SHALE	11.3	54.8	
-	CARBONDALE	SPRINGFIELD	COAL	3.2	66.0	
-	CARBONDALE		UNDERCLAY	0.0	69.2	

MAPID: 19900644000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 850' N line, 200' E line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.956745 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.749717 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 29.9 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.3	0.0	
-	PLEISTOCENE		SAND & GRAVEL	3.7	22.3	
-	CARBONDALE		BROWN SHALE	1.4	26.0	
-	CARBONDALE	HERRIN	COAL	0.8	27.4	TOP MAY BE ERODED
-	CARBONDALE	HERRIN	COAL	0.3	28.3	
-	CARBONDALE	HERRIN	COAL	1.4	28.5	

MAPID: 19900645000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NE SW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.952589 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.754827 **DATE COLLECTED:** 0 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 62.3 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 12 **WELL TYPE:** Coal Test
COMMENT: ACCT NT PMPNG CLR/MORE C?

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.8	0.0	
-	CARBONDALE		SHALE	1.6	25.8	
-	CARBONDALE	BRERETON	LIMESTONE	8.0	27.4	SHELLY
-	CARBONDALE	ANNA	BLACK SHALE	3.7	35.4	
-	CARBONDALE	ENERGY	SHALE	14.7	39.1	WHITE
-	CARBONDALE	HERRIN	COAL	8.5	53.8	

MAPID: 19900646000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 720' N line, 400' E line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.957441 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.750082 **DATE COLLECTED:** 1 / 6 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 38.9 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 13 **WELL TYPE:** Coal Test
COMMENT: IND. C OUTCRP 27'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	38.9	0.0	
-			UNKNOWN	0.0	38.9	

MAPID: 19900648000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 0' N line, 660' E line of NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958351 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.75208 **DATE COLLECTED:** 1 / 9 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 68.9 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 15 **WELL TYPE:** Coal Test

COMMENT: DATE BETWEEN JAN. 9-12.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
-	PLEISTOCENE		SAND	2.3	23.0	
-	CARBONDALE		DARK SHALE	13.2	25.3	
-	CARBONDALE		BLACK SHALE	7.2	38.5	
-	CARBONDALE	BRERETON	LIMESTONE	10.3	45.7	
-	CARBONDALE	ANNA	SHALE	1.0	55.9	
-	CARBONDALE	ANNA	BLACK SHALE	3.9	56.9	
-	CARBONDALE	HERRIN	COAL	8.1	60.8	

MAPID: 19900649000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.95954 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.75116 **DATE COLLECTED:** 1 / 13 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 43.8 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 16 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.4	0.0	
-	PLEISTOCENE		SAND	0.7	17.4	
-	PLEISTOCENE		SAND	10.6	18.1	
-	CARBONDALE		LIGHT SHALE	3.6	28.7	
-	CARBONDALE		DARK SHALE	6.6	32.3	
-	CARBONDALE	JAMESTOWN	COAL	0.3	38.8	RIDER
-	CARBONDALE		DARK SHALE	3.3	39.1	
-	CARBONDALE	BRERETON	LIMESTONE	1.3	42.4	CUT WENT THROUGH
-	CARBONDALE	HERRIN	COAL	-	43.8	BROKE INTO OLD PEABODY #6 MINE

MAPID: 19900650000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.95954 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.75116 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 66.6 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON' 16A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.5	0.0	
-	PLEISTOCENE		ROCK	3.0	14.5	
-	PLEISTOCENE		SAND	8.3	17.5	
-	CARBONDALE		LIGHT SHALE	8.5	25.8	
-	CARBONDALE		DARK SHALE	4.6	34.3	
-	CARBONDALE		LIMESTONE	8.5	38.9	
-	CARBONDALE	BRERETON	LIMESTONE	3.3	47.4	
-	CARBONDALE		DARK SHALE	0.7	50.7	
-	CARBONDALE		SHALE	5.6	51.3	
-	CARBONDALE		UNKNOWN	1.2	56.9	
-	CARBONDALE	HERRIN	COAL	8.5	58.1	

MAPID: 19900651000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 660' N line, 0' W line of NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.960707 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.75028 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 17 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
-	PLEISTOCENE		SAND	9.6	16.0	
-	CARBONDALE		LIGHT SHALE	12.8	25.6	
-	CARBONDALE		GRAY SHALE	8.4	38.4	
-	CARBONDALE		UNKNOWN	2.7	46.8	
-	CARBONDALE	HERRIN	COAL	7.5	49.5	NO

MAPID: 19900652000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.951442 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.755751 **DATE COLLECTED:** 1 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 31.3 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 18 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.2	0.0	
-	PLEISTOCENE		SAND	8.7	10.2	
-	CARBONDALE		SHALE	7.2	18.8	
-	CARBONDALE		ROCK	3.0	26.0	
-	CARBONDALE		SHALE	2.3	29.0	
-	CARBONDALE		ROCK	0.0	31.3	

MAPID: 19900653000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 0' S line, 510' W line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.958942 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.748367 **DATE COLLECTED:** 1 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-	CARBONDALE	HERRIN	COAL	2.0	30.0	TOP ERODED

MAPID: 19900654000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW
QUADRANGLE: MARION **LONGITUDE:** -88.960715 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.748389 **DATE COLLECTED:** 1 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 21.3 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 19 **WELL TYPE:** Coal Test
COMMENT: 331' S OF HOLE #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
-			SHALE	2.2	16.0	
-			LIMESTONE	1.7	18.2	SOFT ROCK
-			ROCK	1.5	19.8	BLDRS CURVED DRILL RODS

MAPID: 19900655000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW

QUADRANGLE: MARION **LONGITUDE:** -88.963057 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746564 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 40.3 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 19A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	PLEISTOCENE		SAND	0.7	12.0	
-	CARBONDALE		LIGHT SHALE	2.3	12.7	
-	CARBONDALE		ROCK	3.3	15.0	
-	CARBONDALE		SHALE	3.4	18.3	
-	CARBONDALE	BRERETON	LIMESTONE	5.3	21.7	
-	CARBONDALE	ANNA	BLACK SHALE	3.3	26.9	
-	CARBONDALE	ANNA	BLACK SHALE	2.3	30.3	
-	CARBONDALE	HERRIN	COAL	7.8	32.6	NO. 6

MAPID: 19900656000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 510' W line of SE SW

QUADRANGLE: MARION **LONGITUDE:** -88.958941 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747456 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 26.1 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 22 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	23.9	0.0	
-	CARBONDALE		SHALE	1.3	23.9	
-	CARBONDALE		COAL	0.9	25.2	NO. 6

MAPID: 19900657000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 300' W line of NE SW

QUADRANGLE: MARION **LONGITUDE:** -88.959668 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749287 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 47.4 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 23 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	PLEISTOCENE		SAND	3.8	20.0	
-	CARBONDALE		SANDY SHALE	1.8	23.8	
-	CARBONDALE		GRAY SHALE	14.8	25.7	
-	CARBONDALE		BROWN SHALE	3.5	40.5	
-	CARBONDALE	HERRIN	SMUT	0.8	44.0	
-	CARBONDALE	HERRIN	COAL	2.7	44.8	

MAPID: 19900658000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: MARION **LONGITUDE:** -88.959546 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747445 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 33.8 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 24 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.2	0.0	
-	CARBONDALE		SANDY SHALE	2.8	18.2	
-	CARBONDALE		GRAY SHALE	3.8	20.9	
-	CARBONDALE	HERRIN	COAL	9.1	24.7	

MAPID: 19900659000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: MARION **LONGITUDE:** -88.959546 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747445 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 26.8 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 26 **WELL TYPE:** Coal Test

COMMENT: 330' S. #24 315'E #3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	CARBONDALE		LIGHT SHALE	5.7	14.0	
-	CARBONDALE		GRAY SHALE	0.2	19.7	
-	CARBONDALE	HERRIN	COAL	0.9	19.8	SMUTTY
-	CARBONDALE	HERRIN	COAL	6.1	20.8	

MAPID: 19900660000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** NE SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.958378 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.750219 **DATE COLLECTED:** 1 / 0 / 1928

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 50.6 **LOG TYPE:** Drillers Log

SOURCE: H. E. WILLSON 27 **WELL TYPE:** Coal Test

COMMENT: BETWEEN #17 & 14 80'N OF CENTER PT.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
-	PLEISTOCENE		SAND	2.0	18.0	
-	CARBONDALE		LIGHT SHALE	5.0	20.0	
-	CARBONDALE		SHALE	9.7	25.0	
-	CARBONDALE		LIGHT SHALE	4.4	34.7	
-	CARBONDALE		GRAY SHALE	5.6	39.1	
-	CARBONDALE		BROWN SHALE	3.1	44.7	
-	CARBONDALE	HERRIN	COAL	0.4	47.8	
-	CARBONDALE	HERRIN	COAL	2.4	48.2	

MAPID: 19900661000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.963057 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746564 **DATE COLLECTED:** 1 / 0 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 33.6 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 28 **WELL TYPE:** Coal Test
COMMENT: 33O'N OF #6 ON FENCE LINE ON MCLUSKIE 20

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE		LIGHT SHALE	1.4	20.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.5	21.4	
-	CARBONDALE	HERRIN	COAL	7.7	25.9	

MAPID: 19900662000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.963057 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746564 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 28.7 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 30 **WELL TYPE:** Coal Test
COMMENT: HALF WAY BTW #19A & #5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.3	0.0	
-	CARBONDALE		DARK SHALE	1.3	17.3	
-	CARBONDALE	ANNA	BLACK SHALE	2.5	18.6	
-	CARBONDALE	HERRIN	COAL	7.6	21.1	

MAPID: 19900663000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.963057 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746564 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 23.3 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 31 **WELL TYPE:** Coal Test
COMMENT: 100' N OF NO. 5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.7	0.0	
-	CARBONDALE		SHALE	4.7	15.7	
-	CARBONDALE	HERRIN	COAL	0.7	20.3	TOP MAY BE ERODED
-	CARBONDALE	HERRIN	COAL	2.3	21.0	TOP MAY BE ERODED

MAPID: 19900664000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.964236 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.745653 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 23.9 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 32 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	CARBONDALE		LIGHT SHALE	1.3	12.0	
-	CARBONDALE	ANNA	BLACK SHALE	0.6	13.3	
-	CARBONDALE	ANNA	BLACK SHALE	2.7	13.8	
-	CARBONDALE	HERRIN	COAL	7.4	16.5	

MAPID: 19900665000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.964236 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.745653 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 16.2 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 33 **WELL TYPE:** Coal Test
COMMENT: 75' N. OF PT. 300'E OFSW CNR OF MCL FARM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	8.8	0.0	
-	CARBONDALE		LIGHT SHALE	0.4	8.8	
-	CARBONDALE	HERRIN	COAL	0.9	9.3	TOP PROBABLY ERODED OR WEATHERED
-	CARBONDALE	HERRIN	COAL	6.0	10.2	TOP PROBABLY ERODED OR WEATHERED

MAPID: 19900666000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.964236 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.745653 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 13.0 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 34 **WELL TYPE:** Coal Test
COMMENT: 225' DUE E OF SW CNR OF MCL 20 ACRE,

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.4	0.0	
-	CARBONDALE	HERRIN	SMUT	1.8	10.4	TOP ERODED
-	CARBONDALE	HERRIN	COAL	0.8	12.2	TOP ERODED

MAPID: 19900667000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.961893 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74562 **DATE COLLECTED:** 1 / 26 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 24.8 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 35 **WELL TYPE:** Coal Test
COMMENT: S1/2 OF W. TRAVELSTEAD 20 ACRE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
-	CARBONDALE		DARK SHALE	2.9	12.0	
-	CARBONDALE		SHALE	2.6	14.9	
-	CARBONDALE	HERRIN	COAL	7.3	17.5	

MAPID: 19900668000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.961893 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74562 **DATE COLLECTED:** 1 / 27 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 15.5 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 36 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	8.9	0.0	
-	CARBONDALE	HERRIN	COAL	1.9	8.9	TOP ERODED
-	CARBONDALE	HERRIN	COAL	4.7	10.8	TOP ERODED

MAPID: 19900669000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.961893 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74562 **DATE COLLECTED:** 1 / 27 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 20.1 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 37 **WELL TYPE:** Coal Test
COMMENT: BETWEEN HOLES #35 & #3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	13.2	0.0	
-	CARBONDALE	HERRIN	SMUT	3.3	13.2	TOP ERODED
-	CARBONDALE	HERRIN	COAL	3.7	16.4	TOP ERODED

MAPID: 19900670000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.961893 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74562 **DATE COLLECTED:** 1 / 28 / 1928
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 17.3 **LOG TYPE:** Drillers Log
SOURCE: H. E. WILLSON 38 **WELL TYPE:** Coal Test
COMMENT: CEN. S. 10 A. OF WEST 20A.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.2	0.0	
-	CARBONDALE	HERRIN	COAL	4.2	12.2	TOP ERODED
-	CARBONDALE	HERRIN	COAL	0.9	16.3	TOP ERODED

MAPID: 19901848000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**
QUADRANGLE: MARION **LONGITUDE:** -88.960715 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.748389 **DATE COLLECTED:** 6 / 6 / 1905
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.4 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
-	CARBONDALE		SANDSTONE	2.0	18.0	
-	CARBONDALE		LIGHT SHALE	3.5	20.0	
-	CARBONDALE		GRAY LIMESTONE	1.8	23.5	
-	CARBONDALE		BLACK SHALE	1.0	25.3	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	4.5	26.3	
-	CARBONDALE	ANNA	LIGHT SHALE	4.0	30.8	
-	CARBONDALE	ANNA	BLACK SHALE	6.2	34.8	
-	CARBONDALE	HERRIN	COAL	7.5	40.9	

MAPID: 19901849000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: MARION **LONGITUDE:** -88.960715 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748389 **DATE COLLECTED:** 6 / 10 / 1905

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.2 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	29.2	0.0	
-	CARBONDALE		SANDSTONE	0.3	29.2	
-	CARBONDALE		LIGHT SHALE	3.0	29.5	
-	CARBONDALE	ANNA	BLACK SHALE	6.2	32.5	
-	CARBONDALE	HERRIN	COAL	7.5	38.7	

MAPID: 19922620000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.93631 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.756597 **DATE COLLECTED:** 7 / 0 / 1974

SURFACE ELEVATION (FT.): 506.0 **LOGGED (FT.):** 1125.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
218.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	288.0	
146.0	SPOON	DAVIS	UNCLASSIFIED	-	360.0	
-619.0	BASE OF PENN.		UNCLASSIFIED	-	1125.0	

MAPID: 19901721000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE NE SE
QUADRANGLE: MARION **LONGITUDE:** -88.947711 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.734391 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 97.0 **LOG TYPE:** Drillers Log
SOURCE: MARION PRESSED BRICK **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		BROWN SANDSTONE	18.0	0.0	
432.0	PLEISTOCENE		CLAY	15.0	18.0	BLUE
417.0	PLEISTOCENE		BROWN SANDSTONE	8.0	33.0	
409.0	CARBONDALE		GRAY SHALE	18.0	41.0	
391.0	CARBONDALE		WHITE SANDSTONE	10.0	59.0	
381.0	CARBONDALE		SANDSTONE	13.5	69.0	
367.5	CARBONDALE		BLACK SHALE	1.5	82.5	
366.0	CARBONDALE	DEKOVEN	COAL	2.2	84.0	UPPER
363.8	CARBONDALE		CLAYSTONE & SILTSTONE	6.0	86.2	
357.8	CARBONDALE	LOWER DEKOVEN	COAL	4.8	92.2	

MAPID: 19901880000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE SW
QUADRANGLE: MARION **LONGITUDE:** -88.978218 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.736591 **DATE COLLECTED:** 9 / 0 / 1955
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 1105.0 **LOG TYPE:** Electric Log
SOURCE: NEW IL MID CONT. OIL **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
181.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	254.0	
147.0	SPOON	DAVIS	UNCLASSIFIED	-	288.0	
-670.0	BASE OF PENN.		UNCLASSIFIED	-	1105.0	

MAPID: 19902120000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NE
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.003716 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.740412 **DATE COLLECTED:** 12 / 0 / 1957
SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 1052.0 **LOG TYPE:** Electric Log
SOURCE: DEE BROTHERS **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-603.0	BASE OF PENN.		UNCLASSIFIED	-	1052.0	

MAPID: 19900262000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** NW SE NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.015611 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.725495 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 500.0 **LOG TYPE:** Drillers Log

SOURCE: COAL BELT COAL CO. 25 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0	PLEISTOCENE		CLAY	25.0	0.0	
415.0	CARBONDALE		BROWN SANDSTONE	11.0	25.0	
404.0	CARBONDALE		GRAY SANDSTONE	2.0	36.0	
402.0	CARBONDALE		SANDSTONE/SHALE	30.0	38.0	
372.0	CARBONDALE		BLACK SHALE	1.0	68.0	
371.0	CARBONDALE	COLCHESTER	COAL	0.7	69.0	
370.3	CARBONDALE		GRAY SHALE	2.3	69.7	
368.0	CARBONDALE		SANDSTONE	26.0	72.0	
342.0	CARBONDALE		SHALE	5.0	98.0	
337.0	CARBONDALE		SANDY SHALE	5.0	103.0	
332.0	CARBONDALE		BLUE SHALE	9.9	108.0	
322.1	CARBONDALE	DEKOVEN	COAL	2.4	117.9	
319.7	CARBONDALE		BLACK SHALE	1.2	120.3	
318.5	CARBONDALE		BLUE SHALE	5.6	121.5	
312.9	CARBONDALE	LOWER DEKOVEN	COAL	1.1	127.1	
311.8	CARBONDALE		BLUE SHALE	2.8	128.2	
309.0	CARBONDALE		SHALE	14.0	131.0	
295.0	CARBONDALE	DAVIS	COAL	1.5	145.0	
293.5	TRADEWATER		SHALE & SANDSTONE	3.5	146.5	
290.0	TRADEWATER		SHALE	6.0	150.0	
284.0	TRADEWATER		LIMESTONE	3.0	156.0	
281.0	TRADEWATER		DARK SHALE	6.0	159.0	
275.0	TRADEWATER		COAL	1.0	165.0	
274.0	TRADEWATER		SOFT SHALE	1.0	166.0	
273.0	TRADEWATER		SANDSTONE	13.0	167.0	
260.0	TRADEWATER		SANDY SHALE	1.0	180.0	
259.0	TRADEWATER		LIMESTONE	1.0	181.0	
258.0	TRADEWATER		SANDY SHALE	42.0	182.0	
216.0	TRADEWATER		BLUE SHALE	12.0	224.0	
204.0	TRADEWATER		SANDSTONE	68.0	236.0	
136.0	TRADEWATER		GRAY SHALE	20.0	304.0	
116.0	TRADEWATER		SANDY SHALE	16.0	324.0	
100.0	TRADEWATER		SHALE	1.5	340.0	
98.5	TRADEWATER		COAL	2.9	341.5	
95.6	TRADEWATER		UNDERCLAY	1.6	344.4	
94.0	TRADEWATER		SANDY SHALE	18.0	346.0	
76.0	TRADEWATER		SANDSTONE/SHALE	66.0	364.0	
10.0	TRADEWATER		SANDY SHALE	3.0	430.0	
7.0	TRADEWATER		DARK GRAY SHALE	25.0	433.0	

-18.0	TRADEWATER	SANDY SHALE	1.0	458.0
-19.0	TRADEWATER	LIMESTONE	0.5	459.0
-19.5	TRADEWATER	SANDY SHALE	0.5	459.5
-20.0	TRADEWATER	SANDSTONE	40.0	460.0

MAPID: 19900262000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** NW SE NW

QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.015611 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.725495 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 500.0 **LOG TYPE:** Survey Core Study

SOURCE: COAL BELT C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0			UNCONSOLIDATED	25.0	0.0	
395.0			ROCK	44.0	25.0	
351.0			COAL	0.7	69.0	
350.3			ROCK	48.3	69.7	
302.1			COAL	2.4	117.9	
299.7			ROCK	6.8	120.3	
292.9			COAL	1.1	127.1	
291.8			ROCK	16.8	128.2	
275.0			COAL	1.5	145.0	
273.5			ROCK	18.5	146.5	
255.0			COAL	1.0	165.0	
254.0			ROCK	175.5	166.0	
78.5			COAL	2.9	341.5	
75.5			ROCK	155.5	344.5	

MAPID: 19900485000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE SE

QUADRANGLE: MARION **LONGITUDE:** -88.947526 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.719544 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 125.0 **LOG TYPE:** Drillers Log

SOURCE: INGRAM COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0			UNKNOWN	40.0	0.0	
390.0	CARBONDALE	COLCHESTER	COAL	1.5	40.0	
388.5	CARBONDALE		UNKNOWN	48.5	41.5	
340.0	CARBONDALE		BLACK SHALE	0.0	90.0	
340.0	CARBONDALE	DEKOVEN	COAL	2.3	90.0	UPPER
337.7	CARBONDALE	DEKOVEN	CLAYSTONE	0.1	92.3	UPPER
337.6	CARBONDALE	DEKOVEN	COAL	1.0	92.4	UPPER
336.6	CARBONDALE		BLACK SHALE	2.0	93.4	
334.6	CARBONDALE	LOWER DEKOVEN	COAL	1.0	95.4	
333.6	CARBONDALE		UNDERCLAY	0.0	96.4	
333.6	CARBONDALE		UNKNOWN	24.8	96.4	
308.8	CARBONDALE	DAVIS	COAL	3.8	121.2	

MAPID: 19901873000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NE

QUADRANGLE: MARION **LONGITUDE:** -88.94982 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.714015 **DATE COLLECTED:** 7 / 0 / 1955

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 880.0 **LOG TYPE:** Electric Log

SOURCE: NEW IL MID CONT. OIL **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-430.0	BASE OF PENN.		UNCLASSIFIED	-	880.0	

MAPID: 19901531000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 1 **QUARTERS/FOOTAGES:** 300' N line, 25' W line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.826776 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.774772 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 221.1 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 15 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
335.3	MODESTO	PIASA	LIMESTONE/UNDERCLAY	2.5	124.7	
332.8	MODESTO		GRAY SHALE	4.9	127.2	
327.8	CARBONDALE	DANVILLE	COAL	2.1	132.2	
325.8	CARBONDALE		SHALE & SANDSTONE	11.8	134.2	
314.0	CARBONDALE	ALLENBY	COAL	0.3	146.0	
313.7	CARBONDALE		CLAYSTONE	3.6	146.3	
310.1	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	3.4	149.9	UPPER BENCH
306.7	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	3.4	153.3	LOWER BENCH
303.3	CARBONDALE	LAWSON	GRAY SHALE	2.8	156.7	
300.5	CARBONDALE	LAWSON	SANDSTONE	3.3	159.5	
297.3	CARBONDALE	LAWSON	SILTSTONE	8.0	162.7	
289.3	CARBONDALE	LAWSON	GRAY SHALE	16.3	170.7	
272.9	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.3	187.1	
272.6	CARBONDALE	JAMESTOWN	BONE COAL	0.3	187.4	
272.3	CARBONDALE		GRAY SHALE	0.4	187.7	
271.9	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	0.6	188.1	
271.3	CARBONDALE	ANNA	BLACK SHALE	4.4	188.7	
266.9	CARBONDALE	ENERGY	DARK GRAY SHALE	2.3	193.1	
264.6	CARBONDALE	ENERGY	GRAY SHALE	19.6	195.4	
245.0	CARBONDALE	HERRIN	COAL	6.1	215.0	

MAPID: 19923571000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 1 **QUARTERS/FOOTAGES:** 2750' N line, 100' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.818072 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.768001 **DATE COLLECTED:** 4 / 12 / 1991

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 312.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-218 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
492.0	PLEISTOCENE		CLAY	19.5	0.0	
472.5	PLEISTOCENE		SAND & GRAVEL	7.5	19.5	WITH CLAY
465.0	PLEISTOCENE		MUD	42.0	27.0	WITH SAND AND GRAVEL; BLUE
423.0	CARBONDALE		GRAY SHALE	10.0	69.0	
413.0	CARBONDALE		SANDSTONE	19.0	79.0	
394.0	CARBONDALE		GRAY SHALE	7.0	98.0	WITH SAND
387.0	CARBONDALE		BLACK SHALE	18.0	105.0	
369.0	CARBONDALE		GRAY SHALE	32.5	123.0	WITH SAND
336.5	CARBONDALE	BRERETON	LIMESTONE	0.5	155.5	
336.0	CARBONDALE	ENERGY	SHALE	13.0	156.0	WITH SAND
323.0	CARBONDALE	HERRIN	COAL	8.0	169.0	
315.0	CARBONDALE		UNDERCLAY	2.0	177.0	
313.0	CARBONDALE		SHALE	13.0	179.0	
300.0	CARBONDALE		LIMESTONE	4.5	192.0	
295.5	CARBONDALE		SHALE	41.5	196.5	WITH LIMESTONE STREAKS
254.0	CARBONDALE	TURNER MINE	BLACK SHALE	14.5	238.0	
239.5	CARBONDALE	SPRINGFIELD	COAL	6.5	252.5	
233.0	CARBONDALE		UNDERCLAY	3.0	259.0	
230.0	CARBONDALE		GRAY SHALE	36.0	262.0	
194.0	CARBONDALE	HANOVER	LIMESTONE	1.0	298.0	
193.0	CARBONDALE	EXCELLO	BLACK SHALE	3.8	299.0	
189.2	CARBONDALE		GRAY SHALE	9.3	302.8	

MAPID: 19900263000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.842207 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.762289 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 209.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
445.0	PLEISTOCENE		SAND	25.0	0.0	
420.0	PLEISTOCENE		SAND	12.0	25.0	
408.0	MODESTO		SHALE	3.0	37.0	
405.0	MODESTO		SANDSTONE/SHALE	4.0	40.0	
401.0	CARBONDALE	DANVILLE	COAL	0.2	44.0	
400.8	CARBONDALE		GRAY SHALE	4.8	44.2	
396.0	CARBONDALE	ALLENBY	COAL	0.4	49.0	
395.6	CARBONDALE		UNDERCLAY	1.6	49.4	
394.0	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	6.0	51.0	
388.0	CARBONDALE		GRAY SHALE	9.0	57.0	
379.0	CARBONDALE		DARK SHALE	29.5	66.0	
349.5	CARBONDALE	JAMESTOWN	COAL	0.5	95.5	
349.0	CARBONDALE	BRERETON	LIMESTONE	6.0	96.0	
343.0	CARBONDALE	ANNA	SHALE	4.0	102.0	
339.0	CARBONDALE	ANNA	BLACK SHALE	4.2	106.0	
334.8	CARBONDALE	HERRIN	COAL	6.3	110.2	
328.6	CARBONDALE		GRAY SHALE	6.6	116.4	
322.0	CARBONDALE		SHALE	7.0	123.0	
315.0	CARBONDALE		SHALE	43.0	130.0	
272.0	CARBONDALE		SANDSTONE	17.0	173.0	
255.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	190.0	
252.0	CARBONDALE	DYKERSBURG	DARK SHALE	9.0	193.0	
243.0	CARBONDALE	SPRINGFIELD	COAL	4.5	202.0	
238.5	CARBONDALE		UNDERCLAY	2.5	206.5	

MAPID: 19900263000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.842207 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.762289 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 209.0 **LOG TYPE:** Drillers Log

SOURCE: BRYD, A. R. & SONS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
335.0	CARBONDALE	HERRIN	COAL	6.3	110.0	
243.0	CARBONDALE	SPRINGFIELD	COAL	4.5	202.0	

MAPID: 19900988000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.841015 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.763301 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): 457.3 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 413 **WELL TYPE:** Coal Test
COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
457.3	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
445.3			SHALE	48.0	12.0	

MAPID: 19901112000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:**
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845489 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.767349 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): 442.7 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC.COAL CO. 409 **WELL TYPE:** Coal Test
COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
442.7	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
431.7			SHALE	50.0	11.0	

MAPID: 19901512000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 850' N line, 200' E line of NW SE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.841657 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.765019 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 120.1 **LOG TYPE:** Drillers Log
SOURCE: FREEMAN UNITED 1 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
414.5	CARBONDALE		SILTY SHALE	22.5	37.5	
392.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.3	60.0	
385.7	CARBONDALE	LAWSON	SILTY SHALE	18.3	66.3	
367.3	CARBONDALE	LAWSON	SHALE & SANDSTONE	17.8	84.7	
349.6	CARBONDALE	CONANT	LIMESTONE	0.3	102.4	
349.2	CARBONDALE	JAMESTOWN	COAL	0.3	102.8	
348.9	CARBONDALE		BLACK SHALE	0.2	103.1	
348.7	CARBONDALE	BRERETON	LIMESTONE	6.8	103.3	
341.9	CARBONDALE	ANNA	BLACK SHALE	3.3	110.1	
338.7	CARBONDALE	ENERGY	GRAY SHALE	1.7	113.3	
337.0	CARBONDALE	HERRIN	COAL	5.1	115.0	

MAPID: 19923572000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 2400' S line, 2400' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.846423 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.765916 **DATE COLLECTED:** 2 / 28 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 221.8 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL28 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	12.6	0.0	
-	PLEISTOCENE		SAND	30.6	12.6	
-	PLEISTOCENE		SAND & GRAVEL	25.9	43.2	
-	CARBONDALE		GRAY SHALE	7.1	69.1	
-	CARBONDALE		LIMESTONE & SHALE	15.9	76.2	
-	CARBONDALE		SANDY SHALE	29.2	92.1	
-	CARBONDALE		SANDSTONE	5.1	121.3	
-	CARBONDALE		SHALE	6.5	126.3	DARK
-	CARBONDALE	HERRIN	COAL	5.4	132.8	
-	CARBONDALE		LIMESTONE	18.7	138.3	
-	CARBONDALE		SANDY SHALE	43.9	156.9	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	200.8	
-	CARBONDALE	TURNER MINE	BLACK SHALE	2.8	202.2	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	12.3	204.9	
-	CARBONDALE	SPRINGFIELD	COAL	4.6	217.3	

MAPID: 19923573000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** 3400' N line, 50' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.836482 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.766212 **DATE COLLECTED:** 5 / 29 / 1991

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 227.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-219 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
451.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
442.0	PLEISTOCENE		SAND & GRAVEL	26.0	9.0	WITH CLAY
416.0	PLEISTOCENE		MUD	24.5	35.0	BLUE WITH GRAVEL
391.5			SHALE	7.5	59.5	WITH COAL STREAKS
384.0			GRAY SHALE	22.0	67.0	WITH SAND
362.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	89.0	
354.0	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	97.0	
338.0	CARBONDALE	ANVIL ROCK	SANDSTONE	24.5	113.0	WITH SHALE STREAKS
313.5	CARBONDALE	BRERETON	LIMESTONE	2.5	137.5	
311.0	CARBONDALE		SANDSTONE	9.0	140.0	
302.0	CARBONDALE	HERRIN	COAL	6.0	149.0	OLD WORKS
296.0	CARBONDALE		UNDERCLAY	0.5	155.0	
295.5	CARBONDALE		GRAY SHALE	21.5	155.5	WITH SAND
274.0	CARBONDALE		BLACK SHALE	3.0	177.0	
271.0	CARBONDALE	BRIAR HILL	COAL	0.5	180.0	
270.5	CARBONDALE		BLACK SHALE	3.0	180.5	
267.5	CARBONDALE		GRAY SHALE	11.5	183.5	
256.0	CARBONDALE		BLACK SHALE	10.5	195.0	SOFT
245.5	CARBONDALE		GRAY SHALE	1.5	205.5	
244.0	CARBONDALE		BLACK SHALE	2.3	207.0	
241.7	CARBONDALE	ST. DAVID	LIMESTONE	0.8	209.3	
241.0	CARBONDALE	TURNER MINE	BLACK SHALE	0.5	210.0	
240.5	CARBONDALE	DYKERSBURG	GRAY SHALE	9.0	210.5	
231.5	CARBONDALE	SPRINGFIELD	COAL	4.3	219.5	
227.2	CARBONDALE		UNDERCLAY	3.3	223.8	

MAPID: 19900985000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.859578 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.763321 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 405 **WELL TYPE:** Coal Test

COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
462.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
450.0			SANDSTONE/SHALE	18.0	12.0	
432.0			SHALE	15.0	30.0	
417.0			SHALE	15.0	45.0	

MAPID: 19902591000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 990' S line, 330' W line of NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.862781 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.769953 **DATE COLLECTED:** 8 / 0 / 1973

SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 1370.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-904.0	BASE OF PENN.		UNCLASSIFIED	-	1370.0	

MAPID: 19923574000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 2640' S line, 360' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.855987 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.766674 **DATE COLLECTED:** 11 / 8 / 1977

SURFACE ELEVATION (FT.): 453.6 **LOGGED (FT.):** 209.4 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL16 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
453.6	PLEISTOCENE		CLAY	10.1	0.0	
443.5	PLEISTOCENE		SAND	18.3	10.1	
425.3	MODESTO		SANDSTONE	9.8	28.3	
415.4	MODESTO		SHALE	6.8	38.2	BLUE
408.6	MODESTO		COAL	0.8	45.0	
407.9	MODESTO		LIMESTONE	1.3	45.7	DARK GRAY
406.6	MODESTO		BLACK SHALE	2.0	47.0	
404.6	MODESTO		GRAY SHALE	3.0	49.0	
401.6	CARBONDALE	DANVILLE	COAL	1.3	52.0	
400.4	CARBONDALE		GRAY SHALE	12.0	53.2	
388.4	CARBONDALE		LIMESTONE	14.8	65.2	SOME CHERT
373.6	CARBONDALE		SHALE	3.3	80.0	DARK GRAY
370.3	CARBONDALE		LIMESTONE	2.8	83.3	WHITE
367.5	CARBONDALE		GRAY SHALE	2.0	86.1	
365.5	CARBONDALE		LIMESTONE & SHALE	4.1	88.1	
361.4	CARBONDALE		GRAY SHALE	5.1	92.2	
356.3	CARBONDALE		LIMESTONE & SHALE	18.7	97.3	
337.6	CARBONDALE		LIMESTONE	17.0	116.0	
320.6	CARBONDALE		GRAY SHALE	2.5	133.0	
318.1	CARBONDALE	HERRIN	COAL	5.8	135.5	
312.4	CARBONDALE		SHALE	5.0	141.2	SOFT
307.4	CARBONDALE		LIMESTONE	16.0	146.2	
291.4	CARBONDALE		CALCAREOUS SHALE	2.5	162.2	
288.9	CARBONDALE		BLACK SHALE	1.5	164.7	
287.4	CARBONDALE		LIMESTONE & SHALE	16.0	166.2	
271.4	CARBONDALE		SHALE	10.0	182.2	
261.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.7	192.2	
257.7	CARBONDALE	DYKERSBURG	GRAY SHALE	9.2	195.9	
248.5	CARBONDALE	SPRINGFIELD	COAL	4.3	205.1	

MAPID: 19923575000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 120' N line, 120' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.854755 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.77488 **DATE COLLECTED:** 12 / 5 / 1977

SURFACE ELEVATION (FT.): 464.2 **LOGGED (FT.):** 245.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL21 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
464.2	PLEISTOCENE		CLAY	8.3	0.0	
455.9	PLEISTOCENE		SANDY CLAY	11.3	8.3	
444.7	MODESTO		SANDSTONE	8.0	19.5	
436.7	MODESTO		GRAY SHALE	1.5	27.5	
435.2	MODESTO		LIMESTONE	5.5	29.0	
429.7	MODESTO		SHALE	23.0	34.5	DARK GRAY
406.7	MODESTO		LIMESTONE & SHALE	9.0	57.5	
397.7	MODESTO	DEGRAFF	COAL	0.8	66.5	
396.9	MODESTO	PIASA	LIMESTONE	4.9	67.3	
392.0	MODESTO		LIMESTONE & SHALE	2.0	72.2	DARK
390.0	CARBONDALE	DANVILLE	COAL	2.0	74.2	
388.0	CARBONDALE		CALCAREOUS SHALE	14.0	76.2	
374.0	CARBONDALE		BLACK SHALE	2.2	90.2	
371.9	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	92.3	
359.9	CARBONDALE		SHALE	7.0	104.3	DARK GRAY
352.9	CARBONDALE		LIMESTONE & SHALE	3.2	111.3	
349.7	CARBONDALE		GRAY SHALE	20.8	114.5	
328.9	CARBONDALE		BLACK SHALE	1.0	135.3	
327.9	CARBONDALE		LIMESTONE & SHALE	3.0	136.3	
324.9	CARBONDALE	ENERGY	SHALE	6.4	139.3	DARK GRAY
318.5	CARBONDALE	ENERGY	GRAY SHALE	14.0	145.7	
304.5	CARBONDALE	HERRIN	COAL	6.1	159.7	
298.4	CARBONDALE		CALCAREOUS SHALE	3.0	165.8	
295.4	CARBONDALE		LIMESTONE	15.8	168.8	
279.7	CARBONDALE		SHALY LIMESTONE	8.0	184.5	
271.7	CARBONDALE		LIMESTONE	2.0	192.5	
269.7	CARBONDALE		GRAY SHALE	6.0	194.5	
263.7	CARBONDALE		SANDSTONE	28.0	200.5	
235.7	CARBONDALE		BLACK SHALE	2.2	228.5	
233.5	CARBONDALE		LIMESTONE	0.7	230.7	
232.8	CARBONDALE	DYKERSBURG	GRAY SHALE	9.2	231.4	
223.7	CARBONDALE	SPRINGFIELD	COAL	4.5	240.5	

MAPID: 19923576000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 960' S line, 2600' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.863998 **GEOLOGIST:** J. MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.762035 **DATE COLLECTED:** 3 / 3 / 1978
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 214.1 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING; DAVIDSON DRILL29 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	15.5	0.0	
-	PLEISTOCENE		SAND	5.8	15.5	
-	PLEISTOCENE		SANDY CLAY	7.4	21.3	
-	CARBONDALE		CALCAREOUS SHALE	36.5	28.8	
-	CARBONDALE		SANDSTONE	44.1	65.3	
-	CARBONDALE		GRAY SHALE	6.3	109.3	
-	CARBONDALE		SANDY SHALE	20.6	115.6	
-	CARBONDALE		SHALE	4.3	136.2	
-	CARBONDALE	BRERETON	LIMESTONE	9.0	140.5	
-	CARBONDALE	ANNA	BLACK SHALE	1.7	149.5	
-	CARBONDALE	HERRIN	COAL	7.0	151.2	
-	CARBONDALE		CALCAREOUS SHALE	18.3	158.2	
-	CARBONDALE		SANDY SHALE	29.0	176.4	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	205.4	
-	CARBONDALE	SPRINGFIELD	COAL	3.7	210.4	

MAPID: 19923577000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 1200' S line, 1800' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.861186 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.762698 **DATE COLLECTED:** 4 / 23 / 1980
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 187.6 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING CO; DON PERKINSA002 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0			UNCLASSIFIED	108.0	0.0	
357.0	CARBONDALE	HERRIN	CORE LOSS	8.3	108.0	CORE LOSS
348.7	CARBONDALE		UNCLASSIFIED	22.7	116.3	
326.0	CARBONDALE	BRIAR HILL	COAL	1.4	139.0	
324.6	CARBONDALE		UNCLASSIFIED	37.6	140.4	
287.0	CARBONDALE	SPRINGFIELD	COAL	4.0	178.0	
283.0	CARBONDALE		UNCLASSIFIED	5.6	182.0	

MAPID: 19901929000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 400' S line, 330' W line of NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.891189 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.764391 **DATE COLLECTED:** 8 / 0 / 1956

SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 1275.0 **LOG TYPE:** Electric Log

SOURCE: EAKLE & HOLDER PETRO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
127.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	334.0	
66.0	SPOON	DAVIS	UNCLASSIFIED	-	395.0	
-814.0	BASE OF PENN.		UNCLASSIFIED	-	1275.0	

MAPID: 19923578000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 1800' S line, 360' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.89108 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.764479 **DATE COLLECTED:** 4 / 27 / 1980

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 153.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-004 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
455.0			UNCLASSIFIED	89.0	0.0	
366.0	CARBONDALE	HERRIN	COAL	8.2	89.0	WITH SHALE STREAKS
357.8	CARBONDALE		UNCLASSIFIED	26.8	97.2	
331.0	CARBONDALE	ST. DAVID	FOSSILIFEROUS LIMESTONE	1.1	124.0	
329.9	CARBONDALE		UNCLASSIFIED	17.9	125.1	
312.0	CARBONDALE	SPRINGFIELD	COAL	4.3	143.0	
307.7	CARBONDALE		UNCLASSIFIED	5.7	147.3	

MAPID: 19923579000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 1200' S line, 1080' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.877418 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.762718 **DATE COLLECTED:** 5 / 4 / 1980

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 155.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-010 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0			UNCLASSIFIED	65.0	0.0	
395.0	CARBONDALE		COAL	0.5	65.0	
394.5	CARBONDALE		UNCLASSIFIED	22.6	65.5	
372.0	CARBONDALE	HERRIN	COAL	7.8	88.0	
364.2	CARBONDALE		UNCLASSIFIED	49.2	95.8	
315.0	CARBONDALE	SPRINGFIELD	COAL	4.3	145.0	
310.7	CARBONDALE		UNKNOWN	5.7	149.3	

MAPID: 19902327000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** SW NW SW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.909591 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.764029 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 52.6 **LOG TYPE:** Drillers Log

SOURCE: WEST VIRGINIA COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		CLAY	30.0	0.0	
460.0	CARBONDALE		BROWN SANDSTONE	9.0	30.0	
451.0	CARBONDALE	ANNA	BLACK SHALE	4.5	39.0	
446.5	CARBONDALE	HERRIN	COAL	7.6	43.5	
438.9	CARBONDALE		UNDERCLAY	1.5	51.1	

MAPID: 19902329000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.904889 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.767834 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 114.5 **LOG TYPE:** Drillers Log
SOURCE: WEST VIRGINIA COAL CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.0	PLEISTOCENE		CLAY	21.0	0.0	
472.0	CARBONDALE		BROWN SANDSTONE	4.0	21.0	
468.0	CARBONDALE		RED SANDSTONE	15.0	25.0	
453.0	CARBONDALE		BLACK SHALE	2.0	40.0	
451.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	3.0	42.0	GRAY
448.0	CARBONDALE	ANVIL ROCK	RED SANDSTONE	17.0	45.0	
431.0	CARBONDALE	ANVIL ROCK	SHALE	26.0	62.0	
405.0	CARBONDALE		BLACK SHALE	2.0	88.0	
403.0	CARBONDALE	BRERETON	LIMESTONE	15.0	90.0	
388.0	CARBONDALE	ANNA	BLACK SHALE	2.0	105.0	
386.0	CARBONDALE	HERRIN	COAL	7.5	107.0	
378.5	CARBONDALE		UNDERCLAY	0.0	114.5	

MAPID: 19902331000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** SW SW NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.900267 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.767892 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 501.0 **LOGGED (FT.):** 114.0 **LOG TYPE:** Drillers Log
SOURCE: WEST VIRGINIA COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
501.0	PLEISTOCENE		CLAY	21.0	0.0	
480.0	CARBONDALE	ANVIL ROCK	SANDSTONE	53.0	21.0	
427.0	CARBONDALE		SHALE	13.0	74.0	
414.0	CARBONDALE		BLACK SHALE	3.0	87.0	
411.0	CARBONDALE	BRERETON	LIMESTONE	4.0	90.0	
407.0	CARBONDALE	ANNA	BLACK SHALE	5.0	94.0	
402.0	CARBONDALE	ENERGY	SHALE	6.8	99.0	
395.2	CARBONDALE	HERRIN	COAL	6.7	105.8	
388.5	CARBONDALE		UNDERCLAY	1.5	112.5	

MAPID: 19902333000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** NE NW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.898022 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.766042 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 497.0 **LOGGED (FT.):** 122.5 **LOG TYPE:** Drillers Log
SOURCE: WEST VIRGINIA COAL CO. 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
497.0	PLEISTOCENE		SOIL	31.0	0.0	
466.0	CARBONDALE	ANVIL ROCK	SANDSTONE	52.0	31.0	
414.0	CARBONDALE	ANVIL ROCK	SHALE	8.0	83.0	
406.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	6.0	91.0	
400.0	CARBONDALE	BRERETON	LIMESTONE	6.0	97.0	
394.0	CARBONDALE	ANNA	BLACK SHALE	2.0	103.0	
392.0	CARBONDALE	ENERGY	BLACK SHALE	9.0	105.0	
383.0	CARBONDALE	HERRIN	COAL	7.5	114.0	
375.5	CARBONDALE		UNDERCLAY	1.0	121.5	

MAPID: 19923580000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 480' S line, 720' E line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.895002 **GEOLOGIST:** J. MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.760822 **DATE COLLECTED:** 10 / 14 / 1977
SURFACE ELEVATION (FT.): 488.6 **LOGGED (FT.):** 159.3 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING; DAVIDSON DRILL7 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.6	PLEISTOCENE		SANDY CLAY	36.0	0.0	
452.6	PLEISTOCENE		SAND	12.0	36.0	
440.6			SANDSTONE	42.0	48.0	WHITE
398.6			SHALE	14.4	90.0	WITH LIMESTONE STREAKS
384.2	CARBONDALE	HERRIN	COAL	6.1	104.4	
378.1	CARBONDALE		LIMESTONE	10.5	110.5	
367.6	CARBONDALE		GRAY SHALE	21.3	121.0	
346.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.3	142.3	
343.0	CARBONDALE	DYKERSBURG	GRAY SHALE	4.2	145.6	
338.8	CARBONDALE	DYKERSBURG	GRAY SHALE	4.8	149.8	
334.1	CARBONDALE	DYKERSBURG	GRAY SHALE	0.8	154.5	
333.3	CARBONDALE	SPRINGFIELD	COAL	4.1	155.3	

MAPID: 19923581000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 840' S line, 1440' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.905774 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.761707 **DATE COLLECTED:** 3 / 9 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 125.5 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL30 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	6.2	0.0	
-	PLEISTOCENE		SAND/CLAY	15.2	6.2	
-	PLEISTOCENE		SAND	4.8	21.3	
-	PLEISTOCENE		SANDY CLAY	10.0	26.2	
-	PLEISTOCENE		SANDY CLAY	16.0	36.2	
-	CARBONDALE	BRERETON	LIMESTONE	10.5	52.2	
-	CARBONDALE	HERRIN	COAL	7.5	62.7	OLD MINE
-	CARBONDALE		CALCAREOUS SHALE	18.0	70.2	
-	CARBONDALE		SANDY SHALE	17.8	88.2	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	106.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.2	107.3	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	8.9	112.4	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	121.3	

MAPID: 19923582000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 38' S line, 720' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.908321 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.759465 **DATE COLLECTED:** 5 / 1 / 1980

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 120.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-007 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNCLASSIFIED	59.0	0.0	
411.0	CARBONDALE	HERRIN	COAL	8.4	59.0	
402.6	CARBONDALE		UNCLASSIFIED	42.6	67.4	
360.0	CARBONDALE	SPRINGFIELD	COAL	3.9	110.0	
356.1	CARBONDALE		UNCLASSIFIED	6.1	113.9	

MAPID: 19923583000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 840' S line, 2400' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.902436 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.761739 **DATE COLLECTED:** 4 / 17 / 1990

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 159.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. MW2 **WELL TYPE:** Water Well

COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.0	PLEISTOCENE		CLAY	7.0	0.0	
481.0			UNKNOWN	20.0	7.0	
461.0	CARBONDALE	ANVIL ROCK	SANDSTONE	21.0	27.0	
440.0	CARBONDALE		GRAY SHALE	54.0	48.0	
386.0	CARBONDALE	HERRIN	COAL	7.0	102.0	
379.0	CARBONDALE		GRAY SHALE	38.0	109.0	
341.0	CARBONDALE		SHALE	3.0	147.0	
338.0	CARBONDALE		GRAY SHALE	5.0	150.0	
333.0	CARBONDALE	SPRINGFIELD	COAL	4.0	155.0	

MAPID: 19923584000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 1080' S line, 2640' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.901589 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.762411 **DATE COLLECTED:** 4 / 17 / 1990

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. MW3 **WELL TYPE:** Water Well

COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.0	PLEISTOCENE		CLAY	7.0	0.0	
481.0			UNKNOWN	20.0	7.0	
461.0	CARBONDALE	ANVIL ROCK	SANDSTONE	21.0	27.0	

MAPID: 19900264000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.911712 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.773374 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 137.1 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
510.0	PLEISTOCENE		CLAY	14.5	0.0	
495.5	MODESTO		LIMESTONE	32.5	14.5	
463.0	MODESTO		SANDSTONE	21.5	47.0	
441.5	CARBONDALE	DANVILLE	COAL	1.5	68.5	
440.0	CARBONDALE		UNDERCLAY	0.3	70.0	
439.7	CARBONDALE		SANDSTONE	3.0	70.3	
436.7	CARBONDALE		CLAYSTONE	9.5	73.3	
427.2	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	14.5	82.8	
412.7	CARBONDALE		CLAYSTONE	3.0	97.3	BLUE
409.7	CARBONDALE	CONANT	BLUE LIMESTONE	7.5	100.3	
402.2	CARBONDALE		BLACK SHALE	2.1	107.8	
400.1	CARBONDALE	JAMESTOWN	COAL	1.0	109.9	
399.2	CARBONDALE		SHALE & SILTSTONE	16.6	110.8	LIGHT BLUE
382.5	CARBONDALE	ANNA	BLACK SHALE	2.0	127.5	
380.5	CARBONDALE	HERRIN	COAL	4.5	129.5	
376.0	CARBONDALE	HERRIN	GRAY SHALE	0.1	134.0	
375.9	CARBONDALE	HERRIN	COAL	3.0	134.1	

MAPID: 19900264000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.911712 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.773374 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Drillers Log

SOURCE: MCFARLAND & PEABODY 5 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	DANVILLE	COAL	1.5		
-	CARBONDALE		SHALE & SANDSTONE	12.8		
-	CARBONDALE	BANKSTON FORK	LIMESTONE	14.5		UPPER BENCH
-	CARBONDALE	BANKSTON FORK	GRAY SHALE	3.0		SHALE PARTING
-	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	7.5		LOWER BENCH
-	CARBONDALE	JAMESTOWN	COAL	1.0		
-	CARBONDALE	HERRIN	COAL	7.6		

MAPID: 19900267000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.915347 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.763057 **DATE COLLECTED:** 11 / 28 / 1904

SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 78.3 **LOG TYPE:** Drillers Log

SOURCE: WM. WHITE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
502.0	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
488.0	CARBONDALE		SHALE & SANDSTONE	10.5	14.0	
477.5	CARBONDALE		ROCK	16.4	24.5	
461.1	CARBONDALE		DARK SHALE	4.4	40.9	
456.7	CARBONDALE		BLACK SHALE	10.3	45.3	
446.4	CARBONDALE		SANDSTONE	4.8	55.6	
441.7	CARBONDALE		LIGHT SHALE	10.0	60.3	
431.7	CARBONDALE	HERRIN	COAL	8.0	70.3	

MAPID: 19900268000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 11 / 24 / 1904

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 60.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 29 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
480.0	CARBONDALE		SANDSTONE	19.0	10.0	
461.0	CARBONDALE		BLACK SHALE	2.0	29.0	
459.0	CARBONDALE		LIMESTONE	15.5	31.0	
443.5	CARBONDALE		BLACK SHALE	5.0	46.5	
438.5	CARBONDALE	ANNA	BLACK SHALE	3.5	51.5	
435.0	CARBONDALE	HERRIN	COAL	5.8	55.0	

MAPID: 19900269000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919386 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 471.0 **LOG TYPE:** Drillers Log

SOURCE: MURPHYSBORO DRILL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	6.0	0.0	
-	CARBONDALE	HERRIN	COAL	5.2	6.0	TOP MAY BE ERODED
-	CARBONDALE		UNDERCLAY	5.0	11.2	
-	CARBONDALE		GRAY LIMESTONE	10.0	16.2	
-	CARBONDALE		BLUE SHALE	2.0	26.2	
-	CARBONDALE		BLUE SHALE	14.5	28.2	
-	CARBONDALE	TURNER MINE	BLACK SHALE	3.7	42.7	
-	CARBONDALE	DYKERSBURG	BLUE SHALE	9.4	46.3	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	55.8	
-	CARBONDALE		BLUE SHALE	73.5	60.0	
-	CARBONDALE		BLACK SHALE	4.0	133.5	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	137.5	
-	CARBONDALE		BLUE SHALE	36.2	139.6	
-	CARBONDALE	COLCHESTER	COAL	1.4	175.8	
-	CARBONDALE		BLUE SHALE	35.0	177.2	
-	CARBONDALE		SHALY SANDSTONE	14.5	212.2	
-	CARBONDALE		BLUE SHALE	35.0	226.7	
-	CARBONDALE		BLACK SHALE	2.4	261.7	
-	CARBONDALE		COAL	0.6	264.1	
-	CARBONDALE		BLUE SHALE	11.0	264.7	
-	CARBONDALE		GRAY LIMESTONE	1.5	275.7	
-	CARBONDALE		BLUE SHALE	40.0	277.2	
-	CARBONDALE	DEKOVEN	COAL	2.3	317.2	
-	CARBONDALE		BLUE SHALE	9.0	319.5	
-	CARBONDALE	DAVIS	COAL	0.8	328.5	
-	TRADEWATER		BLUE SHALE	40.0	329.3	
-	TRADEWATER		SHALY SANDSTONE	30.0	369.3	
-	TRADEWATER		BLACK SHALE	8.6	399.3	
-	TRADEWATER		BLUE SHALE	16.0	407.9	
-	TRADEWATER		GRAY SANDSTONE	8.0	423.9	
-	TRADEWATER		BLUE SHALE	30.0	431.9	
-	TRADEWATER		GRAY SANDSTONE	9.1	461.9	

MAPID: 19900269000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919386 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 471.0 **LOG TYPE:** Drillers Log

SOURCE: MURPHYSBORO DRILL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	5.2	6.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	56.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.1	138.0	

MAPID: 19901111000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1901

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 109.1 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	CARBONDALE		SANDSTONE	50.0	14.0	
-	CARBONDALE		SANDSTONE	9.0	64.0	
-	CARBONDALE		BLACK SHALE	5.0	73.0	
-	CARBONDALE		BLACK SHALE	1.5	78.0	
-	CARBONDALE		BLACK SHALE	1.5	79.5	
-	CARBONDALE		LIMESTONE	17.0	81.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	98.0	
-	CARBONDALE	HERRIN	COAL	5.0	101.0	
-	CARBONDALE	HERRIN	GRAY SHALE	0.1	106.0	BLUE
-	CARBONDALE	HERRIN	COAL	3.0	106.1	

MAPID: 19901850000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.912878 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772394 **DATE COLLECTED:** 11 / 0 / 1904

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 94.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	60.0	14.0	
-	CARBONDALE	ANNA	BLACK SHALE	1.5	74.0	
-	CARBONDALE	ENERGY	SHALE & SILTSTONE	12.0	75.5	
-	CARBONDALE	HERRIN	COAL	7.3	87.5	

MAPID: 19901851000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.915207 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.77049 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 80.6 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 10 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	2.5	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	43.5	2.5	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	5.5	46.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.3	51.5	
-	CARBONDALE	ENERGY	SHALE & SILTSTONE	16.6	55.8	LIGHT BLUE
-	CARBONDALE	HERRIN	COAL	8.3	72.3	

MAPID: 19902060000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	11.0	0.0	
-	CARBONDALE		SANDSTONE	13.0	11.0	
-	CARBONDALE		CLAYSTONE	18.0	24.0	
-	CARBONDALE	BRERETON	LIMESTONE	4.7	42.0	
-	CARBONDALE	ANNA	BLACK SHALE	1.8	46.7	
-	CARBONDALE	HERRIN	COAL	2.5	48.5	
-	CARBONDALE		SHALE	10.0	51.0	

MAPID: 19902062000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 138.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 11 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	15.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	62.4	15.0	
-	CARBONDALE	HERRIN	COAL	6.6	77.4	
-	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.3	84.0	
-	CARBONDALE		BLACK SHALE	2.4	88.3	
-	CARBONDALE	BRIAR HILL	COAL	0.8	90.8	
-	CARBONDALE		SHALE & SILTSTONE	37.5	91.5	BLUE
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.6	129.0	
-	CARBONDALE	SPRINGFIELD	COAL	7.4	130.6	

MAPID: 19902063000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 42.6 **LOG TYPE:** Drillers Log

SOURCE: B. C. CRAINE 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	14.0	0.0	
-	CARBONDALE		SANDSTONE	2.5	14.0	
-	CARBONDALE		CLAYSTONE	1.0	16.5	
-	CARBONDALE		BLUE LIMESTONE	10.5	17.5	
-	CARBONDALE		CLAYSTONE	2.3	28.0	
-	CARBONDALE		SILTSTONE	1.0	30.3	
-	CARBONDALE		UNDERCLAY	0.5	31.3	
-	CARBONDALE		BLACK SHALE	3.0	31.8	
-	CARBONDALE	HERRIN	COAL	7.8	34.8	

MAPID: 19902064000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 42.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	15.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	15.0	
-	CARBONDALE		CLAYSTONE	2.0	23.0	BLUE
-	CARBONDALE		SHALE	9.0	25.0	
-	CARBONDALE	ANNA	BLACK SHALE	1.5	34.0	
-	CARBONDALE	HERRIN	COAL	7.3	35.5	

MAPID: 19902065000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 38.0 **LOG TYPE:** Drillers Log

SOURCE: B. C. CRAINE 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	12.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	14.7	12.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	26.7	
-	CARBONDALE	HERRIN	COAL	8.3	29.7	

MAPID: 19902066000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 35.6 **LOG TYPE:** Drillers Log

SOURCE: MCFARLAND 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	12.5	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	14.1	12.5	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	26.6	
-	CARBONDALE		ROCK	0.8	29.6	
-	CARBONDALE	HERRIN	COAL	5.2	30.4	

MAPID: 19902067000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1902

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 64.5 **LOG TYPE:** Drillers Log

SOURCE: MCFARLAND 7 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	12.0	0.0	
-	CARBONDALE		SANDSTONE	13.5	12.0	
-	CARBONDALE		BLUE SHALE	5.5	25.5	
-	CARBONDALE		CLAYSTONE	4.3	31.0	
-	CARBONDALE		BLACK SHALE	2.0	35.3	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	16.8	37.3	
-	CARBONDALE	ANNA	SHALE	2.4	54.1	
-	CARBONDALE	HERRIN	COAL	8.0	56.5	

MAPID: 19902068000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.919866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766729 **DATE COLLECTED:** 0 / 0 / 1903

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 57.9 **LOG TYPE:** Drillers Log

SOURCE: MCFARLAND 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	10.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	11.0	10.0	
-	CARBONDALE	ANVIL ROCK	CLAYSTONE	7.0	21.0	
-	CARBONDALE	ANVIL ROCK	SHALE	22.3	28.0	
-	CARBONDALE	HERRIN	COAL	7.7	50.3	

MAPID: 19902218000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** 310' S line, 330' E line of NW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.924841 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.771185 **DATE COLLECTED:** 8 / 0 / 1962

SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 1300.0 **LOG TYPE:** Electric Log

SOURCE: CASTELLANO PHILIP A **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-779.0	BASE OF PENN.		UNCLASSIFIED	-	1300.0	

MAPID: 19902010000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.923387 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.754741 **DATE COLLECTED:** 7 / 0 / 1949
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 1178.0 **LOG TYPE:** Electric Log
SOURCE: BARTMES, ROSS **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-676.0	BASE OF PENN.		UNCLASSIFIED	-	1178.0	

MAPID: 19900270000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.903955 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757551 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 66.7 **LOG TYPE:** Drillers Log
SOURCE: LUCINDA TIBBS 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
466.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
436.0	PLEISTOCENE		SHALE	5.0	30.0	
431.0	CARBONDALE		SANDSTONE	13.0	35.0	
418.0	CARBONDALE	BRERETON	LIMESTONE	5.0	48.0	
413.0	CARBONDALE		LIGHT SHALE	2.0	53.0	
411.0	CARBONDALE		BLACK SHALE	4.0	55.0	
407.0	CARBONDALE	HERRIN	COAL	7.7	59.0	

MAPID: 19900276000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE
QUADRANGLE: MARION **LONGITUDE:** -88.89474 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746469 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.0	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
444.0	CARBONDALE	HERRIN	COAL	9.0	28.0	TOP MAY BE ERODED

MAPID: 19900473000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** NW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.899323 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.750162 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 41.7 **LOG TYPE:** Drillers Log
SOURCE: SPITZMESS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
443.0	CARBONDALE	ANNA	BLACK SHALE	3.0	30.0	
440.0	CARBONDALE	ENERGY	LIGHT SHALE	0.7	33.0	
439.3	CARBONDALE	HERRIN	COAL	8.0	33.7	

MAPID: 19901852000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** 660' N line, 660' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.90851 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.757539 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 63.5 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
460.0	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0	30.0	
448.0	CARBONDALE	ANVIL ROCK	LIGHT SHALE	6.0	42.0	
442.0	CARBONDALE	ANNA	BLACK SHALE	3.0	48.0	
439.0	CARBONDALE	ENERGY	LIGHT SHALE	4.0	51.0	
435.0	CARBONDALE	HERRIN	COAL	8.5	55.0	

MAPID: 19901852000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** 660' N line, 660' W line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.90851 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.757539 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 61.5 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 2 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
458.0	CARBONDALE	LAWSON	SANDSTONE	12.0	32.0	
446.0	CARBONDALE		GRAY SHALE	6.0	44.0	
440.0	CARBONDALE	ANNA	BLACK SHALE	3.0	50.0	
437.0	CARBONDALE	HERRIN	COAL	8.5	53.0	

MAPID: 19901853000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE NE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.894796 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.753914 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 58.3 **LOG TYPE:** Drillers Log
SOURCE: LUCINDA TIBBS 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	33.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	14.0	33.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	47.0	
-	CARBONDALE	HERRIN	COAL	7.3	51.0	

MAPID: 19901854000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE
QUADRANGLE: MARION **LONGITUDE:** -88.89474 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746469 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 78.5 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 10 **WELL TYPE:** Coal Test
COMMENT: PROBABLY #5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
465.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
431.0	CARBONDALE		SANDSTONE	4.0	34.0	
427.0	CARBONDALE		BLACK SHALE	4.0	38.0	
423.0	CARBONDALE		LIGHT SHALE	4.0	42.0	
419.0	CARBONDALE		SANDSTONE	4.0	46.0	
415.0	CARBONDALE		BLUE SHALE	12.0	50.0	
403.0	CARBONDALE		BLACK SHALE	4.0	62.0	
399.0	CARBONDALE		BLUE SHALE	7.5	66.0	
391.5	CARBONDALE	SPRINGFIELD	COAL	5.0	73.5	

MAPID: 19901855000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE
QUADRANGLE: MARION **LONGITUDE:** -88.89474 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746469 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 469.0 **LOGGED (FT.):** 29.0 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
469.0	PLEISTOCENE		UNCONSOLIDATED	29.0	0.0	
440.0	CARBONDALE	HERRIN	COAL	0.0	29.0	THICKNESS UNKNOWN

MAPID: 19901856000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW SE
QUADRANGLE: MARION **LONGITUDE:** -88.899288 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.746446 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log
SOURCE: SPITSMESS 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
465.0	CARBONDALE		SANDSTONE	8.0	25.0	
457.0	CARBONDALE		BLACK SHALE	2.0	33.0	
455.0	CARBONDALE		SANDSTONE	11.0	35.0	
444.0	CARBONDALE		LIGHT SHALE	1.0	46.0	
443.0	CARBONDALE	HERRIN	COAL	9.0	47.0	

MAPID: 19900277000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.889032 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.756708 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL 12 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
434.0	CARBONDALE	LAWSON	SANDSTONE	22.5	31.0	
411.5	CARBONDALE		BLACK SHALE	6.0	53.5	
405.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.0	59.5	
400.5	CARBONDALE	ANNA	BLACK SHALE	1.5	64.5	
399.0	CARBONDALE	HERRIN	COAL	8.0	66.0	

MAPID: 19900277000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE NW NW
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.889032 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.756708 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 131.0 **LOG TYPE:** Drillers Log
SOURCE: COLP COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	8.0	66.0	
-	CARBONDALE	BRIAR HILL	COAL	0.8	90.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.7	126.0	

MAPID: 19900277000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE NW NW

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.889032 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.756708 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 131.0 **LOG TYPE:** Drillers Log

SOURCE: COLP COAL 12 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0	PLEISTOCENE		UNCONSOLIDATED	31.0	0.0	
429.0	CARBONDALE		SANDSTONE	22.5	31.0	
406.5	CARBONDALE		BLACK SHALE	6.0	53.5	
400.5	CARBONDALE	BRERETON	LIMESTONE	5.0	59.5	
395.5	CARBONDALE	ANNA	BLACK SHALE	1.5	64.5	
394.0	CARBONDALE	HERRIN	COAL	8.0	66.0	
386.0	CARBONDALE		UNDERCLAY	1.3	74.0	
384.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	5.5	75.3	
379.2	CARBONDALE		SANDSTONE	5.3	80.8	
374.0	CARBONDALE		LIGHT SHALE	4.0	86.0	
370.0	CARBONDALE	BRIAR HILL	COAL	0.8	90.0	
369.2	CARBONDALE		BLUE SHALE	4.0	90.8	
365.2	CARBONDALE		SANDSTONE	8.0	94.8	
357.2	CARBONDALE		LIGHT SHALE	8.0	102.8	
349.2	CARBONDALE		SANDSTONE	2.0	110.8	
347.2	CARBONDALE		LIMESTONE	1.0	112.8	
346.2	CARBONDALE		BLACK SHALE	1.5	113.8	
344.7	CARBONDALE	ST. DAVID	LIMESTONE	4.0	115.3	
340.7	CARBONDALE	TURNER MINE	BLACK SHALE	0.7	119.3	
340.0	CARBONDALE	DYKERSBURG	BLUE SHALE	6.3	120.0	
333.7	CARBONDALE	SPRINGFIELD	COAL	4.7	126.3	

MAPID: 19900279000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: MARION **LONGITUDE:** -88.890137 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.74648 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 88.8 **LOG TYPE:** Drillers Log
SOURCE: SPITZMESS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
436.0	CARBONDALE		SANDSTONE	16.0	34.0	
420.0	CARBONDALE		BLUE SHALE	4.0	50.0	
416.0	CARBONDALE		LIMESTONE	2.7	54.0	
413.3	CARBONDALE		BLUE SHALE	12.0	56.7	
401.3	CARBONDALE		BLACK SHALE	4.0	68.7	
397.3	CARBONDALE		SANDSTONE	2.0	72.7	
395.3	CARBONDALE		BLUE SHALE	8.0	74.7	
387.3	CARBONDALE	SPRINGFIELD	COAL	5.0	82.7	
382.3	CARBONDALE		UNDERCLAY	1.2	87.7	

MAPID: 19901857000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.882 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.751113 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 89.8 **LOG TYPE:** Drillers Log
SOURCE: W BORNE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
463.0	PLEISTOCENE		UNCONSOLIDATED	38.0	0.0	
425.0	CARBONDALE		SHALE	4.0	38.0	
421.0	CARBONDALE		SANDSTONE	8.0	42.0	
413.0	CARBONDALE		BLUE SHALE	16.0	50.0	
397.0	CARBONDALE		SANDSTONE	2.0	66.0	
395.0	CARBONDALE		BLACK SHALE	4.0	68.0	
391.0	CARBONDALE		BLUE SHALE	12.0	72.0	
379.0	CARBONDALE	SPRINGFIELD	COAL	5.8	84.0	

MAPID: 19923585000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2640' S line, 1680' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.879678 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.751926 **DATE COLLECTED:** 9 / 0 / 1977

SURFACE ELEVATION (FT.): 449.0 **LOGGED (FT.):** 99.5 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
449.0	PLEISTOCENE		CLAY	13.5	0.0	
435.5	PLEISTOCENE		SANDY CLAY	46.5	13.5	
389.0	PLEISTOCENE		CLAY	18.8	60.0	
370.2	CARBONDALE		LIMESTONE	9.8	78.8	
360.5	CARBONDALE		GRAY SHALE	6.8	88.5	COAL
353.7	CARBONDALE	SPRINGFIELD	COAL	4.2	95.3	

MAPID: 19923586000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1400' N line, 2520' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883767 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.755589 **DATE COLLECTED:** 10 / 3 / 1977

SURFACE ELEVATION (FT.): 460.3 **LOGGED (FT.):** 129.7 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.3	PLEISTOCENE		CLAY	8.0	0.0	
452.3	PLEISTOCENE		SANDY CLAY	39.4	8.0	
412.9	PLEISTOCENE		SAND	20.0	47.4	
392.9	PLEISTOCENE		CLAY	2.0	67.4	WHITE
390.9	CARBONDALE	HERRIN	COAL	1.6	69.4	TOP OF COAL ERODED
389.3	CARBONDALE		SHALE	1.4	71.0	
387.9	CARBONDALE		UNKNOWN	53.3	72.4	
334.6	CARBONDALE	SPRINGFIELD	COAL	4.0	125.7	

MAPID: 19923587000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2640' S line, 2160' E line
QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.881347 **GEOLOGIST:** J. MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.751921 **DATE COLLECTED:** 10 / 5 / 1977
SURFACE ELEVATION (FT.): 453.9 **LOGGED (FT.):** 129.0 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING; DAVIDSON DRILL3 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
453.9	PLEISTOCENE		SAND/CLAY	12.5	0.0	
441.4	PLEISTOCENE		SAND	20.5	12.5	
420.9	PLEISTOCENE		SAND/CLAY	20.9	33.0	
400.0	CARBONDALE	BRERETON	LIMESTONE	10.8	53.9	
389.2	CARBONDALE	ANNA	BLACK SHALE	1.3	64.7	
387.9	CARBONDALE	HERRIN	COAL	6.3	66.0	
381.6	CARBONDALE		SHALE	1.6	72.3	
380.0	CARBONDALE		LIMESTONE	12.4	73.9	WHITE TO GRAY
367.6	CARBONDALE		CALCAREOUS SHALE	17.0	86.3	
350.6	CARBONDALE		BLACK SHALE	5.3	103.3	
345.2	CARBONDALE		CALCAREOUS SHALE	16.3	108.7	
328.9	CARBONDALE	SPRINGFIELD	COAL	4.0	125.0	

MAPID: 19923588000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 960' S line, 1200' W line
QUADRANGLE: MARION **LONGITUDE:** -88.888298 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.747274 **DATE COLLECTED:** 10 / 8 / 1977
SURFACE ELEVATION (FT.): 473.4 **LOGGED (FT.):** 88.3 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING; DAVIDSON DRILL5 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
473.4	PLEISTOCENE		SANDY CLAY	27.0	0.0	
446.4	PLEISTOCENE		CLAY	10.3	27.0	
436.1	CARBONDALE		LIMESTONE	13.2	37.3	
423.0	CARBONDALE		CALCAREOUS SHALE	19.7	50.4	
403.3	CARBONDALE		BLACK SHALE	5.0	70.1	
398.3	CARBONDALE		GRAY SHALE	8.9	75.1	
389.4	CARBONDALE	SPRINGFIELD	COAL	4.3	84.0	

MAPID: 19923589000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 720' S line, 960' W line

QUADRANGLE: MARION **LONGITUDE:** -88.889128 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.74661 **DATE COLLECTED:** 10 / 11 / 1977

SURFACE ELEVATION (FT.): 471.9 **LOGGED (FT.):** 74.4 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL6 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
471.9	PLEISTOCENE		CLAY	6.4	0.0	
465.5	PLEISTOCENE		SAND/CLAY	14.3	6.4	
451.1	CARBONDALE	HERRIN	COAL	3.2	20.8	TOP OF COAL ERODED
447.9	CARBONDALE		LIMESTONE	27.4	24.0	GRAY TO BLACK
420.5	CARBONDALE		CALCAREOUS SHALE	6.2	51.4	
414.4	CARBONDALE		BLACK SHALE	2.8	57.5	
411.5	CARBONDALE		SHALE	9.8	60.4	DARK GRAY
401.7	CARBONDALE	SPRINGFIELD	COAL	4.2	70.2	

MAPID: 19923590000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2520' S line, 3000' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.884267 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.751586 **DATE COLLECTED:** 10 / 26 / 1977

SURFACE ELEVATION (FT.): 453.7 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO. 10 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
453.7	PLEISTOCENE		CLAY	55.2	0.0	
398.5	CARBONDALE	HERRIN	COAL	5.0	55.2	TOP OF COAL ERODED
393.5	CARBONDALE		SHALE & SANDSTONE	6.2	60.2	
387.4	CARBONDALE		GRAY SHALE	9.4	66.3	
377.9	CARBONDALE		BLACK SHALE	2.6	75.8	
375.4	CARBONDALE	DYKERSBURG	GRAY SHALE	7.3	78.3	
368.0	CARBONDALE	SPRINGFIELD	COAL	4.3	85.7	

MAPID: 19923591000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1200' S line, 1440' W line

QUADRANGLE: MARION **LONGITUDE:** -88.887468 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.747937 **DATE COLLECTED:** 10 / 28 / 1977

SURFACE ELEVATION (FT.): 463.3 **LOGGED (FT.):** 87.8 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; #2 MINE 11 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
463.3	PLEISTOCENE		CLAY	35.0	0.0	
428.3	CARBONDALE		LIMESTONE	4.0	35.0	
424.3	CARBONDALE		CALCAREOUS SHALE	6.5	39.0	
417.8	CARBONDALE		CALCAREOUS SHALE	23.2	45.5	BLACK
394.6	CARBONDALE		CALCAREOUS SHALE	5.8	68.7	
388.8	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	74.5	
384.8	CARBONDALE	DYKERSBURG	GRAY SHALE	5.0	78.5	
379.8	CARBONDALE	SPRINGFIELD	COAL	4.3	83.5	

MAPID: 19923592000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2760' N line, 2400' W line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.88416 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.751839 **DATE COLLECTED:** 10 / 30 / 1977

SURFACE ELEVATION (FT.): 456.9 **LOGGED (FT.):** 83.9 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL12 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.9	PLEISTOCENE		CLAY	5.3	0.0	
451.6	PLEISTOCENE		SANDY CLAY	9.8	5.3	
441.8	PLEISTOCENE		SAND	15.3	15.1	
426.5	PLEISTOCENE		CLAY	10.2	30.4	WITH PEBBLES
416.3	CARBONDALE		SHALE	17.1	40.6	
399.2	CARBONDALE		GRAY SHALE	3.0	57.7	
396.2	CARBONDALE	ST. DAVID	LIMESTONE	5.0	60.7	
391.2	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	65.7	
387.2	CARBONDALE	DYKERSBURG	GRAY SHALE	9.9	69.7	
377.3	CARBONDALE	SPRINGFIELD	COAL	4.3	79.6	

MAPID: 19923593000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1440' S line, 2160' W line

QUADRANGLE: MARION **LONGITUDE:** -88.88497 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.748603 **DATE COLLECTED:** 11 / 4 / 1977

SURFACE ELEVATION (FT.): 462.8 **LOGGED (FT.):** 86.4 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL14 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
462.8	PLEISTOCENE		CLAY	20.8	0.0	
442.0	PLEISTOCENE		SAND	5.9	20.8	
436.1	PLEISTOCENE		SAND/CLAY	4.8	26.7	
431.3	CARBONDALE	HERRIN	COAL	4.8	31.5	
426.5	CARBONDALE		LIMESTONE & SHALE	12.2	36.3	
414.3	CARBONDALE		GRAY SHALE	4.8	48.5	
409.5	CARBONDALE		SHALE	20.2	53.3	
389.3	CARBONDALE	ST. DAVID	LIMESTONE	3.0	73.5	BLACK
386.3	CARBONDALE	TURNER MINE	BLACK SHALE	5.3	76.5	
381.0	CARBONDALE	SPRINGFIELD	COAL	4.6	81.8	

MAPID: 19923594000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: MARION **LONGITUDE:** -88.881995 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.74926 **DATE COLLECTED:** 11 / 11 / 1977

SURFACE ELEVATION (FT.): 452.1 **LOGGED (FT.):** 78.1 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL17 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
452.1	PLEISTOCENE		CLAY	12.2	0.0	
439.9	PLEISTOCENE		SANDY CLAY	6.3	12.2	
433.6	PLEISTOCENE		SAND	7.0	18.5	
426.6	CARBONDALE		SANDSTONE	13.0	25.5	
413.6	CARBONDALE		GRAY SHALE	21.5	38.5	
392.1	CARBONDALE	ST. DAVID	LIMESTONE	1.2	60.0	
390.9	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	61.2	
386.7	CARBONDALE	DYKERSBURG	SHALE	8.3	65.4	DARK GRAY
378.3	CARBONDALE	SPRINGFIELD	COAL	4.3	73.8	

MAPID: 19923595000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 240' S line, 2160' E line

QUADRANGLE: MARION **LONGITUDE:** -88.881344 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.745298 **DATE COLLECTED:** 12 / 29 / 1977

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 67.5 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL23 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	5.0	0.0	
-	PLEISTOCENE		SANDY CLAY	10.5	5.0	
-	PLEISTOCENE		SAND	2.3	15.5	
-	PLEISTOCENE		SANDY CLAY	12.8	17.8	
-	CARBONDALE		SANDSTONE	3.0	30.5	
-	CARBONDALE		SANDY SHALE	12.0	33.5	
-	CARBONDALE		LIMESTONE	2.3	45.5	
-	CARBONDALE		GRAY SHALE	7.7	47.8	
-	CARBONDALE		LIMESTONE	1.5	55.4	
-	CARBONDALE		BLACK SHALE	4.3	56.9	
-	CARBONDALE		LIMESTONE	1.0	61.2	
-	CARBONDALE		BLACK SHALE	0.3	62.2	
-	CARBONDALE		LIMESTONE	0.6	62.5	
-	CARBONDALE	SPRINGFIELD	COAL	4.4	63.1	

MAPID: 19923596000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 120' S line, 1680' E line

QUADRANGLE: MARION **LONGITUDE:** -88.879675 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.744969 **DATE COLLECTED:** 1 / 6 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 60.6 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL24 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	5.0	0.0	
-	PLEISTOCENE		SANDY CLAY	7.3	5.0	
-	PLEISTOCENE		SAND	16.5	12.3	
-	CARBONDALE		SANDSTONE	5.8	28.8	
-	CARBONDALE		SANDY SHALE	10.0	34.5	
-	CARBONDALE	ST. DAVID	LIMESTONE	1.3	44.5	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.8	45.8	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	4.7	51.5	
-	CARBONDALE	SPRINGFIELD	COAL	4.4	56.2	

MAPID: 19923597000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 720' S line, 1680' E line

QUADRANGLE: MARION **LONGITUDE:** -88.879678 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.746625 **DATE COLLECTED:** 1 / 20 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 65.1 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL26 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	5.5	0.0	
-	PLEISTOCENE		SANDY CLAY	10.0	5.5	
-	PLEISTOCENE		SAND	2.3	15.5	
-	PLEISTOCENE		SANDY CLAY	12.8	17.8	
-	CARBONDALE		SANDSTONE	6.7	30.5	
-	CARBONDALE		GRAY SHALE	12.1	37.2	
-	CARBONDALE	ST. DAVID	LIMESTONE	0.8	49.3	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	50.1	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	5.6	55.1	
-	CARBONDALE	SPRINGFIELD	COAL	4.4	60.7	

MAPID: 19923598000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 2760' S line, 2640' E line

QUADRANGLE: JOHNSTON CITY **LONGITUDE:** -88.883016 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.75225 **DATE COLLECTED:** 4 / 30 / 1980

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 105.0 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING CO; DON PERKINSA-006 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
455.0			UNCLASSIFIED	95.0	0.0	
360.0	CARBONDALE	SPRINGFIELD	COAL	4.2	95.0	
355.8	CARBONDALE		UNCLASSIFIED	5.8	99.2	

MAPID: 19923599000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 825' N line, 330' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.874988 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.757109 **DATE COLLECTED:** 4 / 18 / 1990
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 130.0 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN ILLINOIS MINING CO. MW5 **WELL TYPE:** Water Well
COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SANDY CLAY	55.0	0.0	
425.0	CARBONDALE	ENERGY	GRAY SHALE	11.0	55.0	
414.0	CARBONDALE	HERRIN	COAL	4.5	66.0	
409.5	CARBONDALE		GRAY SHALE	4.5	70.5	
405.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	11.0	75.0	
394.0	CARBONDALE		GRAY SHALE	26.0	86.0	
368.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	112.0	
365.0	CARBONDALE	DYKERSBURG	GRAY SHALE	11.0	115.0	
354.0	CARBONDALE	SPRINGFIELD	COAL	4.0	126.0	

MAPID: 19923600000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 9 **QUARTERS/FOOTAGES:** 815' N line, 330' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.874988 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.757137 **DATE COLLECTED:** 4 / 18 / 1990
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 70.5 **LOG TYPE:** Drillers Log
SOURCE: SOUTHERN ILLINOIS MINING CO. MW6 **WELL TYPE:** Water Well
COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SANDY CLAY	55.0	0.0	
425.0	CARBONDALE	ENERGY	GRAY SHALE	11.0	55.0	
414.0	CARBONDALE	HERRIN	COAL	4.5	66.0	

MAPID: 19900948000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.871504 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.753855 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): 447.6 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 301 **WELL TYPE:** Coal Test
COMMENT: DRILL DATE 1927-28

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
447.6	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
422.6			SANDY SHALE	18.0	25.0	
404.6			ROCK	17.0	43.0	

MAPID: 19900986000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.866864 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.750174 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): 439.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 305 **WELL TYPE:** Coal Test

COMMENT: DATE DRILLED 1927-28

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
439.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
419.0	PLEISTOCENE		SAND	21.5	20.0	
397.5	CARBONDALE	HERRIN	COAL	0.5	41.5	TOP ERODED
397.0	CARBONDALE		UNDERCLAY	2.0	42.0	
395.0	CARBONDALE		ROCK	16.0	44.0	

MAPID: 19923601000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 1800' S line, 240' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.85608 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.749623 **DATE COLLECTED:** 4 / 18 / 1990

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 130.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. 4-90-#5 **WELL TYPE:** Water Well

COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
451.0	PLEISTOCENE		CLAY	40.0	0.0	
411.0	PLEISTOCENE		MUD	30.0	40.0	GRAY
381.0	CARBONDALE	ENERGY	GRAY SHALE	24.0	70.0	
357.0	CARBONDALE	HERRIN	COAL	1.5	94.0	
355.5	CARBONDALE		GRAY SHALE	20.5	95.5	
335.0	CARBONDALE	ST. DAVID	LIMESTONE	3.0	116.0	
332.0	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	119.0	
330.0	CARBONDALE	DYKERSBURG	GRAY SHALE	2.6	121.0	
327.4	CARBONDALE	DYKERSBURG	SILTSTONE	6.4	123.6	HIT #5 COAL AT 130'
321.0	CARBONDALE	SPRINGFIELD	COAL	-	130.0	

MAPID: 19923602000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 240' N line, 360' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.856346 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.758726 **DATE COLLECTED:** 11 / 16 / 1977

SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 166.9 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL20 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
441.0	PLEISTOCENE		CLAY	8.1	0.0	
432.9	PLEISTOCENE		SANDY CLAY	22.6	8.1	
410.3	PLEISTOCENE		SANDY SHALE	3.8	30.7	
406.5	PLEISTOCENE		SANDSTONE	4.0	34.5	
402.5	CARBONDALE		SANDY SHALE	26.8	38.5	
375.7	CARBONDALE		CALCAREOUS SHALE	7.1	65.3	
368.7	CARBONDALE		LIMESTONE	3.1	72.3	
365.6	CARBONDALE		LIMESTONE & SHALE	2.0	75.4	
363.6	CARBONDALE	JAMESTOWN	COAL	0.8	77.4	
362.8	CARBONDALE		SHALE	1.8	78.2	SLATE
361.1	CARBONDALE		SHALE	6.0	79.9	DARK, HARD
355.1	CARBONDALE	BRERETON	LIMESTONE	8.3	85.9	
346.8	CARBONDALE	HERRIN	COAL	5.1	94.2	
341.8	CARBONDALE		GRAY SHALE	2.8	99.2	
338.9	CARBONDALE		LIMESTONE & SHALE	1.9	102.1	
337.0	CARBONDALE		LIMESTONE	18.0	104.0	
319.0	CARBONDALE		GRAY SHALE	7.0	122.0	
312.0	CARBONDALE	BRIAR HILL	COAL	1.5	129.0	
310.5	CARBONDALE		LIMESTONE & SHALE	3.0	130.5	
307.5	CARBONDALE		GRAY SHALE	13.0	133.5	
294.5	CARBONDALE	ST. DAVID	LIMESTONE & SHALE	2.0	146.5	
292.5	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	148.5	
288.5	CARBONDALE	DYKERSBURG	GRAY SHALE	10.0	152.5	
278.5	CARBONDALE	SPRINGFIELD	COAL	4.4	162.5	

MAPID: 19923603000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 2640' S line, 1560' E line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.860631 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.751939 **DATE COLLECTED:** 4 / 21 / 1980
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 135.0 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING CO; DON PERKINSA-001 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCLASSIFIED	91.0	0.0	
349.0	CARBONDALE	BRIAR HILL	COAL	1.4	91.0	
347.6	CARBONDALE		UNCLASSIFIED	34.6	92.4	
313.0	CARBONDALE	SPRINGFIELD	COAL	4.4	127.0	
308.6	CARBONDALE		UNCLASSIFIED	3.6	131.4	

MAPID: 19923604000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 10 **QUARTERS/FOOTAGES:** 1440' N line, 480' W line
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.872169 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.755404 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 140.0 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING CO; DON PERKINSA-009 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCLASSIFIED	71.0	0.0	
379.0	CARBONDALE	HERRIN	COAL	6.2	71.0	
372.9	CARBONDALE		UNCLASSIFIED	16.9	77.1	
356.0	CARBONDALE	BRIAR HILL	COAL	1.3	94.0	
354.7	CARBONDALE		UNCLASSIFIED	34.7	95.3	
320.0	CARBONDALE	SPRINGFIELD	COAL	3.6	130.0	
316.4	CARBONDALE		UNCLASSIFIED	6.4	133.6	

MAPID: 19900989000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** NW
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.850494 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.755656 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): 442.1 **LOGGED (FT.):** 59.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 309 **WELL TYPE:** Coal Test
COMMENT: NO COAL:OUTSIDE OF CROP AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
442.1	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
424.1	PLEISTOCENE		SAND	32.0	18.0	
392.1			UNDERCLAY	9.0	50.0	

MAPID: 19900990000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 500' S line, 300' W line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.854202 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.749709 **DATE COLLECTED:** 0 / 0 / 1927
SURFACE ELEVATION (FT.): 446.7 **LOGGED (FT.):** 180.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. **WELL TYPE:** Coal Test
COMMENT: DATE DRILLED 1927-28

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
446.7	PLEISTOCENE		CLAY	18.0	0.0	
428.7	PLEISTOCENE		SAND	35.0	18.0	
393.7	CARBONDALE	BRERETON	LIMESTONE	5.0	53.0	
388.7	CARBONDALE	ANNA	BLACK SHALE	6.0	58.0	
382.7	CARBONDALE	HERRIN	COAL	2.0	64.0	
380.7	CARBONDALE		LIMESTONE	5.0	66.0	
375.7	CARBONDALE		SANDY LIMESTONE	20.0	71.0	
355.7	CARBONDALE		BROWN LIMESTONE	2.0	91.0	
353.7	CARBONDALE		DARK SHALE	3.0	93.0	
350.7	CARBONDALE	BRIAR HILL	COAL	1.0	96.0	
349.7	CARBONDALE	ST. DAVID	GRAY LIMESTONE	10.0	97.0	
339.7	CARBONDALE		BROWN SHALE	10.0	107.0	
329.7	CARBONDALE		BLACK SHALE	6.0	117.0	
323.7	CARBONDALE	DYKERSBURG	GRAY SHALE	8.0	123.0	
315.7	CARBONDALE	SPRINGFIELD	COAL	5.0	131.0	
310.7	CARBONDALE		SHALE	2.0	136.0	
308.7	CARBONDALE		GRAY SANDSTONE	25.0	138.0	
283.7	CARBONDALE		DARK SHALE	8.0	163.0	
275.7	CARBONDALE		LIGHT SHALE	9.0	171.0	

MAPID: 19900990000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 500' S line, 300' W line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.854202 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.749709 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 180.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
383.0	CARBONDALE	HERRIN	COAL	2.0	64.0	
351.0	CARBONDALE	BRIAR HILL	COAL	1.0	96.0	
316.0	CARBONDALE	SPRINGFIELD	COAL	5.0	131.0	

MAPID: 19900991000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.848303 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746445 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 35.5 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 213 **WELL TYPE:** Coal Test

COMMENT: DRILL DATE 1927-28

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
459.0	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
446.0	PLEISTOCENE		SAND	4.0	13.0	
442.0	CARBONDALE		SANDY SHALE	14.0	17.0	
428.0	CARBONDALE	ANNA	BLACK SHALE	0.5	31.0	
427.5	CARBONDALE	HERRIN	COAL	4.0	31.5	

MAPID: 19901116000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:**

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.845893 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.751936 **DATE COLLECTED:** 0 / 0 / 1927

SURFACE ELEVATION (FT.): 451.4 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 209 **WELL TYPE:** Coal Test

COMMENT: DRILL DATE 1927-28

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
451.4	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
437.4			SAND	8.0	14.0	
429.4			SANDY SHALE	11.0	22.0	
418.4			SANDY LIMESTONE	27.0	33.0	NO COAL: OUTSIDE CROP AREA

MAPID: 19901516000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 1000' S line, 200' E line of SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.841901 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.75466 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 90.9 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 5 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
444.4	CARBONDALE	DANVILLE	COAL	0.4	16.6	
444.0	CARBONDALE		GRAY SHALE	3.6	17.0	
440.4	CARBONDALE	ALLENBY	COAL	0.5	20.6	
439.9	CARBONDALE		GRAY SHALE	3.5	21.1	
436.4	CARBONDALE	BANKSTON FORK	LIMESTONE	8.3	24.6	
428.1	CARBONDALE	LAWSON	SHALE & SANDSTONE	11.7	32.9	
416.4	CARBONDALE	LAWSON	SANDSTONE	1.8	44.6	
414.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	23.8	46.3	
390.8	CARBONDALE	CONANT	LIMESTONE	0.3	70.2	
390.6	CARBONDALE	JAMESTOWN	COAL	0.3	70.4	
390.3	CARBONDALE	BRERETON	LIMESTONE	5.4	70.7	
384.9	CARBONDALE	ANNA	BLACK SHALE	3.0	76.1	
381.9	CARBONDALE	ENERGY	GRAY SHALE	5.9	79.1	
376.0	CARBONDALE	HERRIN	COAL	5.9	85.0	

MAPID: 19902011000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.844835 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.745495 **DATE COLLECTED:** 4 / 0 / 1943

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 1260.0 **LOG TYPE:** Electric Log

SOURCE: SUPERIOR OIL COMPANY **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
136.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	320.0	
66.0	SPOON	DAVIS	UNCLASSIFIED	-	390.0	
-804.0	BASE OF PENN.		UNCLASSIFIED	-	1260.0	

MAPID: 19923605000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 2520' S line, 1080' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.840341 **GEOLOGIST:** J. MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.75151 **DATE COLLECTED:** 4 / 19 / 1990

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 161.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. 4-90-#9 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE; ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		CLAY	22.0	0.0	
428.0	PLEISTOCENE		MUD	22.0	22.0	GREEN
406.0	CARBONDALE		GRAY SHALE	14.0	44.0	
392.0	CARBONDALE	BRERETON	LIMESTONE	6.0	58.0	
386.0	CARBONDALE	ENERGY	GRAY SHALE	3.0	64.0	
383.0	CARBONDALE	HERRIN	COAL	6.0	67.0	
377.0	CARBONDALE		GRAY SHALE	3.0	73.0	
374.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	5.0	76.0	
369.0	CARBONDALE		SANDY SHALE	25.0	81.0	GRAY
344.0	CARBONDALE	BRIAR HILL	COAL	1.5	106.0	
342.5	CARBONDALE		GRAY SHALE	2.5	107.5	
340.0	CARBONDALE		SILTSTONE	5.0	110.0	
335.0	CARBONDALE		BLACK SHALE	2.0	115.0	COAL
333.0	CARBONDALE		SILTY SHALE	3.0	117.0	
330.0	CARBONDALE		SILTSTONE	5.0	120.0	
325.0	CARBONDALE		SHALE	5.0	125.0	BROWN GRAY
320.0	CARBONDALE		SILTY SHALE	10.0	130.0	
310.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.5	140.0	
306.5	CARBONDALE	DYKERSBURG	SILTY SHALE	3.0	143.5	
303.5	CARBONDALE	DYKERSBURG	SILTSTONE	4.7	146.5	DARK GRAY
298.8	CARBONDALE	SPRINGFIELD	COAL	4.2	151.2	
294.6	CARBONDALE		GRAY SHALE	5.6	155.4	

MAPID: 19923606000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 1920' N line, 360' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.837812 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.753891 **DATE COLLECTED:** 2 / 14 / 1978

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 202.3 **LOG TYPE:** Drillers Log

SOURCE: SO. IL. MINING; DAVIDSON DRILL27 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	10.3	0.0	
-	PLEISTOCENE		SANDY CLAY	6.1	10.3	
-	PLEISTOCENE		SAND	6.7	16.4	
-	PLEISTOCENE		SANDY CLAY	8.2	23.1	
-	CARBONDALE		SANDSTONE	9.4	31.3	
-	CARBONDALE		GRAY SHALE	4.8	40.7	
-	CARBONDALE		COAL	0.3	45.4	
-	CARBONDALE		CALCAREOUS SHALE	3.5	45.8	
-	CARBONDALE		COAL	0.4	49.3	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	10.6	49.7	
-	CARBONDALE		GRAY SHALE	9.8	60.3	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	17.0	70.0	
-	CARBONDALE		BLACK SHALE	0.6	87.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.4	87.6	
-	CARBONDALE	ANNA	BLACK SHALE	1.5	94.0	
-	CARBONDALE	ENERGY	SHALE	4.5	95.5	BROWN
-	CARBONDALE	ENERGY	GRAY SHALE	9.0	100.0	
-	CARBONDALE	ENERGY	BLACK SHALE	1.8	109.0	
-	CARBONDALE	HERRIN	COAL	6.3	110.8	
-	CARBONDALE		GRAY SHALE	7.5	117.0	
-	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.8	124.5	
-	CARBONDALE		LIMESTONE & SHALE	2.7	133.3	
-	CARBONDALE		CALCAREOUS SHALE	4.2	136.0	
-	CARBONDALE		SHALE	5.9	140.2	DARK GRAY
-	CARBONDALE		SANDY SHALE	10.1	146.1	
-	CARBONDALE		SANDSTONE	10.0	156.2	WITH SHALE
-	CARBONDALE		SANDSTONE	18.5	166.2	
-	CARBONDALE	TURNER MINE	BLACK SHALE	1.8	184.7	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	11.8	186.4	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	198.2	

MAPID: 19923607000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 2520' S line, 720' E line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.839089 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.7515 **DATE COLLECTED:** 4 / 23 / 1990

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 176.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. MW7 **WELL TYPE:** Water Well

COMMENT: PERMIT 240 #2 MINE; ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0	PLEISTOCENE		CLAY	9.0	0.0	
471.0			SANDSTONE	26.0	9.0	
445.0			LIMESTONE	4.0	35.0	
441.0			GRAY SHALE	55.0	39.0	
386.0	CARBONDALE	HERRIN	COAL	6.0	94.0	
380.0	CARBONDALE		GRAY SHALE	3.0	100.0	
377.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.0	103.0	
371.0	CARBONDALE		SANDY SHALE	22.0	109.0	
349.0	CARBONDALE	BRIAR HILL	COAL	1.0	131.0	
348.0	CARBONDALE		SANDY SHALE	14.0	132.0	
334.0	CARBONDALE		GRAY SHALE	9.0	146.0	
325.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	155.0	
320.0	CARBONDALE	DYKERSBURG	GRAY SHALE	6.0	160.0	
314.0	CARBONDALE	SPRINGFIELD	COAL	4.0	166.0	
310.0	CARBONDALE		UNDERCLAY	1.0	170.0	
309.0	CARBONDALE		GRAY SHALE	5.0	171.0	

MAPID: 19901532000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of SE NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.817885 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.753636 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 187.6 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED 16 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
419.0	MODESTO	PIASA	LIMESTONE	1.5	84.0	
417.5	MODESTO		SHALE & SANDSTONE	22.1	85.5	
395.4	CARBONDALE	DANVILLE	COAL	0.1	107.6	
395.3	CARBONDALE		SHALE & SILTSTONE	4.0	107.7	
391.3	CARBONDALE	ALLENBY	COAL	0.6	111.7	
390.8	CARBONDALE		ROCK	2.8	112.2	
388.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	115.0	UPPER BENCH
385.0	CARBONDALE	BANKSTON FORK	NODULAR LIMESTONE	3.9	118.0	LOWER BENCH
381.1	CARBONDALE	LAWSON	CLAYSTONE	2.3	121.9	
378.8	CARBONDALE	LAWSON	SANDSTONE	3.8	124.2	
375.0	CARBONDALE	LAWSON	GRAY SHALE	4.4	128.0	
370.6	CARBONDALE	LAWSON	SANDSTONE	12.4	132.4	
358.2	CARBONDALE	LAWSON	GRAY SHALE	15.7	144.8	
342.5	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.7	160.5	
341.8	CARBONDALE	JAMESTOWN	COAL WITH SHALE PARTINGS	0.4	161.2	
341.4	CARBONDALE		BLACK SHALE	2.3	161.6	
339.1	CARBONDALE	BRERETON	LIMESTONE	9.0	163.9	
330.1	CARBONDALE	ANNA	BLACK SHALE	3.3	172.9	
321.0	CARBONDALE	HERRIN	COAL	5.6	182.0	

MAPID: 19923608000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 1500' S line, 2700' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.82722 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.749572 **DATE COLLECTED:** 4 / 5 / 1991

SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 158.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-217A **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
482.0	PLEISTOCENE		CLAY	11.0	0.0	
471.0	PLEISTOCENE		SAND & GRAVEL	27.0	11.0	CLAY
444.0	CARBONDALE		GRAY SHALE	19.0	38.0	
425.0	CARBONDALE	JAMESTOWN	COAL	0.3	57.0	
424.7	CARBONDALE	BRERETON	LIMESTONE	2.0	57.3	HARD, BLACK
422.7	CARBONDALE	ANNA	BLACK SHALE	4.8	59.3	
418.0	CARBONDALE	ENERGY	GRAY SHALE	8.5	64.0	
409.5	CARBONDALE	HERRIN	COAL	7.0	72.5	
402.5	CARBONDALE		UNDERCLAY	2.5	79.5	
400.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	7.0	82.0	
393.0	CARBONDALE		SANDY LIMESTONE	23.0	89.0	
370.0	CARBONDALE		SHALE	25.0	112.0	WITH LIMESTONE STREAKS
345.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	137.0	
344.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	138.0	
339.7	CARBONDALE	DYKERSBURG	GRAY SHALE	7.4	142.3	
332.2	CARBONDALE	SPRINGFIELD	COAL	4.1	149.8	
328.2	CARBONDALE		UNDERCLAY	4.2	153.8	

MAPID: 19990019000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.827232 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.752744 **DATE COLLECTED:** 4 / 19 / 1985

SURFACE ELEVATION (FT.): 488.5 **LOGGED (FT.):** 150.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-1-85 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.5	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
476.5	PLEISTOCENE		GLACIAL DRIFT	21.0	12.0	
455.5	MODESTO		SHALY SANDSTONE	7.0	33.0	
448.5	MODESTO		SANDY SHALE	12.0	40.0	
436.5	MODESTO		SANDSTONE	5.0	52.0	
431.5	MODESTO		SANDY SHALE	3.0	57.0	
428.5			SANDSTONE	12.0	60.0	
416.5			SLATY SHALE	3.0	72.0	
413.5			GRAY SHALE	3.0	75.0	
410.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	78.0	
405.5	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	37.0	83.0	
368.5	CARBONDALE		SANDY SHALE	8.0	120.0	
360.5	CARBONDALE	JAMESTOWN	COAL	1.0	128.0	
359.5	CARBONDALE		SLATY SHALE	7.0	129.0	
352.5	CARBONDALE	BRERETON	LIMESTONE	4.2	136.0	
348.3	CARBONDALE	ENERGY	GRAY SHALE	2.5	140.2	
345.8	CARBONDALE	HERRIN	COAL	6.1	142.7	
339.7	CARBONDALE		UNDERCLAY	1.2	148.8	

MAPID: 19902089000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.828567 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.735181 **DATE COLLECTED:** 6 / 0 / 1957

SURFACE ELEVATION (FT.): 453.0 **LOGGED (FT.):** 1090.0 **LOG TYPE:** Electric Log

SOURCE: REHN, E. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-637.0	BASE OF PENN.		UNCLASSIFIED	-	1090.0	

MAPID: 19923609000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' S line, 124' E line of NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.826881 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.74263 **DATE COLLECTED:** 10 / 23 / 1980

SURFACE ELEVATION (FT.): 493.4 **LOGGED (FT.):** 83.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. E563CP **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.4	PLEISTOCENE		UNCONSOLIDATED	9.5	0.0	CLAY
483.9	PLEISTOCENE		UNCONSOLIDATED	40.5	9.5	CLAY
443.4	CARBONDALE		GRAY SHALE	3.2	50.0	
440.2	CARBONDALE	BRERETON	LIMESTONE	13.4	53.2	DARK GRAY
426.8	CARBONDALE	ANNA	BLACK SHALE	2.4	66.6	
424.4	CARBONDALE	HERRIN	COAL	5.2	69.0	
419.2	CARBONDALE		UNDERCLAY	4.5	74.2	
414.7	CARBONDALE		LIMESTONE	4.3	78.7	

MAPID: 19900265000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.845997 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.736994 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 225.0 **LOG TYPE:** Drillers Log

SOURCE: A. R. BYRD & SONS 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY & GRAVEL	50.0	0.0	
-			SAND & GRAVEL	10.0	50.0	
-			SHALE	7.0	60.0	
-			SANDY SHALE	23.0	67.0	
-			DARK SHALE	22.0	90.0	
-			COAL	2.0	112.0	
-			UNDERCLAY	4.0	114.0	
-			LIMESTONE	11.0	118.0	
-			DARK SHALE	24.0	129.0	
-			COAL	0.8	153.0	
-			UNDERCLAY	1.2	153.8	
-			SANDY SHALE	12.0	155.0	
-			SHALE & SANDSTONE	25.0	167.0	
-			SHALE	1.0	192.0	
-			SANDSTONE	1.5	193.0	
-			DARK SHALE	30.5	194.5	

MAPID: 19923499000C **VERSION:** 1 **PROJECT:** NCRDS93

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 910' N line, 580' E line of NE NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.848012 **GEOLOGIST:** HOKE

CONFIDENTIAL: N **LATITUDE:** 37.742093 **DATE COLLECTED:** 4 / 15 / 1992

SURFACE ELEVATION (FT.): 454.3 **LOGGED (FT.):** 93.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-227 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
454.3			CLAY	32.0	0.0	
422.3			UNCONSOLIDATED	18.0	32.0	BLUE MUD W/ GRAVEL
404.3	CARBONDALE		SANDSTONE	12.0	50.0	SS W/ SH STREAKS
392.3	CARBONDALE		GRAY SHALE	11.0	62.0	
381.3	CARBONDALE		BLACK SHALE	8.5	73.0	
372.8	CARBONDALE		GRAY SHALE	4.0	81.5	
368.8	CARBONDALE	SPRINGFIELD	COAL	4.0	85.5	
364.8	CARBONDALE		UNDERCLAY	1.0	89.5	
363.8	CARBONDALE		SANDSTONE	2.5	90.5	

MAPID: 19923500000C **VERSION:** 1 **PROJECT:** NCRDS93

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 530' N line, 100' E line of NE NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.846341 **GEOLOGIST:** HOKE

CONFIDENTIAL: N **LATITUDE:** 37.74313 **DATE COLLECTED:** 4 / 13 / 1992

SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 101.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-225 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
451.0			CLAY	26.0	0.0	
425.0			UNCONSOLIDATED	21.0	26.0	
404.0	CARBONDALE		SANDY SHALE	6.0	47.0	
398.0	CARBONDALE	HERRIN	COAL	1.5	53.0	
396.5	CARBONDALE		UNDERCLAY	1.5	54.5	
395.0	CARBONDALE		SHALE	21.0	56.0	SH W/ SS STREAKS
374.0	CARBONDALE		LIMESTONE	1.0	77.0	
373.0	CARBONDALE		BLACK SHALE	4.0	78.0	
369.0	CARBONDALE		LIMESTONE	1.0	82.0	
368.0	CARBONDALE	TURNER MINE	GRAY SHALE	10.5	83.0	GY SH W/ SS STREAKS
357.5	CARBONDALE	SPRINGFIELD	COAL	2.5	93.5	
355.0	CARBONDALE		UNDERCLAY	2.0	96.0	
353.0	CARBONDALE		SANDSTONE	3.0	98.0	

MAPID: 19923501000C **VERSION:** 1 **PROJECT:** NCRDS93

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 830' N line, 30' W line of NE NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.848222 **GEOLOGIST:** HOKE

CONFIDENTIAL: N **LATITUDE:** 37.742315 **DATE COLLECTED:** 4 / 13 / 1992

SURFACE ELEVATION (FT.): 448.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-226 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
448.0			CLAY	26.0	0.0	
422.0			MUD	26.0	26.0	
396.0	CARBONDALE		SANDY SHALE	3.0	52.0	
393.0	CARBONDALE		GRAY SHALE	12.0	55.0	
381.0	CARBONDALE		LIMESTONE	1.0	67.0	
380.0	CARBONDALE		BLACK SHALE	5.0	68.0	
375.0	CARBONDALE		GRAY SHALE	8.5	73.0	
366.5	CARBONDALE	SPRINGFIELD	COAL	4.0	81.5	
362.5	CARBONDALE		UNDERCLAY	2.0	85.5	
360.5	CARBONDALE		SANDY SHALE	2.5	87.5	

MAPID: 19923502000C **VERSION:** 1 **PROJECT:** NCRDS93

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 560' N line, 790' W line of NW NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.852578 **GEOLOGIST:** HOKE

CONFIDENTIAL: N **LATITUDE:** 37.743088 **DATE COLLECTED:** 4 / 16 / 1992

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 100.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-229 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
455.0			CLAY	27.0	0.0	
428.0	CARBONDALE		SANDSTONE	9.0	27.0	SS W/ CLY STREAKS
419.0	CARBONDALE		LIMESTONE	1.5	36.0	
417.5	CARBONDALE		SANDSTONE	1.5	37.5	
416.0	CARBONDALE		LIMESTONE	1.5	39.0	
414.5	CARBONDALE		DARK GRAY SHALE	15.0	40.5	
399.5	CARBONDALE	BRIAR HILL	COAL	0.5	55.5	
399.0	CARBONDALE		GRAY SHALE	22.0	56.0	
377.0	CARBONDALE		LIMESTONE	0.5	78.0	
376.5	CARBONDALE		BLACK SHALE	4.5	78.5	
372.0	CARBONDALE		GRAY SHALE	8.5	83.0	
363.5	CARBONDALE	SPRINGFIELD	COAL	4.3	91.5	
359.2	CARBONDALE		UNDERCLAY	1.8	95.8	
357.5	CARBONDALE		SANDSTONE	2.5	97.5	SS W/ SH STREAKS

MAPID: 19923503000C **VERSION:** 1 **PROJECT:** NCRDS93

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1020' N line, 1170' E line of NE NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.850063 **GEOLOGIST:** HOKE

CONFIDENTIAL: N **LATITUDE:** 37.741804 **DATE COLLECTED:** 4 / 15 / 1992

SURFACE ELEVATION (FT.): 453.5 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. BK-228 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
453.5			CLAY	23.5	0.0	
430.0	CARBONDALE		SANDSTONE	1.5	23.5	SS W/ LS
428.5	CARBONDALE		CLAYSTONE & SILTSTONE	10.0	25.0	CLYST W/ GRAVEL
418.5	CARBONDALE		MUDSTONE	27.0	35.0	
391.5	CARBONDALE		GRAY SHALE	14.0	62.0	
377.5	CARBONDALE		BLACK SHALE	2.5	76.0	
375.0	CARBONDALE		GRAY SHALE	6.0	78.5	
369.0	CARBONDALE		SHALE	3.0	84.5	SH W/ CO STREAKS
366.0	CARBONDALE	SPRINGFIELD	COAL	3.5	87.5	
362.5	CARBONDALE		UNDERCLAY	3.0	91.0	
359.5	CARBONDALE		SANDY SHALE	1.0	94.0	

MAPID: 19923610000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 3600' N line, 720' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.839216 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.734605 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 118.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO. 4-90-#11 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE ELEV. ESTIMATED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0	PLEISTOCENE		CLAY	33.0	0.0	
432.0	PLEISTOCENE		MUD	14.0	33.0	
418.0	PLEISTOCENE		CLAY	4.0	47.0	
414.0	PLEISTOCENE		MUD	34.0	51.0	
380.0	CARBONDALE		GRAY SHALE	15.0	85.0	
365.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	100.0	
360.0	CARBONDALE	DYKERSBURG	GRAY SHALE	10.0	105.0	
350.0	CARBONDALE	SPRINGFIELD	COAL	3.0	115.0	

MAPID: 19901557000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.856438 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732042 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 101.0 **LOG TYPE:** Drillers Log
SOURCE: DONK COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SAND	26.0	0.0	
-	PLEISTOCENE		UNCONSOLIDATED	30.1	26.0	
-	CARBONDALE		SANDY SHALE	15.1	56.1	
-	CARBONDALE		GRAY SHALE	22.2	71.2	
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.2	93.3	
-	CARBONDALE	SPRINGFIELD	COAL	2.2	97.5	
-	CARBONDALE		UNDERCLAY	1.3	99.7	

MAPID: 19901558000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.861095 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732121 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 108.0 **LOG TYPE:** Drillers Log
SOURCE: DONK COAL CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	20.0	0.0	(BLUE MUD)
-	CARBONDALE		GRAY SHALE	33.0	20.0	
-	CARBONDALE		SANDY SHALE	5.0	53.0	
-	CARBONDALE		GRAY SHALE	22.0	58.0	
-	CARBONDALE		SHALE & SILTSTONE	18.0	80.0	BLACK
-	CARBONDALE	SPRINGFIELD	COAL	4.5	98.0	
-	CARBONDALE		UNDERCLAY	3.8	102.5	
-	CARBONDALE		UNKNOWN	1.7	106.3	

MAPID: 19901559000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** SE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.856449 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733983 **DATE COLLECTED:** 0 / 0 / 1947

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 133.3 **LOG TYPE:** Drillers Log

SOURCE: DONK COAL CO. 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.8	0.0	
-	PLEISTOCENE		UNCONSOLIDATED	21.1	25.8	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	7.9	46.9	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	54.8	
-	CARBONDALE		UNDERCLAY	3.2	59.0	
-	CARBONDALE		GRAY SHALE	2.9	62.2	
-	CARBONDALE		SANDSTONE	13.8	65.1	
-	CARBONDALE		GRAY SHALE	16.2	78.8	
-	CARBONDALE		GRAY SHALE	32.5	95.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	3.6	127.5	
-	CARBONDALE	HOUCHIN CREEK	COAL	1.2	131.1	
-	CARBONDALE		UNDERCLAY	1.0	132.3	

MAPID: 19901560000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.863424 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73408 **DATE COLLECTED:** 0 / 0 / 1947

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 125.0 **LOG TYPE:** Drillers Log

SOURCE: DONK COAL 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
-	CARBONDALE		UNCONSOLIDATED	24.0	22.0	BLUE MUD
-	CARBONDALE	SPRINGFIELD	COAL	2.0	46.0	TOP ERODED
-	CARBONDALE		UNDERCLAY	1.5	48.0	
-	CARBONDALE		GRAY SHALE	4.0	49.5	
-	CARBONDALE		GRAY SHALE	26.5	53.5	
-	CARBONDALE	EXCELLO	BLACK SHALE	36.5	80.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	3.0	116.5	
-	CARBONDALE		UNDERCLAY	4.3	119.5	
-	CARBONDALE		UNCLASSIFIED	1.2	123.8	

MAPID: 19901561000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.858781 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.737883 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 125.9 **LOG TYPE:** Drillers Log
SOURCE: DONK COAL CO. 7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.5	0.0	
-	PLEISTOCENE		UNCONSOLIDATED	24.5	25.5	
-	CARBONDALE	SPRINGFIELD	SMUT	3.5	50.0	TOP ERODED
-	CARBONDALE		CLAYSTONE	5.8	53.5	
-	CARBONDALE		GRAY SHALE	34.7	59.3	
-	CARBONDALE		GRAY SHALE	23.1	94.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	4.2	117.1	
-	CARBONDALE	HOUCHIN CREEK	COAL	3.1	121.3	
-	CARBONDALE		UNDERCLAY	1.6	124.3	
-	CARBONDALE		SANDSTONE	0.0	125.9	

MAPID: 19901562000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW NE SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.858778 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735951 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 136.0 **LOG TYPE:** Drillers Log
SOURCE: DONK COAL CO. 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	9.0	0.0	
-	PLEISTOCENE		SAND/CLAY	9.0	9.0	
-	PLEISTOCENE		UNCONSOLIDATED	36.7	18.0	
-	CARBONDALE	SPRINGFIELD	SMUT	2.4	54.7	TOP ERODED
-	CARBONDALE	SPRINGFIELD	COAL	3.4	57.1	
-	CARBONDALE		UNDERCLAY	6.8	60.5	
-	CARBONDALE		LIMESTONE	1.0	67.4	
-	CARBONDALE		GRAY SHALE	60.6	68.4	
-	CARBONDALE	EXCELLO	BLACK SHALE	3.7	129.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	2.3	132.7	
-	CARBONDALE		UNDERCLAY	1.0	135.0	

MAPID: 19901563000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.872719 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.736108 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 135.0 **LOG TYPE:** Drillers Log
SOURCE: DONK COAL 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	SDY CLY, BLUE MUD, DKCLY STREAK ABV SH
-	CARBONDALE		GRAY SHALE	44.5	18.0	
-	CARBONDALE		GRAY SHALE	15.0	62.5	
-	CARBONDALE		GRAY SHALE	30.0	77.5	
-	CARBONDALE	EXCELLO	BLACK SHALE	18.5	107.5	
-	CARBONDALE	HOUCHIN CREEK	COAL	3.0	126.0	
-	CARBONDALE		UNDERCLAY	4.0	129.0	
-	CARBONDALE		UNCLASSIFIED	2.0	133.0	

MAPID: 19902202000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** 384' S line, 412' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.856702 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.730197 **DATE COLLECTED:** 11 / 0 / 1959
SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 1164.0 **LOG TYPE:** Electric Log
SOURCE: KELLEY&CONRAD&KAYE **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
249.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	202.0	
171.0	SPOON	DAVIS	UNCLASSIFIED	-	280.0	
-713.0	BASE OF PENN.		UNCLASSIFIED	-	1164.0	

MAPID: 19900266000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:**
QUADRANGLE: MARION **LONGITUDE:** -88.883156 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.737148 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 44.3 **LOG TYPE:** Drillers Log
SOURCE: FEITSHAM **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	CARBONDALE	SPRINGFIELD	COAL	4.3	40.0	

MAPID: 19923611000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** 120' N line, 1200' E line
QUADRANGLE: MARION **LONGITUDE:** -88.878008 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.744308 **DATE COLLECTED:** 5 / 2 / 1980
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 67.6 **LOG TYPE:** Drillers Log
SOURCE: SO. IL. MINING CO; DON PERKINSA-008 **WELL TYPE:** Coal Test
COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
445.0			UNCLASSIFIED	58.0	0.0	
387.0	CARBONDALE	SPRINGFIELD	COAL	4.2	58.0	
382.8	CARBONDALE		UNCLASSIFIED	5.4	62.2	

MAPID: 19900121000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: MARION **LONGITUDE:** -88.925646 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.734308 **DATE COLLECTED:** 6 / 1 / 1908
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 340.0 **LOG TYPE:** Drillers Log
SOURCE: MARION LIGHT CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	30.0	0.0	
-			SHALE & SILTSTONE	80.0	30.0	
-			LIMESTONE	8.0	110.0	
-			SHALE & SILTSTONE	50.0	118.0	LIGHT
-			SANDSTONE	15.0	168.0	
-			UNDERCLAY	17.0	183.0	LIGHT BLUE
-			UNKNOWN	6.0	200.0	LIGHT
-			UNDERCLAY	14.0	206.0	LIGHT BLUE
-			GRAY SANDSTONE	12.0	220.0	
-			CLAYSTONE	60.0	232.0	DARK BLUE
-			BLACK SHALE	9.0	292.0	
-			GRAY SANDSTONE	35.0	301.0	
-			BLACK SHALE	4.0	336.0	

MAPID: 19901564000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE NW SW

QUADRANGLE: MARION **LONGITUDE:** -88.925646 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734308 **DATE COLLECTED:** 6 / 24 / 1915

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 934.0 **LOG TYPE:** Drillers Log

SOURCE: EL GEER **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	68.0	0.0	
-	CARBONDALE		DARK SHALE	11.0	68.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	6.0	79.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	5.0	85.0	
-	CARBONDALE		SHALE	25.0	90.0	
-	CARBONDALE	SURVANT	COAL	1.0	115.0	
-	CARBONDALE		SANDY SHALE	9.0	116.0	CASED WITH PIPE
-	CARBONDALE		GRAY SANDSTONE	30.0	125.0	
-	CARBONDALE		SHALE & SILTSTONE	19.0	155.0	
-	CARBONDALE		BLACK SHALE	5.0	174.0	
-	CARBONDALE		BLACK SHALE	4.0	179.0	
-	CARBONDALE		FOSSILIFEROUS LIMESTONE	2.0	183.0	
-	CARBONDALE		BLACK SHALE	8.0	185.0	
-	CARBONDALE		BROWN SHALE	10.0	193.0	
-	CARBONDALE		WHITE LIMESTONE	10.0	203.0	
-			SHALE	12.0	213.0	
-			BROWN SHALE	5.0	225.0	
-			SANDSTONE	45.0	230.0	LIME SHELLS
-			LIMESTONE AND BLACK SHALE	40.0	275.0	
-			SHALE	5.0	315.0	WHITE
-			FOSSILIFEROUS LIMESTONE	5.0	320.0	
-			SHALE & SILTSTONE	100.0	325.0	AND SND SHELLS
-			WHITE SANDSTONE	27.0	425.0	
-			BLACK SHALE	6.0	452.0	
-			WHITE SANDSTONE	30.0	458.0	
-			SANDSTONE/SHALE	40.0	488.0	
-			SHALE	92.0	528.0	
-			BLACK SHALE	24.0	620.0	
-			SHALE	46.0	644.0	
-			WHITE SANDSTONE	43.0	690.0	
-			SANDSTONE	22.0	733.0	
-			DARK SHALE	48.0	755.0	
-			BLACK SHALE	10.0	803.0	
-			SANDSTONE	47.0	813.0	
-			SANDSTONE	70.0	860.0	
-			BLACK SHALE	4.0	930.0	

MAPID: 19902198000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.858773 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.728271 **DATE COLLECTED:** 11 / 0 / 1959

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 1165.0 **LOG TYPE:** Electric Log

SOURCE: KELLEY&CONRAD&KAYE **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
263.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	192.0	
193.0	SPOON	DAVIS	UNCLASSIFIED	-	262.0	
-710.0	BASE OF PENN.		UNCLASSIFIED	-	1165.0	

MAPID: 19900281000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.839165 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.720468 **DATE COLLECTED:** 0 / 0 / 1931

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 28.8 **LOG TYPE:** Drillers Log

SOURCE: H.E. WILLSON 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
505.0	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
491.0	CARBONDALE		ARGILACEOUS SHALE	3.0	14.0	
488.0	CARBONDALE		CLAYSTONE	2.0	17.0	
486.0	CARBONDALE		LIGHT SHALE	1.0	19.0	
485.0	CARBONDALE		ROCK	1.3	20.0	STKS SH
483.7	CARBONDALE		BLUE SHALE	0.9	21.3	
482.7	CARBONDALE		ROCK	0.3	22.3	BROWN
482.4	CARBONDALE		ROCK	1.6	22.6	
480.8	CARBONDALE		SANDY SHALE	4.2	24.2	
476.7	CARBONDALE		SHALE	0.3	28.3	
476.4	CARBONDALE		COAL	0.3	28.6	
476.2	CARBONDALE		UNDERCLAY	0.0	28.8	

MAPID: 19901565000C **VERSION:** 1 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** 625' N line, 600' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.838854 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.72789 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 372.0 **LOG TYPE:** Drillers Log

SOURCE: SQUARE DEAL MINING CO. **WELL TYPE:** Diamond Drill

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.0			UNCONSOLIDATED	59.0	0.0	
434.0	CARBONDALE	DYKERSBURG	GRAY SHALE	5.3	59.0	
428.7	CARBONDALE	SPRINGFIELD	COAL	4.2	64.3	
424.5	CARBONDALE		UNDERCLAY	2.2	68.5	
422.3	CARBONDALE		GRAY SHALE	64.3	70.7	
358.0	CARBONDALE	EXCELLO	BLACK SHALE	3.5	135.0	
354.5	CARBONDALE	HOUCHIN CREEK	COAL	1.5	138.5	
353.0	CARBONDALE		SHALE	40.0	140.0	
313.0	CARBONDALE		COAL	1.2	180.0	
311.8	CARBONDALE		SHALE	8.8	181.2	
303.0	CARBONDALE		COAL	0.5	190.0	
302.5	CARBONDALE		SHALE	56.5	190.5	
246.0	CARBONDALE	MECCA QUARRY	BLACK SHALE	3.0	247.0	UNCERTAIN CORRELATION
243.0	SPOON		SHALE	10.0	250.0	
233.0	SPOON		LIMESTONE	12.0	260.0	
221.0	SPOON		SHALE	38.0	272.0	
183.0	SPOON	DEKOVEN	COAL	1.2	310.0	UNCERTAIN CORRELATION
181.8	SPOON		SHALE	2.8	311.2	
179.0	SPOON		COAL	0.7	314.0	
178.3	SPOON		SHALE	45.3	314.7	
133.0	SPOON	DAVIS	COAL	1.2	360.0	UNCERTAIN CORRELATION
131.8	SPOON		SHALE	4.5	361.2	
127.3	SPOON		COAL	3.7	365.7	
123.7	SPOON		BLACK SHALE	2.7	369.3	

MAPID: 19901858000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:**
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.827499 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.723365 **DATE COLLECTED:** 0 / 0 / 1912
SURFACE ELEVATION (FT.): 498.0 **LOGGED (FT.):** 116.0 **LOG TYPE:** Drillers Log
SOURCE: A.R. BYRD & SONS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
498.0	PLEISTOCENE		CLAY & GRAVEL	33.0	0.0	
465.0	CARBONDALE		LIMESTONE	27.0	33.0	
438.0	CARBONDALE		DARK SHALE	9.0	60.0	
429.0	CARBONDALE	BRIAR HILL	COAL	1.2	69.0	
427.8	CARBONDALE		UNDERCLAY	2.8	70.2	
425.0	CARBONDALE		DARK SHALE	18.0	73.0	
407.0	CARBONDALE	ST. DAVID	GRAY LIMESTONE	3.0	91.0	
404.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	94.0	
400.0	CARBONDALE	DYKERSBURG	DARK SHALE	11.0	98.0	
389.0	CARBONDALE	SPRINGFIELD	COAL	4.2	109.0	
384.8	CARBONDALE		UNDERCLAY	2.8	113.2	

MAPID: 19901858000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:**
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.827499 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.723365 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 498.0 **LOGGED (FT.):** 116.0 **LOG TYPE:** Drillers Log
SOURCE: BYRD, A. R. & SONS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
429.0	CARBONDALE	BRIAR HILL	COAL	1.2	69.0	
389.0	CARBONDALE	SPRINGFIELD	COAL	4.2	109.0	

MAPID: 19900280000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.833439 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.70709 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 23.0 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.0	PLEISTOCENE		GRAVEL	23.0	0.0	NO COAL

MAPID: 19900283000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.833433 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.710767 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 42.6 **LOG TYPE:** Drillers Log

SOURCE: H.E. WILLSON 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
505.0	PLEISTOCENE		CLAY	19.0	0.0	
486.0	CARBONDALE		BLACK SHALE	4.2	19.0	
481.8	CARBONDALE		ROCK	0.5	23.2	
481.3	CARBONDALE		SHALE	14.3	23.7	WHITE TOP
467.1	CARBONDALE	SPRINGFIELD	COAL	4.7	37.9	

MAPID: 19900283000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.833433 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.710767 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 43.0 **LOG TYPE:** Drillers Log

SOURCE: WILLSON H E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
467.0	CARBONDALE	SPRINGFIELD	COAL	4.7	38.0	

MAPID: 19902061000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.827573 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.708668 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 243.3 **LOG TYPE:** Drillers Log

SOURCE: HOSEA FERRELL **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	33.0	0.0	
-			GRAY SHALE	42.0	33.0	
-			BLACK SHALE	2.5	75.0	
-			COAL	1.5	77.5	
-			GRAY SHALE	19.0	79.0	
-			GRAY SANDSTONE	12.0	98.0	
-			GRAY SHALE	60.0	110.0	
-			BLACK SHALE	3.0	170.0	
-			GRAY SHALE	32.0	173.0	
-			GRAY SANDSTONE	24.0	205.0	
-			SHALE	14.3	229.0	WHITE TOP

MAPID: 19923612000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** 400' N line, 610' W line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.820704 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.715659 **DATE COLLECTED:** 3 / 18 / 1987

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 107.0 **LOG TYPE:** Drillers Log

SOURCE: LORENZO MINING L-2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 203 CORED FROM 88'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	CLAY
-	PLEISTOCENE		UNCONSOLIDATED	31.0	22.0	
-	CARBONDALE		GRAY SHALE	32.0	53.0	
-	CARBONDALE		CALCAREOUS SHALE	2.0	85.0	FOSSILS
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.6	87.0	WITH SULFUR BALLS
-	CARBONDALE	DYKERSBURG	GRAY SHALE	7.1	91.6	
-	CARBONDALE	SPRINGFIELD	COAL	4.1	98.7	
-	CARBONDALE		SHALEY CLAYSTONE	3.2	102.8	
-	CARBONDALE		GRAY SHALE	1.0	106.0	

MAPID: 19923613000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** 15' S line, 750' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.820797 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.70947 **DATE COLLECTED:** 8 / 7 / 1973
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 97.0 **LOG TYPE:** Drillers Log
SOURCE: DUPAGE MINING & ENGINEERING RC1 **WELL TYPE:** Coal Test
COMMENT: PERMIT 203

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	PLEISTOCENE		CLAY	13.0	25.0	
-	PLEISTOCENE		SAND	4.0	38.0	
-	CARBONDALE		GRAY SHALE	10.0	42.0	SOFT
-	CARBONDALE		SILTY SHALE	26.0	52.0	DARK GRAY
-	CARBONDALE		BLACK SHALE & COAL	12.0	78.0	FISSILE
-	CARBONDALE	SPRINGFIELD	COAL	4.5	90.0	
-	CARBONDALE		UNDERCLAY	2.5	94.5	

MAPID: 19900285000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** E2 NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.842644 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.713156 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 33.9 **LOG TYPE:** Drillers Log
SOURCE: H.E. WILLSON 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	LIGHT
484.0	CARBONDALE		BLUE SHALE	5.2	16.0	
478.8	CARBONDALE	ST. DAVID	LIMESTONE	2.2	21.2	
476.7	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	23.3	
472.3	CARBONDALE		ROCK	0.7	27.7	
471.7	CARBONDALE	DYKERSBURG	SHALE	3.2	28.3	WHITE TOP
468.5	CARBONDALE	SPRINGFIELD	COAL	2.4	31.5	
466.1	CARBONDALE		UNDERCLAY	0.0	33.9	

MAPID: 19902527000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW
QUADRANGLE: MARION **LONGITUDE:** -88.891292 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.70844 **DATE COLLECTED:** 11 / 0 / 1971
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 962.0 **LOG TYPE:** Electric Log
SOURCE: DULL, JOE A. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-505.0	BASE OF PENN.		UNCLASSIFIED	-	962.0	

MAPID: 19901877000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE
QUADRANGLE: MARION **LONGITUDE:** -88.900654 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.706631 **DATE COLLECTED:** 9 / 0 / 1955
SURFACE ELEVATION (FT.): 474.0 **LOGGED (FT.):** 950.0 **LOG TYPE:** Electric Log
SOURCE: HUFFMAN, B. & HOWARD, M. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
378.0	SPOON	DAVIS	UNCLASSIFIED	-	96.0	
-476.0	BASE OF PENN.		UNCLASSIFIED	-	950.0	

MAPID: 19900286000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.845107 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695583 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 165.5 **LOG TYPE:** Drillers Log
SOURCE: LINDASYS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.0	PLEISTOCENE		UNCONSOLIDATED	66.0	0.0	
406.0	CARBONDALE		SANDSTONE	3.0	66.0	
403.0	CARBONDALE		SHALE	36.0	69.0	
367.0	CARBONDALE	EXCELLO	BLACK SHALE	2.0	105.0	
365.0	CARBONDALE		UNDERCLAY	4.0	107.0	
361.0	CARBONDALE		SANDSTONE/SHALE	31.0	111.0	
330.0	CARBONDALE		BLACK SHALE	7.0	142.0	
323.0	CARBONDALE		LIGHT SHALE	12.0	149.0	
311.0	CARBONDALE	SURVANT - UPPER	COAL	2.5	161.0	
308.5	CARBONDALE		BLACK SHALE	1.5	163.5	
307.0	CARBONDALE	SURVANT - LOWER	COAL	0.5	165.0	

MAPID: 19900287000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.85109 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.689013 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 103.5 **LOG TYPE:** Drillers Log

SOURCE: CHAS OWENS **WELL TYPE:** Coal Test

COMMENT: 1400' SE OF R.R.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
428.0	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
405.0	CARBONDALE		LIGHT SHALE	15.5	23.0	
389.5	CARBONDALE	EXCELLO	BLACK SHALE	1.5	38.5	
388.0	CARBONDALE		UNDERCLAY	5.0	40.0	
383.0	CARBONDALE		SANDSTONE/SHALE	31.0	45.0	
352.0	CARBONDALE		SANDSTONE/SHALE	17.0	76.0	
335.0	CARBONDALE		LIGHT SHALE	4.0	93.0	
331.0	CARBONDALE	SURVANT - UPPER	COAL	2.5	97.0	
328.5	CARBONDALE		BLACK SHALE	2.0	99.5	
326.5	CARBONDALE	SURVANT - LOWER	COAL	1.0	101.5	
325.5	CARBONDALE		UNDERCLAY	1.0	102.5	

MAPID: 19901110000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** SE SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.8195 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.695836 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 481.0 **LOGGED (FT.):** 177.0 **LOG TYPE:** Drillers Log

SOURCE: GENT **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
311.5	CARBONDALE	DEKOVEN	COAL	3.5	169.5	UPPER
308.0	CARBONDALE		UNCLASSIFIED	2.0	173.0	
306.0	CARBONDALE	LOWER DEKOVEN	COAL	2.0	175.0	

MAPID: 19900289000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.718716 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.770192 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 202.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 88 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
458.0	MODESTO		BLACK SHALE	3.0	12.0	
455.0	CARBONDALE	DANVILLE	COAL	1.5	15.0	
453.5	CARBONDALE		UNDERCLAY	3.0	16.5	
450.5	CARBONDALE		SHALE	2.5	19.5	
448.0	CARBONDALE		BLACK SHALE	3.0	22.0	
445.0	CARBONDALE		SHALE	10.0	25.0	
435.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	35.0	
427.0	CARBONDALE		SHALE	38.0	43.0	
389.0	CARBONDALE		BLACK SHALE	1.8	81.0	
387.2	CARBONDALE	CONANT	LIMESTONE	0.5	82.8	
386.7	CARBONDALE	JAMESTOWN	COAL	0.1	83.3	
386.7	CARBONDALE	BRERETON	LIMESTONE	2.7	83.3	
384.0	CARBONDALE	ANNA	BLACK SHALE	10.0	86.0	
374.0	CARBONDALE	HERRIN	COAL	5.0	96.0	
369.0	CARBONDALE		UNDERCLAY	8.0	101.0	
361.0	CARBONDALE		SHALE	10.0	109.0	
351.0	CARBONDALE		BLACK SHALE	0.5	119.0	
350.5	CARBONDALE		SHALE	52.5	119.5	
298.0	CARBONDALE		SHALE	20.0	172.0	
278.0	CARBONDALE		BLACK SHALE	4.5	192.0	
273.5	CARBONDALE	SPRINGFIELD	COAL	4.1	196.5	
269.4	CARBONDALE		UNDERCLAY	1.4	200.6	

MAPID: 19900290000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: HARCO **LONGITUDE:** -88.711846 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.764665 **DATE COLLECTED:** 9 / 7 / 1905

SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 204.8 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 60 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
458.0	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
451.0	MODESTO		SANDSTONE	4.0	7.0	
447.0	MODESTO		UNDERCLAY	2.0	11.0	
445.0	MODESTO		SANDSTONE	2.0	13.0	
443.0	MODESTO		UNDERCLAY	5.0	15.0	
438.0	MODESTO		BLUE SHALE	20.0	20.0	
418.0	MODESTO		GRAY SHALE	10.0	40.0	
408.0	MODESTO		SANDSTONE	15.0	50.0	
393.0	MODESTO		SANDSTONE/SHALE	18.0	65.0	
375.0	MODESTO		GRAY SHALE	10.0	83.0	
365.0	MODESTO		GREEN SHALE	7.0	93.0	
358.0	MODESTO	PIASA	LIMESTONE	4.0	100.0	
354.0	MODESTO		SANDSTONE	6.0	104.0	
348.0	CARBONDALE	DANVILLE	COAL	2.5	110.0	
345.5	CARBONDALE		UNDERCLAY	1.0	112.5	
344.5	CARBONDALE		SANDSTONE	12.0	113.5	
332.5	CARBONDALE		GRAY SHALE	3.5	125.5	
329.0	CARBONDALE		SANDSTONE	2.0	129.0	
327.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	131.0	
323.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	135.0	
322.0	CARBONDALE		SANDSTONE	15.0	136.0	
307.0	CARBONDALE		SANDSTONE/SHALE	8.0	151.0	
299.0	CARBONDALE		GRAY SHALE	5.0	159.0	
294.0	CARBONDALE		SANDSTONE/SHALE	10.0	164.0	
284.0	CARBONDALE		GRAY SHALE	1.0	174.0	
283.0	CARBONDALE	BRERETON	LIMESTONE	5.0	175.0	
278.0	CARBONDALE	BRERETON	LIMESTONE	1.5	180.0	
276.5	CARBONDALE	ANNA	BLACK SHALE	3.8	181.5	
272.7	CARBONDALE	ENERGY	GRAY SHALE	8.4	185.3	
264.2	CARBONDALE	HERRIN	COAL	5.4	193.8	
258.8	CARBONDALE		UNDERCLAY	1.0	199.2	
257.8	CARBONDALE		SANDSTONE	4.6	200.2	

MAPID: 19900292000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: HARCO **LONGITUDE:** -88.711846 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.764665 **DATE COLLECTED:** 7 / 12 / 1904

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 277.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT: FAULTED SEQUENCE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	20.5	0.0	
429.5	CARBONDALE		SANDSTONE	64.0	20.5	
365.5	CARBONDALE		BLACK SHALE	8.7	84.5	
356.8	CARBONDALE		SANDSTONE	11.0	93.2	
345.8	CARBONDALE		SHALE & SILTSTONE	18.5	104.2	DARK BLUE
327.3	CARBONDALE		BLACK SHALE	6.5	122.7	
320.8	CARBONDALE		COAL	0.5	129.2	
320.3	CARBONDALE		UNDERCLAY	0.3	129.7	
320.0	CARBONDALE		BLACK SHALE	8.0	130.0	
312.0	CARBONDALE		CLAYSTONE	12.0	138.0	
300.0	CARBONDALE		SANDSTONE	4.8	150.0	
295.2	CARBONDALE		LIMESTONE	2.6	154.8	
292.6	CARBONDALE		BLACK SHALE	3.0	157.4	
289.6	CARBONDALE		BLACK SHALE	2.3	160.4	
287.2	CARBONDALE		COAL	2.4	162.8	
284.8	CARBONDALE		CLAYSTONE	3.8	165.2	
281.0	CARBONDALE		SANDSTONE	6.9	169.0	
274.1	CARBONDALE		COAL	0.3	175.9	
273.7	CARBONDALE		LIMESTONE	2.5	176.3	
271.2	CARBONDALE		CLAYSTONE	22.0	178.8	
249.2	CARBONDALE		BLACK SHALE	7.3	200.8	
241.9	CARBONDALE		LIMESTONE	6.9	208.1	
235.0	CARBONDALE		SANDSTONE	33.7	215.0	
201.3	CARBONDALE		BLACK SHALE	6.0	248.7	
195.3	CARBONDALE		COAL	0.4	254.7	
194.9	CARBONDALE		LIMESTONE	6.6	255.1	
188.3	CARBONDALE		BLACK SHALE	4.3	261.7	
184.0	CARBONDALE		BLACK SHALE	5.5	266.0	
178.5	CARBONDALE		COAL	5.0	271.5	
173.5	CARBONDALE		BLACK SHALE	0.5	276.5	

MAPID: 19901722000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 42' S line, 275' W line of NW SE
QUADRANGLE: HARCO **LONGITUDE:** -88.715475 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.764734 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 294.3 **LOG TYPE:** Survey Core Study
SOURCE: PEABODY COAL CO. 43-73 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
303.0	MODESTO	PIASA	LIMESTONE	3.7	199.0	
299.3	MODESTO		SANDSTONE/SILTSTONE	18.9	202.7	
280.4	CARBONDALE	DANVILLE	COAL	0.2	221.6	
280.2	CARBONDALE		SHALE & SANDSTONE	3.1	221.8	
277.2	CARBONDALE	ALLENBY	COAL	0.7	224.8	
276.5	CARBONDALE		CLAYSTONE	3.2	225.5	
273.3	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	5.3	228.7	
268.0	CARBONDALE	LAWSON	SHALE	0.9	234.0	
267.1	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	7.2	234.9	
259.9	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	17.4	242.1	
242.5	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	14.1	259.5	
228.4	CARBONDALE	LAWSON	GRAY SHALE	2.7	273.6	
225.8	CARBONDALE	JAMESTOWN	BONE COAL	0.2	276.2	
225.6	CARBONDALE		DARK GRAY SHALE	0.2	276.4	
225.4	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	8.0	276.6	
217.4	CARBONDALE	ANNA	BLACK SHALE	4.6	284.6	
212.8	CARBONDALE	ENERGY	DARK GRAY SHALE	0.1	289.2	
212.7	CARBONDALE	ENERGY	BLACK SHALE	0.3	289.3	
213.0	CARBONDALE	HERRIN	COAL	5.3	289.0	

MAPID: 19902476000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NW
QUADRANGLE: HARCO **LONGITUDE:** -88.717572 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.771156 **DATE COLLECTED:** 1 / 0 / 1971
SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 2847.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD., EDWARDS **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
241.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	255.0	
-	CARBONDALE	SURVANT	COAL	4.0		
126.0	CARBONDALE	COLCHESTER	COAL	0.5	370.0	
74.0	CARBONDALE	DEKOVEN	COAL	3.0	422.0	
70.0	CARBONDALE	LOWER DEKOVEN	COAL	1.2	426.0	
55.0	CARBONDALE	DAVIS	COAL	4.0	441.0	
-4.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	500.0	10% SANDSTONE IN DAVIS-DEKOVEN INTERVAL

MAPID: 19902476000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.717572 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.771156 **DATE COLLECTED:** 1 / 0 / 1971

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 1385.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-889.0	BASE OF PENN.		UNCLASSIFIED	-	1385.0	

MAPID: 19922748000C **VERSION:** 1 **PROJECT:** NCRDS92

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** NW SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.715285 **GEOLOGIST:** C TREWORGY

CONFIDENTIAL: N **LATITUDE:** 37.763689 **DATE COLLECTED:** 5 / 19 / 1977

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 677.4 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR 94011 **WELL TYPE:** Coal Test

COMMENT: CORE AVAILABLE: C11486

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCLASSIFIED	447.5	0.0	GEOPHYSICAL LOG AVAILABLE
52.5	CARBONDALE		GRAY SHALE	10.0	447.5	
42.5	CARBONDALE		GRAY SHALE	4.9	457.5	
37.6	CARBONDALE		DARK GRAY SHALE	4.3	462.4	
33.3	CARBONDALE		DARK GRAY SHALE	4.2	466.7	W/ FREQUENT FOSSIL FRAGMENTS
29.1	CARBONDALE		BLACK SHALE	0.7	470.9	W/ THIN LIMESTONE STREAKS (0.01')
28.4	CARBONDALE	HANOVER	GRAY LIMESTONE	1.4	471.6	
27.0	CARBONDALE	EXCELLO	BLACK SHALE	2.5	473.0	W/ CALCITE STREAKS
24.5	CARBONDALE	EXCELLO	GRAY LIMESTONE	0.5	475.5	W/ IRREGULAR CALCITE STREAKS (0.01')
24.0	CARBONDALE	EXCELLO	BLACK SHALE	0.2	476.0	
23.8	CARBONDALE	HOUCHIN CREEK	COAL	1.9	476.2	
21.8	CARBONDALE		GRAY SHALE	1.3	478.2	W/ MINOR LENSES OF PYRITE
20.5	CARBONDALE		GRAY SHALE	1.1	479.5	
19.4	CARBONDALE		GRAY SANDSTONE	1.2	480.6	FREQUENT STREAKS OF SHALE (0.01')
18.2	CARBONDALE		GRAY SANDSTONE	1.9	481.8	OCCASIONAL SHALE STREAKS
16.3	CARBONDALE		GRAY SANDSTONE	5.9	483.7	WITH ABUNDANT SHALE STREAKS
10.4	CARBONDALE		GRAY SHALE	16.3	489.6	W/ ABUNDANT BANDS (0.01') OF SILTSTONE
-5.9	CARBONDALE		GRAY SHALE	5.8	505.9	
-11.6	CARBONDALE		DARK GRAY SHALE	5.1	511.6	
-16.7	CARBONDALE		DARK GRAY SHALE	4.1	516.7	W/ MINOR BANDS AND LENSES OF IRONSTONE
-20.8	CARBONDALE	SURVANT	COAL	1.2	520.8	
-22.0	CARBONDALE		UNDERCLAY	0.6	522.0	
-22.6	CARBONDALE		GRAY SHALE	0.7	522.6	
-23.3	CARBONDALE		GRAY SANDSTONE	2.1	523.3	
-25.4	CARBONDALE		GRAY SHALE	0.5	525.4	
-25.8	CARBONDALE		GRAY SHALE	0.9	525.8	
-26.7	CARBONDALE		GRAY SHALE	2.0	526.7	
-28.7	CARBONDALE		DARK GRAY SHALE	7.3	528.7	
-36.0	CARBONDALE		GRAY SHALE	1.3	536.0	WITH ONE IRONSTONE BAND
-37.3	CARBONDALE		GRAY SHALE	3.7	537.3	
-41.0	CARBONDALE		GRAY SHALE	4.6	541.0	
-45.6	CARBONDALE		GRAY SHALE	5.0	545.6	
-50.6	CARBONDALE		DARK GRAY SHALE	14.9	550.6	
-65.5	CARBONDALE		DARK GRAY SHALE	9.3	565.5	
-74.8	CARBONDALE		IRONSTONE	0.3	574.8	
-75.1	CARBONDALE		DARK GRAY SHALE	5.9	575.1	
-81.0	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.6	581.0	
-83.6	CARBONDALE	COLCHESTER	COAL	0.6	583.6	

-84.2	SPOON		GRAY SANDSTONE	1.0	584.2	
-85.2	SPOON		GRAY SANDSTONE	3.3	585.2	
-88.5	SPOON		GRAY SANDSTONE	7.8	588.5	
-96.3	SPOON		GRAY SANDSTONE	1.5	596.3	
-97.8	SPOON		GRAY SANDSTONE	18.4	597.8	
-116.2	SPOON		GRAY SANDSTONE	3.3	616.2	WITH COAL BANDS
-119.5	SPOON		GRAY SANDSTONE	3.5	619.5	WITH COAL STREAKS
-123.0	SPOON		GRAY SHALE	2.6	623.0	
-125.6	SPOON		GRAY SANDSTONE	4.4	625.6	
-130.0	SPOON		GRAY SANDSTONE	4.0	630.0	WITH BANDS OF DGY SHALE
-134.0	SPOON		GRAY SHALE	1.0	634.0	WITH SANDSTONE STREAKS
-135.0	SPOON	DEKOVEN	COAL	2.3	635.0	
-137.3	SPOON		DARK GRAY SHALE	1.3	637.3	
-138.5	SPOON		UNCLASSIFIED	1.9	638.5	LOG SAYS 'CORE LOSS'
-140.4	SPOON		DARK GRAY SHALE	1.2	640.4	
-141.6	SPOON		DARK GRAY SHALE	0.3	641.6	
-141.9	SPOON	LOWER DEKOVEN	COAL	1.1	641.9	
-142.9	SPOON		CLAYSTONE	1.9	642.9	UNDERCLAY
-144.8	SPOON		GRAY SANDSTONE	0.7	644.8	
-145.5	SPOON		DARK GRAY SHALE	0.3	645.5	
-145.8	SPOON		GRAY SANDSTONE	1.0	645.8	
-146.8	SPOON		DARK GRAY SHALE	6.2	646.8	
-153.0	SPOON		DARK GRAY SHALE	3.6	653.0	
-156.6	SPOON		DARK GRAY SHALE	1.4	656.6	
-158.0	SPOON		BLACK SHALE	4.1	658.0	
-162.1	SPOON		BLACK SHALE	0.3	662.1	
-162.4	SPOON		BLACK SHALE	0.2	662.4	
-162.6	SPOON		GRAY SHALE	1.4	662.6	
-164.0	SPOON		GRAY SHALE	7.0	664.0	
-171.0	SPOON		GRAY SHALE	0.8	671.0	
-171.8	SPOON		GRAY SHALE	3.1	671.8	
-174.9	SPOON		GRAY SHALE	1.6	674.9	
-176.5	SPOON		GRAY SHALE	0.9	676.5	

MAPID: 19900291000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.74169 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766269 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 330.8 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 90 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.0	PLEISTOCENE		BROWN SANDSTONE	4.0	0.0	
484.0	MODESTO		SHALE & SANDSTONE	3.0	4.0	
481.0	MODESTO		SANDSTONE	36.0	7.0	
445.0	MODESTO		SANDSTONE	3.0	43.0	
442.0	MODESTO		SHALE	5.0	46.0	
437.0	MODESTO		COAL	0.3	51.0	
436.7	MODESTO		UNDERCLAY	2.5	51.3	
434.2	MODESTO		LIGHT SHALE	6.2	53.8	
428.0	MODESTO		LIMESTONE	3.0	60.0	
425.0	MODESTO		SHALE & SANDSTONE	8.0	63.0	
417.0	MODESTO		BLUE SHALE	13.0	71.0	
404.0	MODESTO		BLACK SHALE	6.0	84.0	
398.0	MODESTO		BLACK SHALE	4.0	90.0	
394.0	MODESTO		COAL	0.5	94.0	
393.5	MODESTO		SHALE & SANDSTONE	3.0	94.5	
390.5	MODESTO		SANDSTONE	5.0	97.5	
385.5	MODESTO		SHALE & SANDSTONE	33.5	102.5	
352.0	MODESTO		COAL	0.5	136.0	
351.5	MODESTO		LIGHT SHALE	1.5	136.5	
350.0	MODESTO	PIASA	LIMESTONE	3.0	138.0	
347.0	MODESTO		BLACK SHALE	5.0	141.0	
342.0	CARBONDALE	DANVILLE	COAL	2.2	146.0	
339.8	CARBONDALE		DARK SANDSTONE	3.8	148.2	
336.0	CARBONDALE		DARK SANDSTONE	6.0	152.0	
330.0	CARBONDALE	ALLENBY	COAL	0.3	158.0	
329.7	CARBONDALE		SHALE & SANDSTONE	2.0	158.3	
327.7	CARBONDALE		COAL	0.5	160.3	
327.2	CARBONDALE		UNDERCLAY	1.2	160.8	
326.0	CARBONDALE	BANKSTON FORK	SHALY LIMESTONE	3.0	162.0	
323.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	165.0	
314.0	CARBONDALE		LIGHT SHALE	3.0	174.0	
311.0	CARBONDALE		SANDSTONE	20.0	177.0	
291.0	CARBONDALE		COAL	0.2	197.0	
290.8	CARBONDALE		SHALE & SANDSTONE	3.0	197.2	
287.8	CARBONDALE	JAMESTOWN	COAL	0.5	200.2	
287.3	CARBONDALE		SHALE & SANDSTONE	7.3	200.7	
280.0	CARBONDALE	BRERETON	LIMESTONE	2.0	208.0	
278.0	CARBONDALE	ANNA	BLACK SHALE	4.0	210.0	
274.0	CARBONDALE	ENERGY	BLUE SHALE	14.0	214.0	

260.0	CARBONDALE	HERRIN	COAL	5.6	228.0
254.4	CARBONDALE		UNDERCLAY	0.7	233.6
253.7	CARBONDALE		SHALE	16.0	234.3
237.7	CARBONDALE		SANDSTONE	1.8	250.3
236.0	CARBONDALE		SANDSTONE	4.0	252.0
232.0	CARBONDALE		SHALE & SANDSTONE	70.0	256.0
162.0	CARBONDALE	SPRINGFIELD	COAL	3.8	326.0
158.2	CARBONDALE		SHALE/UNDERCLAY	1.0	329.8

MAPID: 19900293000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.732473 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.773874 **DATE COLLECTED:** 1 / 18 / 1906

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 329.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 108 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
565.0	PLEISTOCENE		SANDY CLAY	5.0	0.0	
560.0	PLEISTOCENE		GRAVEL	3.0	5.0	
557.0	MODESTO		SANDSTONE	30.0	8.0	
527.0	MODESTO		SANDSTONE/SHALE	14.0	38.0	
513.0	MODESTO		COAL	0.2	52.0	
512.8	MODESTO		LIMESTONE	1.8	52.2	
511.0	MODESTO		SANDSTONE/SHALE	18.0	54.0	
493.0	MODESTO		DARK SHALE	16.0	72.0	
477.0	MODESTO		COAL	0.4	88.0	
476.6	MODESTO		GRAY SHALE	11.6	88.4	
465.0	MODESTO		SANDSTONE	7.5	100.0	
457.5	MODESTO		SHALE	32.5	107.5	
425.0	MODESTO	PIASA	LIMESTONE	3.0	140.0	
422.0	MODESTO		BLACK SHALE	3.0	143.0	
419.0	MODESTO		GRAY SHALE	3.5	146.0	
415.5	CARBONDALE	DANVILLE	COAL	2.5	149.5	
413.0	CARBONDALE		SHALE	13.5	152.0	
399.5	CARBONDALE	ALLENBY	COAL	0.5	165.5	
399.0	CARBONDALE		GRAY SHALE	4.0	166.0	
395.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	170.0	
387.0	CARBONDALE		SHALE	31.2	178.0	
355.8	CARBONDALE	JAMESTOWN	COAL	0.2	209.2	
355.7	CARBONDALE	BRERETON	LIMESTONE	2.0	209.3	
353.7	CARBONDALE	ANNA	BLACK SHALE	4.7	211.3	
349.0	CARBONDALE	ENERGY	GRAY SHALE	10.6	216.0	
338.4	CARBONDALE	HERRIN	COAL	4.6	226.6	
333.8	CARBONDALE		BLACK SHALE	0.8	231.2	
333.0	CARBONDALE		GRAY SHALE	1.0	232.0	
332.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.0	233.0	
331.0	CARBONDALE		SHALE	17.3	234.0	
313.7	CARBONDALE	BRIAR HILL	COAL	0.8	251.3	
313.0	CARBONDALE		SHALE	30.0	252.0	
283.0	CARBONDALE		BLUE SHALE	12.0	282.0	
271.0	CARBONDALE		SHALE	30.2	294.0	
240.8	CARBONDALE	SPRINGFIELD	COAL	3.2	324.2	GOOD BUT THIN
237.7	CARBONDALE		UNDERCLAY	1.7	327.3	

MAPID: 19900293000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.732473 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.773874 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 329.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
415.0	CARBONDALE	DANVILLE	COAL	2.5	150.0	
395.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	170.0	
338.0	CARBONDALE	HERRIN	COAL	4.6	227.0	
314.0	CARBONDALE	BRIAR HILL	COAL	9.0	251.0	
241.0	CARBONDALE	SPRINGFIELD	COAL	3.2	324.0	

MAPID: 19900294000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** SE SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.731362 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.761626 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 562.0 **LOGGED (FT.):** 268.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 9 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
562.0	PLEISTOCENE		CLAY	12.0	0.0	
550.0	MODESTO		BROWN SANDSTONE	28.5	12.0	
521.5	MODESTO		GRAY SANDSTONE	20.2	40.5	
501.3	MODESTO		BLACK SHALE	7.5	60.7	
493.8	MODESTO		GRAY SANDSTONE	4.0	68.2	
489.8	MODESTO		BLACK SHALE	9.0	72.2	
480.8	MODESTO		BLACK SHALE	0.5	81.2	
480.3	MODESTO		UNDERCLAY	0.8	81.7	
479.5	MODESTO		LIMESTONE	1.0	82.5	
478.5	MODESTO		GRAY SANDSTONE	0.7	83.5	
477.8	MODESTO		SHALE & SILTSTONE	28.3	84.2	BLUE
449.5	MODESTO		BLACK SHALE	1.2	112.5	
448.3	MODESTO	POND CREEK	COAL	1.0	113.7	
447.3	MODESTO		SHALE & SILTSTONE	21.5	114.7	LIGHT
425.8	MODESTO		GRAY LIMESTONE	4.0	136.2	
421.8	MODESTO		GRAY SANDSTONE	4.0	140.2	
417.8	MODESTO		SHALE & SILTSTONE	12.4	144.2	LIGHT
405.4	MODESTO		BLACK SHALE	8.0	156.6	
397.4	MODESTO		BLACK SHALE	2.3	164.6	
395.1	MODESTO		BLACK SHALE	0.5	166.9	
394.6	MODESTO	PIASA	GRAY LIMESTONE	3.3	167.4	
391.3	MODESTO		BLACK SHALE	3.8	170.7	
387.5	CARBONDALE	DANVILLE	COAL	2.2	174.5	
385.3	CARBONDALE		BLACK SHALE	8.8	176.7	
376.6	CARBONDALE		GRAY SANDSTONE	9.8	185.4	
366.8	CARBONDALE	ALLENBY	COAL	1.4	195.2	
365.4	CARBONDALE		BLACK SHALE	1.0	196.6	
364.4	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	1.0	197.6	
363.4	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	0.8	198.6	
362.6	CARBONDALE	BANKSTON FORK	BLUE LIMESTONE	8.2	199.4	
354.4	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	2.6	207.6	
351.8	CARBONDALE		GRAY SANDSTONE	1.8	210.2	
350.1	CARBONDALE		BLACK SHALE	6.9	211.9	
343.2	CARBONDALE		GRAY SANDSTONE	19.5	218.8	
323.7	CARBONDALE		BLACK SHALE	9.0	238.3	
314.7	CARBONDALE		GRAY LIMESTONE	1.0	247.3	
313.7	CARBONDALE		BLACK SHALE	2.0	248.3	
311.7	CARBONDALE		BLACK SHALE	1.3	250.3	
310.4	CARBONDALE	BRERETON	BLUE LIMESTONE	4.0	251.6	

306.4	CARBONDALE	ANNA	BLACK SHALE	4.8	255.6
301.6	CARBONDALE	HERRIN	COAL	6.0	260.4
295.6	CARBONDALE		UNDERCLAY	0.5	266.4
295.1	CARBONDALE		BLACK SHALE	1.1	266.9

MAPID: 19900295000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** SW SW SE

QUADRANGLE: HARCO **LONGITUDE:** -88.733661 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.761608 **DATE COLLECTED:** 7 / 10 / 1904

SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 275.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 10 **WELL TYPE:** Coal Test

COMMENT: HOLE LOCATION CORRECTED ON ORIG. LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
550.0	PLEISTOCENE		UNCONSOLIDATED	17.7	0.0	
532.3	MODESTO		BROWN SANDSTONE	7.2	17.7	
525.2	MODESTO		GRAY SANDSTONE	7.0	24.8	
518.2	MODESTO		BLUE SHALE	1.0	31.8	
517.2	MODESTO		BROWN SANDSTONE	1.0	32.8	
516.2	MODESTO		GRAY SANDSTONE	12.0	33.8	
504.2	MODESTO		BROWN SANDSTONE	4.1	45.8	
500.1	MODESTO		GRAY SANDSTONE	12.3	49.9	
487.7	MODESTO		WHITE SANDSTONE	36.2	62.3	
451.6	MODESTO		BLUE SHALE	20.1	98.4	
431.5	MODESTO		BLACK SHALE	1.0	118.5	
430.5	MODESTO	POND CREEK	COAL	0.5	119.5	
430.0	MODESTO		UNDERCLAY	0.5	120.0	
429.5	MODESTO		LIGHT SHALE	4.5	120.5	
425.0	MODESTO		GRAY SANDSTONE	4.0	125.0	
421.0	MODESTO		BLUE SHALE	2.3	129.0	
418.7	MODESTO		LIGHT SHALE	10.1	131.3	
408.6	MODESTO		GRAY SANDSTONE	6.1	141.4	
402.5	MODESTO	PIASA	LIMESTONE	4.0	147.5	
398.5	MODESTO		GRAY SANDSTONE	2.0	151.5	
396.5	MODESTO		BLUE SHALE	18.2	153.5	
378.3	MODESTO		BLACK SHALE	2.8	171.7	
375.6	MODESTO		COAL	0.3	174.4	
375.2	MODESTO		LIMESTONE	2.2	174.8	
373.1	MODESTO		BLACK SHALE	2.0	176.9	
371.1	MODESTO		BLUE SHALE	2.0	178.9	
369.1	MODESTO		LIGHT SHALE	2.5	180.9	
366.6	MODESTO		BLUE SHALE	2.5	183.4	
364.1	MODESTO		BLACK SHALE	0.5	185.9	
363.6	CARBONDALE	DANVILLE	COAL	2.3	186.4	
361.2	CARBONDALE		BLUE SHALE	10.3	188.8	
351.0	CARBONDALE		LIGHT SHALE	4.3	199.0	
346.7	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	5.4	203.3	
341.2	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	5.5	208.8	
335.7	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	1.2	214.3	
334.6	CARBONDALE		LIGHT SHALE	0.5	215.4	
334.1	CARBONDALE		BLUE SHALE	4.5	215.9	
329.6	CARBONDALE		GRAY SANDSTONE	12.5	220.4	
317.1	CARBONDALE		BROWN SANDSTONE	2.5	232.9	

314.6	CARBONDALE		WHITE SANDSTONE	6.3	235.4	
308.3	CARBONDALE		BLUE SHALE	14.8	241.7	
293.6	CARBONDALE	BRERETON	BLUE LIMESTONE	8.2	256.4	
285.4	CARBONDALE	ANNA	BLACK SHALE	4.7	264.6	
280.7	CARBONDALE	HERRIN	COAL	5.5	269.3	NO. 5 IN LOG NO. 6 ACCORDING TO CADY
275.2	CARBONDALE		BLUE SHALE	0.5	274.8	

MAPID: 19902302000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 270' N line, 0' W line of SE SE

QUADRANGLE: HARCO **LONGITUDE:** -88.730206 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.763716 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 257.3 **LOG TYPE:** Survey Core Study

SOURCE: NO COMPANY **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
324.8	MODESTO	PIASA	LIMESTONE	3.8	203.2	
321.0	CARBONDALE	LAWSON	SILTY SHALE	7.0	207.0	
314.0	CARBONDALE	LAWSON	SANDSTONE	7.5	214.0	
306.5	CARBONDALE	LAWSON	SILTY SHALE	15.2	221.5	
291.3	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.6	236.7	
290.7	CARBONDALE	JAMESTOWN	COAL	1.0	237.3	
289.7	CARBONDALE		CARBONACEOUS SHALE	0.1	238.3	
289.6	CARBONDALE	BRERETON	LIMESTONE	8.8	238.4	
280.8	CARBONDALE	ANNA	BLACK SHALE	4.8	247.2	
276.0	CARBONDALE	HERRIN	COAL	5.3	252.0	

MAPID: 19902326000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: HARCO **LONGITUDE:** -88.730181 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772001 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 189.6 **LOG TYPE:** Drillers Log

SOURCE: GH CADY 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	31.0	0.0	SOIL
-	PLEISTOCENE		SOIL	3.0	31.0	
-	MODESTO		SANDSTONE	2.5	34.0	
-	MODESTO		SANDSTONE	3.0	36.5	
-	MODESTO		SANDSTONE	16.0	39.5	
-	MODESTO		LIMESTONE	9.5	55.5	
-	MODESTO		BLUE SHALE	8.0	65.0	
-	MODESTO		GRAY SHALE	11.0	73.0	
-	MODESTO		SHALE	2.0	84.0	
-	MODESTO		BLACK SHALE	1.0	86.0	
-	MODESTO		BLUE SHALE	8.6	87.0	
-	MODESTO		BLUE SHALE	6.0	95.6	
-	MODESTO		BLACK SHALE	5.5	101.6	
-	CARBONDALE	DANVILLE	COAL	3.0	107.1	
-	CARBONDALE		UNDERCLAY	0.7	110.1	
-	CARBONDALE		SANDSTONE	18.0	110.8	
-	CARBONDALE		SANDSTONE	11.2	128.8	
-	CARBONDALE		BLACK SHALE	3.0	139.9	
-	CARBONDALE		BLACK SHALE	4.5	142.9	
-	CARBONDALE		BLUE SHALE	5.2	147.4	
-	CARBONDALE		BLUE SHALE	11.5	152.6	
-	CARBONDALE		SHALE	8.0	164.1	
-	CARBONDALE	BRERETON	BLUE LIMESTONE	9.0	172.1	
-	CARBONDALE	HERRIN	COAL	8.5	181.1	

MAPID: 19900296000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.757527 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.771972 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 580.0 **LOGGED (FT.):** 189.5 **LOG TYPE:** Drillers Log

SOURCE: BROOKS AND OUSLEY 6 **WELL TYPE:** Coal Test

COMMENT: THICKNESS C#6 QUESTIONABLE POSS. LOC ERR

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
580.0	PLEISTOCENE		SOIL	31.0	0.0	
549.0	PLEISTOCENE		SOIL	3.0	31.0	
546.0	MODESTO		SANDSTONE	2.5	34.0	
543.5	MODESTO		SANDSTONE	3.0	36.5	
540.5	MODESTO		SANDSTONE	16.0	39.5	
524.5	MODESTO		LIMESTONE	9.5	55.5	
515.0	MODESTO		BLUE SHALE	8.0	65.0	
507.0	MODESTO		GRAY SHALE	11.0	73.0	
496.0	MODESTO		SHALE	2.0	84.0	
494.0	MODESTO		BLACK SHALE	1.0	86.0	
493.0	MODESTO		BLUE SHALE	8.5	87.0	
484.5	MODESTO		BLUE SHALE	6.0	95.5	
478.5	MODESTO		BLACK SHALE	5.5	101.5	
473.0	CARBONDALE	DANVILLE	COAL	3.0	107.0	
470.0	CARBONDALE		UNDERCLAY	0.7	110.0	
469.3	CARBONDALE		SANDSTONE	18.0	110.7	
451.3	CARBONDALE		SHALE & SANDSTONE	11.2	128.7	
440.2	CARBONDALE		GRAY SHALE	3.0	139.8	
437.2	CARBONDALE		BLACK SHALE	4.5	142.8	
432.7	CARBONDALE		BLUE SHALE	5.2	147.3	
427.5	CARBONDALE		BLUE SHALE	11.5	152.5	
416.0	CARBONDALE		SHALE & SANDSTONE	8.0	164.0	
408.0	CARBONDALE	BRERETON	BLUE LIMESTONE	9.0	172.0	
399.0	CARBONDALE	HERRIN	COAL	8.5	181.0	

MAPID: 19900297000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.756397 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.763506 **DATE COLLECTED:** 0 / 0 / 1904

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 293.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
565.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
554.0	MODESTO		SANDSTONE	3.9	11.0	
550.1	MODESTO		CLAYSTONE	7.0	14.9	
543.1	MODESTO		SHALE	42.9	21.9	
500.2	MODESTO		SANDY SHALE	4.7	64.8	
495.5	MODESTO		UNDERCLAY	9.5	69.5	
486.0	MODESTO		WHITE SANDSTONE	8.2	79.0	
477.8	MODESTO		SANDY SHALE	6.3	87.2	
471.5	MODESTO		BROWN LIMESTONE	2.4	93.5	
469.1	MODESTO		BLUE SHALE	13.8	95.9	
455.3	MODESTO		BLACK SHALE	3.5	109.7	
451.8	MODESTO	POND CREEK	COAL	0.7	113.2	
451.2	MODESTO		UNDERCLAY	2.8	113.8	
448.4	MODESTO		LIGHT SHALE	4.5	116.6	
443.9	MODESTO		BROWN LIMESTONE	2.1	121.1	
441.8	MODESTO		WHITE SANDSTONE	1.3	123.2	
440.5	MODESTO		BLUE LIMESTONE	1.8	124.5	
438.7	MODESTO		LIGHT SHALE	10.8	126.3	
428.0	MODESTO		BROWN SANDSTONE	2.4	137.0	
425.6	MODESTO		BLUE SHALE	12.2	139.4	
413.4	MODESTO		BROWN SANDSTONE	2.5	151.6	
410.9	MODESTO		LIGHT SHALE	5.4	154.1	
405.5	MODESTO		BLUE SHALE	3.4	159.5	
402.1	MODESTO		SANDY SHALE	2.6	162.9	
399.5	MODESTO		BROWN SANDSTONE	1.2	165.5	
398.3	MODESTO		GRAY SANDSTONE	2.3	166.7	
396.0	MODESTO		WHITE SANDSTONE	19.5	169.0	
376.5	MODESTO		SANDY SHALE	3.6	188.5	
372.9	MODESTO		WHITE SANDSTONE	21.4	192.1	
351.5	CARBONDALE		BLUE SHALE	3.1	213.5	
348.4	CARBONDALE	ALLENBY	COAL	0.3	216.6	
348.1	CARBONDALE		BLUE SHALE	2.3	216.9	
345.7	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	2.1	219.3	
343.7	CARBONDALE	BANKSTON FORK	BLUE LIMESTONE	2.6	221.3	
341.1	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	4.4	223.9	
336.7	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	2.4	228.3	
334.2	CARBONDALE	BANKSTON FORK	BROWN LIMESTONE	1.2	230.8	
333.1	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	3.0	231.9	
330.1	CARBONDALE		DARK SHALE	5.3	234.9	

324.8	CARBONDALE		SHALE	15.7	240.2
309.2	CARBONDALE		SANDY SHALE	14.8	255.8
294.4	CARBONDALE		BLUE SHALE	4.7	270.6
289.7	CARBONDALE	BRERETON	BLUE LIMESTONE	3.7	275.3
286.1	CARBONDALE	ANNA	BLUE SHALE	1.0	278.9
285.1	CARBONDALE	ANNA	BLACK SHALE	4.7	279.9
280.4	CARBONDALE	ANNA	LIGHT SHALE	0.3	284.6
280.1	CARBONDALE	ANNA	BLACK SHALE	1.0	284.9
279.1	CARBONDALE	HERRIN	COAL	6.4	285.9
272.7	CARBONDALE		UNDERCLAY	0.7	292.3

MAPID: 19902309000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 0' S line, 0' E line of SW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.757522 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.760695 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 573.0 **LOGGED (FT.):** 296.6 **LOG TYPE:** Drillers Log

SOURCE: AYRSHIRE COLLIERIES G-219 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
341.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	231.5	UPPER BENCH
335.5	CARBONDALE	BANKSTON FORK	GRAY SHALE	0.3	237.5	SHALE PARTING
335.2	CARBONDALE	BANKSTON FORK	LIMESTONE	1.7	237.8	LOWER BENCH
333.5	CARBONDALE	LAWSON	GRAY SHALE	1.5	239.5	
332.0	CARBONDALE	LAWSON	SANDSTONE	6.0	241.0	
326.0	CARBONDALE	LAWSON	GRAY SHALE	32.0	247.0	
294.0	CARBONDALE	JAMESTOWN	COAL	0.7	279.0	
293.3	CARBONDALE		GRAY SHALE	6.5	279.7	
286.8	CARBONDALE	BRERETON	LIMESTONE	2.8	286.2	
284.0	CARBONDALE	ANNA	BLACK SHALE	3.0	289.0	
281.0	CARBONDALE	HERRIN	COAL	4.6	292.0	

MAPID: 19900298000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE NE SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.772441 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.767383 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 360.0 **LOG TYPE:** Drillers Log

SOURCE: BYRD, A. R. & SONS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
357.0	CARBONDALE	DANVILLE	COAL	1.2	173.0	
342.0	CARBONDALE	SS BELOW NO. 7		3.0	188.0	
318.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	212.0	
271.0	CARBONDALE	HERRIN	COAL	5.1	259.0	
230.0	CARBONDALE	BRIAR HILL	COAL	0.8	300.0	
184.0	CARBONDALE	SPRINGFIELD	COAL	4.2	346.0	

MAPID: 19900530000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.764349 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.766379 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 360.0 **LOG TYPE:** Drillers Log

SOURCE: A. R. BYRD & SONS 2 **WELL TYPE:** Coal Test

COMMENT: ELEVATION CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
530.0	PLEISTOCENE		CLAY	8.0	0.0	
522.0	PLEISTOCENE		SAND & GRAVEL	17.0	8.0	
505.0	PLEISTOCENE		BOULDERS & CLAY	7.0	25.0	
498.0	MODESTO		SHALE	8.0	32.0	
490.0	MODESTO		BROWN SANDSTONE	5.0	40.0	
485.0	MODESTO		SANDSTONE	21.0	45.0	
464.0	MODESTO		DARK SHALE	14.0	66.0	
450.0	MODESTO		SHALE & SANDSTONE	8.0	80.0	
442.0	MODESTO		DARK SHALE	40.0	88.0	
402.0	MODESTO		SANDSTONE	10.0	128.0	
392.0	MODESTO		SHALY LIMESTONE	4.0	138.0	
388.0	MODESTO		DARK SHALE	22.5	142.0	
365.5	MODESTO	PIASA	GRAY LIMESTONE	1.5	164.5	
364.0	MODESTO		DARK SHALE	6.8	166.0	
357.2	CARBONDALE	DANVILLE	COAL	1.2	172.8	
356.0	CARBONDALE		UNDERCLAY	1.5	174.0	
354.5	CARBONDALE		DARK SHALE	12.5	175.5	
342.0	CARBONDALE		SANDSTONE	3.0	188.0	
339.0	CARBONDALE		DARK SHALE	4.0	191.0	
335.0	CARBONDALE	ALLENBY	COAL	0.3	195.0	
334.7	CARBONDALE		SANDSTONE	3.7	195.3	
331.0	CARBONDALE		SHALE	13.0	199.0	
318.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	212.0	
310.0	CARBONDALE		SHALE & SANDSTONE	14.0	220.0	
296.0	CARBONDALE		DARK SHALE	14.3	234.0	
281.7	CARBONDALE	JAMESTOWN	COAL	0.3	248.3	
281.3	CARBONDALE		DARK SHALE	2.3	248.7	
279.0	CARBONDALE	BRERETON	GRAY LIMESTONE	3.0	251.0	
276.0	CARBONDALE	ANNA	BLACK SHALE	5.4	254.0	
270.6	CARBONDALE	HERRIN	COAL	5.1	259.4	
265.5	CARBONDALE		UNDERCLAY	2.5	264.5	
263.0	CARBONDALE	HIGGINSVILLE	BLUE LIMESTONE	9.0	267.0	
254.0	CARBONDALE		DARK SHALE	24.0	276.0	
230.0	CARBONDALE	BRIAR HILL	COAL	0.8	300.0	
229.2	CARBONDALE		SANDY SHALE	3.2	300.8	
226.0	CARBONDALE		SHALE	29.0	304.0	
197.0	CARBONDALE		DARK SHALE	13.5	333.0	
183.5	CARBONDALE	SPRINGFIELD	COAL	4.2	346.5	
179.3	CARBONDALE		UNDERCLAY	1.3	350.7	

178.0	CARBONDALE	SHALE & SANDSTONE	8.0	352.0

MAPID: 19990016000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** 100' S line, 300' W line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.770232 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772316 **DATE COLLECTED:** 6 / 8 / 1982

SURFACE ELEVATION (FT.): 571.8 **LOGGED (FT.):** 385.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-10-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
571.8	PLEISTOCENE		CLAY	17.0	0.0	
554.8	PLEISTOCENE		SANDY CLAY	7.0	17.0	
547.8	PLEISTOCENE		UNKNOWN	2.0	24.0	
545.8	PLEISTOCENE		CLAY	4.0	26.0	
541.8	MODESTO		SANDSTONE	23.0	30.0	
518.8	MODESTO		SANDSTONE	15.0	53.0	
503.8	MODESTO		SANDY SHALE	5.0	68.0	
498.8	MODESTO		GRAY SHALE	10.0	73.0	
488.8	MODESTO		SANDY SHALE	6.0	83.0	
482.8	MODESTO		SANDSTONE	16.0	89.0	
466.8	MODESTO		GRAY SHALE	11.0	105.0	
455.8	MODESTO	POND CREEK	COAL	1.0	116.0	
454.8	MODESTO		SANDY SHALE	5.0	117.0	
449.8	MODESTO		SANDSTONE	9.0	122.0	
440.8	MODESTO		SHALY SANDSTONE	12.0	131.0	
428.8	MODESTO		SANDSTONE	28.0	143.0	
400.8	MODESTO	PIASA	LIMESTONE	1.0	171.0	
399.8	MODESTO		GRAY SHALE	2.0	172.0	
397.8	MODESTO		SANDY SHALE	1.5	174.0	
396.3	CARBONDALE	DANVILLE	COAL	2.0	175.5	APPROXIMATE THICKNESS
394.3	CARBONDALE		GRAY SHALE	8.5	177.5	
385.8	CARBONDALE		SHALY SANDSTONE	4.0	186.0	
381.8	CARBONDALE		SANDSTONE	4.0	190.0	
377.8	CARBONDALE		SHALY SANDSTONE	9.0	194.0	
368.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	203.0	
361.3	CARBONDALE		SANDSTONE	13.5	210.5	
347.8	CARBONDALE		GRAY SHALE	4.0	224.0	
343.8	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	21.0	228.0	
322.8	CARBONDALE		CARBONACEOUS SHALE	1.0	249.0	
321.8	CARBONDALE	CONANT	LIMESTONE	1.0	250.0	
320.8	CARBONDALE		BLACK SHALE	2.0	251.0	
318.8	CARBONDALE	BRERETON	LIMESTONE	3.9	253.0	
314.9	CARBONDALE	ANNA	BLACK SHALE	3.5	256.9	
311.4	CARBONDALE	HERRIN	COAL	4.9	260.4	
306.5	CARBONDALE		CLAYSTONE	1.4	265.3	
305.1	CARBONDALE		GRAY SHALE	0.8	266.7	
304.3	CARBONDALE		SANDSTONE	4.5	267.5	
299.8	CARBONDALE		GRAY SHALE	10.0	272.0	
289.8	CARBONDALE		SANDSTONE	68.0	282.0	

221.8	CARBONDALE		GRAY SHALE	4.2	350.0
217.6	CARBONDALE	SPRINGFIELD	COAL	3.9	354.2
213.7	CARBONDALE		CLAYSTONE	1.1	358.1
212.6	CARBONDALE		GRAY SHALE	0.9	359.2
211.7	CARBONDALE		UNKNOWN	0.9	360.1
210.8	CARBONDALE		SANDY SHALE	3.0	361.0
207.8	CARBONDALE		CALCAREOUS SHALE	3.0	364.0
204.8	CARBONDALE		SANDSTONE	18.0	367.0

MAPID: 19990017000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** 0' S line, 600' E line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.768749 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.764546 **DATE COLLECTED:** 5 / 11 / 1960

SURFACE ELEVATION (FT.): 556.0 **LOGGED (FT.):** 372.2 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-35-60 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
556.0	PLEISTOCENE		CLAY	5.0	0.0	
551.0	PLEISTOCENE		CLAY	25.0	5.0	
526.0	MODESTO		SANDSTONE	18.0	30.0	
508.0	MODESTO		GRAY SHALE	49.2	48.0	
458.8	MODESTO		CALCAREOUS SHALE	0.9	97.2	
457.9	MODESTO		SANDY SHALE	19.8	98.1	
438.0	MODESTO		GRAY SHALE	8.0	118.0	
430.0	MODESTO		BLACK SHALE	2.2	126.0	
427.8	MODESTO		GRAY SHALE	0.7	128.2	
427.1	MODESTO	POND CREEK	COAL	0.4	128.9	
426.7	MODESTO		SANDY SHALE	4.8	129.3	
421.9	MODESTO		SANDSTONE	3.5	134.1	
418.4	MODESTO		SANDY SHALE	6.8	137.6	
411.6	MODESTO		SANDSTONE	2.5	144.4	
409.1	MODESTO		GRAY SHALE	26.2	146.9	
382.9	MODESTO		SANDSTONE	3.5	173.1	
379.4	MODESTO		GRAY SHALE	6.2	176.6	
373.2	MODESTO	PIASA	LIMESTONE	3.0	182.8	
370.2	MODESTO		BLACK SHALE	4.3	185.8	
365.9	CARBONDALE	DANVILLE	COAL	1.5	190.1	
364.4	CARBONDALE		GRAY SHALE	17.5	191.6	
346.9	CARBONDALE		SANDY SHALE	9.0	209.1	
337.9	CARBONDALE		GRAY SHALE	6.5	218.1	
331.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	224.6	
326.4	CARBONDALE	ANVIL ROCK	SANDSTONE	3.5	229.6	
322.9	CARBONDALE		SANDY SHALE	9.0	233.1	
313.9	CARBONDALE	LAWSON	GRAY SHALE	32.2	242.1	
281.7	CARBONDALE	BRERETON	LIMESTONE	2.5	274.3	
279.2	CARBONDALE	ANNA	BLACK SHALE & LIMESTONE	0.7	276.8	
278.5	CARBONDALE	ANNA	BLACK SHALE	3.0	277.5	
275.5	CARBONDALE	HERRIN	COAL	5.6	280.5	
269.9	CARBONDALE		GRAY SHALE	0.3	286.1	
269.6	CARBONDALE		CARBONACEOUS SHALE	0.2	286.4	
269.4	CARBONDALE		SHALE WITH LIMESTONE	4.6	286.6	
264.8	CARBONDALE		GRAY SHALE	18.5	291.2	
246.3	CARBONDALE		LIMESTONE	1.5	309.7	
244.8	CARBONDALE		GRAY SHALE	13.0	311.2	
231.8	CARBONDALE	ST. DAVID	LIMESTONE	1.5	324.2	

230.3	CARBONDALE	DYKERSBURG	GRAY SHALE	6.5	325.7
223.8	CARBONDALE	DYKERSBURG	SANDY SHALE	17.0	332.2
206.8	CARBONDALE	DYKERSBURG	GRAY SHALE	18.0	349.2
188.8	CARBONDALE	SPRINGFIELD	COAL	4.4	367.2
184.4	CARBONDALE		GRAY SHALE	0.6	371.6

MAPID: 19901447000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.785115 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.768363 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 561.0 **LOGGED (FT.):** 269.9 **LOG TYPE:** Drillers Log

SOURCE: DELTA COLLIERIES 21 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
387.0	MODESTO	PIASA	LIMESTONE/UNDERCLAY	1.8	174.0	
385.2	MODESTO		GRAY SHALE	3.0	175.8	
382.2	CARBONDALE	DANVILLE	COAL	1.5	178.8	
380.8	CARBONDALE		SANDSTONE/SILTSTONE	23.1	180.2	
357.7	CARBONDALE	ALLENBY	BONE COAL	0.5	203.3	
357.2	CARBONDALE		CLAYSTONE	4.8	203.8	
352.4	CARBONDALE	BANKSTON FORK	LIMESTONE	4.4	208.6	UPPER BENCH
348.0	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	2.5	213.0	LOWER BENCH
345.5	CARBONDALE	LAWSON	CLAYSTONE	0.8	215.5	
344.7	CARBONDALE	LAWSON	SHALE & SANDSTONE	5.8	216.3	
338.9	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	4.6	222.1	
334.3	CARBONDALE	LAWSON	GRAY SHALE	19.6	226.7	
314.7	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.4	246.3	
314.3	CARBONDALE	JAMESTOWN	COAL	0.1	246.7	
314.2	CARBONDALE		BLACK SHALE	0.4	246.8	
313.8	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	2.8	247.2	
310.9	CARBONDALE	ANNA	BLACK SHALE	4.2	250.1	
306.8	CARBONDALE	ENERGY	GRAY SHALE	6.2	254.2	
300.6	CARBONDALE	ENERGY	DARK GRAY SHALE	1.8	260.4	
296.0	CARBONDALE	HERRIN	COAL	4.9	265.0	

MAPID: 19922617000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' S line, 630' W line of SW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.787572 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.761819 **DATE COLLECTED:** 6 / 0 / 1974

SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 1476.0 **LOG TYPE:** Electric Log

SOURCE: DULL, JOE A. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-949.0	BASE OF PENN.		UNCLASSIFIED	-	1476.0	

MAPID: 19990015000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 250' S line, 200' E line of NW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.78578 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.772773 **DATE COLLECTED:** 6 / 25 / 1982

SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 385.0 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-14-82 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.0	PLEISTOCENE		CLAY	11.0	0.0	
514.0	PLEISTOCENE		CLAY	39.0	11.0	
475.0	MODESTO	TRIVOLI	SANDSTONE	36.0	50.0	
439.0	MODESTO		COAL	0.5	86.0	APPROXIMATE THICKNESS
438.5	MODESTO		GRAY SHALE	4.5	86.5	
434.0	MODESTO		LIMESTONE	2.0	91.0	GRAY
432.0	MODESTO		SHALY SANDSTONE	6.0	93.0	
426.0	MODESTO		GRAY SHALE	25.0	99.0	
401.0	MODESTO	POND CREEK	COAL	1.0	124.0	APPROXIMATE THICKNESS
400.0	MODESTO		GRAY SHALE	3.0	125.0	
397.0	MODESTO		SANDSTONE	6.0	128.0	
391.0	MODESTO		LIMESTONE	0.5	134.0	GRAY
390.5	MODESTO		SANDSTONE	31.5	134.5	
359.0	MODESTO		GRAY SHALE	7.0	166.0	
352.0	MODESTO	PIASA	LIMESTONE	2.5	173.0	BROWN
349.5	MODESTO		GRAY SHALE	6.5	175.5	
343.0	CARBONDALE	DANVILLE	COAL	2.0	182.0	APPROXIMATE THICKNESS
341.0	CARBONDALE		SANDY SHALE	8.0	184.0	
333.0	CARBONDALE		SANDSTONE	6.0	192.0	
327.0	CARBONDALE		GRAY SHALE	6.5	198.0	
320.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	204.5	TAN
314.0	CARBONDALE	ANVIL ROCK	SANDSTONE	36.0	211.0	
278.0	CARBONDALE		BLACK SHALE	0.5	247.0	
277.5	CARBONDALE	JAMESTOWN	COAL	0.5	247.5	
277.0	CARBONDALE	BRERETON	LIMESTONE	4.0	248.0	GRAY
273.0	CARBONDALE	ANNA	BLACK SHALE	3.7	252.0	
269.3	CARBONDALE	ENERGY	GRAY SHALE	3.1	255.7	
266.2	CARBONDALE	HERRIN	COAL	5.1	258.8	
261.1	CARBONDALE		CARBONACEOUS SHALE	1.5	263.9	
259.6	CARBONDALE		CORE LOSS	0.6	265.4	
259.0	CARBONDALE		SANDSTONE	4.0	266.0	
255.0	CARBONDALE		SANDSTONE/LIMESTONE	4.0	270.0	
251.0	CARBONDALE		SANDSTONE	13.6	274.0	
237.4	CARBONDALE	BRIAR HILL	COAL	0.4	287.6	
237.0	CARBONDALE		SANDSTONE	3.0	288.0	
234.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	291.0	BROWN
233.0	CARBONDALE	TURNER MINE	BLACK SHALE	0.5	292.0	
232.5	CARBONDALE		COAL	0.5	292.5	
232.0	CARBONDALE	DYKERSBURG	SANDSTONE	57.0	293.0	

175.0	CARBONDALE	DYKERSBURG	GRAY SHALE	0.2	350.0	
174.8	CARBONDALE	SPRINGFIELD	COAL	4.0	350.2	
170.8	CARBONDALE		UNDERCLAY	0.9	354.2	
169.9	CARBONDALE		GRAY SHALE	8.9	355.1	WITH SANDSTONE LOWER
161.0	CARBONDALE		SANDSTONE	21.0	364.0	

MAPID: 19900299000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.800075 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.767376 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 504.0 **LOG TYPE:** Drillers Log

SOURCE: BYRD & HEATH, W. P. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
250.0	CARBONDALE	HERRIN	COAL	5.7	240.0	
219.0	CARBONDALE	BRIAR HILL	COAL	1.7	271.0	
173.0	CARBONDALE	SPRINGFIELD	COAL	4.0	317.0	
100.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	390.0	

MAPID: 19900299000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.800075 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.767376 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 501.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0			UNCONSOLIDATED	52.0	0.0	
438.0	MODESTO		DARK SHALE	6.0	52.0	
432.0	MODESTO		COAL	0.2	58.0	
431.8	MODESTO		SHALE	1.8	58.2	
430.0	MODESTO		LIMESTONE	3.0	60.0	
427.0	MODESTO		SANDSTONE/SHALE	17.0	63.0	
410.0	MODESTO		DARK SHALE	14.0	80.0	
396.0	MODESTO		COAL	1.1	94.0	
394.9	MODESTO		SHALE	4.9	95.1	
390.0	MODESTO		LIMESTONE	1.0	100.0	
389.0	MODESTO		SANDSTONE/SHALE	31.0	101.0	
358.0	MODESTO		DARK SHALE	8.0	132.0	
350.0	MODESTO		COAL	0.3	140.0	
349.7	MODESTO		DARK SHALE	7.8	140.3	
342.0	CARBONDALE	DANVILLE	COAL	1.2	148.0	
340.8	CARBONDALE		SHALE	1.8	149.2	
339.0	CARBONDALE		LIMESTONE	2.0	151.0	
337.0	CARBONDALE		SHALE	9.0	153.0	
328.0	CARBONDALE		SANDSTONE	2.0	162.0	
326.0	CARBONDALE		SHALE	11.0	164.0	
315.0	CARBONDALE		COAL	1.0	175.0	
314.0	CARBONDALE		SHALE	2.0	176.0	
312.0	CARBONDALE		LIMESTONE	6.0	178.0	
306.0	CARBONDALE		SANDSTONE/SHALE	38.0	184.0	
268.0	CARBONDALE	BRERETON	LIMESTONE	2.0	222.0	
266.0	CARBONDALE		DARK SHALE	15.8	224.0	
250.2	CARBONDALE	HERRIN	COAL	5.7	239.8	
244.6	CARBONDALE		DARK SHALE	3.6	245.4	
241.0	CARBONDALE		LIMESTONE	12.0	249.0	
229.0	CARBONDALE		SHALE	9.9	261.0	
219.1	CARBONDALE		COAL WITH SHALE PARTINGS	1.7	270.9	
217.4	CARBONDALE		SHALE	35.4	272.6	
182.0	CARBONDALE		DARK SHALE	9.0	308.0	
173.0	CARBONDALE	SPRINGFIELD	COAL	4.0	317.0	
169.0	CARBONDALE		DARK SHALE	2.0	321.0	
167.0	CARBONDALE		SANDSTONE	7.0	323.0	
160.0	CARBONDALE		DARK SHALE	14.0	330.0	
146.0	CARBONDALE		SHALE	46.0	344.0	

100.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	390.0	UNCERTAIN CORRELATION
98.0	CARBONDALE		SHALE	44.7	392.0	
53.3	CARBONDALE		COAL WITH SHALE PARTINGS	1.3	436.7	
52.0	CARBONDALE		SHALE	8.0	438.0	
44.0	CARBONDALE		DARK SHALE	1.0	446.0	
43.0	CARBONDALE	SURVANT	COAL	0.3	447.0	UNCERTAIN CORRELATION
42.7	CARBONDALE		SHALE	1.8	447.3	
41.0	CARBONDALE		SANDSTONE	4.0	449.0	
37.0	CARBONDALE		SHALE	48.0	453.0	

MAPID: 19900299000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.800075 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.767376 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 501.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS 1 **WELL TYPE:** Coal Test

COMMENT: COULD BE HOLE NO.2, ELEVATION BY CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		SANDY CLAY	25.0	0.0	
465.0	PLEISTOCENE		CLAY & GRAVEL	5.0	25.0	
460.0	MODESTO		SHALE & SANDSTONE	19.0	30.0	
441.0	MODESTO		SHALE & SANDSTONE	3.0	49.0	
438.0	MODESTO		DARK SHALE	6.0	52.0	
432.0	MODESTO		COAL	0.2	58.0	
431.8	MODESTO		SHALE	1.8	58.2	
430.0	MODESTO		LIMESTONE	3.0	60.0	
427.0	MODESTO		SHALE	13.0	63.0	
414.0	MODESTO		SHALE & SANDSTONE	4.0	76.0	
410.0	MODESTO		DARK SHALE	14.0	80.0	
396.0	MODESTO		COAL	1.1	94.0	
394.9	MODESTO		SHALE	4.9	95.1	
390.0	MODESTO	PIASA	LIMESTONE	1.0	100.0	
389.0	MODESTO	PIASA	LIMESTONE	19.0	101.0	
370.0	MODESTO		SHALE & SANDSTONE	12.0	120.0	
358.0	MODESTO		DARK SHALE	8.0	132.0	
350.0	MODESTO		COAL	0.3	140.0	
349.7	MODESTO		DARK SHALE	7.8	140.3	
342.0	CARBONDALE	DANVILLE	COAL	1.2	148.0	
340.8	CARBONDALE		SHALE	1.8	149.2	
339.0	CARBONDALE	GALUM	LIMESTONE	2.0	151.0	
337.0	CARBONDALE		SHALE	9.0	153.0	
328.0	CARBONDALE		SANDSTONE	2.0	162.0	
326.0	CARBONDALE		SANDY SHALE	11.0	164.0	
315.0	CARBONDALE	ALLENBY	COAL	1.0	175.0	
314.0	CARBONDALE		SHALE	2.0	176.0	
312.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	178.0	
306.0	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	23.0	184.0	
283.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	207.0	
275.0	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	7.0	215.0	
268.0	CARBONDALE	BRERETON	LIMESTONE	2.0	222.0	
266.0	CARBONDALE		DARK SHALE	15.8	224.0	
250.2	CARBONDALE	HERRIN	COAL	5.7	239.8	
244.6	CARBONDALE		DARK SHALE	3.6	245.4	
241.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	12.0	249.0	
229.0	CARBONDALE		SHALE & SANDSTONE	8.0	261.0	
221.0	CARBONDALE		SHALE	1.9	269.0	
219.1	CARBONDALE	BRIAR HILL	COAL	0.7	270.9	

218.4	CARBONDALE	BRIAR HILL	SHALE	0.3	271.6
218.2	CARBONDALE	BRIAR HILL	COAL	0.3	271.8
217.8	CARBONDALE	BRIAR HILL	SHALE	0.3	272.2
217.6	CARBONDALE	BRIAR HILL	COAL	0.2	272.4
217.4	CARBONDALE		SHALE	7.4	272.6
210.0	CARBONDALE		SHALE	5.0	280.0
205.0	CARBONDALE		SHALE	23.0	285.0
182.0	CARBONDALE		DARK SHALE	9.0	308.0
173.0	CARBONDALE	SPRINGFIELD	COAL	4.0	317.0
169.0	CARBONDALE		DARK SHALE	2.0	321.0
167.0	CARBONDALE		SANDSTONE	7.0	323.0
160.0	CARBONDALE		DARK SHALE	14.0	330.0
146.0	CARBONDALE		SHALE	37.0	344.0
109.0	CARBONDALE		SHALE	9.0	381.0
100.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	390.0
98.0	CARBONDALE		SHALE	44.7	392.0
53.3	CARBONDALE	SURVANT	COAL	0.5	436.7
52.8	CARBONDALE	SURVANT	SHALE	0.1	437.2
52.7	CARBONDALE	SURVANT	COAL	0.8	437.3
52.0	CARBONDALE		SHALE & SANDSTONE	8.0	438.0
44.0	CARBONDALE		DARK SHALE	1.0	446.0
43.0	CARBONDALE		COAL	0.3	447.0
42.7	CARBONDALE		SHALE	1.8	447.3
41.0	CARBONDALE		SANDSTONE	4.0	449.0
37.0	CARBONDALE		SHALE	29.0	453.0
8.0	CARBONDALE		SHALE	11.0	482.0
-3.0	CARBONDALE		SHALE	8.0	493.0

MAPID: 19900300000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:**

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.808304 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.76829 **DATE COLLECTED:** 9 / 24 / 1904

SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 264.9 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 17 **WELL TYPE:** Coal Test

COMMENT: SW CORNER OF 80A HIGH LAND WET HOLE0806

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
509.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
475.0	PLEISTOCENE		SAND	29.8	34.0	
445.2	MODESTO		LIGHT SHALE	7.1	63.8	
438.2	MODESTO		SANDSTONE	20.2	70.8	
418.0	MODESTO		LIGHT SHALE	8.8	91.0	
409.2	MODESTO		BLACK SHALE	2.0	99.8	
407.2	MODESTO	POND CREEK	COAL	0.5	101.8	
406.7	MODESTO		SHALE	4.0	102.3	
402.7	MODESTO		SANDSTONE	4.0	106.3	
398.7	MODESTO		LIMESTONE	7.8	110.3	
391.0	MODESTO		SANDSTONE	8.5	118.0	
382.5	MODESTO		LIGHT SHALE	24.6	126.5	
357.9	MODESTO	PIASA	LIMESTONE	5.7	151.1	
352.2	MODESTO		SHALE	2.0	156.8	
350.2	MODESTO		BLACK SHALE	3.0	158.8	
347.2	CARBONDALE	DANVILLE	COAL	1.0	161.8	
346.2	CARBONDALE		LIGHT SHALE	8.2	162.8	
338.1	CARBONDALE		SANDSTONE	4.0	170.9	
334.1	CARBONDALE		LIGHT SHALE	4.1	174.9	
330.0	CARBONDALE		SANDSTONE	8.5	179.0	
321.5	CARBONDALE		LIGHT SHALE	4.0	187.5	
317.5	CARBONDALE	ALLENBY	COAL	1.0	191.5	
316.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	192.5	
311.0	CARBONDALE		SHALE	2.0	198.0	
309.0	CARBONDALE		SANDSTONE	44.0	200.0	
265.0	CARBONDALE		SHALE	3.0	244.0	
262.0	CARBONDALE		LIGHT SHALE	12.0	247.0	
250.0	CARBONDALE	HERRIN	COAL	5.5	259.0	
244.6	CARBONDALE		BLUE SHALE	0.5	264.4	

MAPID: 19901408000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** 20' S line, 100' W line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.817408 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.764662 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 226.1 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR COAL CO 1 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
330.8	CARBONDALE	DANVILLE	COAL	0.4	154.2	
330.3	CARBONDALE		CLAYSTONE	6.0	154.7	
324.3	CARBONDALE	ALLENBY	COAL	0.7	160.7	
323.7	CARBONDALE		CLAYSTONE	1.5	161.3	
322.2	CARBONDALE	BANKSTON FORK	LIMESTONE	4.4	162.8	
317.7	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	14.8	167.3	
302.9	CARBONDALE	LAWSON	ROCK	4.3	182.1	
298.6	CARBONDALE	LAWSON	DARK GRAY SHALE	14.2	186.4	
284.4	CARBONDALE	JAMESTOWN	COAL	0.2	200.6	
284.3	CARBONDALE		DARK GRAY SHALE	0.3	200.7	
284.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	1.4	201.0	
282.6	CARBONDALE	ANNA	BLACK SHALE	2.4	202.4	
280.2	CARBONDALE	ENERGY	DARK GRAY SHALE	8.8	204.8	
271.4	CARBONDALE	ENERGY	GRAY SHALE	6.4	213.6	
265.0	CARBONDALE	HERRIN	COAL	6.1	220.0	

MAPID: 19901931000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.81411 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.772861 **DATE COLLECTED:** 6 / 0 / 1956

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 1453.0 **LOG TYPE:** Electric Log

SOURCE: TRIANGLE OIL CO., INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-957.0	BASE OF PENN.		UNCLASSIFIED	-	1453.0	

MAPID: 19990010000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** 100' N line, 0' W line of NW NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.817652 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.775317 **DATE COLLECTED:** 2 / 4 / 1950

SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 317.6 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
463.0	PLEISTOCENE		UNCONSOLIDATED	60.1	0.0	
402.9	MODESTO		GRAY SHALE	4.1	60.1	
398.8	MODESTO		COAL	0.1	64.2	
398.7	MODESTO		UNDERCLAY	2.5	64.3	
396.2	MODESTO		SILTSTONE	1.2	66.8	
395.0	MODESTO		SILTY SHALE	26.0	68.0	
369.0	MODESTO		GRAY SHALE	2.8	94.0	
366.2	MODESTO	POND CREEK	COAL	0.9	96.8	
365.3	MODESTO		UNDERCLAY	6.1	97.7	
359.2	MODESTO		GRAY SHALE	14.8	103.8	
344.4	MODESTO		SANDSTONE	22.3	118.6	GRAY
322.1	MODESTO		GRAY SHALE	8.0	140.9	
314.1	MODESTO	DEGRAFF	COAL	0.6	148.9	
313.5	MODESTO		UNDERCLAY	0.1	149.5	
313.4	MODESTO	PIASA	LIMESTONE	3.4	149.6	BROWN
310.0	MODESTO		CLAYSTONE	4.6	153.0	
305.4	CARBONDALE	DANVILLE	COAL	1.8	157.6	
303.5	CARBONDALE		UNDERCLAY	1.8	159.5	
301.7	CARBONDALE		SILTSTONE	1.6	161.3	
300.1	CARBONDALE		CLAYSTONE	0.3	162.9	
299.8	CARBONDALE		UNKNOWN	2.0	163.2	
297.8	CARBONDALE		SANDSTONE	2.8	165.2	
295.0	CARBONDALE		SILTY SHALE	2.6	168.0	
292.4	CARBONDALE		CLAYSTONE	0.2	170.6	
292.2	CARBONDALE		SANDSTONE	5.2	170.8	
287.0	CARBONDALE		GRAY SHALE	0.7	176.0	
286.3	CARBONDALE	ALLENBY	COAL	0.5	176.7	
285.8	CARBONDALE		UNDERCLAY	2.4	177.2	
283.4	CARBONDALE		CLAYSTONE	2.0	179.6	
281.4	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	181.6	BROWN
274.4	CARBONDALE		SILTSTONE	1.8	188.6	
272.6	CARBONDALE		SANDSTONE	2.6	190.4	
270.0	CARBONDALE		SILTY SHALE	5.1	193.0	
264.9	CARBONDALE		SANDSTONE	3.0	198.1	
261.9	CARBONDALE	LAWSON	GRAY SHALE	19.3	201.1	
242.6	CARBONDALE	CONANT	LIMESTONE	0.4	220.4	
242.2	CARBONDALE	JAMESTOWN	COAL	0.3	220.8	
241.9	CARBONDALE		BLACK SHALE	0.5	221.1	
241.4	CARBONDALE	BRERETON	LIMESTONE	1.7	221.6	GRAY

239.7	CARBONDALE	ANNA	BLACK SHALE	4.8	223.3
234.9	CARBONDALE	ENERGY	GRAY SHALE	18.8	228.1
216.1	CARBONDALE	HERRIN	COAL	6.2	246.9
209.9	CARBONDALE		UNDERCLAY	1.0	253.1
208.9	CARBONDALE		CLAYSTONE	1.1	254.1
207.8	CARBONDALE		GRAY SHALE	5.6	255.2
202.2	CARBONDALE		LIMESTONE	1.1	260.8
201.1	CARBONDALE		GRAY SHALE	2.2	261.9
198.9	CARBONDALE		LIMESTONE	0.6	264.1
198.3	CARBONDALE		GRAY SHALE	9.0	264.7
189.3	CARBONDALE	BRIAR HILL	COAL	1.6	273.7
187.7	CARBONDALE		UNDERCLAY	2.5	275.3
185.2	CARBONDALE		GRAY SHALE	9.8	277.8
175.4	CARBONDALE	ST. DAVID	LIMESTONE	1.5	287.6
173.9	CARBONDALE	TURNER MINE	BLACK SHALE	4.6	289.1
169.3	CARBONDALE	DYKERSBURG	GRAY SHALE	18.2	293.7
151.1	CARBONDALE	SPRINGFIELD	COAL	3.9	311.9
147.2	CARBONDALE		UNDERCLAY	1.8	315.8

MAPID: 19990027000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 6 **QUARTERS/FOOTAGES:** 100' N line, 0' W line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.817725 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.767993 **DATE COLLECTED:** 2 / 3 / 1950

SURFACE ELEVATION (FT.): 484.0 **LOGGED (FT.):** 295.1 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO DH#1 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
484.0	PLEISTOCENE		UNCONSOLIDATED	22.5	0.0	
461.5	MODESTO		GRAY SHALE	6.5	22.5	
455.0	MODESTO		LIMESTONE	1.0	29.0	
454.0	MODESTO		GRAY SHALE	4.8	30.0	
449.2	MODESTO		SILTSTONE	3.0	34.8	
446.2	MODESTO		GRAY SHALE	24.8	37.8	
421.4	MODESTO	POND CREEK	COAL	0.6	62.6	
420.8	MODESTO		UNDERCLAY	7.1	63.2	
413.7	MODESTO		SILTY SHALE	5.6	70.3	
408.1	MODESTO		SILTSTONE	4.0	75.9	
404.1	MODESTO		SILTY SHALE	1.5	79.9	
402.6	MODESTO		SANDSTONE	41.8	81.4	
360.8	MODESTO		UNDERCLAY	0.6	123.2	
360.2	MODESTO	PIASA	LIMESTONE	1.1	123.8	GRAY
359.1	MODESTO	PIASA	GRAY SHALE	0.2	124.9	
358.9	MODESTO	PIASA	LIMESTONE	0.3	125.1	GRAY
358.6	MODESTO		GRAY SHALE	16.5	125.4	
342.1	MODESTO		SANDSTONE	4.2	141.9	
337.9	MODESTO		GRAY SHALE	2.1	146.1	
335.8	CARBONDALE	DANVILLE	COAL	0.1	148.2	
335.7	CARBONDALE		UNDERCLAY	1.1	148.3	
334.6	CARBONDALE		SANDSTONE	1.7	149.4	
332.9	CARBONDALE		SILTSTONE	0.8	151.1	
332.1	CARBONDALE		GRAY SHALE	2.8	151.9	
329.3	CARBONDALE	ALLENBY	COAL	0.6	154.7	
328.7	CARBONDALE		UNDERCLAY	3.7	155.3	
325.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.9	159.0	
319.1	CARBONDALE		SILTSTONE	2.8	164.9	
316.3	CARBONDALE		SANDSTONE	1.4	167.7	
314.9	CARBONDALE		SILTSTONE	2.3	169.1	
312.6	CARBONDALE		GRAY SHALE	10.7	171.4	
301.9	CARBONDALE		SANDSTONE	0.7	182.1	
301.2	CARBONDALE		GRAY SHALE	15.1	182.8	
286.1	CARBONDALE	CONANT	LIMESTONE	0.4	197.9	
285.7	CARBONDALE	JAMESTOWN	COAL	0.2	198.3	
285.5	CARBONDALE		GRAY SHALE	0.2	198.5	
285.3	CARBONDALE	BRERETON	LIMESTONE	1.4	198.7	
283.9	CARBONDALE	ANNA	BLACK SHALE	2.6	200.1	
281.3	CARBONDALE	ENERGY	GRAY SHALE	14.5	202.7	

266.8	CARBONDALE	HERRIN	COAL	5.9	217.2
260.9	CARBONDALE		UNDERCLAY	4.3	223.1
256.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.8	227.4
249.8	CARBONDALE		GRAY SHALE	15.1	234.2
234.7	CARBONDALE		LIMESTONE	1.2	249.3
233.5	CARBONDALE	BRIAR HILL	COAL	0.8	250.5
232.7	CARBONDALE		UNDERCLAY	0.8	251.3
231.9	CARBONDALE		SANDSTONE	4.3	252.1
227.6	CARBONDALE		GRAY SHALE	12.3	256.4
215.3	CARBONDALE	ST. DAVID	LIMESTONE	1.8	268.7
213.5	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	270.5
210.3	CARBONDALE	DYKERSBURG	GRAY SHALE	15.7	273.7
194.6	CARBONDALE	SPRINGFIELD	COAL	3.9	289.4
190.7	CARBONDALE		UNDERCLAY	1.9	293.3

MAPID: 19902422000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** 300' N line, 12' W line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.808404 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.752773 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 182.6 **LOG TYPE:** Survey Core Study

SOURCE: PEABODY COAL CO. 2 **WELL TYPE:** Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
332.7	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	6.9	167.3	
325.7	CARBONDALE	ANNA	BLACK SHALE	2.8	174.3	
323.0	CARBONDALE	HERRIN	COAL	5.6	177.0	

MAPID: 19923614000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** 2600' N line, 2900' W line

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.807801 **GEOLOGIST:** MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.753727 **DATE COLLECTED:** 5 / 24 / 1991

SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 196.0 **LOG TYPE:** Drillers Log

SOURCE: SOUTHERN ILLINOIS MINING CO BK221 **WELL TYPE:** Coal Test

COMMENT: PERMIT 240 #2 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.0	PLEISTOCENE		CLAY	12.0	0.0	
496.0	PLEISTOCENE		SAND	26.0	12.0	CLAY
470.0			GRAY SHALE	31.0	38.0	
439.0			GRAY SHALE	10.0	69.0	
429.0			COAL	2.0	79.0	SOFT WITH WOOD
427.0			SANDY SHALE	32.0	81.0	
395.0	CARBONDALE	HERRIN	COAL	1.0	113.0	LOG THIS COAL AS HERRIN
394.0	CARBONDALE		LIMESTONE	4.0	114.0	
390.0	CARBONDALE		SANDSTONE	26.0	118.0	WITH SHALE STREAKS
364.0	CARBONDALE		GRAY SHALE	20.0	144.0	
344.0	CARBONDALE		SANDSTONE	5.0	164.0	WITH SHALE STREAKS
339.0	CARBONDALE	ST. DAVID	LIMESTONE	5.0	169.0	
334.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	174.0	
328.0	CARBONDALE	DYKERSBURG	GRAY SHALE	9.0	180.0	
319.0	CARBONDALE	SPRINGFIELD	COAL	4.5	189.0	
314.5	CARBONDALE		UNDERCLAY	1.0	193.5	
313.5	CARBONDALE		LIMESTONE	1.5	194.5	

MAPID: 19990020000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** 150' N line, 50' W line of SE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.812955 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.756859 **DATE COLLECTED:** 4 / 23 / 1985

SURFACE ELEVATION (FT.): 537.8 **LOGGED (FT.):** 216.1 **LOG TYPE:** Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 4-2-85 **WELL TYPE:** Coal Test

COMMENT: PERMIT #40; ORIENT #4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
537.8	PLEISTOCENE		SOIL	8.0	0.0	
529.8	PLEISTOCENE		GLACIAL DRIFT	6.0	8.0	
523.8	PLEISTOCENE		SAND	1.0	14.0	
522.8	PLEISTOCENE		GLACIAL DRIFT	11.0	15.0	
511.8	MODESTO		SHALY SANDSTONE	7.0	26.0	
504.8	MODESTO		GRAY SHALE	32.0	33.0	
472.8	MODESTO		SANDSTONE	37.0	65.0	
435.8	MODESTO		GRAY SHALE	11.0	102.0	
424.8	MODESTO		SANDSTONE	10.0	113.0	
414.8			GRAY SHALE	11.0	123.0	
403.8			SANDSTONE	4.0	134.0	
399.8			GRAY SHALE	6.5	138.0	
393.3	CARBONDALE	ALLENBY	COAL	1.0	144.5	
392.3	CARBONDALE		GRAY SHALE	1.1	145.5	
391.2	CARBONDALE	BANKSTON FORK	LIMESTONE	6.4	146.6	
384.8	CARBONDALE		GRAY SHALE	2.0	153.0	
382.8	CARBONDALE	ANVIL ROCK	SANDSTONE	34.0	155.0	
348.8	CARBONDALE	ANNA	SLATY SHALE	6.8	189.0	
342.0	CARBONDALE	ENERGY	GRAY SHALE	9.5	195.8	
332.5	CARBONDALE	ENERGY	SLATY SHALE	0.5	205.3	
332.0	CARBONDALE	HERRIN	COAL	6.2	205.8	
325.8	CARBONDALE		UNDERCLAY	0.2	212.0	
325.6	CARBONDALE		SANDSTONE	1.9	212.2	
323.7	CARBONDALE		SHALY SANDSTONE	2.0	214.1	

MAPID: 19900302000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NE NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.790935 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.759982 **DATE COLLECTED:** 8 / 5 / 1904

SURFACE ELEVATION (FT.): 538.0 **LOGGED (FT.):** 258.4 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 16 **WELL TYPE:** Coal Test

COMMENT: C OF N SD 80 ACRES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
538.0	PLEISTOCENE		UNCONSOLIDATED	19.9	0.0	
518.0	MODESTO		BROWN SANDSTONE	17.8	20.0	
500.2	MODESTO		BLACK SHALE	8.0	37.8	
492.2	MODESTO		SANDSTONE	10.6	45.8	
481.7	MODESTO		SHALE & SILTSTONE	17.6	56.3	BLUE
464.1	MODESTO		SANDSTONE	4.0	73.9	
460.1	MODESTO		SHALE & SILTSTONE	21.8	77.9	BLUE
438.2	MODESTO		BLACK SHALE	2.8	99.8	
435.4	MODESTO		COAL	1.9	102.6	
433.5	MODESTO		SHALE & SILTSTONE	10.4	104.5	LIGHT
423.1	MODESTO		BROWN SANDSTONE	4.0	114.9	
419.1	MODESTO		BROWN SANDSTONE	2.0	118.9	
417.1	MODESTO		BROWN LIMESTONE	1.5	120.9	
415.6	MODESTO		BROWN SANDSTONE	6.5	122.4	
409.1	MODESTO		WHITE SANDSTONE	1.1	128.9	
408.0	MODESTO		GRAY SANDSTONE	3.0	130.0	
405.0	MODESTO		BLACK SHALE	7.0	133.0	
398.0	MODESTO		GRAY LIMESTONE	6.0	140.0	
392.0	MODESTO		BLACK SHALE	9.3	146.0	
382.7	MODESTO		COAL	0.7	155.3	
382.0	MODESTO	PIASA	GRAY LIMESTONE	2.6	156.0	
379.4	MODESTO		SHALE & SILTSTONE	27.3	158.6	BLUE
352.1	MODESTO		LIMESTONE	0.5	185.9	
351.6	MODESTO		BLACK SHALE	7.7	186.4	
343.9	CARBONDALE		GRAY SANDSTONE	2.5	194.1	
341.4	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	7.2	196.6	
334.2	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	2.3	203.8	
331.9	CARBONDALE		WHITE SANDSTONE	3.0	206.1	
328.9	CARBONDALE		BLACK SHALE	4.1	209.1	
324.8	CARBONDALE	CONANT	LIMESTONE	1.3	213.2	
323.6	CARBONDALE		SHALE & SILTSTONE	22.8	214.4	BLUE
300.8	CARBONDALE	BRERETON	BLUE LIMESTONE	2.0	237.2	
298.8	CARBONDALE	ANNA	BLACK SHALE	4.3	239.2	
294.6	CARBONDALE	ANNA	BLACK SHALE	8.5	243.4	
286.1	CARBONDALE	ANNA	BLACK SHALE	1.0	251.9	
285.1	CARBONDALE	HERRIN	COAL	5.5	252.9	

MAPID: 19900303000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.795619 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747174 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 233.0 **LOG TYPE:** Drillers Log

SOURCE: A.R. BYRD & SONS **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.0	PLEISTOCENE		CLAY	10.0	0.0	
510.0	PLEISTOCENE		SAND & GRAVEL	45.0	10.0	
465.0	MODESTO		SHALE	5.0	55.0	
460.0	MODESTO		DARK SHALE	20.0	60.0	
440.0	CARBONDALE		UNDERCLAY	5.0	80.0	
435.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	85.0	
432.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	88.0	
428.0	CARBONDALE		SHALE	12.0	92.0	
416.0	CARBONDALE		SANDSTONE	6.0	104.0	
410.0	CARBONDALE		DARK SHALE	19.0	110.0	
391.0	CARBONDALE	JAMESTOWN	COAL	0.8	129.0	
390.2	CARBONDALE		SHALE	0.2	129.8	
390.0	CARBONDALE		DARK SHALE	2.0	130.0	
388.0	CARBONDALE	BRERETON	GRAY LIMESTONE	4.0	132.0	
384.0	CARBONDALE	ANNA	BLACK SHALE	1.5	136.0	
382.5	CARBONDALE	ENERGY	GRAY SHALE	6.0	137.5	
376.5	CARBONDALE	HERRIN	COAL	5.5	143.5	
371.0	CARBONDALE		UNDERCLAY	2.5	149.0	
368.5	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	11.5	151.5	
357.0	CARBONDALE		DARK SHALE	22.0	163.0	
335.0	CARBONDALE	BRIAR HILL	COAL	1.0	185.0	
334.0	CARBONDALE		SANDSTONE/SHALE	2.0	186.0	
332.0	CARBONDALE		SANDSTONE	2.0	188.0	
330.0	CARBONDALE		SHALE	18.0	190.0	
312.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	208.0	
308.0	CARBONDALE	DYKERSBURG	DARK SHALE	13.0	212.0	
295.0	CARBONDALE	SPRINGFIELD	COAL	4.2	225.0	
290.8	CARBONDALE		UNDERCLAY	1.8	229.2	
289.0	CARBONDALE		LIMESTONE	2.0	231.0	

MAPID: 19901446000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 370' N line, 0' W line of NE NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.785188 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.759896 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 246.7 **LOG TYPE:** Survey Core Study
SOURCE: DELTA COLLIERIES 20 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
349.5	MODESTO	PIASA	NODULAR LIMESTONE	1.6	183.5	
347.9	CARBONDALE	BANKSTON FORK	LIMESTONE	7.4	185.1	LOWER BENCH
340.5	CARBONDALE	LAWSON	MOTTLED SHALE	0.1	192.5	
340.4	CARBONDALE	LAWSON	SHALE & SANDSTONE	1.4	192.6	
339.0	CARBONDALE	LAWSON	GRAY SHALE	1.9	194.0	
337.1	CARBONDALE	LAWSON	SANDSTONE	6.8	195.9	
330.2	CARBONDALE	LAWSON	GRAY SHALE	21.4	202.8	
308.8	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.4	224.2	
308.5	CARBONDALE	JAMESTOWN	BONE COAL	0.2	224.5	
308.2	CARBONDALE		CALCAREOUS SHALE	0.4	224.8	
307.8	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	0.8	225.2	
307.0	CARBONDALE	ANNA	BLACK SHALE	15.0	226.0	
292.0	CARBONDALE	HERRIN	COAL	5.7	241.0	

MAPID: 19901859000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: PITTSBURG **LONGITUDE:** -88.782908 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.75909 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 92.7 **LOG TYPE:** Drillers Log
SOURCE: W BOREN 8 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	31.0	0.0	
-	CARBONDALE	ANVIL ROCK	SHALE	4.0	31.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	28.0	35.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	63.0	
-	CARBONDALE		LIGHT SHALE	8.0	79.0	
-	CARBONDALE	HERRIN	COAL	5.7	87.0	

MAPID: 19902145000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 300' N line, 330' E line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.795589 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.752742 **DATE COLLECTED:** 6 / 0 / 1958

SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 1430.0 **LOG TYPE:** Electric Log

SOURCE: PURE OIL CO., THE **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
83.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	430.0	
-2.0	SPOON	DAVIS	UNCLASSIFIED	-	515.0	
-917.0	BASE OF PENN.		UNCLASSIFIED	-	1430.0	

MAPID: 19923615000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 668' S line, 63' W line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.798731 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.748206 **DATE COLLECTED:** 6 / 2 / 1982

SURFACE ELEVATION (FT.): 519.4 **LOGGED (FT.):** 313.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. G26Y **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
519.4	PLEISTOCENE		UNCONSOLIDATED	29.5	0.0	CLAY
489.9	MODESTO		SANDSTONE	12.5	29.5	BROWN
477.4	MODESTO		SHALE	5.0	42.0	BROWNISH GRAY
472.4	MODESTO		GRAY SHALE	2.5	47.0	
469.9	CARBONDALE	DANVILLE	COAL	0.9	49.5	
469.0	CARBONDALE		GRAY SHALE	1.1	50.4	
467.9	CARBONDALE		LIMESTONE	0.9	51.5	GRAY
467.0	CARBONDALE		SHALE	2.6	52.4	LIGHT GRAY
464.4	CARBONDALE		SANDSTONE	6.0	55.0	GRAY
458.4	CARBONDALE		GRAY SHALE	8.0	61.0	
450.4	CARBONDALE		SANDSTONE	5.0	69.0	GRAY
445.4	CARBONDALE		GRAY SHALE	10.0	74.0	
435.4	CARBONDALE	ALLENBY	COAL	0.5	84.0	
434.9	CARBONDALE		GRAY SHALE	3.5	84.5	
431.4	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	88.0	BROWN
424.9	CARBONDALE		SHALE	9.5	94.5	LIGHT GRAY
415.4	CARBONDALE		SHALE	27.8	104.0	DARK GRAY
387.6	CARBONDALE		BLACK SHALE	3.2	131.8	
384.4	CARBONDALE	BRERETON	LIMESTONE	7.3	135.0	BLACK
377.1	CARBONDALE	ANNA	BLACK SHALE	3.2	142.3	
373.9	CARBONDALE	HERRIN	COAL	5.3	145.5	
368.6	CARBONDALE		UNDERCLAY	4.2	150.8	
364.4	CARBONDALE		CALCAREOUS SHALE	4.0	155.0	LIGHT GRAY
360.4	CARBONDALE		CALCAREOUS SANDSTONE	14.0	159.0	LIGHT GRAY
346.4	CARBONDALE		SANDY SHALE	11.0	173.0	GRAY
335.4	CARBONDALE		GRAY SHALE	2.0	184.0	DARK
333.4	CARBONDALE	BRIAR HILL	COAL	3.0	186.0	
330.4	CARBONDALE		GRAY SHALE	16.0	189.0	
314.4	CARBONDALE		SANDY SHALE	4.0	205.0	GRAY
310.4	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	209.0	MAY BE A REPEATED #5A - FAULT?
308.4	CARBONDALE	DYKERSBURG	GRAY SHALE	13.7	211.0	
294.7	CARBONDALE	SPRINGFIELD	COAL	3.8	224.7	
290.9	CARBONDALE		GRAY SHALE	4.0	228.5	
286.9	CARBONDALE		SANDY SHALE	12.5	232.5	LIGHT GRAY
274.4	CARBONDALE		GRAY SHALE	59.5	245.0	
214.9	CARBONDALE	EXCELLO	BLACK SHALE	2.8	304.5	
212.1	CARBONDALE	HOUCHIN CREEK	COAL	5.2	307.3	MAY BE #5 - FAULTED? - 80 FEET TOO DEEP
206.9	CARBONDALE		UNDERCLAY	0.5	312.5	

MAPID: 19990087000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 650' S line, 10' W line of SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785057 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748177 **DATE COLLECTED:** 8 / 22 / 1990

SURFACE ELEVATION (FT.): 518.7 **LOGGED (FT.):** 137.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G32Z2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, C&H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.7	PLEISTOCENE		CLAY	12.0	0.0	BROWN
506.7	PLEISTOCENE		CLAY	6.0	12.0	BROWN
500.7	PLEISTOCENE		SAND & GRAVEL	9.0	18.0	
491.7	PLEISTOCENE		UNCONSOLIDATED	8.0	27.0	BROWN
483.7	PLEISTOCENE		CLAY	3.5	35.0	BROWN
480.2	MODESTO		SHALE	5.3	38.5	
474.9	CARBONDALE	DANVILLE	COAL	0.4	43.8	
474.5	CARBONDALE		SHALE	1.8	44.2	LIGHT GRAY
472.7	CARBONDALE		SANDY SHALE	5.0	46.0	
467.7	CARBONDALE		SILTY SHALE	8.7	51.0	
459.0	CARBONDALE		BLACK SHALE & COAL	0.3	59.7	
458.7	CARBONDALE		GRAY SHALE	1.0	60.0	
457.7	CARBONDALE		GRAY SHALE	2.5	61.0	
455.2	CARBONDALE	ALLENBY	COAL	0.5	63.5	
454.7	CARBONDALE		GRAY SHALE	2.8	64.0	
451.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	66.8	TAN
445.9	CARBONDALE		GRAY SHALE	4.2	72.8	
441.7	CARBONDALE		SILTY SHALE	4.5	77.0	
437.2	CARBONDALE		SANDY SHALE	5.9	81.5	
431.3	CARBONDALE		SANDSTONE/LIMESTONE	1.3	87.4	GRAY
430.0	CARBONDALE		SILTY SHALE	5.3	88.7	
424.7	CARBONDALE		DARK GRAY SHALE	15.1	94.0	
409.6	CARBONDALE	JAMESTOWN	COAL	0.3	109.1	
409.3	CARBONDALE		SHALE WITH LIMESTONE	0.3	109.4	
409.0	CARBONDALE	BRERETON	LIMESTONE	2.9	109.7	GRAY
406.1	CARBONDALE	ANNA	BLACK SHALE	3.6	112.6	
402.5	CARBONDALE	ENERGY	GRAY SHALE	5.3	116.2	
397.2	CARBONDALE	HERRIN	COAL	5.4	121.5	
391.8	CARBONDALE		GRAY SHALE	0.2	126.9	
391.6	CARBONDALE		UNDERCLAY	4.0	127.1	
387.6	CARBONDALE		SANDSTONE/LIMESTONE	3.9	131.1	LIGHT GRAY
383.7	CARBONDALE		GRAY SHALE	2.0	135.0	

MAPID: 19990088000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' N line, 30' E line of SE SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.790061 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748078 **DATE COLLECTED:** 10 / 29 / 1974

SURFACE ELEVATION (FT.): 518.2 **LOGGED (FT.):** 153.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G30 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, NW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.2	PLEISTOCENE		SILT	2.0	0.0	
516.2	PLEISTOCENE		CLAY	14.0	2.0	
502.2	PLEISTOCENE		UNCONSOLIDATED	48.0	16.0	
454.2	CARBONDALE		GRAY SHALE	20.0	64.0	
434.2	CARBONDALE	ALLENBY	COAL	1.0	84.0	
433.2	CARBONDALE		GRAY SHALE	3.0	85.0	
430.2	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	88.0	
423.2	CARBONDALE		DARK GRAY SHALE	38.5	95.0	
384.7	CARBONDALE		BLACK SHALE	1.5	133.5	
383.2	CARBONDALE		LIMESTONE	0.5	135.0	
382.7	CARBONDALE		GRAY SHALE	10.0	135.5	
372.7	CARBONDALE		BLACK SHALE	0.8	145.5	
371.9	CARBONDALE	HERRIN	COAL	5.7	146.3	
366.2	CARBONDALE		UNDERCLAY	1.0	152.0	

MAPID: 19990089000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.794469 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749911 **DATE COLLECTED:** 10 / 26 / 1974

SURFACE ELEVATION (FT.): 519.9 **LOGGED (FT.):** 156.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G28 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, NW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
519.9	PLEISTOCENE		SILT	2.0	0.0	
517.9	PLEISTOCENE		CLAY	10.0	2.0	
507.9	PLEISTOCENE		UNCONSOLIDATED	54.0	12.0	
453.9	CARBONDALE		GRAY SHALE	24.0	66.0	
429.9	CARBONDALE	ALLENBY	COAL	1.0	90.0	
428.9	CARBONDALE		UNDERCLAY	1.0	91.0	
427.9	CARBONDALE		GRAY SHALE	2.0	92.0	
425.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	94.0	
419.9	CARBONDALE		GRAY SHALE	35.0	100.0	
384.9	CARBONDALE	BRERETON	LIMESTONE	11.0	135.0	
373.9	CARBONDALE	ANNA	BLACK SHALE	3.0	146.0	
370.9	CARBONDALE	HERRIN	COAL	5.5	149.0	
365.4	CARBONDALE		UNDERCLAY	1.5	154.5	

MAPID: 19990090000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SE SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.792213 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.74808 **DATE COLLECTED:** 10 / 29 / 1974

SURFACE ELEVATION (FT.): 518.4 **LOGGED (FT.):** 157.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G29 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286;; DELTA, NW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.4	PLEISTOCENE		SILT	1.0	0.0	
517.4	PLEISTOCENE		CLAY	29.0	1.0	
488.4	PLEISTOCENE		UNCONSOLIDATED	49.0	30.0	
439.4	CARBONDALE		GRAY SHALE	6.0	79.0	
433.4	CARBONDALE	ALLENBY	COAL	0.5	85.0	
432.9	CARBONDALE		UNDERCLAY	0.5	85.5	
432.4	CARBONDALE		GRAY SHALE	8.0	86.0	
424.4	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	94.0	
417.4	CARBONDALE		GRAY SHALE	37.0	101.0	
380.4	CARBONDALE	BRERETON	LIMESTONE	5.0	138.0	
375.4	CARBONDALE	ANNA	BLACK SHALE	7.0	143.0	
368.4	CARBONDALE	HERRIN	COAL	5.5	150.0	
362.9	CARBONDALE		UNDERCLAY	1.5	155.5	

MAPID: 19990091000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SE SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79674 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748086 **DATE COLLECTED:** 10 / 26 / 1974

SURFACE ELEVATION (FT.): 520.3 **LOGGED (FT.):** 156.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G27 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, NW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.3	PLEISTOCENE		SILT	1.0	0.0	
519.3	PLEISTOCENE		CLAY	9.0	1.0	
510.3	PLEISTOCENE		UNCONSOLIDATED	43.0	10.0	
467.3	MODESTO		GRAY SHALE	8.0	53.0	
459.3	CARBONDALE	DANVILLE	COAL	1.0	61.0	
458.3	CARBONDALE		UNDERCLAY	1.0	62.0	
457.3	CARBONDALE		GRAY SHALE	25.5	63.0	
431.8	CARBONDALE	ALLENBY	COAL	0.5	88.5	
431.3	CARBONDALE		UNDERCLAY	1.0	89.0	
430.3	CARBONDALE		GRAY SHALE	3.5	90.0	
426.8	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	93.5	
420.8	CARBONDALE		SANDY SHALE	37.5	99.5	
383.3	CARBONDALE		BLACK SHALE	1.0	137.0	
382.3	CARBONDALE		SHALE WITH LIMESTONE	4.5	138.0	
377.8	CARBONDALE	BRERETON	LIMESTONE	4.0	142.5	
373.8	CARBONDALE	ANNA	BLACK SHALE	2.5	146.5	
371.3	CARBONDALE	HERRIN	COAL	5.4	149.0	
365.9	CARBONDALE		UNDERCLAY	1.6	154.4	

MAPID: 19990102000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SE SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789985 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.74625 **DATE COLLECTED:** 8 / 12 / 1964

SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 168.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G5 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA CRAB ORCHARD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.0	PLEISTOCENE		CLAY	8.0	0.0	
509.0	PLEISTOCENE		CLAY	43.0	8.0	
466.0	PLEISTOCENE		CLAY	21.5	51.0	
444.5	CARBONDALE		GRAY SHALE	4.0	72.5	
440.5	CARBONDALE	ALLENBY	COAL	0.5	76.5	
440.0	CARBONDALE		UNDERCLAY	1.0	77.0	
439.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	78.0	
434.0	CARBONDALE		GRAY SHALE	10.5	83.0	
423.5	CARBONDALE		SANDSTONE	9.0	93.5	
414.5	CARBONDALE		DARK SHALE	15.5	102.5	
399.0	CARBONDALE	ANNA	BLACK SHALE	3.0	118.0	
396.0	CARBONDALE	ENERGY	GRAY SHALE	18.0	121.0	
378.0	CARBONDALE	HERRIN	COAL	5.7	139.0	
372.3	CARBONDALE		UNDERCLAY	2.7	144.7	
369.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	10.5	147.3	
359.2	CARBONDALE		GRAY SHALE	2.0	157.8	
357.2	CARBONDALE		SANDSTONE	8.2	159.8	

MAPID: 19990103000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.787648 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748162 **DATE COLLECTED:** 8 / 10 / 1990

SURFACE ELEVATION (FT.): 523.7 **LOGGED (FT.):** 171.2 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO C31-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.7	PLEISTOCENE		SOIL	1.0	0.0	
522.7	PLEISTOCENE		SILTY CLAY	30.0	1.0	GRAY-BROWN
492.7	PLEISTOCENE		SILTY CLAY	3.0	31.0	GRAY
489.7	PLEISTOCENE		SAND	2.0	34.0	YELLOW
487.7	PLEISTOCENE		SILTY CLAY	18.0	36.0	
469.7	MODESTO		SILTY SHALE	2.4	54.0	
467.3	MODESTO	PIASA	LIMESTONE	0.8	56.4	
466.5	MODESTO		CLAYSTONE	1.6	57.2	
464.9	MODESTO		GRAY SHALE	0.6	58.8	
464.3	CARBONDALE	DANVILLE	COAL	0.8	59.4	
463.5	CARBONDALE		UNDERCLAY	0.5	60.2	
463.0	CARBONDALE		GRAY SHALE	1.7	60.7	
461.3	CARBONDALE		UNKNOWN	2.5	62.4	CORE LOSS
458.8	CARBONDALE		GRAY SHALE	1.3	64.9	
457.5	CARBONDALE		SANDSTONE	2.7	66.2	
454.8	CARBONDALE		SILTY SHALE	2.3	68.9	
452.5	CARBONDALE		SANDSTONE	1.6	71.2	
450.9	CARBONDALE		SILTY SHALE	6.5	72.8	
444.4	CARBONDALE	ALLENBY	COAL	0.2	79.3	
444.2	CARBONDALE	ALLENBY	SILTY SHALE	4.2	79.5	
440.0	CARBONDALE	ALLENBY	COAL	0.5	83.7	
439.5	CARBONDALE		SHALE	2.8	84.2	
436.7	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	87.0	TAN
430.6	CARBONDALE		SANDY SHALE	9.4	93.1	
421.2	CARBONDALE		SANDSTONE	6.9	102.5	GRAY
414.3	CARBONDALE		SILTY SHALE	16.5	109.4	
397.8	CARBONDALE	CONANT	LIMESTONE	0.4	125.9	DARK GRAY
397.4	CARBONDALE	JAMESTOWN	BONE COAL	0.3	126.3	
397.1	CARBONDALE		BLACK SHALE	0.3	126.6	
396.8	CARBONDALE	BRERETON	LIMESTONE	0.7	126.9	DARK GRAY
396.1	CARBONDALE	ANNA	BLACK SHALE	3.1	127.6	
393.0	CARBONDALE	ENERGY	SILTY SHALE	12.9	130.7	
380.1	CARBONDALE	ENERGY	BLACK SHALE	0.3	143.6	
379.8	CARBONDALE	HERRIN	COAL	5.7	143.9	
374.1	CARBONDALE		SILTY SHALE	4.4	149.6	
369.7	CARBONDALE		SANDSTONE	7.7	154.0	GREEN-GRAY
362.0	CARBONDALE		SILTY SHALE	0.7	161.7	WITH LIMESTONE NODULES
361.3	CARBONDALE		SILTY SHALE	0.8	162.4	
360.5	CARBONDALE		CALCAREOUS SHALE	4.0	163.2	

356.5	CARBONDALE	SHALY LIMESTONE	2.9	167.2	GRAY
353.6	CARBONDALE	SILTY SHALE	1.1	170.1	

MAPID: 19990104000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.804855 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749856 **DATE COLLECTED:** 8 / 7 / 1990

SURFACE ELEVATION (FT.): 523.8 **LOGGED (FT.):** 160.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G56 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.8	PLEISTOCENE		CLAY	17.0	0.0	BROWN
506.8	PLEISTOCENE		UNCONSOLIDATED	15.4	17.0	BROWN
491.4	MODESTO		SANDSTONE	14.1	32.4	BROWN
477.3	MODESTO		SHALE	4.5	46.5	
472.8	MODESTO		GRAY SHALE	2.2	51.0	
470.6	MODESTO		CALCAREOUS SHALE	0.2	53.2	
470.4	MODESTO		LIMESTONE	0.4	53.4	
470.0	MODESTO	DEGRAFF	COAL	0.5	53.8	
469.5	MODESTO		GRAY SHALE	1.3	54.3	
468.2	MODESTO	PIASA	LIMESTONE	1.4	55.6	GRAY
466.8	MODESTO	PIASA	SHALE WITH LIMESTONE	1.0	57.0	
465.8	MODESTO	PIASA	LIMESTONE W/ SHALE	4.0	58.0	DARK GRAY
461.8	MODESTO		SANDY SHALE	3.5	62.0	
458.3	MODESTO		SANDSTONE	1.5	65.5	GRAY
456.8	MODESTO		SILTY SHALE	5.0	67.0	
451.8	MODESTO		SANDY SHALE	8.3	72.0	
443.5	MODESTO		BLACK SHALE	0.3	80.3	
443.2	CARBONDALE		SANDY SHALE	5.6	80.6	
437.6	CARBONDALE	ALLENBY	BLACK SHALE & COAL	0.4	86.2	
437.2	CARBONDALE		GRAY SHALE	1.6	86.6	
435.6	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	88.2	TAN-GRAY
429.6	CARBONDALE		SANDY SHALE	6.8	94.2	
422.8	CARBONDALE		DARK GRAY SHALE	1.2	101.0	
421.6	CARBONDALE		CALCAREOUS SANDSTONE	2.1	102.2	GRAY
419.5	CARBONDALE		SILTY SHALE	5.7	104.3	
413.8	CARBONDALE		SILTY SHALE	16.3	110.0	
397.5	CARBONDALE	ANNA	BLACK SHALE	3.5	126.3	
394.0	CARBONDALE	ENERGY	GRAY SHALE	13.6	129.8	
380.4	CARBONDALE	ENERGY	BLACK SHALE	0.3	143.4	
380.1	CARBONDALE	HERRIN	COAL	5.2	143.7	
374.9	CARBONDALE		GRAY SHALE	2.6	148.9	
372.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.5	151.5	TAN
370.8	CARBONDALE		CALCAREOUS SANDSTONE	4.7	153.0	LIGHT GRAY
366.1	CARBONDALE		CALCAREOUS SHALE	2.3	157.7	

MAPID: 19990105000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 40' S line, 480' W line of SW NE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.788205 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.753687 **DATE COLLECTED:** 12 / 8 / 1975

SURFACE ELEVATION (FT.): 516.1 **LOGGED (FT.):** 286.2 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G105BB **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA DEEP

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
516.1	PLEISTOCENE		CLAY	35.0	0.0	
481.1	MODESTO		GRAY SHALE	20.0	35.0	
461.1	MODESTO		SANDSTONE	22.0	55.0	WHITE
439.1			GRAY SHALE	42.0	77.0	
397.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	119.0	
391.1	CARBONDALE		SANDY SHALE	35.0	125.0	
356.1	CARBONDALE		BLACK SHALE	1.0	160.0	
355.1	CARBONDALE	BRERETON	LIMESTONE	1.0	161.0	
354.1	CARBONDALE	ANNA	BLACK SHALE	3.0	162.0	
351.1	CARBONDALE	ENERGY	DARK GRAY SHALE	10.6	165.0	
340.5	CARBONDALE	HERRIN	COAL	4.3	175.6	
336.3	CARBONDALE		UNDERCLAY	0.3	179.8	
335.9	CARBONDALE		SANDY SHALE	58.8	180.2	
277.1	CARBONDALE		SANDSTONE	11.3	239.0	
265.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.4	250.3	
263.4	CARBONDALE	DYKERSBURG	GRAY SHALE	17.4	252.7	
246.1	CARBONDALE	SPRINGFIELD	COAL	4.3	270.0	
241.7	CARBONDALE		UNDERCLAY	3.4	274.4	
238.4	CARBONDALE		SILTSTONE	3.7	277.7	
234.7	CARBONDALE		GRAY SHALE	4.8	281.4	

MAPID: 19990119000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 625' S line, 625' E line of SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.782739 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748115 **DATE COLLECTED:** 8 / 9 / 1990

SURFACE ELEVATION (FT.): 524.3 **LOGGED (FT.):** 157.7 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G33Z **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, C&H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
524.3	PLEISTOCENE		CLAY	13.0	0.0	BROWN
511.3	PLEISTOCENE		SANDY CLAY	7.0	13.0	BROWN
504.3	PLEISTOCENE		UNCONSOLIDATED	18.6	20.0	BROWN
485.7	MODESTO		SHALE	8.4	38.6	
477.3	MODESTO	PIASA	LIMESTONE	2.7	47.0	
474.6	MODESTO		SHALE	5.0	49.7	
469.6	CARBONDALE	DANVILLE	COAL	1.6	54.7	
468.0	CARBONDALE		SHALE	21.3	56.3	
446.7	CARBONDALE	BANKSTON FORK	LIMESTONE	3.9	77.6	
442.8	CARBONDALE		SHALE	42.2	81.5	
400.6	CARBONDALE	BRERETON	LIMESTONE	4.8	123.7	
395.8	CARBONDALE	ANNA	BLACK SHALE	3.5	128.5	
392.3	CARBONDALE	HERRIN	COAL	4.7	132.0	
387.6	CARBONDALE		SHALE	2.8	136.7	
384.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.0	139.5	
375.8	CARBONDALE		SHALE	9.2	148.5	

MAPID: 19990120000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780861 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.749909 **DATE COLLECTED:** 5 / 13 / 1974

SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 153.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G59 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.0	PLEISTOCENE		SILT	2.0	0.0	
521.0	PLEISTOCENE		CLAY	8.0	2.0	
513.0	PLEISTOCENE		UNCONSOLIDATED	12.0	10.0	
501.0	MODESTO		SANDY SHALE	38.0	22.0	
463.0	MODESTO		GRAY SHALE	2.0	60.0	
461.0	MODESTO	PIASA	LIMESTONE	2.5	62.0	
458.5	MODESTO		BLACK SHALE	1.5	64.5	
457.0	MODESTO		GRAY SHALE	2.0	66.0	
455.0	CARBONDALE	DANVILLE	COAL	1.5	68.0	
453.5	CARBONDALE		UNDERCLAY	1.5	69.5	
452.0	CARBONDALE		GRAY SHALE	22.0	71.0	
430.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	93.0	
425.0	CARBONDALE		DARK GRAY SHALE	9.5	98.0	
415.5	CARBONDALE		LIMESTONE	1.5	107.5	
414.0	CARBONDALE		SANDY SHALE	25.5	109.0	
388.5	CARBONDALE		DARK SHALE	2.0	134.5	
386.5	CARBONDALE	BRERETON	LIMESTONE	7.0	136.5	
379.5	CARBONDALE	ANNA	BLACK SHALE	3.5	143.5	
376.0	CARBONDALE	HERRIN	COAL	4.9	147.0	
371.1	CARBONDALE		UNDERCLAY	1.1	151.9	

MAPID: 19990122000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 8 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE NE SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.780762 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.75358 **DATE COLLECTED:** 4 / 12 / 1965

SURFACE ELEVATION (FT.): 507.6 **LOGGED (FT.):** 232.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G109 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
507.6	PLEISTOCENE		CLAY	39.0	0.0	
468.6	MODESTO		SANDSTONE	8.0	39.0	GRAY
460.6	MODESTO		DARK GRAY SHALE	6.0	47.0	
454.6	MODESTO		SANDY SHALE	2.5	53.0	
452.1	MODESTO	PIASA	LIMESTONE	2.0	55.5	
450.1			GRAY SHALE	27.5	57.5	
422.6	CARBONDALE		SANDY SHALE	12.4	85.0	
410.2	CARBONDALE	ALLENBY	COAL	0.6	97.4	
409.6	CARBONDALE		DARK GRAY SHALE	3.5	98.0	
406.1	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	101.5	
400.3	CARBONDALE		GRAY SHALE	9.8	107.3	
390.6	CARBONDALE		SANDSTONE	13.0	117.0	GRAY
377.6	CARBONDALE		SANDY DARK SHALE	14.4	130.0	
363.2	CARBONDALE	BRERETON	LIMESTONE	3.0	144.4	
360.2	CARBONDALE	ANNA	BLACK SHALE	4.2	147.4	
356.0	CARBONDALE	ENERGY	GRAY SHALE	4.0	151.6	
352.0	CARBONDALE	HERRIN	COAL	5.2	155.6	
346.8	CARBONDALE		UNDERCLAY	3.3	160.8	
343.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	15.8	164.0	
327.8	CARBONDALE		GRAY SHALE	15.5	179.8	
312.3	CARBONDALE		SANDSTONE	11.8	195.3	GRAY
300.6	CARBONDALE		SANDY SHALE	10.7	207.0	
289.9	CARBONDALE	ST. DAVID	LIMESTONE	4.3	217.7	
285.6	CARBONDALE	ST. DAVID	BLACK SHALE	1.9	222.0	
283.7	CARBONDALE	ST. DAVID	LIMESTONE	0.6	223.9	
283.1	CARBONDALE	TURNER MINE	BLACK SHALE	1.3	224.5	
281.8	CARBONDALE	DYKERSBURG	GRAY SHALE	6.3	225.8	
275.6	CARBONDALE	SPRINGFIELD	COAL	-	232.0	

MAPID: 19900304000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW/c NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.776031 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.757216 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 498.0 **LOGGED (FT.):** 247.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 141 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
498.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
471.0	MODESTO		LIGHT SHALE	15.0	27.0	
456.0	MODESTO		DARK SHALE	18.0	42.0	
438.0	MODESTO		COAL	0.5	60.0	
437.5	MODESTO		LIGHT SHALE	6.0	60.5	
431.5	CARBONDALE	DANVILLE	COAL	1.5	66.5	
430.0	CARBONDALE		UNDERCLAY	1.5	68.0	
428.5	CARBONDALE		LIGHT SHALE	2.0	69.5	
426.5	CARBONDALE		SANDSTONE/SHALE	21.0	71.5	
405.5	CARBONDALE	ALLENBY	COAL	1.0	92.5	
404.5	CARBONDALE		UNDERCLAY	1.0	93.5	
403.5	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	94.5	
399.5	CARBONDALE		LIGHT SHALE	5.5	98.5	
394.0	CARBONDALE		SANDSTONE/SHALE	16.0	104.0	
378.0	CARBONDALE		DARK SHALE	20.0	120.0	
358.0	CARBONDALE	CONANT	BLACK LIMESTONE	1.0	140.0	
357.0	CARBONDALE	JAMESTOWN	COAL	0.3	141.0	
356.7	CARBONDALE		BLACK SHALE	2.0	141.3	
354.7	CARBONDALE	BRERETON	BLACK LIMESTONE	6.3	143.3	
348.3	CARBONDALE	ANNA	BLACK SHALE	3.2	149.7	
345.2	CARBONDALE	HERRIN	COAL	5.3	152.8	
339.8	CARBONDALE		UNDERCLAY	2.0	158.2	
337.8	CARBONDALE		VARRIGATED SHALE	20.8	160.2	
317.0	CARBONDALE		DARK SHALE	15.0	181.0	
302.0	CARBONDALE	BRIAR HILL	COAL	0.2	196.0	
301.8	CARBONDALE	BRIAR HILL	DARK SHALE	4.0	196.2	
297.8	CARBONDALE	BRIAR HILL	COAL	0.3	200.2	
297.6	CARBONDALE		DARK SHALE	17.0	200.4	
280.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.6	217.4	
278.0	CARBONDALE		DARK SHALE	20.2	220.0	
257.8	CARBONDALE	SPRINGFIELD	COAL	4.3	240.2	
253.6	CARBONDALE		UNDERCLAY	2.6	244.4	

MAPID: 19900304000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW/c NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.776031 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.757216 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 498.0 **LOGGED (FT.):** 247.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
345.0	CARBONDALE	HERRIN	COAL	5.3	153.0	
302.0	CARBONDALE	BRIAR HILL	COAL	0.8	196.0	
258.0	CARBONDALE	SPRINGFIELD	COAL	4.3	240.0	

MAPID: 19900305000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769379 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748017 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 207.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 134 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
476.0	PLEISTOCENE		UNCONSOLIDATED	4.5	0.0	
471.5	MODESTO		SANDSTONE	10.5	4.5	
461.0	MODESTO		SHALE	4.7	15.0	
456.3	MODESTO		COAL	0.3	19.7	
456.0	MODESTO	PIASA	LIMESTONE	3.0	20.0	
453.0	MODESTO		SHALE	5.0	23.0	
448.0	CARBONDALE	DANVILLE	COAL	2.3	28.0	
445.7	CARBONDALE		UNDERCLAY	2.0	30.3	
443.7	CARBONDALE		SANDSTONE	7.0	32.3	
436.7	CARBONDALE		LIGHT SHALE	7.0	39.3	
429.7	CARBONDALE	ALLENBY	COAL	0.8	46.3	
428.9	CARBONDALE		UNDERCLAY	1.4	47.1	
427.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	48.5	
420.5	CARBONDALE		SHALE	3.0	55.5	
417.5	CARBONDALE		SANDSTONE	17.5	58.5	
400.0	CARBONDALE		DARK SHALE	25.0	76.0	
375.0	CARBONDALE	BRERETON	BLACK LIMESTONE	5.5	101.0	
369.5	CARBONDALE	ANNA	BLACK SHALE	3.2	106.5	
366.3	CARBONDALE	HERRIN	COAL	4.8	109.7	
361.5	CARBONDALE		UNDERCLAY	3.0	114.5	
358.5	CARBONDALE		SANDSTONE	20.0	117.5	
338.5	CARBONDALE		SANDSTONE/SHALE	20.0	137.5	
318.5	CARBONDALE		DARK SHALE	43.0	157.5	
275.5	CARBONDALE	SPRINGFIELD	COAL	4.5	200.5	
271.0	CARBONDALE		UNDERCLAY	2.0	205.0	

MAPID: 19901445000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 307' N line, 135' W line of NW SE

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.771074 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.752665 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 165.2 **LOG TYPE:** Survey Core Study

SOURCE: DELTA COLLIERIES 19 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	MODESTO	PIASA	LIMESTONE	2.4	70.0	
427.6	MODESTO		SHALE	5.5	72.4	
422.1	CARBONDALE	DANVILLE	COAL	1.8	77.9	
420.2	CARBONDALE		SHALE & SANDSTONE	16.2	79.8	
404.1	CARBONDALE	ALLENBY	COAL	0.8	95.9	
403.3	CARBONDALE		CLAYSTONE	2.8	96.7	
400.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	99.6	
394.7	CARBONDALE	LAWSON	CLAYSTONE	2.3	105.3	
392.3	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	6.2	107.7	
386.2	CARBONDALE	LAWSON	GRAY SHALE	7.3	113.8	
378.8	CARBONDALE	LAWSON	SANDSTONE	3.8	121.2	
375.0	CARBONDALE	LAWSON	GRAY SHALE	19.8	125.0	
355.3	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	1.9	144.7	
353.3	CARBONDALE	JAMESTOWN	COAL	0.2	146.7	
353.2	CARBONDALE		DARK GRAY SHALE	1.9	146.8	
351.3	CARBONDALE	BRERETON	LIMESTONE	5.5	148.7	
345.8	CARBONDALE	ANNA	BLACK SHALE	3.1	154.2	
340.0	CARBONDALE	HERRIN	COAL	5.2	160.0	

MAPID: 19902417000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.779588 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.754486 **DATE COLLECTED:** 7 / 0 / 1970

SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 1420.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-892.0	BASE OF PENN.		UNCLASSIFIED	-	1420.0	

MAPID: 19990081000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 680' N line, 20' E line of SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766869 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747962 **DATE COLLECTED:** 10 / 21 / 1976

SURFACE ELEVATION (FT.): 443.1 **LOGGED (FT.):** 130.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G40 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.1	PLEISTOCENE		CLAY	12.0	0.0	
431.1	CARBONDALE	DANVILLE	COAL	2.0	12.0	TOP MAYBE ERODED
429.1	CARBONDALE		UNDERCLAY	1.0	14.0	
428.1	CARBONDALE		SANDSTONE	4.0	15.0	GRAY
424.1	CARBONDALE		SILTSTONE	14.0	19.0	GRAY
410.1	CARBONDALE	ALLENBY	COAL	1.0	33.0	
409.1	CARBONDALE		UNDERCLAY	1.0	34.0	
408.1	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	35.0	WHITE
400.1	CARBONDALE		SANDY SHALE	13.0	43.0	
387.1	CARBONDALE		BLACK SHALE	25.0	56.0	
362.1	CARBONDALE	BRERETON	LIMESTONE	5.0	81.0	BLACK
357.1	CARBONDALE	ANNA	BLACK SHALE	4.0	86.0	
353.1	CARBONDALE	HERRIN	COAL	5.0	90.0	
348.1	CARBONDALE		UNDERCLAY	3.0	95.0	
345.1	CARBONDALE		SANDY SHALE	32.0	98.0	

MAPID: 19990082000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 735' S line, 690' W line of SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.768973 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747929 **DATE COLLECTED:** 11 / 5 / 1976

SURFACE ELEVATION (FT.): 475.2 **LOGGED (FT.):** 239.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G39ZB **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H STRIP

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
475.2	PLEISTOCENE		CLAY	12.0	0.0	
463.2	PLEISTOCENE		SILT	11.0	12.0	
452.2	PLEISTOCENE		SAND	15.0	23.0	
437.2	MODESTO	PIASA	LIMESTONE	3.0	38.0	
434.2			GRAY SHALE	22.0	41.0	
412.2	CARBONDALE	ALLENBY	COAL	1.0	63.0	
411.2	CARBONDALE		UNDERCLAY	1.0	64.0	
410.2	CARBONDALE		GRAY SHALE	1.0	65.0	
409.2	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	66.0	
404.2	CARBONDALE		GRAY SHALE	46.0	71.0	
358.2	CARBONDALE	BRERETON	LIMESTONE	10.0	117.0	BLACK
348.2	CARBONDALE	ANNA	BLACK SHALE	3.0	127.0	
345.2	CARBONDALE	HERRIN	COAL	4.0	130.0	
341.2	CARBONDALE		UNDERCLAY	3.0	134.0	
338.2	CARBONDALE		SANDY SHALE	62.0	137.0	
276.2	CARBONDALE		DARK GRAY SHALE	20.0	199.0	
256.2	CARBONDALE	SPRINGFIELD	COAL	5.0	219.0	
251.2	CARBONDALE		UNDERCLAY	3.0	224.0	
248.2	CARBONDALE		SANDY SHALE	12.0	227.0	

MAPID: 19990083000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.773439 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748109 **DATE COLLECTED:** 8 / 21 / 1990

SURFACE ELEVATION (FT.): 488.9 **LOGGED (FT.):** 145.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G37-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.9	PLEISTOCENE		SOIL	2.0	0.0	BROWN
486.9	PLEISTOCENE		UNCONSOLIDATED	2.0	2.0	BROWN
484.9	PLEISTOCENE		GLACIAL DRIFT	5.3	4.0	BROWN
479.6	MODESTO		SANDSTONE	5.7	9.3	
473.9	MODESTO		SANDSTONE	7.8	15.0	GRAY
466.1	MODESTO		SHALE	5.0	22.8	GREEN-GRAY
461.1	MODESTO	DEGRAFF	COAL	0.2	27.8	
460.9	MODESTO		SILTY SHALE	0.7	28.0	
460.2	MODESTO	PIASA	LIMESTONE	1.4	28.7	TAN
458.8	MODESTO		CALCAREOUS SANDSTONE	0.5	30.1	
458.3	MODESTO		GRAY SHALE	7.4	30.6	
450.9	CARBONDALE	DANVILLE	COAL	2.3	38.0	
448.6	CARBONDALE		GRAY SHALE	1.5	40.3	
447.2	CARBONDALE		SANDSTONE/SILTSTONE	4.0	41.7	
443.2	CARBONDALE		SILTY SHALE	5.0	45.7	
438.2	CARBONDALE		COAL	0.4	50.7	
437.8	CARBONDALE		SILTY SHALE	1.2	51.1	
436.7	CARBONDALE		SILTSTONE	1.1	52.2	GRAY
435.6	CARBONDALE		SILTY SHALE	3.2	53.3	
432.4	CARBONDALE	ALLENBY	COAL	0.9	56.5	
431.5	CARBONDALE		GRAY SHALE	3.3	57.4	
428.2	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	60.7	TAN
422.8	CARBONDALE	BANKSTON FORK	SHALE	0.5	66.1	GREEN-GRAY
422.3	CARBONDALE	BANKSTON FORK	LIMESTONE	0.5	66.6	TAN
421.8	CARBONDALE		SILTY SHALE	0.5	67.1	
421.3	CARBONDALE		SILTSTONE	3.7	67.6	
417.6	CARBONDALE		SILTY SHALE	1.9	71.3	
415.7	CARBONDALE		SHALY SANDSTONE	11.9	73.2	
403.8	CARBONDALE		GRAY SHALE	23.4	85.1	
380.4	CARBONDALE	JAMESTOWN	COAL	0.2	108.5	
380.2	CARBONDALE		CALCAREOUS SHALE	2.0	108.7	
378.2	CARBONDALE	BRERETON	LIMESTONE	4.5	110.7	DARK GRAY
373.7	CARBONDALE	ANNA	BLACK SHALE	3.6	115.2	
370.1	CARBONDALE	HERRIN	COAL	5.0	118.8	
365.1	CARBONDALE		SILTY SHALE	3.9	123.8	
361.2	CARBONDALE		CALCAREOUS SANDSTONE	6.3	127.7	GREEN
354.9	CARBONDALE		SHALE WITH LIMESTONE	11.0	134.0	

MAPID: 19990084000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 660' S line, 15' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776346 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748036 **DATE COLLECTED:** 7 / 29 / 1976

SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 161.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G36 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
516.0	PLEISTOCENE		CLAY	5.0	0.0	
511.0	PLEISTOCENE		CLAY	8.0	5.0	SANDY
503.0	PLEISTOCENE		SANDY CLAY	7.0	13.0	
496.0	PLEISTOCENE		CLAY	17.0	20.0	SANDY
479.0	MODESTO		SANDSTONE	19.0	37.0	BROWN
460.0	MODESTO		GRAY SHALE	1.8	56.0	
458.2	MODESTO	DEGRAFF	COAL	0.5	57.8	
457.7	MODESTO		SANDSTONE	0.7	58.3	GRAY
457.0	MODESTO	PIASA	LIMESTONE	2.9	59.0	LIGHT GRAY
454.1	MODESTO		GRAY SHALE	7.3	61.9	
446.8	CARBONDALE	DANVILLE	COAL	2.6	69.2	
444.2	CARBONDALE		UNDERCLAY	0.3	71.8	
443.9	CARBONDALE		SANDY SHALE	14.9	72.1	
429.0	CARBONDALE	ALLENBY	COAL	0.6	87.0	
428.4	CARBONDALE		GRAY SHALE	2.3	87.6	
426.1	CARBONDALE	BANKSTON FORK	LIMESTONE	5.3	89.9	WHITE
420.8	CARBONDALE		SANDY SHALE	0.3	95.2	
420.5	CARBONDALE		SANDSTONE	4.8	95.5	GRAY
415.7	CARBONDALE		SANDY DARK SHALE	37.7	100.3	
378.0	CARBONDALE	BRERETON	LIMESTONE	4.4	138.0	GRAY
373.6	CARBONDALE	ANNA	BLACK SHALE	3.9	142.4	
369.7	CARBONDALE	HERRIN	COAL	4.7	146.3	
365.0	CARBONDALE		UNDERCLAY	4.4	151.0	
360.6	CARBONDALE		SANDSTONE	1.6	155.4	GRAY
359.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.0	157.0	GRAY

MAPID: 19990085000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 660' S line, 660' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778588 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748045 **DATE COLLECTED:** 8 / 3 / 1976

SURFACE ELEVATION (FT.): 518.7 **LOGGED (FT.):** 260.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G35 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
518.7	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
490.7	PLEISTOCENE		UNCONSOLIDATED	3.0	28.0	
487.7	MODESTO		SANDSTONE	19.0	31.0	
468.7	MODESTO		GRAY SHALE	5.0	50.0	
463.7	MODESTO		DARK GRAY SHALE	0.5	55.0	
463.2	MODESTO		GRAY SHALE	1.1	55.5	
462.1	MODESTO	PIASA	LIMESTONE	2.8	56.6	
459.3	MODESTO		SHALE	0.6	59.4	
458.7	MODESTO		DARK GRAY SHALE	1.5	60.0	
457.2	MODESTO		GRAY SHALE	4.7	61.5	
452.5	CARBONDALE	DANVILLE	COAL	1.6	66.2	
450.9	CARBONDALE		SHALE	4.2	67.8	
446.7	CARBONDALE		SANDY SHALE	13.5	72.0	
433.2	CARBONDALE	ALLENBY	COAL	0.6	85.5	
432.6	CARBONDALE		SHALE	2.3	86.1	
430.3	CARBONDALE	BANKSTON FORK	LIMESTONE	4.9	88.4	
425.4	CARBONDALE		SHALE WITH LIMESTONE	6.7	93.3	
418.7	CARBONDALE		DARK GRAY SHALE	1.5	100.0	
417.2	CARBONDALE		SANDSTONE	2.5	101.5	
414.7	CARBONDALE		SANDY SHALE	10.0	104.0	
404.7	CARBONDALE		CALCAREOUS SHALE	19.9	114.0	
384.8	CARBONDALE	BRERETON	LIMESTONE	0.8	133.9	
384.0	CARBONDALE	BRERETON	BLACK SHALE	0.3	134.7	
383.7	CARBONDALE	BRERETON	CALCAREOUS SHALE	1.5	135.0	
382.2	CARBONDALE	BRERETON	LIMESTONE	4.5	136.5	
377.7	CARBONDALE	ANNA	BLACK SHALE	3.8	141.0	
373.9	CARBONDALE	HERRIN	COAL	5.0	144.8	
368.9	CARBONDALE		SANDY SHALE	10.2	149.8	
358.7	CARBONDALE		CALCAREOUS SHALE	50.7	160.0	
308.0	CARBONDALE	ST. DAVID	LIMESTONE	2.8	210.7	
305.2	CARBONDALE	ST. DAVID	DARK GRAY SHALE	0.5	213.5	
304.7	CARBONDALE	ST. DAVID	LIMESTONE	1.0	214.0	
303.7	CARBONDALE	ST. DAVID	DARK GRAY SHALE	0.7	215.0	
303.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	215.7	
302.0	CARBONDALE	TURNER MINE	DARK GRAY SHALE	1.6	216.7	
300.4	CARBONDALE	DYKERSBURG	GRAY SHALE	17.1	218.3	
283.3	CARBONDALE	SPRINGFIELD	COAL	4.1	235.4	
279.2	CARBONDALE		GRAY SHALE	2.0	239.5	
277.2	CARBONDALE		SHALE WITH LIMESTONE	10.5	241.5	

266.7	CARBONDALE	SANDY SHALE	8.0	252.0

MAPID: 19990086000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 660' S line, 15' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776346 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748036 **DATE COLLECTED:** 7 / 27 / 1976

SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 150.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G34 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
516.0	PLEISTOCENE		CLAY	6.0	0.0	
510.0	PLEISTOCENE		CLAY	6.0	6.0	BROWN
504.0	PLEISTOCENE		SANDY CLAY	9.0	12.0	BROWN
495.0	PLEISTOCENE		SAND	1.3	21.0	BROWN
493.7	PLEISTOCENE		CLAY	21.7	22.3	BROWN
472.0	MODESTO		GRAY SHALE	2.4	44.0	
469.6	MODESTO	PIASA	LIMESTONE	3.7	46.4	BROWN
465.9	MODESTO		SANDY SHALE	4.5	50.1	
461.4	CARBONDALE	DANVILLE	COAL	1.4	54.6	
460.0	CARBONDALE		UNDERCLAY	1.2	56.0	
458.8	CARBONDALE		SANDY SHALE	21.4	57.2	
437.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	78.6	WHITE
432.0	CARBONDALE		SANDY SHALE	10.3	84.0	
421.7	CARBONDALE		SANDSTONE	6.0	94.3	GRAY
415.7	CARBONDALE		SANDY DARK SHALE	25.8	100.3	
389.9	CARBONDALE	JAMESTOWN	COAL	0.2	126.1	
389.7	CARBONDALE	BRERETON	LIMESTONE	4.7	126.3	GRAY
385.0	CARBONDALE	ANNA	BLACK SHALE	3.1	131.0	
381.9	CARBONDALE	HERRIN	COAL	5.1	134.1	
376.8	CARBONDALE		UNDERCLAY	3.4	139.2	
373.4	CARBONDALE		SANDSTONE	7.4	142.6	GRAY

MAPID: 19990121000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** 620' S line, 20' W line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.780452 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.751872 **DATE COLLECTED:** 8 / 20 / 1990

SURFACE ELEVATION (FT.): 518.8 **LOGGED (FT.):** 183.7 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO G84Z-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA; C&W WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
518.8	PLEISTOCENE		SOIL	5.0	0.0	BROWN
513.8	PLEISTOCENE		UNCONSOLIDATED	29.0	5.0	BROWN-GRAY
484.8	MODESTO		SANDSTONE	34.5	34.0	GRAY-TAN
450.3	MODESTO	DEGRAFF	COAL	0.4	68.5	
449.9	MODESTO		CALCAREOUS SHALE	2.0	68.9	
447.9	MODESTO	PIASA	LIMESTONE	2.1	70.9	TAN
445.8	MODESTO		SHALE WITH LIMESTONE	3.4	73.0	
442.4	CARBONDALE	DANVILLE	COAL	1.8	76.4	
440.7	CARBONDALE		SILTY SHALE	5.7	78.1	
435.0	CARBONDALE		SHALY SANDSTONE	6.0	83.8	GRAY
429.0	CARBONDALE		SILTY SHALE	2.5	89.8	
426.5	CARBONDALE		SANDSTONE	0.1	92.3	
426.4	CARBONDALE	ALLENBY	COAL	0.2	92.4	
426.2	CARBONDALE		SANDSTONE	3.4	92.6	GRAY
422.8	CARBONDALE		SILTY SHALE	2.0	96.0	
420.8	CARBONDALE		BONE COAL	1.0	98.0	
419.8	CARBONDALE		SILTY SHALE	4.0	99.0	
415.8	CARBONDALE	BANKSTON FORK	LIMESTONE	4.8	103.0	TAN
411.0	CARBONDALE		SILTY SHALE	0.8	107.8	
410.2	CARBONDALE		SILTY SANDSTONE	5.3	108.6	
404.9	CARBONDALE		SILTY SHALE	7.1	113.9	
397.8	CARBONDALE		SANDSTONE	3.0	121.0	GRAY
394.8	CARBONDALE		SILTY SHALE	21.8	124.0	
373.0	CARBONDALE	CONANT	LIMESTONE	0.3	145.8	BLACK
372.7	CARBONDALE	JAMESTOWN	BLACK SHALE & COAL	0.4	146.1	
372.3	CARBONDALE		GRAY SHALE	0.6	146.5	
371.7	CARBONDALE	BRERETON	LIMESTONE	3.4	147.1	GRAY
368.3	CARBONDALE	ANNA	BLACK SHALE	4.3	150.5	
364.0	CARBONDALE	ENERGY	SILTY SHALE	2.7	154.8	
361.3	CARBONDALE	HERRIN	COAL	5.4	157.5	
355.9	CARBONDALE		SILTY SHALE	2.9	162.9	
353.0	CARBONDALE	HIGGINSVILLE	SHALY LIMESTONE	0.8	165.8	
352.2	CARBONDALE		SANDSTONE	12.8	166.6	GRAY
339.4	CARBONDALE		SILTY SHALE	4.3	179.4	

MAPID: 19900306000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750863 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.747936 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 139.0 **LOG TYPE:** Drillers Log

SOURCE: BIG 4 118 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
428.0	MODESTO	PIASA	LIMESTONE	3.2	48.0	
424.8	MODESTO		SHALE	4.4	51.2	
420.4	CARBONDALE	DANVILLE	COAL	1.5	55.6	
418.9	CARBONDALE		GRAY SHALE	16.5	57.1	
402.4	CARBONDALE	ALLENBY	COAL	1.0	73.6	
401.4	CARBONDALE		CLAYSTONE	4.8	74.6	
396.6	CARBONDALE	BANKSTON FORK	LIMESTONE	6.4	79.4	
390.2	CARBONDALE	LAWSON	GRAY SHALE	2.0	85.8	
388.2	CARBONDALE	LAWSON	SANDSTONE	7.0	87.8	
381.2	CARBONDALE	LAWSON	GRAY SHALE	2.5	94.8	
378.7	CARBONDALE	LAWSON	SILTY SHALE	15.0	97.3	
363.7	CARBONDALE	LAWSON	GRAY SHALE	11.9	112.3	
351.7	CARBONDALE	JAMESTOWN	COAL	0.3	124.3	
351.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	5.3	124.5	
346.2	CARBONDALE	ANNA	BLACK SHALE	5.2	129.8	
341.0	CARBONDALE	HERRIN	COAL	4.0	135.0	

MAPID: 19900306000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750863 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.747936 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 232.0 **LOG TYPE:** Drillers Log

SOURCE: BIG 4 RY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0	CARBONDALE	DANVILLE	COAL	1.5	56.0	
397.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.4	79.0	
388.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	7.0	88.0	
342.0	CARBONDALE	HERRIN	COAL	4.0	134.0	
295.0	CARBONDALE	BRIAR HILL	COAL	1.5	181.0	
250.0	CARBONDALE	SPRINGFIELD	COAL	4.5	226.0	

MAPID: 19900306000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750863 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747936 **DATE COLLECTED:** 1 / 27 / 1906

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 231.8 **LOG TYPE:** Drillers Log

SOURCE: BIG 4 R.R. 118 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
476.0	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
463.0	MODESTO		SANDSTONE/SHALE	12.0	13.0	
451.0	MODESTO		BLACK SHALE	3.7	25.0	
447.3	MODESTO		SANDSTONE/SHALE	11.2	28.7	
436.2	MODESTO		BLACK SHALE	7.6	39.8	
428.6	MODESTO		COAL	0.5	47.4	
428.1	MODESTO	PIASA	LIMESTONE	3.2	47.9	
424.9	MODESTO		UNDERCLAY	2.4	51.1	
422.5	MODESTO		BLACK SHALE	2.0	53.5	
420.5	CARBONDALE	DANVILLE	COAL	1.5	55.5	
419.0	CARBONDALE		SHALE & SILTSTONE	16.5	57.0	
402.5	CARBONDALE	ALLENBY	COAL	1.0	73.5	
401.5	CARBONDALE		UNDERCLAY	4.8	74.5	
396.7	CARBONDALE	BANKSTON FORK	LIMESTONE	6.4	79.3	
390.2	CARBONDALE		BLACK SHALE	2.0	85.8	
388.2	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	7.0	87.8	
381.2	CARBONDALE		BLACK SHALE	2.5	94.8	
378.7	CARBONDALE		SANDSTONE/SHALE	15.0	97.3	
363.7	CARBONDALE		SHALE & SILTSTONE	11.8	112.3	
352.0	CARBONDALE	JAMESTOWN	COAL	0.3	124.0	
351.7	CARBONDALE	BRERETON	LIMESTONE	2.3	124.3	
349.5	CARBONDALE	BRERETON	BLACK LIMESTONE	3.0	126.5	
346.5	CARBONDALE	ANNA	BLACK SHALE	5.2	129.5	
341.3	CARBONDALE	HERRIN	BONE COAL	4.0	134.7	
337.3	CARBONDALE		UNDERCLAY	4.4	138.7	
332.9	CARBONDALE		VARRIGATED SHALE	8.0	143.1	
324.9	CARBONDALE		SANDSTONE/SHALE	29.5	151.1	
295.4	CARBONDALE	BRIAR HILL	COAL	1.5	180.6	
293.9	CARBONDALE		SANDSTONE/SHALE	12.0	182.1	
281.9	CARBONDALE	ST. DAVID	BLACK LIMESTONE	3.0	194.1	
278.9	CARBONDALE	TURNER MINE	BLACK SHALE	9.0	197.1	
269.9	CARBONDALE	DYKERSBURG	DARK SHALE	19.5	206.1	
250.4	CARBONDALE	SPRINGFIELD	COAL	4.5	225.6	
245.9	CARBONDALE		UNDERCLAY	1.7	230.1	

MAPID: 19901568000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.756642 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.748871 **DATE COLLECTED:** 7 / 13 / 1948

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 220.0 **LOG TYPE:** Drillers Log

SOURCE: STUMP ALLEN COAL CO., INC. 2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	MODESTO		SANDSTONE	22.0	0.0	
-	MODESTO		SANDSTONE	4.0	22.0	
-	MODESTO		GRAY SHALE	7.0	26.0	
-	MODESTO		GRAY SHALE	13.0	33.0	
-	CARBONDALE	DANVILLE	COAL	1.5	46.0	
-	CARBONDALE		GRAY SHALE	5.5	47.5	
-	CARBONDALE		SANDSTONE/SHALE	9.0	53.0	
-	CARBONDALE	ALLENBY	COAL	1.0	62.0	AND BROKEN SHALE
-	CARBONDALE		SANDY SHALE	46.0	63.0	
-	CARBONDALE		GRAY SHALE	15.5	109.0	
-	CARBONDALE	HERRIN	COAL	5.0	124.5	
-	CARBONDALE		UNDERCLAY	4.5	129.5	
-	CARBONDALE		SANDSTONE	27.0	134.0	
-	CARBONDALE		SANDSTONE	10.0	161.0	
-	CARBONDALE	BRIAR HILL	COAL	0.7	171.0	
-	CARBONDALE	BRIAR HILL	GRAY SHALE	12.3	171.7	
-	CARBONDALE	ST. DAVID	LIMESTONE	4.5	184.0	
-	CARBONDALE	TURNER MINE	SHALE	3.5	188.5	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	23.3	192.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.6	215.3	
-	CARBONDALE		UNDERCLAY	0.1	219.9	

MAPID: 19902243000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.758911 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.750699 **DATE COLLECTED:** 6 / 30 / 1948

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 111.0 **LOG TYPE:** Drillers Log

SOURCE: MCLAREN COAL CO. 1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	31.5	0.0	
-	CARBONDALE		BLACK SHALE	0.5	31.5	
-	CARBONDALE	BRERETON	LIMESTONE	7.5	32.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.5	39.5	
-	CARBONDALE	HERRIN	COAL	6.8	44.0	
-	CARBONDALE		UNDERCLAY	2.0	50.8	
-	CARBONDALE	HIGGINSVILLE	LIMESTONE	3.5	52.8	
-	CARBONDALE		GRAY SHALE	1.0	56.3	
-	CARBONDALE		SANDSTONE	3.0	57.3	
-	CARBONDALE		LIMESTONE	8.0	60.3	
-	CARBONDALE		GRAY SHALE	1.7	68.3	
-	CARBONDALE	BRIAR HILL	COAL	1.0	70.0	
-	CARBONDALE		UNDERCLAY	1.0	71.0	
-	CARBONDALE		GRAY SHALE	6.0	72.0	
-	CARBONDALE		GRAY SHALE	9.0	78.0	
-	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	87.0	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	13.0	92.0	
-	CARBONDALE	SPRINGFIELD	COAL	5.0	105.0	
-	CARBONDALE		UNDERCLAY	1.0	110.0	

MAPID: 19923616000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** 42' N line, 180' E line of NW SW

QUADRANGLE: PITTSBURG **LONGITUDE:** -88.758318 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.75355 **DATE COLLECTED:** 5 / 5 / 1982

SURFACE ELEVATION (FT.): 470.2 **LOGGED (FT.):** 147.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. G93GD **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.2	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	CLAY
463.2	MODESTO		SHALE	2.0	7.0	BROWNISH GRAY
461.2	MODESTO		GRAY SHALE	1.4	9.0	
459.8	MODESTO		SANDSTONE	0.4	10.4	
459.4	MODESTO		GRAY SHALE	10.2	10.8	
449.2	MODESTO		SANDY SHALE	10.0	21.0	GRAY
439.2	MODESTO		SILTY SHALE	26.2	31.0	
413.0	MODESTO	PIASA	LIMESTONE	3.0	57.2	LIGHT GRAY
410.0	MODESTO		GRAY SHALE	5.3	60.2	
404.7	CARBONDALE	DANVILLE	COAL	2.0	65.5	
402.7	CARBONDALE		GRAY SHALE	1.5	67.5	
401.2	CARBONDALE		SANDSTONE	4.0	69.0	
397.2	CARBONDALE		SILTY SHALE	4.0	73.0	
393.2	CARBONDALE		SANDSTONE	6.2	77.0	
387.0	CARBONDALE		SILTY SHALE	1.8	83.2	
385.2	CARBONDALE	ALLENBY	COAL	0.7	85.0	
384.5	CARBONDALE		GRAY SHALE	5.8	85.7	
378.7	CARBONDALE	BANKSTON FORK	LIMESTONE	4.2	91.5	
374.5	CARBONDALE		GRAY SHALE	3.8	95.7	
370.7	CARBONDALE	ANVIL ROCK	SANDSTONE	3.5	99.5	
367.2	CARBONDALE		SILTY SHALE	33.0	103.0	
334.2	CARBONDALE	BRERETON	LIMESTONE	5.9	136.0	
328.3	CARBONDALE	ANNA	BLACK SHALE	3.4	141.9	
324.9	CARBONDALE	ENERGY	GRAY SHALE	0.8	145.3	
324.1	CARBONDALE	ENERGY	BLACK SHALE	1.1	146.1	
323.0	CARBONDALE	HERRIN	COAL	0.3	147.2	INCOMPLETE THICKNESS

MAPID: 19900307000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.729544 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.746621 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 221.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
397.0	CARBONDALE	DANVILLE	COAL	1.0	40.0	
381.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	56.0	
373.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	24.0	64.0	
318.0	CARBONDALE	HERRIN	COAL	4.5	119.0	
221.0	CARBONDALE	SPRINGFIELD	COAL	5.0	216.0	

MAPID: 19900307000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.729544 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.746621 **DATE COLLECTED:** 7 / 0 / 1904
SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 221.7 **LOG TYPE:** Drillers Log
SOURCE: PEABODY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.0			UNCONSOLIDATED	14.3	0.0	
422.7			ROCK	25.3	14.3	
397.3			COAL	1.0	39.7	
396.3			ROCK	13.8	40.7	
382.5			COAL	1.7	54.5	
380.8			ROCK	37.8	56.2	
343.0			SHALE	5.8	94.0	
337.2			LIMESTONE	1.2	99.8	
336.1			SHALE	4.7	100.9	
331.4			LIMESTONE	1.2	105.6	
330.2			SHALE	1.7	106.8	
328.6			LIMESTONE	5.7	108.4	
322.9			SHALE	4.9	114.1	
318.0	CARBONDALE	HERRIN	COAL	4.5	119.0	
313.4	CARBONDALE		UNDERCLAY	1.2	123.6	
312.2	CARBONDALE		ROCK	71.3	124.8	
241.0	CARBONDALE		SHALE	20.5	196.0	
220.5	CARBONDALE	SPRINGFIELD	COAL	5.0	216.5	
215.5	CARBONDALE		SHALE	0.0	221.5	

MAPID: 19900307000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.729544 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746621 **DATE COLLECTED:** 7 / 23 / 1904

SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 224.5 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 14 **WELL TYPE:** Coal Test

COMMENT: C OF W SD OF 40 WET HL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.0	PLEISTOCENE		UNCONSOLIDATED	14.3	0.0	
422.7	PLEISTOCENE		GRAVEL	2.0	14.3	
420.7	MODESTO		SANDSTONE	2.4	16.3	
418.2	MODESTO		CLAYSTONE	8.2	18.8	BLUE
410.1	MODESTO		BLACK SHALE	3.2	26.9	
406.9	MODESTO	PIASA	LIMESTONE	4.1	30.1	
402.8	MODESTO		BLACK SHALE	2.2	34.2	
400.7	MODESTO		BLACK SHALE	3.3	36.3	
397.3	CARBONDALE	DANVILLE	COAL	1.0	39.7	
396.3	CARBONDALE		SHALE & SILTSTONE	13.8	40.7	BLUE
382.5	CARBONDALE	ALLENBY	COAL	1.7	54.5	
380.8	CARBONDALE	BANKSTON FORK	WHITE LIMESTONE	3.3	56.2	
377.5	CARBONDALE	BANKSTON FORK	BLUE LIMESTONE	1.9	59.5	
375.6	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	0.9	61.4	
374.7	CARBONDALE		BLACK SHALE	1.2	62.3	
373.5	CARBONDALE		SANDSTONE	6.1	63.5	
367.4	CARBONDALE		BLACK SHALE	2.0	69.6	
365.4	CARBONDALE	ANVIL ROCK	WHITE SANDSTONE	8.1	71.6	
357.3	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	7.5	79.7	
349.8	CARBONDALE		SHALE & SILTSTONE	12.6	87.2	BLUE
337.2	CARBONDALE		GRAY LIMESTONE	1.2	99.8	
336.1	CARBONDALE		BLACK SHALE	4.7	100.9	
331.4	CARBONDALE		LIMESTONE	1.2	105.6	
330.2	CARBONDALE		BLACK SHALE	1.7	106.8	
328.6	CARBONDALE	BRERETON	BLUE LIMESTONE	5.7	108.4	
323.0	CARBONDALE	ANNA	BLACK SHALE	5.0	114.0	
317.9	CARBONDALE	HERRIN	COAL	4.5	119.1	
313.4	CARBONDALE		UNDERCLAY	1.2	123.6	
312.2	CARBONDALE	HIGGINSVILLE	BLUE LIMESTONE	0.8	124.8	
311.4	CARBONDALE		SHALE & SILTSTONE	30.0	125.6	BLUE
281.4	CARBONDALE		BLACK SHALE	1.2	155.6	
280.2	CARBONDALE		BLUE LIMESTONE	1.0	156.8	
279.2	CARBONDALE		WHITE LIMESTONE	0.3	157.8	
278.9	CARBONDALE		BLACK SHALE	5.7	158.1	
273.2	CARBONDALE	ST. DAVID	GRAY LIMESTONE	2.2	163.8	
271.1	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	165.9	
268.7	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	48.2	168.3	BLUE
220.6	CARBONDALE	SPRINGFIELD	COAL	5.0	216.4	
215.6	CARBONDALE		BLACK SHALE	3.1	221.4	

MAPID: 19901885000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.740481 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.750647 **DATE COLLECTED:** 10 / 0 / 1955

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 2905.0 **LOG TYPE:** Electric Log

SOURCE: MORAN, E. F., INC., TURMER SPILLER **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
145.0	CARBONDALE	HOUCHIN CREEK	COAL	3.0	315.0	
-	CARBONDALE	SURVANT	COAL	3.0		
36.0	CARBONDALE	COLCHESTER	COAL	0.5	424.0	
-34.0	CARBONDALE	DEKOVEN	COAL	3.0	494.0	
-38.0	CARBONDALE	LOWER DEKOVEN	COAL	1.6	498.0	
-75.0	CARBONDALE	DAVIS	COAL	3.0	535.0	
-153.0	TRADEWATER	SEAHORNE LS	LIMESTONE	3.0	613.0	66% SANDSTONE IN DAVIS-DEKOVEN INTERVAL

MAPID: 19901885000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW SW

QUADRANGLE: HARCO **LONGITUDE:** -88.740481 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.750647 **DATE COLLECTED:** 10 / 0 / 1955

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 1412.0 **LOG TYPE:** Electric Log

SOURCE: MORAN, E. F., INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
40.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	420.0	
25.0	SPOON	DAVIS	UNCLASSIFIED	-	435.0	
-952.0	BASE OF PENN.		UNCLASSIFIED	-	1412.0	

MAPID: 19902447000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NW

QUADRANGLE: HARCO **LONGITUDE:** -88.738254 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.75972 **DATE COLLECTED:** 8 / 0 / 1970

SURFACE ELEVATION (FT.): 537.0 **LOGGED (FT.):** 2885.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD., LAMASTER **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
125.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	412.0	
-	CARBONDALE	SURVANT	COAL	0.8		
12.0	CARBONDALE	COLCHESTER	COAL	0.5	525.0	
-39.5	CARBONDALE	DEKOVEN	COAL	3.0	576.5	
-43.0	CARBONDALE	LOWER DEKOVEN	COAL	1.3	580.0	
-63.0	CARBONDALE	DAVIS	COAL	5.0	600.0	
-108.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	645.0	33% SANDSTONE IN DAVIS-DEKOVEN INTERVAL

MAPID: 19923617000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 321' S line, 645' E line of SE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.727761 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.754355 **DATE COLLECTED:** 11 / 10 / 1980

SURFACE ELEVATION (FT.): 530.9 **LOGGED (FT.):** 264.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. C308C **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
530.9	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	CLAY
524.9	PLEISTOCENE		UNCONSOLIDATED	4.0	6.0	
520.9	MODESTO		SANDSTONE	43.8	10.0	GRAY CORING BEGAN
477.1	MODESTO		SHALE	1.5	53.8	DARK GRAY
475.6	MODESTO		SANDY SHALE	12.9	55.3	GRAY
462.7	MODESTO		SHALE	20.3	68.2	DARK GRAY
442.4	MODESTO		BLACK SHALE	1.0	88.5	
441.4	MODESTO		COAL	0.6	89.5	
440.8	MODESTO		GRAY SHALE	2.4	90.1	
438.4	MODESTO		SANDSTONE	4.9	92.5	LIGHT GRAY
433.5	MODESTO		SANDY SHALE	66.2	97.4	
367.3	MODESTO		SANDSTONE	13.6	163.6	
353.7	MODESTO		SANDY SHALE	4.1	177.2	
349.6	CARBONDALE	DANVILLE	COAL	0.8	181.3	
348.8	CARBONDALE		GRAY SHALE	1.2	182.1	DARK
347.6	CARBONDALE		GRAY SHALE	3.5	183.3	
344.1	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	186.8	
339.1	CARBONDALE		GRAY SHALE	4.9	191.8	
334.2	CARBONDALE		SANDSTONE	3.1	196.7	
331.1	CARBONDALE		GRAY SHALE	4.0	199.8	
327.1	CARBONDALE		SANDY SHALE	1.3	203.8	
325.8	CARBONDALE		SANDSTONE	17.6	205.1	
308.2	CARBONDALE		SANDY SHALE	13.2	222.7	
295.0	CARBONDALE		GRAY SHALE	0.8	235.9	
294.2	CARBONDALE	JAMESTOWN	COAL	0.3	236.7	
293.9	CARBONDALE		LIMESTONE	0.9	237.0	DARK GRAY
293.0	CARBONDALE		GRAY SHALE	1.0	237.9	DARK
292.0	CARBONDALE	BRERETON	LIMESTONE	5.4	238.9	DARK GRAY
286.6	CARBONDALE	ANNA	BLACK SHALE	4.4	244.3	
282.2	CARBONDALE	HERRIN	COAL	5.0	248.7	
277.2	CARBONDALE		UNDERCLAY	3.9	253.7	
273.3	CARBONDALE		SANDY SHALE	6.4	257.6	

MAPID: 19900301000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW SW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724959 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.747556 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 299.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	CARBONDALE	DANVILLE	COAL	0.3	102.0	
-	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	112.0	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	131.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	32.0	138.0	
-	CARBONDALE	HERRIN	COAL	4.6	191.0	
-	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	3.5	198.0	
-	CARBONDALE	BRIAR HILL	COAL	1.1	218.0	
-	CARBONDALE	CANTON		8.0	219.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	293.0	

MAPID: 19900301000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW SW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724959 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.747556 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 299.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	25.0	0.0	
415.0			ROCK	19.0	25.0	
396.0			COAL	1.0	44.0	
395.0			ROCK	57.3	45.0	
337.7			COAL	0.3	102.3	
337.4			ROCK	8.5	102.6	
328.9			COAL	0.8	111.1	
328.2			ROCK	16.0	111.8	
312.2			COAL	1.7	127.8	
310.5			ROCK	41.5	129.5	
269.0			SHALE	6.8	171.0	
262.2			LIMESTONE	4.3	177.8	
258.0			BLACK SHALE	9.4	182.0	
248.6	CARBONDALE	HERRIN	COAL	4.6	191.4	
244.0	CARBONDALE		UNDERCLAY	1.7	196.0	
242.3	CARBONDALE		ROCK	20.5	197.7	
221.8	CARBONDALE	BRIAR HILL	COAL	1.1	218.2	
220.8	CARBONDALE		ROCK	48.7	219.2	
172.1	CARBONDALE		SHALE	25.0	267.9	
147.1	CARBONDALE	SPRINGFIELD	COAL	4.1	292.9	
143.0	CARBONDALE		UNDERCLAY	0.0	297.0	

MAPID: 19900301000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW SW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724959 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.747556 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 299.5 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 115 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
-	PLEISTOCENE		UNCONSOLIDATED	9.0	25.0	
-	MODESTO		BROWN SHALE	10.0	34.0	
-	MODESTO	POND CREEK	COAL	1.0	44.0	
-	MODESTO		UNDERCLAY	1.8	45.0	
-	MODESTO		LIMESTONE	2.8	46.8	
-	MODESTO		SANDSTONE	11.0	49.5	
-	MODESTO		SANDSTONE/SHALE	15.3	60.5	
-	MODESTO		SHALE	15.0	75.8	
-	MODESTO		SANDSTONE/SHALE	4.0	90.8	
-	MODESTO		SHALE	4.5	94.8	
-	MODESTO		SANDSTONE/SHALE	2.0	99.3	
-	MODESTO		SANDSTONE	1.0	101.3	
-	MODESTO		COAL	0.3	102.3	
-	MODESTO		SANDSTONE	8.5	102.6	
-	CARBONDALE	DANVILLE	COAL	0.8	111.1	
-	CARBONDALE		SANDSTONE	4.0	111.8	
-	CARBONDALE		SANDSTONE/SHALE	10.0	115.8	
-	CARBONDALE		SHALE	2.0	125.8	
-	CARBONDALE	ALLENBY	COAL	1.7	127.8	
-	CARBONDALE		UNDERCLAY	1.3	129.5	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	130.8	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	133.8	
-	CARBONDALE		SANDSTONE	8.0	137.8	
-	CARBONDALE		SANDSTONE/SHALE	6.0	145.8	
-	CARBONDALE		SANDSTONE	18.3	151.8	
-	CARBONDALE		SANDSTONE/SHALE	7.8	170.0	
-	CARBONDALE	BRERETON	LIMESTONE	4.3	177.8	
-	CARBONDALE	ANNA	BLACK SHALE	3.8	182.0	
-	CARBONDALE	ENERGY	SANDSTONE/SHALE	5.0	185.8	
-	CARBONDALE	ENERGY	BLACK SHALE	0.7	190.8	
-	CARBONDALE	HERRIN	COAL	4.6	191.4	
-	CARBONDALE		UNDERCLAY	1.7	196.0	
-	CARBONDALE		SANDSTONE	3.5	197.7	
-	CARBONDALE		SANDSTONE/SHALE	17.0	201.2	
-	CARBONDALE	BRIAR HILL	COAL	1.1	218.2	
-	CARBONDALE		SANDSTONE	8.0	219.3	
-	CARBONDALE		SANDSTONE/SHALE	38.1	227.3	
-	CARBONDALE		SANDSTONE/SHALE	27.6	265.3	

-	CARBONDALE	SPRINGFIELD	COAL	4.1	292.9
-	CARBONDALE		UNDERCLAY	2.0	297.0

MAPID: 19900308000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.714135 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.759085 **DATE COLLECTED:** 7 / 11 / 1905

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 251.3 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 33 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
445.0	PLEISTOCENE		UNCONSOLIDATED	29.0	0.0	
416.0	MODESTO		SANDSTONE	36.0	29.0	
380.0	MODESTO		SHALE & SILTSTONE	39.0	65.0	
341.0	MODESTO		COAL	0.3	104.0	
340.7	MODESTO		UNDERCLAY	18.0	104.3	
322.7	MODESTO		SHALE	10.0	122.3	
312.7	MODESTO		SANDSTONE	6.0	132.3	
306.7	MODESTO		SHALE & SILTSTONE	15.0	138.3	
291.7	MODESTO		COAL	0.4	153.3	
291.2	MODESTO		UNDERCLAY	2.3	153.8	
289.0	MODESTO	PIASA	LIMESTONE	3.0	156.0	
286.0	MODESTO		SHALE	5.5	159.0	
280.5	CARBONDALE	DANVILLE	COAL	1.8	164.5	
278.7	CARBONDALE		UNDERCLAY	17.0	166.3	
261.7	CARBONDALE	ALLENBY	COAL	1.0	183.3	
260.7	CARBONDALE		UNDERCLAY	2.0	184.3	
258.7	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	186.3	
250.7	CARBONDALE		SANDSTONE	7.0	194.3	
243.7	CARBONDALE	JAMESTOWN	COAL	0.1	201.3	
243.7	CARBONDALE		SHALE & SANDSTONE	25.0	201.3	
218.7	CARBONDALE	BRERETON	LIMESTONE	2.5	226.3	
216.2	CARBONDALE	ANNA	BLACK SHALE	5.0	228.8	
211.2	CARBONDALE	ENERGY	SHALE	9.3	233.8	
201.9	CARBONDALE	HERRIN	COAL	5.4	243.1	
196.5	CARBONDALE		UNDERCLAY	2.8	248.5	

MAPID: 19900309000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** SW NW NW

QUADRANGLE: HARCO **LONGITUDE:** -88.724453 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.758018 **DATE COLLECTED:** 11 / 28 / 1905

SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 284.0 **LOG TYPE:** Drillers Log

SOURCE: BOG 4 R.R. 94 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
533.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
523.0	MODESTO		SANDSTONE	5.0	10.0	
518.0	MODESTO		SANDY SHALE	30.0	15.0	
488.0	MODESTO		SANDSTONE/SHALE	46.0	45.0	
442.0	MODESTO		COAL	0.1	91.0	
441.9	MODESTO		UNDERCLAY	7.9	91.1	
434.0	MODESTO		SANDY SHALE	22.0	99.0	
412.0	MODESTO		SHALE & SILTSTONE	12.0	121.0	
400.0	MODESTO		BLACK SHALE	5.3	133.0	
394.7	MODESTO	POND CREEK	COAL	1.3	138.3	
393.5	MODESTO		UNDERCLAY	8.5	139.5	
385.0	MODESTO		SANDY SHALE	3.0	148.0	
382.0	MODESTO		CLAYSTONE	18.0	151.0	
364.0	MODESTO		SANDY SHALE	23.0	169.0	
341.0	CARBONDALE	DANVILLE	COAL	2.0	192.0	
339.0	CARBONDALE		UNDERCLAY	3.0	194.0	
336.0	CARBONDALE		SANDY SHALE	4.0	197.0	
332.0	CARBONDALE		BLACK SHALE	4.0	201.0	
328.0	CARBONDALE	ALLENBY	COAL	0.5	205.0	
327.5	CARBONDALE		UNDERCLAY	2.0	205.5	
325.5	CARBONDALE		COAL	0.5	207.5	
325.0	CARBONDALE		UNDERCLAY	5.5	208.0	
319.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	213.5	
314.5	CARBONDALE		UNDERCLAY	4.5	218.5	
310.0	CARBONDALE		SANDY SHALE	3.5	223.0	
306.5	CARBONDALE		BLACK SHALE	5.5	226.5	
301.0	CARBONDALE		SANDY SHALE	34.0	232.0	
267.0	CARBONDALE	JAMESTOWN	COAL	0.3	266.0	
266.7	CARBONDALE		LIMESTONE	0.3	266.3	
266.5	CARBONDALE		BLACK SHALE	1.5	266.5	
265.0	CARBONDALE	BRERETON	LIMESTONE	5.0	268.0	
260.0	CARBONDALE	ANNA	BLACK SHALE	5.0	273.0	
255.0	CARBONDALE	HERRIN	COAL	4.7	278.0	
250.3	CARBONDALE		UNDERCLAY	1.3	282.7	

MAPID: 19900310000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: HARCO **LONGITUDE:** -88.711821 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.754553 **DATE COLLECTED:** 9 / 18 / 1905

SURFACE ELEVATION (FT.): 474.0 **LOGGED (FT.):** 246.3 **LOG TYPE:** Drillers Log

SOURCE: BIG 4 R.R. 68 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
474.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
465.0	MODESTO		SANDSTONE	44.0	9.0	
421.0	MODESTO		GRAY SHALE	5.0	53.0	
416.0	MODESTO		COAL	0.8	58.0	
415.2	MODESTO		UNDERCLAY	0.3	58.8	
415.0	MODESTO		SANDSTONE	11.0	59.0	
404.0	MODESTO		SHALE	9.0	70.0	
395.0	MODESTO		GRAY SHALE	10.8	79.0	
384.2	MODESTO		BLACK SHALE	4.0	89.8	
380.2	MODESTO		COAL	1.0	93.8	
379.2	MODESTO		UNDERCLAY	0.5	94.8	
378.7	MODESTO		SANDSTONE	6.8	95.3	
372.0	MODESTO		UNDERCLAY	2.0	102.0	
370.0	MODESTO		SANDSTONE	10.0	104.0	
360.0	MODESTO		SHALE	66.0	114.0	
294.0	CARBONDALE	DANVILLE	COAL	1.8	180.0	
292.2	CARBONDALE		SANDSTONE/SHALE	4.0	181.8	
288.2	CARBONDALE		BROWN SHALE	4.0	185.8	
284.2	CARBONDALE		SANDSTONE	18.0	189.8	
266.2	CARBONDALE		SHALE	14.3	207.8	
252.0	CARBONDALE		LIMESTONE	1.0	222.0	
251.0	CARBONDALE		BLACK SHALE	4.0	223.0	
247.0	CARBONDALE		SANDSTONE/SHALE	13.3	227.0	
233.7	CARBONDALE		BLACK SHALE	0.2	240.3	
233.6	CARBONDALE	HERRIN	COAL	5.1	240.4	
228.5	CARBONDALE		UNDERCLAY	0.8	245.5	

MAPID: 19900311000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** SE SW NE

QUADRANGLE: HARCO **LONGITUDE:** -88.712968 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.754538 **DATE COLLECTED:** 7 / 6 / 1904

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 250.3 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 12 **WELL TYPE:** Coal Test

COMMENT: SM BD QUKSND

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	26.0	0.0	
-	MODESTO		WHITE SANDSTONE	30.0	26.0	
-	MODESTO		COAL	0.4	56.0	
-	MODESTO		GRAY LIMESTONE	0.3	56.4	
-	MODESTO		COAL	0.8	56.8	
-	MODESTO		UNDERCLAY	0.7	57.5	
-	MODESTO		BLACK SHALE	2.4	58.2	
-	MODESTO		GRAY LIMESTONE	2.1	60.6	
-	MODESTO		SHALE	0.4	62.7	
-	MODESTO		SANDSTONE	3.6	63.1	
-	MODESTO		BLACK SHALE	2.9	66.7	
-	MODESTO		SHALE	2.2	69.6	
-	MODESTO		BLACK SHALE	5.7	71.8	
-	MODESTO		BLACK SHALE	3.3	77.4	
-	MODESTO		BLACK SHALE	4.7	80.7	
-	MODESTO		COAL	0.3	85.3	
-	MODESTO		SHALE	1.6	85.6	
-	MODESTO		SANDSTONE	6.0	87.2	
-	MODESTO		BLACK SHALE	3.0	93.2	
-	MODESTO		SANDSTONE	1.1	96.2	
-	MODESTO		BLACK SHALE	2.5	97.3	
-	MODESTO		BLACK SHALE	2.4	99.8	
-	MODESTO		SHALE	6.5	102.2	
-	MODESTO		SANDSTONE	1.5	108.7	
-	MODESTO		SHALE	1.8	110.2	
-	MODESTO		SANDSTONE	4.0	111.9	
-	MODESTO		SHALE	2.2	115.9	
-	MODESTO		BLACK SHALE	2.0	118.1	
-	MODESTO		SANDSTONE	6.3	120.1	
-	MODESTO		SHALE	1.7	126.4	
-	MODESTO		SANDSTONE	2.3	128.1	
-	MODESTO		SHALE	1.8	130.3	
-	MODESTO		BLACK SHALE	2.0	132.1	
-	MODESTO		BLACK SHALE	2.1	134.1	
-	MODESTO		BLACK SHALE	8.0	136.2	
-	MODESTO		BLACK SHALE	0.8	144.2	
-	MODESTO		COAL	1.3	144.9	
-	MODESTO		SHALE	0.3	146.2	
-	MODESTO	PIASA	BLUE LIMESTONE	3.0	146.5	

-	MODESTO		SHALE	0.7	149.5
-	MODESTO		BLACK SHALE	2.0	150.2
-	MODESTO		BLACK SHALE	3.3	152.2
-	MODESTO		BLACK SHALE	0.3	155.5
-	CARBONDALE	DANVILLE	COAL	2.0	155.8
-	CARBONDALE		BLACK SHALE	3.0	157.8
-	CARBONDALE		BLACK SHALE	1.3	160.8
-	CARBONDALE		BLACK SHALE	3.0	162.1
-	CARBONDALE		SHALE	2.5	165.1
-	CARBONDALE		SANDSTONE	2.7	167.6
-	CARBONDALE		BLACK SHALE	2.5	170.3
-	CARBONDALE	ALLENBY	COAL	0.3	172.8
-	CARBONDALE		BLACK SHALE	2.7	173.1
-	CARBONDALE		COAL	0.2	175.8
-	CARBONDALE		SANDSTONE	2.0	175.9
-	CARBONDALE		BLACK SHALE	2.3	177.9
-	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	180.3
-	CARBONDALE		SANDSTONE	1.0	186.4
-	CARBONDALE		BLACK SHALE	2.0	187.4
-	CARBONDALE		SANDSTONE	5.0	189.4
-	CARBONDALE		BLACK SHALE	0.8	194.4
-	CARBONDALE		BLACK SHALE	2.6	195.3
-	CARBONDALE		SANDSTONE	1.4	197.8
-	CARBONDALE		BLACK SHALE	0.7	199.3
-	CARBONDALE		SANDSTONE	12.8	199.9
-	CARBONDALE		BLACK SHALE	0.2	212.8
-	CARBONDALE		SANDSTONE	6.0	212.9
-	CARBONDALE		BLACK SHALE	4.1	218.9
-	CARBONDALE		SANDSTONE	0.3	223.0
-	CARBONDALE		BLACK SHALE	0.4	223.3
-	CARBONDALE		LIMESTONE	0.6	223.8
-	CARBONDALE		SANDSTONE	1.3	224.3
-	CARBONDALE		BLACK SHALE	6.3	225.6
-	CARBONDALE		BLACK SHALE	8.4	231.9
-	CARBONDALE	HERRIN	COAL	5.5	240.3
-	CARBONDALE		BLACK SHALE	2.0	245.8
-	CARBONDALE		SANDSTONE	2.5	247.8

MAPID: 19901492000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 275' N line, 430' W line of SW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71488 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.74919 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 260.7 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 43-71 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
316.3	CARBONDALE		BLACK SHALE	0.2	204.7	
316.2	CARBONDALE	ALLENBY	COAL	0.3	204.8	
315.9	CARBONDALE		SILTSTONE	0.5	205.1	
315.4	CARBONDALE	BANKSTON FORK	CALCAREOUS SANDSTONE	9.2	205.6	
306.2	CARBONDALE	LAWSON	DARK GRAY SHALE	0.9	214.8	
305.3	CARBONDALE	LAWSON	SANDSTONE	6.8	215.7	
298.5	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	17.0	222.5	
281.5	CARBONDALE	LAWSON	GRAY SHALE	3.0	239.5	
278.5	CARBONDALE	JAMESTOWN	BLACK SHALE	0.3	242.5	
278.2	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	2.2	242.8	
276.0	CARBONDALE	ANNA	BLACK SHALE	4.7	245.0	
271.3	CARBONDALE	ENERGY	DARK GRAY SHALE	2.1	249.7	
269.2	CARBONDALE	ENERGY	GRAY SHALE	4.3	251.8	
265.0	CARBONDALE	HERRIN	COAL	4.7	256.0	

MAPID: 19923618000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 35' N line, 465' W line of SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723896 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.749688 **DATE COLLECTED:** 1 / 9 / 1986

SURFACE ELEVATION (FT.): 455.1 **LOGGED (FT.):** 283.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. C234FF1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
455.1	PLEISTOCENE		CLAY	20.8	0.0	
434.3	MODESTO		COAL	1.2	20.8	SOFT
433.1	MODESTO		GRAY SHALE	2.0	22.0	
431.1	MODESTO		SANDY SHALE	5.5	24.0	GRAY
425.6	MODESTO		SANDSTONE	11.5	29.5	GRAY
414.1	MODESTO		GRAY SHALE	61.0	41.0	
353.1	CARBONDALE	DANVILLE	COAL	1.5	102.0	
351.6	CARBONDALE		GRAY SHALE	2.5	103.5	
349.1	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	106.0	LIGHT GRAY
344.8	CARBONDALE		GRAY SHALE	9.7	110.3	
335.1	CARBONDALE	ANVIL ROCK	SANDSTONE	3.5	120.0	GRAY
331.6	CARBONDALE		SILTY SHALE	9.0	123.5	DARK GRAY
322.6	CARBONDALE		SHALY SANDSTONE	14.4	132.5	GRAY
308.2	CARBONDALE	BRERETON	LIMESTONE	7.2	146.9	DARK GRAY
301.0	CARBONDALE	ANNA	BLACK SHALE	4.3	154.1	
296.7	CARBONDALE	ENERGY	GRAY SHALE	0.5	158.4	
296.2	CARBONDALE	HERRIN	COAL	5.0	158.9	
291.2	CARBONDALE		UNDERCLAY	1.1	163.9	
290.1	CARBONDALE		GRAY SHALE	32.5	165.0	
257.6	CARBONDALE		SANDSTONE	3.0	197.5	GRAY
254.6	CARBONDALE	ST. DAVID	LIMESTONE	1.7	200.5	GRAY
252.9	CARBONDALE	DYKERSBURG	GRAY SHALE	58.8	202.2	
194.1	CARBONDALE	SPRINGFIELD	COAL	9.0	261.0	OLD WORKINGS
185.1	CARBONDALE		GRAY SHALE	13.5	270.0	

MAPID: 19923619000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 12 **QUARTERS/FOOTAGES:** 30' N line, 440' W line of SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723987 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.749694 **DATE COLLECTED:** 1 / 22 / 1986

SURFACE ELEVATION (FT.): 457.6 **LOGGED (FT.):** 275.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. C234FF2 **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
457.6	PLEISTOCENE		CLAY	23.5	0.0	
434.1	MODESTO		SANDY SHALE	17.5	23.5	
416.6	MODESTO		GRAY SHALE	61.0	41.0	
355.6	CARBONDALE	DANVILLE	COAL	1.1	102.0	
354.5	CARBONDALE		UNDERCLAY	0.9	103.1	
353.6	CARBONDALE		GRAY SHALE	2.0	104.0	
351.6	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	106.0	
347.3	CARBONDALE		GRAY SHALE	9.7	110.3	
337.6	CARBONDALE		SANDSTONE	3.5	120.0	
334.1	CARBONDALE		SHALE	9.0	123.5	DARK
325.1	CARBONDALE		SANDSTONE	14.5	132.5	
310.6	CARBONDALE	BRERETON	LIMESTONE	7.0	147.0	
303.6	CARBONDALE	ANNA	BLACK SHALE	4.4	154.0	
299.2	CARBONDALE	ENERGY	GRAY SHALE	0.5	158.4	
298.7	CARBONDALE	HERRIN	COAL	5.0	158.9	
293.7	CARBONDALE		UNDERCLAY	1.1	163.9	
292.6	CARBONDALE		GRAY SHALE	32.5	165.0	
260.1	CARBONDALE		SANDSTONE	3.0	197.5	
257.1	CARBONDALE	ST. DAVID	LIMESTONE	1.7	200.5	
255.4	CARBONDALE	DYKERSBURG	GRAY SHALE	58.3	202.2	
197.1	CARBONDALE	SPRINGFIELD	COAL	8.5	260.5	OLD WORKINGS
188.6	CARBONDALE		GRAY SHALE	6.0	269.0	

MAPID: 19900312000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:**

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.716385 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738915 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 279.2 **LOG TYPE:** Drillers Log

SOURCE: SALINE COAL 129 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0	PLEISTOCENE		UNCONSOLIDATED	21.5	0.0	
418.5	MODESTO		SANDSTONE	23.0	21.5	
395.5	MODESTO		BROWN SHALE	19.0	44.5	
376.5	MODESTO		COAL	1.2	63.5	
375.3	MODESTO		UNDERCLAY	1.3	64.7	
374.0	MODESTO	PIASA	LIMESTONE	1.5	66.0	
372.5	MODESTO		BROWN SHALE	2.5	67.5	
370.0	MODESTO		BLUE SHALE	4.0	70.0	
366.0	CARBONDALE	DANVILLE	COAL	2.5	74.0	
363.5	CARBONDALE		SHALE	10.0	76.5	
353.5	CARBONDALE		SANDSTONE	4.0	86.5	
349.5	CARBONDALE	ALLENBY	COAL	1.0	90.5	
348.5	CARBONDALE		UNDERCLAY	1.5	91.5	
347.0	CARBONDALE		SANDSTONE	3.0	93.0	
344.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	96.0	
340.5	CARBONDALE	ANVIL ROCK	SANDSTONE	16.0	99.5	
324.5	CARBONDALE	ANVIL ROCK	SANDY SHALE	8.0	115.5	
316.5	CARBONDALE	ANVIL ROCK	SANDSTONE	11.8	123.5	
304.7	CARBONDALE		LIMESTONE	1.5	135.3	
303.2	CARBONDALE		BLACK SHALE	1.5	136.8	
301.7	CARBONDALE	BRERETON	LIMESTONE	5.0	138.3	
296.7	CARBONDALE	BRERETON	LIMESTONE	3.0	143.3	
293.7	CARBONDALE	ANNA	BLACK SHALE	2.1	146.3	
291.7	CARBONDALE	HERRIN	COAL	4.6	148.3	
287.1	CARBONDALE		UNDERCLAY	1.5	152.9	
285.6	CARBONDALE		SANDSTONE	3.7	154.4	
281.9	CARBONDALE		SANDY SHALE	19.0	158.1	
262.9	CARBONDALE	BRIAR HILL	COAL	1.5	177.1	
261.4	CARBONDALE		SANDY SHALE	19.7	178.6	
241.7	CARBONDALE		SANDY SHALE	16.0	198.3	
225.7	CARBONDALE		SANDSTONE	8.0	214.3	
217.7	CARBONDALE		SANDY SHALE	51.4	222.3	
166.3	CARBONDALE	SPRINGFIELD	COAL	3.5	273.7	
162.8	CARBONDALE		UNDERCLAY	2.0	277.2	

MAPID: 19900312000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:**

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.716385 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.738915 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 279.2 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	21.0	0.0	
419.0			ROCK	42.5	21.0	
376.5			COAL	1.2	63.5	
375.3			ROCK	9.3	64.7	
366.0	CARBONDALE	DANVILLE	COAL	2.5	74.0	
363.5	CARBONDALE		ROCK	14.0	76.5	
349.5	CARBONDALE	ALLENBY	COAL	1.0	90.5	
348.5	CARBONDALE		ROCK	32.0	91.5	
316.5	CARBONDALE		SANDSTONE	11.8	123.5	
304.7	CARBONDALE		LIMESTONE	1.5	135.3	
303.2	CARBONDALE		BLACK SHALE	1.5	136.8	
301.7	CARBONDALE		LIMESTONE	8.0	138.3	
293.7	CARBONDALE		BLACK SHALE	2.1	146.3	
291.7	CARBONDALE	HERRIN	COAL	4.6	148.3	
287.1	CARBONDALE		UNDERCLAY	1.5	152.9	
285.6	CARBONDALE		ROCK	22.7	154.4	
262.9	CARBONDALE	BRIAR HILL	COAL	1.5	177.1	
261.4	CARBONDALE		ROCK	69.4	178.6	
192.0	CARBONDALE		SHALE	25.7	248.0	
166.3	CARBONDALE	SPRINGFIELD	COAL	3.5	273.7	
162.8	CARBONDALE		UNDERCLAY	0.0	277.2	

MAPID: 19900313000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NW NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719224 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.745794 **DATE COLLECTED:** 7 / 31 / 1904

SURFACE ELEVATION (FT.): 442.0 **LOGGED (FT.):** 239.2 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 13 **WELL TYPE:** Coal Test

COMMENT: WET HL SW COR OF C40

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
442.0	PLEISTOCENE		UNCONSOLIDATED	44.5	0.0	
397.5	MODESTO		SANDSTONE	12.0	44.5	
385.5	MODESTO		BLACK SHALE	2.6	56.5	
382.9	CARBONDALE	DANVILLE	COAL	1.7	59.1	
381.2	CARBONDALE		BLACK SHALE	1.1	60.8	
380.2	CARBONDALE	BANKSTON FORK	GRAY LIMESTONE	7.2	61.8	
373.0	CARBONDALE		BLACK SHALE	4.4	69.0	
368.6	CARBONDALE		BLACK SHALE	1.4	73.4	
367.2	CARBONDALE		BLACK SHALE	1.8	74.8	
365.4	CARBONDALE		WHITE SANDSTONE	2.3	76.6	
363.1	CARBONDALE		BLUE LIMESTONE	1.6	78.9	
361.5	CARBONDALE		BLACK SHALE	7.3	80.5	
354.2	CARBONDALE	ANVIL ROCK	SANDSTONE	15.5	87.8	
338.7	CARBONDALE	BRERETON	LIMESTONE	10.9	103.3	
327.7	CARBONDALE	ANNA	BLACK SHALE	4.3	114.3	
323.5	CARBONDALE	HERRIN	COAL	4.5	118.5	
319.0	CARBONDALE		UNDERCLAY	0.3	123.0	
318.7	CARBONDALE		BLACK SHALE	1.5	123.3	
317.2	CARBONDALE		SANDSTONE	11.0	124.8	
306.2	CARBONDALE		SHALE & SILTSTONE	23.5	135.8	BLUE
282.7	CARBONDALE		BLACK SHALE	7.3	159.3	
275.3	CARBONDALE		WHITE SANDSTONE	11.0	166.7	
264.3	CARBONDALE		BLACK SHALE	3.6	177.7	
260.7	CARBONDALE		BROWN SANDSTONE	32.5	181.3	
228.2	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	20.6	213.8	BLUE
207.7	CARBONDALE	SPRINGFIELD	COAL	4.8	234.3	

MAPID: 19900313000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NW NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719224 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.745794 **DATE COLLECTED:** 7 / 31 / 1904

SURFACE ELEVATION (FT.): 442.0 **LOGGED (FT.):** 239.2 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
442.0			UNCONSOLIDATED	44.5	0.0	
397.5			ROCK	14.6	44.5	
382.9			COAL	1.7	59.1	
381.2			ROCK	32.3	60.8	
349.0			SANDSTONE	10.3	93.0	
338.7			LIMESTONE	10.9	103.3	
327.7			BLACK SHALE	4.3	114.3	
323.5	CARBONDALE	HERRIN	COAL	4.5	118.5	
319.0	CARBONDALE		UNDERCLAY	0.3	123.0	
318.7	CARBONDALE		ROCK	90.7	123.3	
228.0	CARBONDALE		SHALE	20.3	214.0	
207.7	CARBONDALE	SPRINGFIELD	COAL	4.8	234.3	

MAPID: 19900314000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.70893 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739396 **DATE COLLECTED:** 8 / 23 / 1904

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 440.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL CO. 16 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
-	MODESTO		SANDSTONE	0.3	30.0	
-	CARBONDALE	DANVILLE	COAL	3.3	30.3	
-	CARBONDALE		BLACK SHALE	2.0	33.6	
-	CARBONDALE		SANDSTONE	7.0	35.6	
-	CARBONDALE		BLACK SHALE	0.6	42.6	
-	CARBONDALE		SANDSTONE	3.5	43.2	
-	CARBONDALE		BLACK SHALE	6.2	46.7	
-	CARBONDALE	ALLENBY	COAL	0.8	52.8	
-	CARBONDALE		SANDSTONE	8.6	53.6	
-	CARBONDALE		SHALE	1.0	62.2	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	63.2	
-	CARBONDALE		BLACK SHALE	4.0	66.7	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	5.4	70.7	
-	CARBONDALE		BLACK SHALE	3.5	76.1	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	79.6	
-	CARBONDALE		BLACK SHALE	2.4	85.6	
-	CARBONDALE		BLACK SHALE	4.0	88.0	
-	CARBONDALE		SANDSTONE	3.5	92.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.5	95.5	
-	CARBONDALE	ANNA	BLACK SHALE	6.4	102.0	
-	CARBONDALE	HERRIN	COAL	2.5	108.4	
-	CARBONDALE		SHALE	3.0	110.9	
-	CARBONDALE		SANDSTONE	6.0	113.9	
-	CARBONDALE		BLACK SHALE	2.5	119.9	
-	CARBONDALE		SANDSTONE	4.0	122.4	
-	CARBONDALE		SHALE	3.5	126.4	
-	CARBONDALE		BLACK SHALE	5.0	129.9	
-	CARBONDALE		SANDSTONE	3.0	134.9	
-	CARBONDALE		BLACK SHALE	4.0	137.9	
-	CARBONDALE		SHALE	1.0	141.9	
-	CARBONDALE		SANDSTONE	43.5	142.9	
-	CARBONDALE		BLACK SHALE	7.5	186.4	
-	CARBONDALE		SANDSTONE	4.0	193.9	
-	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	36.2	197.9	LIGHT
-	CARBONDALE		BLACK SHALE	0.5	234.1	
-	CARBONDALE	SPRINGFIELD	COAL	3.8	234.6	
-	CARBONDALE		BLACK SHALE	3.5	238.4	
-	CARBONDALE		SANDSTONE	4.6	241.9	

-	CARBONDALE		BLUE LIMESTONE	4.5	246.5	
-	CARBONDALE		SANDSTONE	7.5	251.0	
-	CARBONDALE		BLACK SHALE	2.2	258.5	
-	CARBONDALE		SANDSTONE	6.4	260.7	
-	CARBONDALE		SHALE & SILTSTONE	24.2	267.1	LIGHT
-	CARBONDALE		SANDSTONE	9.0	291.3	
-	CARBONDALE	HANOVER	BLUE LIMESTONE	5.0	300.3	
-	CARBONDALE	EXCELLO	BLACK SHALE	2.7	305.3	
-	CARBONDALE	HOUCHIN CREEK	COAL	1.3	307.9	
-	CARBONDALE		LIMESTONE	3.8	309.3	
-	CARBONDALE		SANDSTONE	20.0	313.1	
-	CARBONDALE		SHALE & SILTSTONE	21.0	333.1	LIGHT
-	CARBONDALE	SURVANT	COAL	1.5	354.1	
-	CARBONDALE		BLACK SHALE	7.0	355.6	
-	CARBONDALE		BLACK SHALE	5.0	362.6	
-	CARBONDALE		BLACK SHALE	3.1	367.6	
-	CARBONDALE		SANDSTONE	2.4	370.7	
-	CARBONDALE		SHALE & SILTSTONE	14.0	373.1	LIGHT
-	CARBONDALE		SANDSTONE	7.0	387.1	
-	CARBONDALE		BLACK SHALE	8.5	394.1	
-	CARBONDALE		SANDSTONE	3.8	402.6	
-	CARBONDALE		BLACK SHALE	7.0	406.4	
-	CARBONDALE		SANDSTONE	4.1	413.4	
-	CARBONDALE	MECCA QUARRY	BLACK SHALE	8.0	417.5	
-	CARBONDALE	MECCA QUARRY	BLACK SHALE	0.3	425.5	
-	CARBONDALE	COLCHESTER	COAL	0.2	425.8	
-	CARBONDALE		SANDSTONE	3.5	426.0	
-	CARBONDALE		LIMESTONE	5.5	429.5	
-	CARBONDALE		UNKNOWN	5.0	435.0	

MAPID: 19900314000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.70893 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.739396 **DATE COLLECTED:** 8 / 23 / 1904

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 440.0 **LOG TYPE:** Drillers Log

SOURCE: PEABODY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	30.0	0.0	
400.0			SANDSTONE	0.3	30.0	
399.7			COAL	3.3	30.3	
396.4			ROCK	19.3	33.6	
377.2			COAL	0.8	52.8	
376.4			ROCK	54.8	53.6	
321.6	CARBONDALE	HERRIN	COAL	2.5	108.4	
319.1	CARBONDALE		ROCK	98.7	110.9	
220.4	CARBONDALE		SHALE	25.0	209.6	
195.4	CARBONDALE	SPRINGFIELD	COAL	3.8	234.6	
191.6			ROCK	69.5	238.4	
122.1			COAL	1.3	307.9	
120.8			ROCK	70.3	309.2	
75.9			COAL	1.5	354.1	
74.4			ROCK	70.2	355.6	
4.2			COAL	0.2	425.8	
4.0			ROCK	0.0	426.0	

MAPID: 19900315000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NW SW NE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720411 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.736609 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 228.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
390.0	CARBONDALE	DANVILLE	COAL	2.3	35.0	
371.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	54.0	
365.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	29.0	60.0	
317.0	CARBONDALE	HERRIN	COAL	5.3	108.0	
288.0	CARBONDALE	BRIAR HILL	COAL	1.0	137.0	
267.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	6.0	158.0	
204.0	CARBONDALE	SPRINGFIELD	COAL	5.1	221.0	

MAPID: 19900315000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NW SW NE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720411 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.736609 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 227.8 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	5.0	0.0	
445.0			ROCK	14.0	5.0	
431.0			COAL	0.8	19.0	
430.2			ROCK	15.0	19.8	
415.2	CARBONDALE	DANVILLE	COAL	2.3	34.8	
412.8	CARBONDALE		SHALE	14.8	37.2	
398.0	CARBONDALE	ALLENBY	COAL	1.0	52.0	
397.0	CARBONDALE		ROCK	29.0	53.0	
368.0	CARBONDALE		SANDSTONE	6.8	82.0	
361.2	CARBONDALE		SHALE	9.0	88.8	
352.2	CARBONDALE		LIMESTONE	5.8	97.8	
346.5	CARBONDALE		BLACK SHALE	2.5	103.5	
344.0	CARBONDALE		LIMESTONE	1.0	106.0	
343.0	CARBONDALE		BLACK SHALE	0.6	107.0	
342.4	CARBONDALE	HERRIN	COAL	5.3	107.6	
337.1	CARBONDALE		UNDERCLAY	1.0	112.9	
336.1	CARBONDALE		ROCK	23.0	113.9	
313.1	CARBONDALE	BRIAR HILL	COAL	1.0	136.9	
312.1	CARBONDALE		ROCK	57.1	137.9	
255.0	CARBONDALE		SHALE	25.8	195.0	
229.2	CARBONDALE	SPRINGFIELD	COAL	5.2	220.8	
224.2	CARBONDALE		UNDERCLAY	0.0	225.8	

MAPID: 19900315000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NW SW NE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720411 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.736609 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 113.3 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 122 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
432.0	MODESTO	PIASA	LIMESTONE	3.3	23.0	
428.7	MODESTO		SHALE	8.0	26.3	
420.7	CARBONDALE	DANVILLE	COAL	2.3	34.3	
418.3	CARBONDALE		GRAY SHALE	14.8	36.7	
403.5	CARBONDALE	ALLENBY	COAL	1.0	51.5	
402.5	CARBONDALE		CLAYSTONE	1.0	52.5	
401.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	53.5	
395.8	CARBONDALE	LAWSON	SANDSTONE	10.0	59.2	
385.8	CARBONDALE	LAWSON	GRAY SHALE	4.0	69.2	
381.8	CARBONDALE	LAWSON	SANDSTONE	15.0	73.2	
366.8	CARBONDALE	LAWSON	SILTY SHALE	9.0	88.2	
357.8	CARBONDALE	BRERETON	LIMESTONE W/ SHALE	9.3	97.2	
348.5	CARBONDALE	ANNA	BLACK SHALE	0.6	106.5	
347.0	CARBONDALE	HERRIN	COAL	5.3	108.0	

MAPID: 19900315000C **VERSION:** 4 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** NW SW NE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720411 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.736609 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 227.8 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 122 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
425.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
420.0	MODESTO		SANDSTONE	12.0	5.0	
408.0	MODESTO		SHALE	2.0	17.0	
406.0	MODESTO		COAL	0.8	19.0	
405.2	MODESTO		UNDERCLAY	3.4	19.8	
401.7	MODESTO	PIASA	LIMESTONE	3.6	23.3	
398.2	MODESTO		BLACK SHALE	2.0	26.8	
396.2	MODESTO		SANDSTONE/SHALE	6.0	28.8	
390.2	CARBONDALE	DANVILLE	COAL	2.3	34.8	
387.8	CARBONDALE		SHALE	14.8	37.2	
373.0	CARBONDALE	ALLENBY	COAL	1.0	52.0	
372.0	CARBONDALE		UNDERCLAY	1.0	53.0	
371.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	54.0	
365.2	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	59.8	
355.2	CARBONDALE	ANVIL ROCK	SHALE	4.0	69.8	
351.2	CARBONDALE	ANVIL ROCK	SANDSTONE	15.0	73.8	
336.2	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	9.0	88.8	
327.2	CARBONDALE	BRERETON	LIMESTONE	5.8	97.8	
321.5	CARBONDALE	ANNA	BLACK SHALE	2.5	103.5	
319.0	CARBONDALE	ANNA	LIMESTONE	1.0	106.0	
318.0	CARBONDALE	ANNA	BLACK SHALE	0.6	107.0	
317.4	CARBONDALE	HERRIN	COAL	5.3	107.6	
312.1	CARBONDALE		UNDERCLAY	1.0	112.9	
311.1	CARBONDALE		SANDSTONE/SHALE	23.0	113.9	
288.1	CARBONDALE	BRIAR HILL	COAL	1.0	136.9	
287.1	CARBONDALE		SANDSTONE/SHALE	20.0	137.9	
267.1	CARBONDALE		SANDSTONE	6.0	157.9	
261.1	CARBONDALE		SANDSTONE/SHALE	47.1	163.9	
214.0	CARBONDALE		SHALE	9.8	211.0	
204.2	CARBONDALE	SPRINGFIELD	COAL	0.5	220.8	
203.7	CARBONDALE	SPRINGFIELD	SHALE	0.3	221.3	
203.5	CARBONDALE	SPRINGFIELD	COAL	4.3	221.5	
199.2	CARBONDALE		UNDERCLAY	2.0	225.8	

MAPID: 19900316000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.725021 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732044 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 152.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 163 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
418.0	PLEISTOCENE		UNCONSOLIDATED	26.9	0.0	
391.1	CARBONDALE	HERRIN	COAL	5.0	26.9	TOP MAY BE ERODED
386.1	CARBONDALE		UNDERCLAY	4.0	31.9	
382.1	CARBONDALE		LIGHT SHALE	34.1	35.9	
348.0	CARBONDALE		SANDY SHALE	5.0	70.0	
343.0	CARBONDALE		SANDSTONE	39.0	75.0	
304.0	CARBONDALE		LIGHT SHALE	5.0	114.0	
299.0	CARBONDALE		SANDY SHALE	9.0	119.0	
290.0	CARBONDALE		DARK SHALE	18.5	128.0	
271.5	CARBONDALE	SPRINGFIELD	COAL	4.3	146.5	
267.2	CARBONDALE		UNDERCLAY	1.2	150.8	

MAPID: 19900316000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.725021 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.732044 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 152.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
418.0			UNCONSOLIDATED	26.9	0.0	
391.1	CARBONDALE	HERRIN	COAL	5.0	26.9	
386.1	CARBONDALE		UNDERCLAY	4.0	31.9	
382.1	CARBONDALE		ROCK	85.1	35.9	
297.0	CARBONDALE		BLACK SHALE	25.5	121.0	
271.5	CARBONDALE	SPRINGFIELD	COAL	4.3	146.5	
267.2	CARBONDALE		UNDERCLAY	0.0	150.8	

MAPID: 19900727000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** 0' S line, 1320' W line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721011 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.731567 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL 19R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0	PLEISTOCENE		SOIL	25.0	0.0	AND CLAY
405.0	CARBONDALE		SHALE & SILTSTONE	25.0	25.0	GRAY
380.0	CARBONDALE		GRAY SANDSTONE	10.0	50.0	

MAPID: 19900728000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** 0' S line, 660' W line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723305 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.73158 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL 20R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0	PLEISTOCENE		SOIL	24.0	0.0	AND CLAY
406.0			SHALE & SILTSTONE	15.0	24.0	GRAY
391.0			GRAY SANDSTONE	11.0	39.0	

MAPID: 19900729000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW NE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720414 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735693 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY CO. 18D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0	PLEISTOCENE		SOIL	16.0	0.0	AND CLAY
414.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	24.0	16.0	
390.0	CARBONDALE		BLACK SHALE	2.0	40.0	
388.0	CARBONDALE	JAMESTOWN	COAL	0.5	42.0	
387.5	CARBONDALE		BLACK SHALE	1.5	42.5	
386.0	CARBONDALE	BRERETON	LIMESTONE	8.5	44.0	
377.5	CARBONDALE	ANNA	BLACK SHALE	2.5	52.5	
375.0	CARBONDALE	HERRIN	COAL	5.3	55.0	
369.7	CARBONDALE		UNDERCLAY	0.7	60.3	

MAPID: 19900729000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW NE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720414 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.735693 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	16.0	0.0	
414.0			ROCK	11.0	16.0	
403.0			SANDSTONE	13.0	27.0	
390.0			SHALE	2.0	40.0	
388.0			COAL	0.5	42.0	
387.5			SHALE	1.5	42.5	
386.0			LIMESTONE	8.0	44.0	
378.0			BLACK SHALE	3.0	52.0	
375.0	CARBONDALE	HERRIN	COAL	5.3	55.0	
370.0			UNDERCLAY	0.0	60.0	

MAPID: 199273B0010F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE NW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723865 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.733867 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 20.3 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Underground mine

COMMENT: SLOPE MINE IN DAVIS COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	SPOON	DEKOVEN	COAL	2.5		
-	SPOON		UNKNOWN	15.0		
-	SPOON	DAVIS	COAL	2.8		

MAPID: 19900317000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.735885 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 197.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST (BIG 4) 164 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.0	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
436.0	PLEISTOCENE		SAND & GRAVEL	6.0	7.0	
430.0	CARBONDALE	DANVILLE	COAL	1.3	13.0	BLACK
428.7	CARBONDALE		SANDSTONE	5.8	14.3	
423.0	CARBONDALE		SHALE	4.8	20.0	
418.2	CARBONDALE		COAL	0.2	24.8	
418.0	CARBONDALE		SHALE	1.0	25.0	
417.0	CARBONDALE		SANDSTONE	5.0	26.0	
412.0	CARBONDALE		DARK SHALE	2.6	31.0	
409.4	CARBONDALE	ALLENBY	COAL	1.3	33.6	
408.2	CARBONDALE		CLAYSTONE & SHALE	3.2	34.8	
405.0	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	38.0	
395.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	26.0	48.0	
369.0	CARBONDALE		SANDY SHALE	5.0	74.0	
364.0	CARBONDALE	JAMESTOWN	COAL	0.3	79.0	
363.7	CARBONDALE		DARK SHALE	0.7	79.3	
363.0	CARBONDALE	BRERETON	BLUE LIMESTONE	7.3	80.0	
355.7	CARBONDALE	ANNA	BLACK SHALE	3.7	87.3	
352.1	CARBONDALE	HERRIN	COAL	5.3	90.9	
346.8	CARBONDALE		UNDERCLAY	0.8	96.2	
346.0	CARBONDALE		CLAYSTONE	3.0	97.0	
343.0	CARBONDALE		SANDY SHALE	6.0	100.0	
337.0	CARBONDALE		SANDY SHALE	28.3	106.0	
308.7	CARBONDALE	BRIAR HILL	COAL	1.3	134.3	
307.3	CARBONDALE	BRIAR HILL	DARK SHALE	1.0	135.7	
306.3	CARBONDALE	BRIAR HILL	COAL	0.5	136.7	
305.8	CARBONDALE		DARK SHALE	4.8	137.2	
301.0	CARBONDALE		SANDY SHALE	5.0	142.0	
296.0	CARBONDALE	ST. DAVID	BLUE LIMESTONE	3.0	147.0	
293.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	150.0	
290.0	CARBONDALE	DYKERSBURG	DARK SHALE	25.0	153.0	
265.0	CARBONDALE	DYKERSBURG	SANDY SHALE	13.1	178.0	
251.9	CARBONDALE	SPRINGFIELD	COAL	0.3	191.1	
251.7	CARBONDALE	SPRINGFIELD	COAL	4.2	191.3	
247.5	CARBONDALE		UNDERCLAY	1.5	195.5	

MAPID: 19900317000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.735885 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.739729 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 197.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.0			UNCONSOLIDATED	7.0	0.0	
436.0			ROCK	17.8	7.0	
418.2			COAL	0.2	24.8	
418.0			ROCK	8.6	25.0	
409.4			COAL	1.3	33.6	
408.2			ROCK	30.2	34.8	
378.0			SHALE	14.0	65.0	
364.0			COAL	0.3	79.0	
363.7			BLACK SHALE	0.7	79.3	
363.0			LIMESTONE	7.3	80.0	
355.7			BLACK SHALE	3.7	87.3	
352.1	CARBONDALE	HERRIN	COAL	5.3	90.9	
346.8	CARBONDALE		UNDERCLAY	0.8	96.2	
346.0	CARBONDALE		ROCK	37.3	97.0	
308.7	CARBONDALE	BRIAR HILL	COAL	1.3	134.3	
307.3	CARBONDALE		SHALE	1.2	135.7	
306.1	CARBONDALE		COAL	0.5	136.9	
305.8	CARBONDALE		ROCK	28.8	137.2	
277.0	CARBONDALE		BLACK SHALE	12.0	166.0	
265.0	CARBONDALE		SANDSTONE	13.1	178.0	
251.9	CARBONDALE	SPRINGFIELD	COAL	4.4	191.1	
247.5	CARBONDALE		UNDERCLAY	0.0	195.5	

MAPID: 19900318000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727866 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.737047 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 204.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
428.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	6.0	15.0	
417.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	26.0	
411.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	18.0	32.0	
360.0	CARBONDALE	HERRIN	COAL	5.2	83.0	
245.0	CARBONDALE	SPRINGFIELD	COAL	4.3	198.0	

MAPID: 19900318000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727866 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.737047 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 204.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.0			UNCONSOLIDATED	15.0	0.0	
428.0			ROCK	8.5	15.0	
419.5			COAL	1.0	23.5	
418.5			ROCK	38.5	24.5	
380.0			SHALE	11.0	63.0	
369.0			LIMESTONE	5.0	74.0	
364.0			BLACK SHALE	4.0	79.0	
360.0	CARBONDALE	HERRIN	COAL	5.2	83.0	
354.8	CARBONDALE		UNDERCLAY	2.8	88.2	
352.0	CARBONDALE		ROCK	81.5	91.0	
270.5	CARBONDALE		BLACK SHALE	25.0	172.5	
245.5	CARBONDALE	SPRINGFIELD	COAL	4.3	197.5	
241.2	CARBONDALE		UNDERCLAY	0.0	201.8	

MAPID: 19900318000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727866 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.737047 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 204.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 162 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
428.0	CARBONDALE		SANDSTONE	6.0	15.0	
422.0	CARBONDALE		SANDY SHALE	2.5	21.0	
419.5	CARBONDALE	ALLENBY	COAL	1.0	23.5	
418.5	CARBONDALE		UNDERCLAY	1.5	24.5	
417.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	26.0	
413.5	CARBONDALE		SHALE	2.0	29.5	
411.5	CARBONDALE	ANVIL ROCK	SANDSTONE	5.5	31.5	
406.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	5.0	37.0	
401.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	42.0	
393.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	24.0	50.0	
369.0	CARBONDALE	BRERETON	BLACK LIMESTONE	5.0	74.0	
364.0	CARBONDALE	ANNA	BLACK SHALE	4.0	79.0	
360.0	CARBONDALE	HERRIN	COAL	5.2	83.0	
354.8	CARBONDALE		UNDERCLAY	2.8	88.2	
352.0	CARBONDALE		SANDY SHALE	26.5	91.0	
325.5	CARBONDALE		DARK SHALE	80.0	117.5	
245.5	CARBONDALE	SPRINGFIELD	COAL	4.3	197.5	
241.2	CARBONDALE		UNDERCLAY	2.2	201.8	

MAPID: 19900319000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.742224 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734639 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 424.0 **LOGGED (FT.):** 393.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. 161 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
424.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
416.0	PLEISTOCENE		SAND & GRAVEL	19.5	8.0	
396.5	CARBONDALE		SHALE	0.5	27.5	
396.0	CARBONDALE	JAMESTOWN	COAL	0.2	28.0	
395.8	CARBONDALE	BRERETON	BLUE LIMESTONE	8.8	28.2	
387.1	CARBONDALE	ANNA	BLACK SHALE	3.1	36.9	
384.0	CARBONDALE	HERRIN	COAL	3.3	40.0	
380.7	CARBONDALE	HERRIN	GRAY SHALE	0.1	43.3	BLUE
380.6	CARBONDALE	HERRIN	COAL	0.8	43.4	
379.7	CARBONDALE	HERRIN	UNCLASSIFIED	0.1	44.3	
379.7	CARBONDALE	HERRIN	COAL	1.1	44.3	
378.6	CARBONDALE		UNDERCLAY	0.6	45.4	
378.0	CARBONDALE		CLAYSTONE & SHALE	3.0	46.0	
375.0	CARBONDALE	HIGGINSVILLE	SHALY LIMESTONE	3.0	49.0	
372.0	CARBONDALE		SANDY SHALE	13.0	52.0	
359.0	CARBONDALE		GRAY SHALE	20.0	65.0	
339.0	CARBONDALE		SANDY SHALE	1.3	85.0	
337.7	CARBONDALE		SHALE	1.5	86.3	
336.2	CARBONDALE		BLACK SHALE	7.8	87.8	
328.5	CARBONDALE		SANDSTONE	3.5	95.5	
325.0	CARBONDALE		SANDSTONE	5.0	99.0	
320.0	CARBONDALE		SHALE	3.0	104.0	
317.0	CARBONDALE		SANDY SHALE	28.8	107.0	
288.2	CARBONDALE	SPRINGFIELD	COAL	4.2	135.8	
284.0	CARBONDALE		UNDERCLAY	1.0	140.0	
283.0	CARBONDALE		SHALE	3.3	141.0	
279.7	CARBONDALE		SHALY SANDSTONE	22.3	144.3	
257.5	CARBONDALE		SANDY SHALE	2.5	166.5	
255.0	CARBONDALE		GRAY SHALE	36.0	169.0	
219.0	CARBONDALE		BLUE SHALE	12.0	205.0	
207.0	CARBONDALE		BLUE SHALE	1.7	217.0	
205.3	CARBONDALE	EXCELLO	BLACK SHALE	4.6	218.7	
200.7	CARBONDALE	HOUCHIN CREEK	COAL	2.2	223.3	
198.6	CARBONDALE		SANDSTONE	12.6	225.4	
186.0	CARBONDALE		SANDY SHALE	25.0	238.0	
161.0	CARBONDALE		SHALE	7.3	263.0	
153.7	CARBONDALE	SURVANT	COAL	1.2	270.3	
152.5	CARBONDALE		SANDY SHALE	4.5	271.5	
148.0	CARBONDALE		BLUE SHALE	56.0	276.0	

92.0	CARBONDALE	MECCA QUARRY	BLACK SHALE	1.8	332.0
90.2	CARBONDALE	COLCHESTER	COAL	0.3	333.8
90.0	CARBONDALE		SANDSTONE	6.0	334.0
84.0	CARBONDALE		SANDSTONE	6.0	340.0
78.0	CARBONDALE		SANDSTONE	0.7	346.0
77.3	CARBONDALE		SANDY SHALE	3.3	346.7
74.0	CARBONDALE		SANDY SHALE	14.0	350.0
60.0	CARBONDALE		SANDSTONE	1.0	364.0
59.0	CARBONDALE		SANDY SHALE	8.0	365.0
51.0	CARBONDALE		DARK SHALE	16.4	373.0
34.6	CARBONDALE	DEKOVEN	COAL	2.6	389.4
32.0	CARBONDALE		BLACK SHALE	0.3	392.0
31.7	CARBONDALE		UNDERCLAY	0.7	392.3

MAPID: 19900319000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.742224 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.734639 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 424.0 **LOGGED (FT.):** 393.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
424.0			UNCONSOLIDATED	8.0	0.0	
416.0			ROCK	20.0	8.0	
396.0			COAL	0.2	28.0	
395.8			LIMESTONE	8.7	28.2	
387.2			BLACK SHALE	3.2	36.8	
384.0	CARBONDALE	HERRIN	COAL	5.4	40.0	
378.5	CARBONDALE		UNDERCLAY	0.5	45.5	
378.0	CARBONDALE		ROCK	64.0	46.0	
314.0	CARBONDALE		SHALE	25.8	110.0	
288.2	CARBONDALE	SPRINGFIELD	COAL	4.2	135.8	
284.0			UNDERCLAY	1.0	140.0	
283.0			ROCK	82.3	141.0	
200.7			COAL	2.2	223.3	
198.6			ROCK	44.9	225.4	
153.7			COAL	1.2	270.3	
152.5			ROCK	62.3	271.5	
90.2			COAL	0.3	333.8	
90.0			ROCK	55.4	334.0	
34.6			COAL	2.6	389.4	
32.0			ROCK	0.0	392.0	

MAPID: 19900408700M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW NE NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727288 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.737506 **DATE COLLECTED:** 0 / 0 / 1948
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 189.2 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-BLUEBIRD C C MINE # 7 **WELL TYPE:** Underground mine
COMMENT: DATA FROM I. B. M. COAL REPORT 1955.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNKNOWN	185.0	0.0	
265.0	CARBONDALE	SPRINGFIELD	COAL	4.2	185.0	

MAPID: 19900715000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:**
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73017 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735201 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 35.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 18R **WELL TYPE:** Coal Test
COMMENT: SE CORNER OF SECTION 14

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
407.0	CARBONDALE		GRAY SHALE	1.0	23.0	
406.0	CARBONDALE	BRERETON	LIMESTONE	3.0	24.0	
403.0	CARBONDALE	ANNA	BLACK SHALE	2.0	27.0	
401.0	CARBONDALE	HERRIN	COAL	5.5	29.0	
395.5	CARBONDALE		UNDERCLAY	0.5	34.5	

MAPID: 19900716000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.728466 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732021 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 51.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 17R **WELL TYPE:** Coal Test
COMMENT: 1320' W OF SE CORNER OF SECTION 14

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	24.0	0.0	
406.0	CARBONDALE		SANDY SHALE	7.0	24.0	
399.0	CARBONDALE		BLACK SHALE	2.0	31.0	
397.0	CARBONDALE	BRERETON	LIMESTONE	9.0	33.0	
388.0	CARBONDALE	ANNA	BLACK SHALE	3.0	42.0	
385.0	CARBONDALE	HERRIN	COAL	5.3	45.0	
379.7	CARBONDALE		UNDERCLAY	0.7	50.3	

MAPID: 19900716000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.728466 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.732021 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 51.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT: OTHER LOGS IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	24.0	0.0	
406.0			SHALE	9.0	24.0	
397.0			LIMESTONE	9.0	33.0	
388.0			BLACK SHALE	3.0	42.0	
385.0	CARBONDALE	HERRIN	COAL	5.3	45.0	
379.7			UNDERCLAY	0.0	50.3	

MAPID: 19900717000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.729598 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.73475 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.2 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL & MNG.16R **WELL TYPE:** Coal Test
COMMENT: CENTER OF SE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.2	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
405.2	CARBONDALE		GRAY SHALE	8.0	25.0	
397.2	CARBONDALE		BLUE SHALE	11.0	33.0	
386.2	CARBONDALE	BRERETON	LIMESTONE	9.0	44.0	
377.2	CARBONDALE	ANNA	BLACK SHALE	3.0	53.0	
374.2	CARBONDALE	HERRIN	COAL	6.0	56.0	
368.2	CARBONDALE		UNDERCLAY	1.0	62.0	

MAPID: 19900717000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.729598 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.73475 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	25.0	0.0	
405.0			SHALE	19.0	25.0	
386.0			LIMESTONE	9.0	44.0	
377.0			BLACK SHALE	3.0	53.0	
374.0	CARBONDALE	HERRIN	COAL	6.0	56.0	
368.0			UNDERCLAY	0.0	62.0	

MAPID: 19900718000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1320' S line, 1320' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730173 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73519 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 15R **WELL TYPE:** Coal Test

COMMENT: 1320' S OF CENTER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0	PLEISTOCENE		UNCONSOLIDATED	24.0	0.0	
411.0	CARBONDALE		GRAY SHALE	8.0	24.0	
403.0	CARBONDALE		BLUE SHALE	13.0	32.0	
390.0	CARBONDALE	BRERETON	LIMESTONE	8.0	45.0	
382.0	CARBONDALE	ANNA	BLACK SHALE	3.0	53.0	
379.0	CARBONDALE	HERRIN	COAL	5.0	56.0	
374.0	CARBONDALE		UNDERCLAY	1.0	61.0	

MAPID: 19900718000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1320' S line, 1320' W line of SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730173 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.73519 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 16.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0			UNCONSOLIDATED	24.0	0.0	
411.0			SHALE	21.0	24.0	
390.0			LIMESTONE	8.0	45.0	
382.0			BLACK SHALE	3.0	53.0	
379.0	CARBONDALE	HERRIN	COAL	5.0	56.0	
374.0			UNDERCLAY	0.0	61.0	

MAPID: 19900719000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1300' S line, 1' W line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743941 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735001 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 436.2 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 12D **WELL TYPE:** Coal Test
COMMENT: 1300' N OF SW CORNER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
436.2	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
416.2	PLEISTOCENE		SAND & GRAVEL	5.0	20.0	
411.2	CARBONDALE		SANDSTONE	5.0	25.0	
406.2	CARBONDALE		BLUE SHALE	4.0	30.0	
402.2	CARBONDALE	BRERETON	LIMESTONE	5.0	34.0	
397.2	CARBONDALE	ANNA	BLACK SHALE	2.0	39.0	
395.2	CARBONDALE	ENERGY	GRAY SHALE	2.0	41.0	
393.2	CARBONDALE	HERRIN	COAL	6.0	43.0	
387.2	CARBONDALE		UNDERCLAY	1.0	49.0	

MAPID: 19900719000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1300' S line, 1' W line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743941 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.735001 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
436.0			UNCONSOLIDATED	25.0	0.0	
411.0			SANDSTONE	5.0	25.0	
406.0			SHALE	4.0	30.0	
402.0			LIMESTONE	5.0	34.0	
397.0			BLACK SHALE	4.0	39.0	
393.0	CARBONDALE	HERRIN	COAL	6.0	43.0	
387.0	CARBONDALE		UNDERCLAY	0.0	49.0	

MAPID: 19900720000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NE SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739929 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.734659 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 446.8 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 13D **WELL TYPE:** Coal Test
COMMENT: HOLE LOC. CENTRAL SW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
446.8	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
431.8	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	15.0	
421.8	CARBONDALE	ANVIL ROCK	SANDY SHALE	15.0	25.0	
406.8	CARBONDALE	ANVIL ROCK	BLUE SHALE	12.5	40.0	
394.3	CARBONDALE	JAMESTOWN	COAL	0.5	52.5	
393.8	CARBONDALE	BRERETON	LIMESTONE	8.0	53.0	
385.8	CARBONDALE	ANNA	BLACK SHALE	3.0	61.0	
382.8	CARBONDALE	HERRIN	COAL	5.7	64.0	
377.1	CARBONDALE		UNDERCLAY	0.3	69.7	

MAPID: 19900720000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NE SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739929 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.734659 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
447.0			UNCONSOLIDATED	15.0	0.0	
432.0			ROCK	24.0	15.0	
408.0			SHALE	13.5	39.0	
394.5			COAL	0.5	52.5	
394.0			LIMESTONE	8.0	53.0	
386.0			BLACK SHALE	3.0	61.0	
383.0	CARBONDALE	HERRIN	COAL	5.7	64.0	

MAPID: 19900721000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 2500' S line, 290' W line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.742922 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.738323 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 27.5 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 14D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
436.0	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
418.0	PLEISTOCENE		SAND & GRAVEL	4.0	18.0	
414.0	CARBONDALE	HERRIN	COAL	5.0	22.0	TOP ERODED
409.0	CARBONDALE		UNDERCLAY	0.5	27.0	

MAPID: 19900721000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 2500' S line, 290' W line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.742922 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.738323 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT: OTHER LOGS IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
436.0			UNCONSOLIDATED	22.0	0.0	
414.0	CARBONDALE	HERRIN	COAL	5.5	22.0	
409.0			UNDERCLAY	0.0	27.0	

MAPID: 19900722000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 0' S line, 1130' W line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.740036 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.731452 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 431.2 **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL & MNG.15D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
431.2	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
406.2	PLEISTOCENE		SAND & GRAVEL	11.0	25.0	
395.2			SANDY LIMESTONE	4.0	36.0	
391.2			SANDY SHALE	15.0	40.0	

MAPID: 19900723000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' S line, 660' W line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.741664 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732347 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 432.8 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 16D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
432.8	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
407.8	PLEISTOCENE		SAND & GRAVEL	11.0	25.0	
396.8	CARBONDALE	BRERETON	LIMESTONE	3.0	36.0	
393.8	CARBONDALE	ANNA	BLACK SHALE	3.0	39.0	
390.8	CARBONDALE	HERRIN	COAL	5.5	42.0	
385.3	CARBONDALE		UNDERCLAY	0.5	47.5	

MAPID: 19900724000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SE NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.72615 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735691 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL & MNG.17D **WELL TYPE:** Coal Test
COMMENT: 1320'N OF SE CORNER, CELSE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0	
414.0	CARBONDALE		SANDY SILTSTONE	15.0	16.0	GRAY
399.0	CARBONDALE		SANDY SHALE	12.0	31.0	
387.0	CARBONDALE	JAMESTOWN	COAL	0.5	43.0	
386.5	CARBONDALE		BLUE SHALE	2.5	43.5	
384.0	CARBONDALE	BRERETON	LIMESTONE	8.0	46.0	
376.0	CARBONDALE	ANNA	BLACK SHALE	3.5	54.0	
372.5	CARBONDALE	HERRIN	COAL	5.5	57.5	
367.0	CARBONDALE		UNDERCLAY	1.0	63.0	

MAPID: 19900724000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SE NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.72615 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.735691 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	16.0	0.0	
414.0			ROCK	16.0	16.0	
398.0			SHALE	11.5	32.0	
387.0			COAL	0.5	43.0	
386.5			BLACK SHALE	10.5	43.5	
376.0			LIMESTONE	3.5	54.0	
372.5			BLACK SHALE	5.5	57.5	
367.0			COAL	0.0	63.0	

MAPID: 19900725000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1' N line, 1320' W line of SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73934 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738785 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 80.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG 23D **WELL TYPE:** Coal Test

COMMENT: 1320'WEST OF CENTER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0	PLEISTOCENE		UNCONSOLIDATED	15.5	0.0	
419.5	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	15.5	
415.5	CARBONDALE	ANVIL ROCK	GRAY SHALE	1.5	19.5	
414.0	CARBONDALE	ANVIL ROCK	SANDSTONE	20.0	21.0	
394.0	CARBONDALE	ANVIL ROCK	BLUE SHALE	17.0	41.0	
377.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	2.0	58.0	
375.0	CARBONDALE	BRERETON	BLUE LIMESTONE	1.0	60.0	
374.0	CARBONDALE	ANNA	BLACK SHALE	4.0	61.0	
370.0	CARBONDALE	ENERGY	BLUE SHALE	8.5	65.0	
361.5	CARBONDALE	HERRIN	COAL	6.0	73.5	
355.5	CARBONDALE		UNDERCLAY	0.5	79.5	

MAPID: 19900725000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1' N line, 1320' W line of SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73934 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.738785 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 80.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0			UNCONSOLIDATED	15.5	0.0	
419.5			ROCK	32.5	15.5	
387.0			SHALE	12.0	48.0	
375.0			LIMESTONE	1.0	60.0	
374.0			BLACK SHALE	4.0	61.0	
370.0			SHALE	8.5	65.0	
361.5	CARBONDALE	HERRIN	COAL	6.0	73.5	
355.5			UNDERCLAY	0.0	79.5	

MAPID: 19900726000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733025 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.738376 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 22D **WELL TYPE:** Coal Test
COMMENT: CENTER OF SECTION 14

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
436.0	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
418.0	CARBONDALE		SANDSTONE	6.0	18.0	
412.0	CARBONDALE		BLUE SHALE	4.0	24.0	
408.0	CARBONDALE	ALLENBY	COAL	0.5	28.0	
407.5	CARBONDALE		UNDERCLAY	2.0	28.5	
405.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	30.5	
400.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	14.0	36.0	
386.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	16.0	50.0	
370.0	CARBONDALE	ANVIL ROCK	BLUE SHALE	11.5	66.0	
358.5	CARBONDALE	JAMESTOWN	COAL	0.5	77.5	
358.0	CARBONDALE	BRERETON	LIMESTONE	7.5	78.0	
350.5	CARBONDALE	ANNA	BLACK SHALE	3.0	85.5	
347.5	CARBONDALE	HERRIN	COAL	5.7	88.5	
341.8	CARBONDALE		UNDERCLAY	0.8	94.2	

MAPID: 19900726000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733025 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.738376 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
436.0			UNCONSOLIDATED	18.0	0.0	
418.0			ROCK	10.0	18.0	
408.0			COAL	0.5	28.0	
407.5			ROCK	34.5	28.5	
373.0			SHALE	14.5	63.0	
358.5			COAL	0.5	77.5	
358.0			LIMESTONE	7.0	78.0	
351.0			BLACK SHALE	3.5	85.0	
347.5	CARBONDALE	HERRIN	COAL	5.7	88.5	
341.8			UNDERCLAY	0.0	94.2	

MAPID: 19902307000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 0' N line, 0' W line

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743891 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.746095 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 484.0 **LOGGED (FT.):** 152.4 **LOG TYPE:** Survey Core Study

SOURCE: AYRSHIRE COLLIERIES C-201 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0	MODESTO	PIASA	LIMESTONE	4.0	54.0	
426.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.1	58.0	LOWER BENCH
422.9	CARBONDALE	LAWSON	SHALE & SILTSTONE	42.6	61.1	
380.3	CARBONDALE	LAWSON	SHALE & SILTSTONE	42.6	103.7	
337.8	CARBONDALE	CONANT	LIMESTONE/UNDERCLAY	0.3	146.2	
337.4	CARBONDALE	JAMESTOWN	BONE COAL	0.3	146.6	
337.1	CARBONDALE		CALCAREOUS SHALE	1.6	146.9	
335.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	4.8	148.5	
330.7	CARBONDALE	ANNA	BLACK SHALE	4.7	153.3	
337.0	CARBONDALE	HERRIN	COAL	5.4	147.0	

MAPID: 19902413000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1650' N line, 660' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727878 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.734316 **DATE COLLECTED:** 6 / 0 / 1970

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 2760.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD., PENN CENTRAL A **WELL TYPE:** Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
177.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	248.0	
-	CARBONDALE	SURVANT	COAL	2.0		
49.0	CARBONDALE	COLCHESTER	COAL	0.5	376.0	
7.0	CARBONDALE	DEKOVEN	COAL	3.0	418.0	
2.0	CARBONDALE	LOWER DEKOVEN	COAL	2.0	423.0	
-16.0	CARBONDALE	DAVIS	COAL	3.0	441.0	
-68.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	493.0	10% SANDSTONE IN DAVIS-DEKOVEN INTERVAL

MAPID: 19902413000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 1650' N line, 660' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727878 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.734316 **DATE COLLECTED:** 6 / 0 / 1970

SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 1390.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-965.0	BASE OF PENN.		UNCLASSIFIED	-	1390.0	

MAPID: 19922747000C **VERSION:** 1 **PROJECT:** NCRDS92

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW NW NW NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743322 **GEOLOGIST:** C TREWORGY

CONFIDENTIAL: N **LATITUDE:** 37.745639 **DATE COLLECTED:** 0 / 0 / 1977

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 555.0 **LOG TYPE:** Drillers Log

SOURCE: PAUL WEIR 94141 **WELL TYPE:** Coal Test

COMMENT: LOG SAYS 'CORE OBTAINED BY I.G.S'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0			UNCLASSIFIED	293.0	0.0	GEOPHYSICAL LOG AVAILABLE
192.0	CARBONDALE		DARK GRAY SHALE	9.8	293.0	
182.2	CARBONDALE		DARK GRAY SHALE	6.0	302.8	
176.2	CARBONDALE		DARK GRAY SHALE	3.7	308.8	
172.5	CARBONDALE		DARK GRAY SHALE	6.0	312.5	
166.5	CARBONDALE		DARK GRAY SHALE	0.5	318.5	
166.0	CARBONDALE	EXCELLO	BLACK SHALE	2.8	319.0	
163.2	CARBONDALE	EXCELLO	BLACK SHALE	1.2	321.8	
162.0	CARBONDALE	EXCELLO	DARK GRAY SHALE	0.6	323.0	
161.4	CARBONDALE	HOUCHIN CREEK	COAL	2.0	323.6	
159.4	CARBONDALE		DARK SHALE	2.4	325.6	
157.0	CARBONDALE		SANDSTONE	3.0	328.0	
154.0	CARBONDALE		SANDSTONE	2.0	331.0	
152.0	CARBONDALE		SANDSTONE	2.0	333.0	
150.0	CARBONDALE		SANDSTONE	5.9	335.0	
144.1	CARBONDALE		SANDSTONE	1.2	340.9	
142.9	CARBONDALE		GRAY SILTSTONE	8.6	342.1	
134.3	CARBONDALE		GRAY SILTSTONE	9.7	350.7	
124.6	CARBONDALE		GRAY SILTSTONE	2.0	360.4	
122.6	CARBONDALE		DARK GRAY SHALE	6.5	362.4	
116.1	CARBONDALE		DARK GRAY SHALE	1.2	368.9	
114.9	CARBONDALE		DARK GRAY SHALE	3.5	370.1	WITH FINE DEBRIS AND PYRITE TRAILS
111.4	CARBONDALE	SURVANT	COAL	1.6	373.6	
109.8	CARBONDALE		SANDSTONE	1.8	375.2	
108.0	CARBONDALE		SANDSTONE	1.9	377.0	
106.1	CARBONDALE		SANDSTONE	1.2	378.9	
104.9	CARBONDALE		DARK GRAY SHALE	5.9	380.1	
99.0	CARBONDALE		DARK GRAY SHALE	2.6	386.0	
96.4	CARBONDALE		DARK GRAY SHALE	1.0	388.6	WITH SIDERITE AND CALCITE NODULES
95.4	CARBONDALE		DARK GRAY SHALE	4.4	389.6	CONTAINS 'LINGULA' AND BANDS NEAR BASE
91.0	CARBONDALE		DARK GRAY SHALE	4.4	394.0	HAS THIN, LGY SILTY INTERLAMINATIONS
86.6	CARBONDALE		DARK GRAY SHALE	6.6	398.4	
80.0	CARBONDALE		DARK GRAY SHALE	3.2	405.0	CONTAINS LENSES & NODULES OF SIDERITE
76.8	CARBONDALE		DARK GRAY SHALE	9.7	408.2	
67.1	CARBONDALE		DARK GRAY SHALE	5.2	417.9	
61.9	CARBONDALE		DARK GRAY SHALE	1.2	423.1	CALC, ABUNDANT COARSE CRINOID DEBRIS
60.7	CARBONDALE		DARK GRAY SHALE	3.2	424.3	CONTAINS CARBONACEOUS PLANT DEBRIS
57.5	CARBONDALE		DARK GRAY SHALE	2.0	427.5	

55.5	CARBONDALE		DARK GRAY SHALE	7.8	429.5	CONTAINS BRACHIPOD FRAGMENTS
47.7	CARBONDALE		DARK GRAY SHALE	0.5	437.3	
47.2	CARBONDALE	MECCA QUARRY	BLACK SHALE	2.1	437.8	CONTAINS SMALL FOSSIL FRAGMENTS
45.1	CARBONDALE	COLCHESTER	COAL	0.5	439.9	
44.6	SPOON		UNDERCLAY	0.2	440.4	
44.4	SPOON		GRAY SANDSTONE	1.1	440.6	
43.3	SPOON		GRAY SANDSTONE	2.1	441.7	
41.2	SPOON		GRAY SANDSTONE	3.1	443.8	CONTAINS ARGILLACEOUS LAMINATIONS
38.1	SPOON		GRAY SANDSTONE	9.8	446.9	
28.3	SPOON		GRAY SANDSTONE	10.0	456.7	
18.3	SPOON		GRAY SANDSTONE	1.9	466.7	
16.4	SPOON		SANDSTONE	1.4	468.6	INTERLACED WITH SHALE
15.0	SPOON		GRAY SILTSTONE	1.6	470.0	BEDDED W/ CALC SH & MICACEOUS LAMIN
13.4	SPOON		GRAY SILTSTONE	0.3	471.6	BEDDED W/ ALTERNATING CALC SH LENSES
13.1	SPOON		GRAY SILTSTONE	4.5	471.9	OCCASIONAL SS LAMINAE
8.6	SPOON		GRAY SILTSTONE	1.6	476.4	
7.0	SPOON		SANDSTONE	0.4	478.0	ALTERNATING BANDS OF LIGHTLY COLORED SS
6.6	SPOON		SANDSTONE	0.3	478.4	
6.3	SPOON		GRAY SANDSTONE	3.5	478.7	
2.8	SPOON		GRAY SILTSTONE	3.9	482.2	OCCASIONAL SS LENSES
-1.1	SPOON		GRAY SILTSTONE	2.2	486.1	
-3.3	SPOON		DARK GRAY SHALE	7.5	488.3	OCCASIONAL CLAYSTONE BANDS & NODULES
-10.8	SPOON		DARK GRAY SHALE	1.5	495.8	CONTAINS MANY LENSES/LAMINAR OF SIDERITE
-12.3	SPOON	DEKOVEN	COAL	2.5	497.3	DEKOVEN/GREENBUSH COAL (UPPER BENCH)
-14.7	SPOON		BLACK SHALE	3.0	499.7	
-17.7	SPOON	DEKOVEN	COAL	1.4	502.7	DEKOVEN/GREENBUSH LOWER BENCH COAL
-19.0	SPOON		CLAYSTONE & SILTSTONE	1.3	504.0	
-20.3	SPOON		BLACK SHALE	2.0	505.3	
-22.3	SPOON		DARK GRAY SHALE	3.3	507.3	CONTAINS THIN BANDS OF LGY SILTSTONE
-25.6	SPOON		GRAY SHALE	3.1	510.6	WITH SANDSTONE BANDS AND LAMINAE
-28.7	SPOON		GRAY SHALE	1.0	513.7	WITH SANDSTONE BANDS AND LAMINAE
-29.7	SPOON		DARK GRAY SHALE	8.7	514.7	WITH DARK BROWN SIDERITIC BANDS & LAMINA
-38.4	SPOON		BLACK SHALE	9.8	523.4	ABUNDANT MICACEOUS LENSES & BANDS
-48.2	SPOON		BLACK SHALE	0.8	533.2	
-49.0	SPOON		DARK GRAY SHALE	1.0	534.0	APPEARS TO CONTAIN FINE FOSSIL DEBRIS
-50.0	SPOON		BROWN SHALE	1.5	535.0	BROWN INTERLAMINATED WITH BLACK
-51.5	SPOON		DARK GRAY SHALE	1.1	536.5	
-52.6	SPOON	DAVIS	COAL	0.3	537.6	
-52.9	SPOON	DAVIS	DARK GRAY SHALE	0.6	537.9	INTERLAYERED WITH LGY SANDSTONE
-53.5	SPOON	DAVIS	COAL	1.3	538.5	INTERBEDDED WITH SH
-54.8	SPOON		DARK GRAY SHALE	0.4	539.8	
-55.2	SPOON		GRAY SILTSTONE	0.8	540.2	UPPER PART INTERLAMINATED WITH LGY
-56.0	SPOON		DARK GRAY SHALE	1.1	541.0	CARBONACEOUS W/ LARGE PLANT IMPRESSIONS¿
-57.1	SPOON		BLACK SHALE	0.7	542.1	
-57.8	SPOON		BLACK SHALE	1.7	542.8	
-59.5	SPOON		GRAY SANDSTONE	7.9	544.5	UPPER 2' CONTAINS PLANT DEBRIS

-67.4	SPOON	GRAY SANDSTONE	2.5	552.4	LOCAL MICROFAULTING. RESULT OF SLUMPING
-69.9	SPOON	UNCLASSIFIED	0.1	554.9	LOG SAYS 'CORE LOSS - NOTE IN BOX'

MAPID: 19923620000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 135' S line, 0' E line of NW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730187 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.735538 **DATE COLLECTED:** 6 / 17 / 1987

SURFACE ELEVATION (FT.): 454.1 **LOGGED (FT.):** 66.8 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. 87KD36 **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
454.1	PLEISTOCENE		MINE OPENING	8.0	0.0	SPOILS
446.1	PLEISTOCENE		MINE OPENING	56.0	8.0	SPOILS
390.1			GRAY SHALE	2.5	64.0	
387.6			LIMESTONE	0.3	66.5	GRAY

MAPID: 19923621000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 220' N line, 365' E line of NW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.731415 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.738048 **DATE COLLECTED:** 6 / 18 / 1987

SURFACE ELEVATION (FT.): 463.4 **LOGGED (FT.):** 73.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. 87KD37 **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
463.4	PLEISTOCENE		MINE OPENING	63.0	0.0	SPOILS
400.4			GRAY SHALE	0.7	63.0	
399.7			LIMESTONE	0.8	63.7	
398.9			SHALE	8.5	64.5	

MAPID: 19900320000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NE NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750302 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.744746 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 208.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
434.0	CARBONDALE	DANVILLE	COAL	1.2	26.0	
412.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.7	48.0	
404.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	21.0	56.0	
354.0	CARBONDALE	HERRIN	COAL	5.7	106.0	
344.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	17.0	116.0	
305.0	CARBONDALE	BRIAR HILL	COAL	0.3	155.0	
259.0	CARBONDALE	SPRINGFIELD	COAL	4.4	201.0	

MAPID: 19900320000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NE NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750302 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.744746 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 207.5 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	15.0	0.0	
415.0			ROCK	11.0	15.0	
404.0	CARBONDALE	DANVILLE	COAL	1.2	26.0	
402.8	CARBONDALE		ROCK	53.8	27.2	
349.0	CARBONDALE		BLACK SHALE	10.8	81.0	
338.2	CARBONDALE		LIMESTONE	1.5	91.8	
336.7	CARBONDALE		BLACK SHALE	13.2	93.3	
323.5	CARBONDALE	HERRIN	COAL	5.7	106.5	
317.8	CARBONDALE		UNDERCLAY	4.0	112.2	
313.8	CARBONDALE		ROCK	38.7	116.2	
275.2	CARBONDALE		COAL	0.3	154.8	
274.9	CARBONDALE		ROCK	20.9	155.1	
254.0	CARBONDALE		BLACK SHALE	25.0	176.0	
229.0	CARBONDALE	SPRINGFIELD	COAL	4.4	201.0	
224.6	CARBONDALE		UNDERCLAY	0.0	205.4	

MAPID: 19900322000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.746206 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.742458 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 110.8 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. 159 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
424.9	CARBONDALE	ALLENBY	COAL	1.0	39.1	
423.9	CARBONDALE		CLAYSTONE	3.2	40.1	
420.7	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	43.3	
415.3	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	20.6	48.7	
394.7	CARBONDALE	LAWSON	SILTY SHALE	22.0	69.3	
372.7	CARBONDALE	JAMESTOWN	COAL	0.3	91.3	
372.5	CARBONDALE	BRERETON	LIMESTONE	9.8	91.5	
362.7	CARBONDALE	ANNA	BLACK SHALE	3.8	101.3	
359.0	CARBONDALE	HERRIN	COAL	5.8	105.0	

MAPID: 19900322000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.746206 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.742458 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 202.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
454.0			UNCONSOLIDATED	26.0	0.0	
428.0			ROCK	12.1	26.0	
415.9			COAL	1.0	38.1	
414.9			ROCK	39.9	39.1	
375.0			SHALE	12.0	79.0	
363.0			COAL	0.3	91.0	
362.7			LIMESTONE	9.8	91.3	
353.0			BLACK SHALE	3.8	101.0	
349.2	CARBONDALE	HERRIN	COAL	5.8	104.8	
343.4	CARBONDALE		UNDERCLAY	1.4	110.6	
342.0	CARBONDALE		ROCK	37.7	112.0	
304.3	CARBONDALE		COAL	0.3	149.7	
304.0	CARBONDALE		LIMESTONE	0.3	150.0	
303.7	CARBONDALE		COAL	0.3	150.3	
303.4	CARBONDALE		SHALE	1.4	150.6	
302.0	CARBONDALE		COAL	0.6	152.0	
301.4	CARBONDALE		ROCK	18.4	152.6	
283.0	CARBONDALE		SHALE	25.6	171.0	
257.4	CARBONDALE	SPRINGFIELD	COAL	4.2	196.6	
253.2	CARBONDALE		UNDERCLAY	0.0	200.8	

MAPID: 19900322000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.746206 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.742458 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 454.0 **LOGGED (FT.):** 202.0 **LOG TYPE:** Drillers Log

SOURCE: GUARANTEE TRUST CO. 159 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.0	PLEISTOCENE		CLAY	26.0	0.0	
428.0	CARBONDALE		SANDSTONE/SHALE	12.8	26.0	
415.2	CARBONDALE	ALLENBY	COAL	1.0	38.8	
414.2	CARBONDALE		SHALE	3.2	39.8	
411.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.4	43.0	
405.6	CARBONDALE	ANVIL ROCK	SANDSTONE	20.6	48.4	
385.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	22.0	69.0	
363.0	CARBONDALE	JAMESTOWN	COAL	0.3	91.0	
362.7	CARBONDALE	BRERETON	BLUE LIMESTONE	9.8	91.3	
353.0	CARBONDALE	ANNA	BLACK SHALE	1.0	101.0	
352.0	CARBONDALE	ANNA	BLACK SHALE	2.8	102.0	
349.2	CARBONDALE	HERRIN	COAL	5.8	104.8	
343.4	CARBONDALE		UNDERCLAY	1.4	110.6	
342.0	CARBONDALE		SANDSTONE/SHALE	37.0	112.0	
305.0	CARBONDALE		LIMESTONE	0.7	149.0	
304.3	CARBONDALE	BRIAR HILL	COAL	0.3	149.7	
304.0	CARBONDALE	BRIAR HILL	LIMESTONE	0.3	150.0	
303.7	CARBONDALE	BRIAR HILL	COAL	0.3	150.3	
303.4	CARBONDALE	BRIAR HILL	LIMESTONE	1.4	150.6	
302.0	CARBONDALE	BRIAR HILL	COAL	0.6	152.0	
301.4	CARBONDALE		SANDSTONE/SHALE	10.4	152.6	
291.0	CARBONDALE	ST. DAVID	LIMESTONE	4.0	163.0	
287.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	167.0	
284.0	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	14.0	170.0	
270.0	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	12.6	184.0	
257.4	CARBONDALE	SPRINGFIELD	COAL	4.2	196.6	
253.2	CARBONDALE		UNDERCLAY	1.3	200.8	

MAPID: 19900324000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760229 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733393 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 285.0 **LOG TYPE:** Drillers Log

SOURCE: CHAS OWENS 4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0	PLEISTOCENE		UNCONSOLIDATED	5.5	0.0	
450.5	CARBONDALE	ANVIL ROCK	SANDSTONE	6.5	5.5	
444.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	28.0	12.0	
416.0	CARBONDALE	BRERETON	LIMESTONE	8.0	40.0	
408.0	CARBONDALE	ANNA	BLACK SHALE	3.0	48.0	
405.0	CARBONDALE	HERRIN	COAL	6.0	51.0	
399.0	CARBONDALE		UNDERCLAY	4.0	57.0	
395.0	CARBONDALE		SANDSTONE/SHALE	39.0	61.0	
356.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	100.0	
355.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	101.0	
349.0	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	17.0	107.0	
332.0	CARBONDALE	DYKERSBURG	LIMESTONE	2.0	124.0	
330.0	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	21.0	126.0	
309.0	CARBONDALE	SPRINGFIELD	COAL	4.5	147.0	
304.5	CARBONDALE		UNDERCLAY	5.5	151.5	
299.0	CARBONDALE		SANDSTONE/SHALE	49.0	157.0	
250.0	CARBONDALE		LIGHT SHALE	21.0	206.0	
229.0	CARBONDALE	EXCELLO	BLACK SHALE	5.0	227.0	
224.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	232.0	
222.0	CARBONDALE		UNDERCLAY	6.0	234.0	
216.0	CARBONDALE		SHALE	26.0	240.0	
190.0	CARBONDALE		SHALE & SILTSTONE	15.0	266.0	
175.0	CARBONDALE	SURVANT	COAL	1.3	281.0	
173.7	CARBONDALE		UNDERCLAY	1.0	282.3	
172.7	CARBONDALE		SHALE	1.8	283.3	

MAPID: 19900326000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.749761 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734216 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 159.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 167 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0	PLEISTOCENE		BROWN SANDSTONE	9.0	0.0	
426.0	CARBONDALE		SOFT SHALE	7.0	9.0	
419.0	CARBONDALE		SANDY SHALE	11.0	16.0	
408.0	CARBONDALE	ANNA	BLACK SHALE	0.5	27.0	
407.5	CARBONDALE	ANNA	SHALE/COAL	0.5	27.5	
407.0	CARBONDALE	ANNA	BLACK SHALE	2.0	28.0	
405.0	CARBONDALE	ENERGY	DARK SHALE	15.3	30.0	
389.7	CARBONDALE	HERRIN	COAL	0.8	45.3	
389.0	CARBONDALE	HERRIN	GRAY SHALE	0.1	46.0	BLUE
388.9	CARBONDALE	HERRIN	COAL	2.6	46.1	
386.3	CARBONDALE	HERRIN	PYRITE	0.1	48.7	
386.2	CARBONDALE	HERRIN	COAL	2.0	48.8	
384.2	CARBONDALE		UNDERCLAY	1.3	50.8	
383.0	CARBONDALE		SHALE	2.0	52.0	
381.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	11.0	54.0	
370.0	CARBONDALE		SANDY SHALE	11.0	65.0	
359.0	CARBONDALE	BRIAR HILL	COAL	0.2	76.0	
358.8	CARBONDALE		SANDY SHALE	12.8	76.2	
346.0	CARBONDALE		SANDSTONE/SHALE	12.0	89.0	
334.0	CARBONDALE		SANDSTONE	28.0	101.0	
306.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	129.0	
302.0	CARBONDALE	DYKERSBURG	DARK SHALE	20.6	133.0	
281.4	CARBONDALE	SPRINGFIELD	COAL	4.3	153.6	
277.2	CARBONDALE		UNDERCLAY	1.2	157.8	

MAPID: 19900326000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.749761 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.734216 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 159.0 **LOG TYPE:** Drillers Log
SOURCE: GUARANTEE TRUST CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
435.0			UNCONSOLIDATED	9.0	0.0	
426.0			ROCK	11.0	9.0	
415.0			SHALE	7.0	20.0	
408.0			BLACK SHALE	0.5	27.0	
407.5			COAL	0.5	27.5	
407.0			BLACK SHALE	17.3	28.0	
389.7	CARBONDALE	HERRIN	COAL	5.5	45.3	
384.2	CARBONDALE		UNDERCLAY	1.3	50.8	
383.0	CARBONDALE		ROCK	24.0	52.0	
359.0	CARBONDALE	BRIAR HILL	COAL	0.2	76.0	
358.8	CARBONDALE		ROCK	51.8	76.2	
307.0	CARBONDALE		SANDSTONE	1.0	128.0	
306.0	CARBONDALE		BLACK SHALE	24.6	129.0	
281.4	CARBONDALE	SPRINGFIELD	COAL	5.4	153.6	
276.0	CARBONDALE		UNDERCLAY	0.0	159.0	

MAPID: 19900680000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:**
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753235 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.738816 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 85.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 25R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
435.0	PLEISTOCENE		SOIL	21.0	0.0	
414.0	CARBONDALE		SANDSTONE	4.0	21.0	
410.0	CARBONDALE		BLACK SHALE	6.0	25.0	
404.0	CARBONDALE		LIMESTONE	2.0	31.0	
402.0	CARBONDALE		BLACK SHALE	3.0	33.0	
399.0	CARBONDALE		BLACK SHALE	3.0	36.0	
396.0	CARBONDALE		SHALE & SILTSTONE	23.0	39.0	BLUE
373.0	CARBONDALE	ANNA	BLACK SHALE	3.0	62.0	
370.0	CARBONDALE	ENERGY	SHALE & SILTSTONE	13.5	65.0	GRAY
356.5	CARBONDALE	HERRIN	COAL	6.0	78.5	
350.5	CARBONDALE		UNDERCLAY	0.5	84.5	

MAPID: 19900681000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1990' N line, 0' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743955 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733262 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 447.9 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 14R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
447.9	PLEISTOCENE		SOIL	26.0	0.0	
421.9	CARBONDALE		BLACK SHALE	5.0	26.0	
416.9	CARBONDALE	BRERETON	LIMESTONE	5.3	31.0	
411.6	CARBONDALE	ANNA	BLACK SHALE	4.8	36.3	
406.9	CARBONDALE	HERRIN	COAL	5.7	41.0	
401.2	CARBONDALE		UNDERCLAY	1.3	46.7	

MAPID: 19900682000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1220' N line, 0' W line of SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753245 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.735448 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 69.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 11D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SOIL	14.0	0.0	
-	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	21.0	14.0	GRAY
-	CARBONDALE	ANVIL ROCK	SANDSTONE	4.0	35.0	
-	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	11.0	39.0	GRAY
-	CARBONDALE		BLACK SHALE	1.0	50.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	51.0	
-	CARBONDALE		BLACK SHALE	0.5	51.5	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	52.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.5	58.0	
-	CARBONDALE	HERRIN	COAL	7.0	61.5	
-	CARBONDALE		UNDERCLAY	0.5	68.5	

MAPID: 19900683000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1320' N line, 0' W line of SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762549 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.735235 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 465.6 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 8R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.6	PLEISTOCENE		SOIL	16.0	0.0	
449.6	CARBONDALE		SANDSTONE	6.0	16.0	
443.6	CARBONDALE		BLACK SHALE	5.0	22.0	
438.6	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	25.0	27.0	BLUE
413.6	CARBONDALE	BRERETON	LIMESTONE	2.0	52.0	
411.6	CARBONDALE	ANNA	BLACK SHALE	5.0	54.0	
406.6	CARBONDALE	HERRIN	COAL	1.0	59.0	CORRELATION UNCERTAIN
405.6	CARBONDALE		UNDERCLAY	3.0	60.0	

MAPID: 19900684000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1600' N line, 1420' E line of SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758185 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734434 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 444.1 **LOGGED (FT.):** 53.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 11R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
444.1	PLEISTOCENE		SOIL	10.0	0.0	
434.1	CARBONDALE		SHALE & SILTSTONE	14.0	10.0	GRAY
420.1	CARBONDALE		SHALE & SILTSTONE	12.0	24.0	BLUE
408.1	CARBONDALE	BRERETON	LIMESTONE	5.0	36.0	
403.1	CARBONDALE	ANNA	BLACK SHALE	3.0	41.0	
400.1	CARBONDALE		CLAYSTONE	3.0	44.0	
397.1	CARBONDALE	HERRIN	COAL	5.7	47.0	
391.4	CARBONDALE		UNDERCLAY	0.3	52.7	

MAPID: 19900711000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 2640' S line, 1320' E line of SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748514 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.738747 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 69.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 26R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0	PLEISTOCENE		SOIL	23.0	0.0	
412.0	CARBONDALE		BLACK SHALE	7.0	23.0	
405.0	CARBONDALE		SANDSTONE	3.0	30.0	
402.0	CARBONDALE		SHALE & SILTSTONE	17.0	33.0	GRAY
385.0	CARBONDALE		BLACK SHALE	3.0	50.0	
382.0	CARBONDALE	BRERETON	GRAY LIMESTONE	9.0	53.0	
373.0	CARBONDALE	ANNA	BLACK SHALE	1.0	62.0	
372.0	CARBONDALE	HERRIN	COAL	5.5	63.0	
366.5	CARBONDALE		UNDERCLAY	0.5	68.5	

MAPID: 19900711000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 2640' S line, 1320' E line of SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748514 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.738747 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 69.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0			UNCONSOLIDATED	23.0	0.0	
412.0			SHALE	7.0	23.0	
405.0			SANDSTONE	3.0	30.0	
402.0			SHALE	17.0	33.0	
385.0			BLACK SHALE	13.0	50.0	
372.0	CARBONDALE	HERRIN	COAL	5.5	63.0	
367.0			UNDERCLAY	0.0	68.0	

MAPID: 19900712000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW SW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748023 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.732827 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 437.5 **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 13R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.5	PLEISTOCENE		SOIL	25.0	0.0	
412.5	CARBONDALE	BRERETON	GRAY LIMESTONE	2.0	25.0	
410.5	CARBONDALE	ANNA	BLACK SHALE	3.0	27.0	
407.5	CARBONDALE	HERRIN	COAL	6.0	30.0	
401.5	CARBONDALE		UNDERCLAY	1.0	36.0	

MAPID: 19900712000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW SW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748023 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.732827 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 37.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.0			UNCONSOLIDATED	27.0	0.0	
410.0			SHALE	3.0	27.0	
407.0	CARBONDALE	HERRIN	COAL	6.0	30.0	
401.0			UNDERCLAY	0.0	36.0	

MAPID: 19900713000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.746854 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73465 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 459.5 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 12R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
459.5	PLEISTOCENE		SOIL	21.0	0.0	
438.5	CARBONDALE		SHALE & SILTSTONE	11.0	21.0	GRAY
427.5	CARBONDALE		BLACK SHALE	6.0	32.0	
421.5	CARBONDALE		LIMESTONE	3.0	38.0	
418.5	CARBONDALE		SHALE & SILTSTONE	13.0	41.0	BLUE
405.5	CARBONDALE	BRERETON	LIMESTONE	5.0	54.0	
400.5	CARBONDALE	ANNA	BLACK SHALE	3.0	59.0	
397.5	CARBONDALE	HERRIN	COAL	1.5	62.0	
396.0	CARBONDALE		UNDERCLAY	6.5	63.5	

MAPID: 19900713000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NW SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.746854 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.73465 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0			UNCONSOLIDATED	21.0	0.0	
439.0			ROCK	41.0	21.0	
398.0			COAL	1.5	62.0	
396.5			ROCK	0.0	63.5	

MAPID: 19900714000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1' S line, 1200' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748135 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731456 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 435.8 **LOGGED (FT.):** 25.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 10D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.8	PLEISTOCENE		SOIL	18.0	0.0	
417.8	CARBONDALE	ANNA	BLACK SHALE	2.0	18.0	
415.8	CARBONDALE	HERRIN	COAL	1.5	20.0	TOP MAY BE ERODED
414.3	CARBONDALE		UNDERCLAY	2.5	21.5	
411.8	CARBONDALE		LIMESTONE	1.0	24.0	

MAPID: 19900714000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1' S line, 1200' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748135 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.731456 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 25.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
436.0			UNCONSOLIDATED	18.0	0.0	
418.0			SHALE	2.0	18.0	
416.0			COAL	1.5	20.0	
414.5			ROCK	0.0	21.5	

MAPID: 19900736000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 2640' S line, 1' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.74393 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738703 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 27R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0	PLEISTOCENE		SOIL	22.0	0.0	
434.0	CARBONDALE		GRAY SHALE	3.0	22.0	GRAY
431.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	25.0	
424.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	21.0	32.0	GRAY
403.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	53.0	
395.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	14.0	61.0	BLUE
381.0	CARBONDALE	BRERETON	BLUE LIMESTONE	5.0	75.0	
376.0	CARBONDALE	ANNA	BLACK SHALE	3.0	80.0	
373.0	CARBONDALE	ENERGY	SHALE	5.5	83.0	
367.5	CARBONDALE	HERRIN	COAL	5.7	88.5	
361.8	CARBONDALE		UNDERCLAY	0.8	94.2	

MAPID: 19900736000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 2640' S line, 1' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.74393 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.738703 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 456.0 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
456.0			UNCONSOLIDATED	22.0	0.0	
434.0			ROCK	41.0	22.0	
393.0			SHALE	12.0	63.0	
381.0			LIMESTONE	5.0	75.0	
376.0			BLACK SHALE	8.5	80.0	
367.5	CARBONDALE	HERRIN	COAL	5.7	88.5	
361.8			UNDERCLAY	0.0	94.2	

MAPID: 19901572000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.756709 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.743405 **DATE COLLECTED:** 7 / 13 / 1948

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 171.0 **LOG TYPE:** Drillers Log

SOURCE: STUMP ALLEN COAL CO., INC. 1 **WELL TYPE:** Coal Test

COMMENT: 300' E OF RD 50'N OF CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		SAND/CLAY	22.0	0.0	BROWN
-	CARBONDALE		SHALE & SANDSTONE	37.0	22.0	
-	CARBONDALE	JAMESTOWN	COAL	0.2	59.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.8	59.2	
-	CARBONDALE	BRERETON	SHALE	1.0	66.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.0	67.0	
-	CARBONDALE		GRAY SHALE	1.0	68.0	
-	CARBONDALE		SHALE	3.6	69.0	
-	CARBONDALE	HERRIN	COAL	5.2	72.6	
-	CARBONDALE		UNDERCLAY	5.2	77.8	
-	CARBONDALE		SANDSTONE	18.0	83.0	
-	CARBONDALE		LIMESTONE & SHALE	49.0	101.0	
-	CARBONDALE		GRAY SHALE	16.3	150.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	166.3	
-	CARBONDALE		UNDERCLAY	0.3	170.7	

MAPID: 19902410000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 400' N line, 330' E line of NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759014 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.745049 **DATE COLLECTED:** 5 / 0 / 1970

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 1397.0 **LOG TYPE:** Electric Log

SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-929.0	BASE OF PENN.		UNCLASSIFIED	-	1397.0	

MAPID: 19923622000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 305' N line, 310' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753938 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.73799 **DATE COLLECTED:** 5 / 5 / 1978

SURFACE ELEVATION (FT.): 460.8 **LOGGED (FT.):** 89.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B495A **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.8	PLEISTOCENE		UNCONSOLIDATED	88.0	0.0	SPOILS
372.8			SANDY SHALE	1.0	88.0	

MAPID: 19923623000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 160' N line, 150' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.754802 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.738211 **DATE COLLECTED:** 5 / 11 / 1982

SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 150.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B495E-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
471.0	PLEISTOCENE		UNCONSOLIDATED	101.0	0.0	SPOILS
370.0			UNDERCLAY	4.0	101.0	
366.0			CALCAREOUS SHALE	30.0	105.0	
336.0			SANDY SHALE	15.0	135.0	GRAY

MAPID: 19900330000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776356 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.742551 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 205.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 143 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
492.0	PLEISTOCENE		UNCONSOLIDATED	11.8	0.0	
480.2	CARBONDALE		DARK SHALE	9.0	11.8	
471.2	CARBONDALE		COAL	0.3	20.8	
471.0	CARBONDALE		LIGHT SHALE	2.0	21.0	
469.0	CARBONDALE	ALLENBY	COAL	0.4	23.0	
468.6	CARBONDALE		LIGHT SHALE	14.0	23.4	
454.6	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	37.4	
449.6	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	9.6	42.4	
440.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	10.5	52.0	
429.5	CARBONDALE		DARK SHALE	19.0	62.5	
410.5	CARBONDALE	JAMESTOWN	COAL	0.5	81.5	
410.0	CARBONDALE		DARK SHALE	2.0	82.0	
408.0	CARBONDALE	BRERETON	BLACK LIMESTONE	3.5	84.0	
404.5	CARBONDALE	ANNA	BLACK SHALE	2.5	87.5	
402.0	CARBONDALE		BLACK SHALE	0.2	90.0	
401.8	CARBONDALE	HERRIN	COAL	4.8	90.2	
397.0	CARBONDALE		UNDERCLAY	3.0	95.0	
394.0	CARBONDALE		VARRIGATED SHALE	10.0	98.0	
384.0	CARBONDALE		LIGHT SHALE	10.0	108.0	
374.0	CARBONDALE		SANDSTONE/SHALE	16.0	118.0	
358.0	CARBONDALE		SANDSTONE/SHALE	22.0	134.0	
336.0	CARBONDALE		SANDSTONE	26.0	156.0	
310.0	CARBONDALE	DYKERSBURG	DARK SHALE	16.7	182.0	
293.3	CARBONDALE	SPRINGFIELD	COAL	4.5	198.7	
288.8	CARBONDALE		UNDERCLAY	1.8	203.2	

MAPID: 19900331000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769449 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.74071 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 90.8 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 125 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
477.0	CARBONDALE		CLAYSTONE	4.5	19.0	
472.5	CARBONDALE	ALLENBY	COAL	0.2	23.5	
472.3	CARBONDALE		CLAYSTONE	1.8	23.7	
470.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	25.5	
465.0	CARBONDALE	LAWSON	GRAY SHALE	4.5	31.0	
460.5	CARBONDALE	LAWSON	SANDSTONE	15.0	35.5	
445.5	CARBONDALE	LAWSON	SILTY SHALE	12.0	50.5	
433.5	CARBONDALE	LAWSON	BLACK SHALE	14.0	62.5	
419.5	CARBONDALE	BRERETON	LIMESTONE	6.0	76.5	
413.5	CARBONDALE	ANNA	BLACK SHALE	4.5	82.5	
409.0	CARBONDALE	HERRIN	COAL	3.8	87.0	

MAPID: 19900331000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769449 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.74071 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 201.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
471.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	25.0	
461.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	15.0	35.0	
410.0	CARBONDALE	HERRIN	COAL	3.8	86.0	
400.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	20.0	96.0	
335.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	15.0	161.0	
301.0	CARBONDALE	SPRINGFIELD	COAL	4.6	195.0	

MAPID: 19900331000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769449 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.74071 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 200.8 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 125 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
496.0	PLEISTOCENE		UNCONSOLIDATED	18.5	0.0	
477.5	CARBONDALE		UNDERCLAY	4.5	18.5	
473.0	CARBONDALE	ALLENBY	COAL	0.2	23.0	
472.8	CARBONDALE		UNDERCLAY	1.8	23.2	
471.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	25.0	
465.5	CARBONDALE		LIGHT SHALE	4.5	30.5	
461.0	CARBONDALE	ANVIL ROCK	SANDSTONE	15.0	35.0	
446.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	12.0	50.0	
434.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	14.0	62.0	
420.0	CARBONDALE	BRERETON	BLACK LIMESTONE	6.0	76.0	
414.0	CARBONDALE	ANNA	BLACK SHALE	4.5	82.0	
409.5	CARBONDALE	HERRIN	COAL	3.8	86.5	
405.7	CARBONDALE		UNDERCLAY	3.0	90.3	
402.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	3.0	93.3	
399.7	CARBONDALE		SANDSTONE	20.0	96.3	
379.7	CARBONDALE		SANDSTONE/SHALE	10.0	116.3	
369.7	CARBONDALE		LIGHT SHALE	10.0	126.3	
359.7	CARBONDALE		DARK SHALE	10.0	136.3	
349.7	CARBONDALE		SANDSTONE/SHALE	14.7	146.3	
335.0	CARBONDALE		SANDSTONE	15.0	161.0	
320.0	CARBONDALE	DYKERSBURG	DARK SHALE	19.0	176.0	
301.0	CARBONDALE	SPRINGFIELD	COAL	4.6	195.0	
296.4	CARBONDALE		UNDERCLAY	1.2	199.6	

MAPID: 19900332000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763702 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734324 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 139.5 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 132 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
444.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
429.0	CARBONDALE	BRERETON	LIMESTONE	6.0	15.0	
423.0	CARBONDALE	ANNA	BLACK SHALE	3.5	21.0	
419.5	CARBONDALE	HERRIN	COAL	5.7	24.5	
413.8	CARBONDALE		UNDERCLAY	2.8	30.2	
411.0	CARBONDALE		SANDSTONE/SHALE	10.0	33.0	
401.0	CARBONDALE		SANDSTONE/SHALE	38.0	43.0	
363.0	CARBONDALE		SANDSTONE	37.0	81.0	
326.0	CARBONDALE	DYKERSBURG	DARK SHALE	15.5	118.0	
310.5	CARBONDALE	SPRINGFIELD	COAL	4.5	133.5	
306.0	CARBONDALE		UNDERCLAY	1.5	138.0	

MAPID: 19900333000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769468 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733403 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 53.3 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 10 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
445.0	CARBONDALE	ANVIL ROCK	SHALE	7.0	5.0	
438.0	CARBONDALE	ANVIL ROCK	SHALE	27.0	12.0	
411.0	CARBONDALE	BRERETON	LIMESTONE	4.7	39.0	
406.3	CARBONDALE	ANNA	BLACK SHALE	3.5	43.7	
402.8	CARBONDALE	HERRIN	COAL	5.7	47.2	
397.2	CARBONDALE		UNDERCLAY	0.5	52.8	

MAPID: 19900335000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764858 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733412 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 446.0 **LOGGED (FT.):** 30.8 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 8 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
446.0	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
428.0	CARBONDALE	BRERETON	LIMESTONE	4.0	18.0	
424.0	CARBONDALE	ANNA	SHALE	2.3	22.0	
421.7	CARBONDALE	HERRIN	COAL	6.0	24.3	
415.7	CARBONDALE		UNDERCLAY	0.5	30.3	

MAPID: 19900678000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76714 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.742534 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 9D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.0	PLEISTOCENE		SOIL	17.0	0.0	
456.0	CARBONDALE		SANDSTONE	6.0	17.0	
450.0	CARBONDALE		SHALE & SILTSTONE	29.5	23.0	GRAY
420.5	CARBONDALE	JAMESTOWN	COAL	0.5	52.5	
420.0	CARBONDALE	BRERETON	LIMESTONE	7.0	53.0	
413.0	CARBONDALE	ANNA	BLACK SHALE	4.0	60.0	
409.0	CARBONDALE	HERRIN	COAL	5.0	64.0	
404.0	CARBONDALE		UNDERCLAY	1.0	69.0	

MAPID: 19900679000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767159 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.735232 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 34.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 7R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
441.0	PLEISTOCENE		SOIL	14.0	0.0	
427.0	CARBONDALE		BLACK SHALE	1.5	14.0	
425.5	CARBONDALE	JAMESTOWN	COAL	0.5	15.5	
425.0	CARBONDALE		SANDSTONE	2.0	16.0	
423.0	CARBONDALE	BRERETON	LIMESTONE	7.0	18.0	
416.0	CARBONDALE	ANNA	BLACK SHALE	3.0	25.0	
413.0	CARBONDALE	HERRIN	COAL	5.5	28.0	
407.5	CARBONDALE		UNDERCLAY	0.5	33.5	

MAPID: 19901573000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763693 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73797 **DATE COLLECTED:** 6 / 19 / 1947

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 193.0 **LOG TYPE:** Drillers Log

SOURCE: STUMP ALLEN COAL CO., INC. 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	11.0	0.0	BROWN
-	CARBONDALE		SANDSTONE	3.0	11.0	
-	CARBONDALE	DANVILLE	COAL	0.2	14.0	
-	CARBONDALE		SANDSTONE	18.8	14.2	
-	CARBONDALE	ALLENBY	COAL	1.0	33.0	
-	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	34.0	
-	CARBONDALE		SHALE	7.0	36.0	
-	CARBONDALE		SHALE & SILTSTONE	17.0	43.0	GRAY
-	CARBONDALE		SANDY SHALE	16.0	60.0	
-	CARBONDALE		SHALE	1.0	76.0	
-	CARBONDALE	BRERETON	LIMESTONE	7.0	77.0	
-	CARBONDALE	ANNA	SHALE	3.0	84.0	
-	CARBONDALE	HERRIN	COAL	4.8	87.0	
-	CARBONDALE		UNDERCLAY	3.2	91.8	
-	CARBONDALE		SANDSTONE	39.0	95.0	
-	CARBONDALE		GRAY SHALE	13.0	134.0	
-	CARBONDALE		SANDSTONE	10.0	147.0	
-	CARBONDALE		GRAY SHALE	7.0	157.0	
-	CARBONDALE		LIMESTONE	4.5	164.0	
-	CARBONDALE	ST. DAVID	LIMESTONE & SHALE	12.5	168.5	
-	CARBONDALE	DYKERSBURG	DARK GRAY SHALE	6.7	181.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.7	187.7	
-	CARBONDALE		UNDERCLAY	0.7	192.3	

MAPID: 19901941000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.739793 **DATE COLLECTED:** 10 / 0 / 1956

SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 1418.0 **LOG TYPE:** Electric Log

SOURCE: EAKLE & HOLDER PETRO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
88.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	408.0	
34.0	SPOON	DAVIS	UNCLASSIFIED	-	462.0	
-922.0	BASE OF PENN.		UNCLASSIFIED	-	1418.0	

MAPID: 19923548000C **VERSION:** 1 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SW SW SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770626 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.731577 **DATE COLLECTED:** 3 / 23 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY D7 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	6.0	0.0	
-			SANDSTONE	8.0	6.0	
-			SANDY SHALE	6.0	14.0	
-			BLUE SHALE	22.0	20.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	42.0	
-	CARBONDALE		SHALE	0.5	42.5	
-	CARBONDALE	BRERETON	LIMESTONE	5.0	43.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.5	48.0	
-	CARBONDALE	HERRIN	COAL	5.0	51.5	
-	CARBONDALE		UNDERCLAY	0.5	56.5	

MAPID: 19923624000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 300' S line, 275' W line of SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770413 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.732434 **DATE COLLECTED:** 5 / 9 / 1978
SURFACE ELEVATION (FT.): 483.3 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO. B413 A-1-W **WELL TYPE:** Water Well
COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
483.3	PLEISTOCENE		UNCONSOLIDATED	63.0	0.0	SPOILS
420.3			SANDY SHALE	1.0	63.0	

MAPID: 19923625000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 317' S line, 288' W line of SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770374 **GEOLOGIST:** J.MCBETH
CONFIDENTIAL: N **LATITUDE:** 37.732481 **DATE COLLECTED:** 5 / 8 / 1978
SURFACE ELEVATION (FT.): 483.3 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO. B413HP **WELL TYPE:** Water Well
COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
483.3	PLEISTOCENE		UNCONSOLIDATED	62.0	0.0	SPOILS
421.3			SANDY SHALE	1.0	62.0	

MAPID: 19990048000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 660' S line, 650' E line of NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77368 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.744491 **DATE COLLECTED:** 8 / 15 / 1990

SURFACE ELEVATION (FT.): 520.9 **LOGGED (FT.):** 166.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B587-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C 2 H WEST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.9	PLEISTOCENE		CLAY	6.0	0.0	BROWN
514.9	PLEISTOCENE		UNCONSOLIDATED	10.8	6.0	BROWN
504.1	MODESTO		SHALE	1.6	16.8	WEATHERED
502.5	MODESTO		SANDSTONE	23.2	18.4	BROWN
479.3	MODESTO		SHALE	2.3	41.6	
477.0	MODESTO		DARK GRAY SHALE	3.8	43.9	
473.2	MODESTO	DEGRAFF	COAL	0.4	47.7	
472.8	MODESTO	PIASA	CALCAREOUS SHALE	10.9	48.1	
461.9	CARBONDALE	DANVILLE	COAL	2.0	59.0	
459.9	CARBONDALE		SHALE	15.2	61.0	
444.7	CARBONDALE	ALLENBY	COAL	1.0	76.2	
443.7	CARBONDALE		SHALE	2.7	77.2	
441.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.2	79.9	
435.8	CARBONDALE		SHALE	45.3	85.1	
390.5	CARBONDALE	BRERETON	LIMESTONE	4.5	130.4	GRAY
386.0	CARBONDALE	ANNA	BLACK SHALE	3.7	134.9	
382.3	CARBONDALE	HERRIN	COAL	4.8	138.6	
377.5	CARBONDALE		SHALE	3.4	143.4	
374.1	CARBONDALE	HIGGINSVILLE	LIMESTONE	19.2	146.8	

MAPID: 19990072000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE NW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776372 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738885 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 103.8 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B511 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.0	PLEISTOCENE		UNCONSOLIDATED	26.0	0.0	
482.0	CARBONDALE		GRAY SHALE	8.5	26.0	
473.5	CARBONDALE	ALLENBY	COAL	0.5	34.5	
473.0	CARBONDALE		GRAY SHALE	6.0	35.0	
467.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	41.0	GRAY
461.5	CARBONDALE	ANVIL ROCK	SANDSTONE	5.0	46.5	GRAY
456.5	CARBONDALE	ANVIL ROCK	SANDSTONE	2.0	51.5	
454.5	CARBONDALE		SANDSTONE	7.5	53.5	GRAY
447.0	CARBONDALE		SANDSTONE	3.0	61.0	
444.0	CARBONDALE		DARK SHALE	24.0	64.0	
420.0	CARBONDALE		BLACK SHALE	1.3	88.0	
418.7	CARBONDALE	BRERETON	LIMESTONE	4.0	89.3	
414.7	CARBONDALE	ANNA	BLACK SHALE	4.7	93.3	
410.0	CARBONDALE	HERRIN	COAL	4.8	98.0	
405.2	CARBONDALE		UNDERCLAY	1.0	102.8	

MAPID: 19990074000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 100' W line of NE NW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778325 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738886 **DATE COLLECTED:** 2 / 10 / 1965

SURFACE ELEVATION (FT.): 536.8 **LOGGED (FT.):** 138.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B510Y **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
536.8	PLEISTOCENE		CLAY	48.0	0.0	
488.8	PLEISTOCENE		CLAY	6.0	48.0	
482.8	CARBONDALE		SANDY SHALE	9.0	54.0	
473.8	CARBONDALE		GRAY SHALE	11.9	63.0	
461.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.2	74.9	WHITE
455.7	CARBONDALE		SANDY DARK SHALE	43.1	81.1	
412.6	CARBONDALE	BRERETON	LIMESTONE	4.8	124.2	
407.8	CARBONDALE	ANNA	BLACK SHALE	3.3	129.0	
404.5	CARBONDALE	HERRIN	COAL	4.5	132.3	
400.0	CARBONDALE		UNDERCLAY	1.3	136.8	

MAPID: 19990075000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NE NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77406 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738884 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 75.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B512 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
486.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
478.0	CARBONDALE	ALLENBY	COAL	0.5	8.0	
477.5	CARBONDALE		GRAY SHALE	3.5	8.5	
474.0	CARBONDALE		SANDSTONE	2.7	12.0	WHITE
471.3	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	14.7	
468.3	CARBONDALE	ANVIL ROCK	SANDSTONE	18.3	17.7	GRAY
450.0	CARBONDALE		SANDY SHALE	23.0	36.0	
427.0	CARBONDALE		BLACK SHALE	1.3	59.0	
425.7	CARBONDALE	BRERETON	LIMESTONE	4.5	60.3	
421.2	CARBONDALE	ANNA	BLACK SHALE & LIMESTONE	3.8	64.8	
417.4	CARBONDALE	HERRIN	COAL	4.7	68.6	
412.7	CARBONDALE		UNDERCLAY	1.8	73.3	

MAPID: 19990076000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771762 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738883 **DATE COLLECTED:** 2 / 11 / 1965

SURFACE ELEVATION (FT.): 511.6 **LOGGED (FT.):** 94.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B513 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
511.6	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
503.6	PLEISTOCENE		CLAY	20.0	8.0	
483.6	CARBONDALE	ALLENBY	COAL	0.5	28.0	
483.1	CARBONDALE		UNDERCLAY	1.5	28.5	
481.6	CARBONDALE		GRAY SHALE	2.0	30.0	
479.6	CARBONDALE	BANKSTON FORK	LIMESTONE	2.8	32.0	
476.8	CARBONDALE	BANKSTON FORK	GRAY SHALE	10.2	34.8	
466.6	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	45.0	
464.6	CARBONDALE		BLACK SHALE	0.5	47.0	
464.1	CARBONDALE		SANDSTONE	10.0	47.5	
454.1	CARBONDALE		DARK GRAY SHALE	23.0	57.5	
431.1	CARBONDALE	JAMESTOWN	RASH	0.5	80.5	
430.6	CARBONDALE	BRERETON	LIMESTONE	6.5	81.0	
424.1	CARBONDALE	ANNA	BLACK SHALE	2.0	87.5	
422.1	CARBONDALE	HERRIN	COAL	4.5	89.5	
417.6	CARBONDALE		UNDERCLAY	0.5	94.0	

MAPID: 19990077000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NE NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769451 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738882 **DATE COLLECTED:** 11 / 16 / 1954

SURFACE ELEVATION (FT.): 487.2 **LOGGED (FT.):** 77.1 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B514 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
487.2	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
481.2	CARBONDALE		SHALE	6.0	6.0	
475.2	CARBONDALE	BANKSTON FORK	LIMESTONE	4.6	12.0	
470.6	CARBONDALE	BANKSTON FORK	GRAY SHALE	8.4	16.6	
462.2	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	25.0	
460.2	CARBONDALE		SHALE	1.0	27.0	
459.2	CARBONDALE		SANDSTONE	7.0	28.0	
452.2	CARBONDALE		SANDY SHALE	25.0	35.0	
427.2	CARBONDALE		BLACK SHALE	1.0	60.0	
426.2	CARBONDALE	JAMESTOWN	COAL	0.5	61.0	
425.7	CARBONDALE	BRERETON	LIMESTONE	5.5	61.5	
420.2	CARBONDALE	ANNA	BLACK SHALE	3.0	67.0	
417.2	CARBONDALE	HERRIN	COAL	5.1	70.0	
412.1	CARBONDALE		UNDERCLAY	2.0	75.1	

MAPID: 19990078000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 295' E line of NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.768175 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73888 **DATE COLLECTED:** 2 / 23 / 1970

SURFACE ELEVATION (FT.): 499.7 **LOGGED (FT.):** 206.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B514B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, DEEP #5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
499.7	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
487.7	CARBONDALE		SANDSTONE	6.0	12.0	
481.7	CARBONDALE		DARK GRAY SHALE	15.0	18.0	
466.7	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	33.0	
459.7	CARBONDALE		SANDY SHALE	8.0	40.0	
451.7	CARBONDALE		DARK GRAY SHALE	36.0	48.0	
415.7	CARBONDALE	BRERETON	LIMESTONE	6.0	84.0	
409.7	CARBONDALE	ANNA	BLACK SHALE	3.0	90.0	
406.7	CARBONDALE	HERRIN	COAL	5.0	93.0	
401.7	CARBONDALE		UNDERCLAY	2.0	98.0	
399.7	CARBONDALE		SANDY SHALE	77.0	100.0	
322.7	CARBONDALE	ST. DAVID	LIMESTONE	1.0	177.0	
321.7	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	178.0	
317.7	CARBONDALE	DYKERSBURG	SANDY SHALE	16.8	182.0	
300.9	CARBONDALE	SPRINGFIELD	COAL	4.4	198.8	
296.5	CARBONDALE		UNDERCLAY	2.8	203.2	

MAPID: 19990079000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767153 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738879 **DATE COLLECTED:** 11 / 17 / 1954

SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 100.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B515 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
494.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
479.0	CARBONDALE		SHALE	19.0	15.0	
460.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	34.0	
453.0	CARBONDALE		GRAY SHALE	3.0	41.0	
450.0	CARBONDALE		SANDSTONE	16.0	44.0	
434.0	CARBONDALE		GRAY SHALE	2.0	60.0	
432.0	CARBONDALE		DARK SHALE	22.0	62.0	
410.0	CARBONDALE	JAMESTOWN	COAL	0.5	84.0	
409.5	CARBONDALE	BRERETON	LIMESTONE	6.0	84.5	
403.5	CARBONDALE	ANNA	BLACK SHALE	3.5	90.5	
400.0	CARBONDALE	HERRIN	COAL	5.4	94.0	
394.6	CARBONDALE		UNDERCLAY	0.6	99.4	

MAPID: 19990080000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764841 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738878 **DATE COLLECTED:** 2 / 10 / 1961

SURFACE ELEVATION (FT.): 487.5 **LOGGED (FT.):** 100.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B516 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
487.5	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
479.5	PLEISTOCENE		CLAY	11.0	8.0	
468.5	CARBONDALE		SANDY SHALE	14.7	19.0	
453.8	CARBONDALE	BANKSTON FORK	LIMESTONE	6.7	33.7	WHITE
447.2	CARBONDALE		SHALY SANDSTONE	11.7	40.3	
435.5	CARBONDALE		SANDY SHALE	5.0	52.0	WITH LIMESTONE NODULES
430.5	CARBONDALE		SANDY SHALE	27.8	57.0	
402.7	CARBONDALE	BRERETON	LIMESTONE	5.1	84.8	
397.7	CARBONDALE	ANNA	BLACK SHALE	3.1	89.8	
394.6	CARBONDALE	HERRIN	COAL	5.1	92.9	
389.5	CARBONDALE		UNDERCLAY	2.0	98.0	

MAPID: 19990115000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SW SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780966 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.740722 **DATE COLLECTED:** 9 / 17 / 1970
SURFACE ELEVATION (FT.): 530.1 **LOGGED (FT.):** 146.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B534 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELTA, C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
530.1	PLEISTOCENE		CLAY	14.0	0.0	
516.1	PLEISTOCENE		CLAY	38.0	14.0	
478.1	MODESTO		GRAY SHALE	6.0	52.0	
472.1	CARBONDALE	DANVILLE	COAL	1.0	58.0	
471.1	CARBONDALE		UNDERCLAY	1.0	59.0	
470.1	CARBONDALE		GRAY SHALE	22.0	60.0	
448.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	82.0	
442.1	CARBONDALE		GRAY SHALE	42.0	88.0	
400.1	CARBONDALE		BLACK SHALE	2.0	130.0	
398.1	CARBONDALE	BRERETON	LIMESTONE	4.0	132.0	
394.1	CARBONDALE	ANNA	BLACK SHALE	3.5	136.0	
390.6	CARBONDALE	HERRIN	COAL	5.3	139.5	
385.3	CARBONDALE		UNDERCLAY	1.3	144.8	

MAPID: 19990116000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NW SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780962 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.742558 **DATE COLLECTED:** 9 / 18 / 1970
SURFACE ELEVATION (FT.): 517.5 **LOGGED (FT.):** 127.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B559 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELT, C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
517.5	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
497.5	PLEISTOCENE		CLAY	20.0	20.0	SAND
477.5	CARBONDALE	DANVILLE	COAL	2.0	40.0	
475.5	CARBONDALE		UNDERCLAY	1.0	42.0	
474.5	CARBONDALE		GRAY SHALE	20.0	43.0	
454.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	63.0	
449.5	CARBONDALE		GRAY SHALE	43.0	68.0	
406.5	CARBONDALE		BLACK SHALE	1.0	111.0	
405.5	CARBONDALE	BRERETON	LIMESTONE	5.0	112.0	
400.5	CARBONDALE	ANNA	BLACK SHALE	4.0	117.0	
396.5	CARBONDALE	HERRIN	COAL	4.8	121.0	
391.7	CARBONDALE		UNDERCLAY	1.2	125.8	

MAPID: 19990118000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1' N line, 40' W line of NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780814 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746229 **DATE COLLECTED:** 7 / 27 / 1976

SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 148.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B609YY **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
498.0	PLEISTOCENE		CLAY	4.0	25.0	
494.0	PLEISTOCENE		SAND & GRAVEL	3.0	29.0	
491.0	PLEISTOCENE		CLAY	6.0	32.0	GRAVEL
485.0	PLEISTOCENE		CLAY	8.5	38.0	
476.5	MODESTO		GRAY SHALE	2.0	46.5	
474.5	MODESTO	PIASA	LIMESTONE	2.0	48.5	
472.5	MODESTO		GRAY SHALE	5.7	50.5	
466.8	CARBONDALE	DANVILLE	COAL	1.6	56.2	
465.2	CARBONDALE		GRAY SHALE	20.2	57.8	
445.0	CARBONDALE		SANDSTONE	0.5	78.0	
444.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	78.5	
437.0	CARBONDALE		SHALE	6.0	86.0	
431.0	CARBONDALE		DARK GRAY SHALE	6.0	92.0	
425.0	CARBONDALE		LIMESTONE	0.8	98.0	
424.2	CARBONDALE		SANDY SHALE	25.2	98.8	
399.0	CARBONDALE		DARK GRAY SHALE	2.0	124.0	
397.0	CARBONDALE	BRERETON	LIMESTONE	7.3	126.0	DARK GRAY
389.7	CARBONDALE	ANNA	BLACK SHALE	2.5	133.3	
387.2	CARBONDALE	HERRIN	COAL	5.2	135.8	
382.0	CARBONDALE		SANDY SHALE	7.0	141.0	

MAPID: 19900675000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 2640' S line, 0' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.799039 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738987 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 35R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0	PLEISTOCENE		SOIL	25.0	0.0	
460.0	CARBONDALE		SHALE & SILTSTONE	25.0	25.0	GRAY

MAPID: 19900676000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 200' S line, 0' W line of SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79003 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.732177 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 33R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
495.0	PLEISTOCENE		SOIL	24.0	0.0	
471.0	CARBONDALE		SHALE & SILTSTONE	31.0	24.0	GRAY

MAPID: 19900677000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1320' N line, 0' E line of SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79002 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735293 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 34R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.0	PLEISTOCENE		SOIL	26.0	0.0	
484.0	CARBONDALE		SHALE & SILTSTONE	24.0	26.0	GRAY

MAPID: 19901927000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.782106 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.745323 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 139.0 **LOG TYPE:** Electric Log
SOURCE: EAKLE & HOLDER PETROL. CO. Chaney 1 **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
397.5	CARBONDALE	BRERETON	LIMESTONE	7.5	123.5	
390.0	CARBONDALE	ANNA	BLACK SHALE	2.0	131.0	
388.0	CARBONDALE	HERRIN	COAL	6.0	133.0	

MAPID: 19901927000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 330' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.782106 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.745323 **DATE COLLECTED:** 6 / 0 / 1956

SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 1375.0 **LOG TYPE:** Electric Log

SOURCE: EAKLE & HOLDER PETRO. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-854.0	BASE OF PENN.		UNCLASSIFIED	-	1375.0	

MAPID: 19923626000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 40' N line, 40' W line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.798954 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.735219 **DATE COLLECTED:** 4 / 25 / 1978

SURFACE ELEVATION (FT.): 486.1 **LOGGED (FT.):** 52.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B426DE **WELL TYPE:** Water Well

COMMENT: PERMIT 208 "DRILLED TO TOP OF #6 COAL"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
486.1	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
479.1	PLEISTOCENE		CLAY	23.0	7.0	
456.1	PLEISTOCENE		UNCONSOLIDATED	11.5	30.0	
444.6			LIMESTONE	3.5	41.5	DARK GRAY
441.1			GRAY SHALE	2.0	45.0	DARK
439.1			GRAY SHALE	5.5	47.0	

MAPID: 19923627000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 70' N line, 660' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79673 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.735139 **DATE COLLECTED:** 5 / 24 / 1978

SURFACE ELEVATION (FT.): 498.1 **LOGGED (FT.):** 160.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B427DC **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
498.1	PLEISTOCENE		UNCONSOLIDATED	2.0	0.0	
496.1	PLEISTOCENE		CLAY	32.2	2.0	
463.9	PLEISTOCENE		SHALEY CLAYSTONE	14.8	34.2	
449.1	CARBONDALE		GRAY SHALE	11.0	49.0	DARK
438.1	CARBONDALE	CONANT	LIMESTONE	0.7	60.0	DARK GRAY
437.4	CARBONDALE	JAMESTOWN	BLACK SHALE	1.3	60.7	
436.1	CARBONDALE	BRERETON	LIMESTONE	8.0	62.0	DARK GRAY
428.1	CARBONDALE	ANNA	BLACK SHALE	3.3	70.0	
424.8	CARBONDALE	HERRIN	COAL	5.7	73.3	
419.1	CARBONDALE		UNDERCLAY	2.5	79.0	
416.6	CARBONDALE		GRAY SHALE	1.1	81.5	
415.5	CARBONDALE		CALCAREOUS SANDSTONE	10.4	82.6	GRAY
405.1	CARBONDALE		SANDY SHALE	10.5	93.0	GRAY
394.6	CARBONDALE		SHALE	1.5	103.5	DARK GRAY
393.1	CARBONDALE		LIMESTONE	1.0	105.0	DARK GRAY
392.1	CARBONDALE	DYKERSBURG	SHALE	15.0	106.0	DARK GRAY
377.1	CARBONDALE	DYKERSBURG	SANDSTONE	3.0	121.0	
374.1	CARBONDALE	DYKERSBURG	GRAY SHALE	19.5	124.0	
354.6	CARBONDALE	DYKERSBURG	BLACK SHALE	4.4	143.5	
350.2	CARBONDALE	DYKERSBURG	GRAY SHALE	10.1	147.9	
340.1	CARBONDALE	SPRINGFIELD	COAL	2.0	158.0	HOLE QUIT HERE, THK INCOMPLETE

MAPID: 19923628000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 40' N line, 40' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.794613 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.735222 **DATE COLLECTED:** 4 / 26 / 1978

SURFACE ELEVATION (FT.): 509.6 **LOGGED (FT.):** 93.6 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B427GG **WELL TYPE:** Water Well

COMMENT: PERMIT 208;"DRILLED TO TOP OF #6 COAL"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
509.6	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
503.6	PLEISTOCENE		CLAY	10.0	6.0	
493.6	PLEISTOCENE		SAND & GRAVEL	6.0	16.0	
487.6	PLEISTOCENE		UNCONSOLIDATED	33.0	22.0	SANDY
454.6	CARBONDALE		GRAY SHALE	25.0	55.0	
429.6	CARBONDALE		LIMESTONE	1.0	80.0	DARK GRAY
428.6	CARBONDALE		GRAY SHALE	3.0	81.0	
425.6	CARBONDALE	BRERETON	LIMESTONE	6.5	84.0	DARK GRAY
419.1	CARBONDALE	ANNA	BLACK SHALE	3.1	90.5	

MAPID: 19923629000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 38' N line, 25' E line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.794145 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.672816 **DATE COLLECTED:** 5 / 26 / 1978

SURFACE ELEVATION (FT.): 510.5 **LOGGED (FT.):** 94.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B427GG-1 **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.5	PLEISTOCENE		UNCONSOLIDATED	43.8	0.0	CLAY
466.7	CARBONDALE	ANVIL ROCK	SANDSTONE	9.2	43.8	
457.5	CARBONDALE		SANDY SHALE	7.0	53.0	GRAY
450.5	CARBONDALE		GRAY SHALE	20.5	60.0	
430.0	CARBONDALE	CONANT	LIMESTONE	0.4	80.5	DARK GRAY
429.6	CARBONDALE	JAMESTOWN	BLACK SHALE	3.2	80.9	
426.4	CARBONDALE	BRERETON	LIMESTONE	6.7	84.1	DARK GRAY
419.7	CARBONDALE	ANNA	BLACK SHALE	2.6	90.8	
417.1	CARBONDALE		COAL	0.6	93.4	HOLE QUIT THICKNESS INCOMPETE

MAPID: 19923630000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 645' S line, 380' E line of SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.795713 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.740748 **DATE COLLECTED:** 5 / 26 / 1982

SURFACE ELEVATION (FT.): 497.7 **LOGGED (FT.):** 106.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B527NP **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
497.7	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	SPOILS
484.7	PLEISTOCENE		CLAY	37.0	13.0	
447.7	PLEISTOCENE		SILTY CLAY	9.0	50.0	FILL
438.7	PLEISTOCENE		CLAY	14.7	59.0	
424.0	CARBONDALE		GRAY SHALE	12.3	73.7	
411.7	CARBONDALE		BLACK SHALE	3.5	86.0	
408.2	CARBONDALE	BRERETON	LIMESTONE	5.0	89.5	BLACK
403.2	CARBONDALE	ANNA	BLACK SHALE	3.2	94.5	
400.0	CARBONDALE	HERRIN	COAL	5.2	97.7	
394.8	CARBONDALE		UNDERCLAY	3.1	102.9	

MAPID: 19990049000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 150' N line, 150' W line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.784634 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.745974 **DATE COLLECTED:** 8 / 17 / 1990

SURFACE ELEVATION (FT.): 514.9 **LOGGED (FT.):** 211.4 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B582 EH-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
514.9	PLEISTOCENE		CLAY	11.0	0.0	BROWN
503.9	PLEISTOCENE		CLAY	3.0	11.0	BROWN
500.9	PLEISTOCENE		SAND & GRAVEL	3.0	14.0	
497.9	PLEISTOCENE		CLAY	7.5	17.0	BROWN
490.4	PLEISTOCENE		UNCONSOLIDATED	24.5	24.5	
465.9	MODESTO		SANDSTONE	6.4	49.0	
459.5	MODESTO		GRAY SHALE	4.5	55.4	
455.0	MODESTO	DEGRAFF	COAL	0.1	59.9	
454.9	MODESTO		GRAY SHALE	4.6	60.0	
450.3	CARBONDALE	DANVILLE	COAL	0.7	64.6	
449.6	CARBONDALE		SHALE	4.7	65.3	
444.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	70.0	
438.8	CARBONDALE		SHALE	35.1	76.1	
403.7	CARBONDALE	CONANT	SHALY LIMESTONE	0.9	111.2	
402.8	CARBONDALE	JAMESTOWN	COAL	0.3	112.1	
402.5	CARBONDALE		SHALE	0.3	112.4	
402.2	CARBONDALE	BRERETON	LIMESTONE	8.3	112.7	GRAY
393.9	CARBONDALE	ANNA	BLACK SHALE	3.0	121.0	
390.9	CARBONDALE	HERRIN	COAL	5.6	124.0	
385.3	CARBONDALE		SHALE	5.1	129.6	
380.3	CARBONDALE		CALCAREOUS SANDSTONE	6.2	134.6	
374.1	CARBONDALE		GRAY SHALE	13.2	140.8	
360.9	CARBONDALE		SILTY SHALE	6.5	154.0	
354.4	CARBONDALE		CALCAREOUS SHALE	3.5	160.5	
350.9	CARBONDALE		CALCAREOUS SHALE	1.0	164.0	
349.9	CARBONDALE		BLACK SHALE	3.2	165.0	
346.7	CARBONDALE		SANDSTONE/LIMESTONE	3.8	168.2	GRAY
342.9	CARBONDALE	DYKERSBURG	SANDSTONE	7.1	172.0	GRAY
335.8	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	4.9	179.1	
330.9	CARBONDALE	DYKERSBURG	SANDSTONE	1.5	184.0	GRAY
329.4	CARBONDALE	DYKERSBURG	UNKNOWN	22.4	185.5	FRACTURED
307.0	CARBONDALE	SPRINGFIELD	CAVITY	2.5	207.9	#5 OLD WORKS
304.5	CARBONDALE		CLAYSTONE	1.0	210.4	

MAPID: 19990061000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 3' N line, 320' W line of NW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.797931 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738961 **DATE COLLECTED:** 6 / 27 / 1978

SURFACE ELEVATION (FT.): 493.4 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B501B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.4	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
481.4	PLEISTOCENE		SAND & GRAVEL	2.0	12.0	
479.4	PLEISTOCENE		CLAY	6.0	14.0	
473.4	PLEISTOCENE		UNCONSOLIDATED	7.5	20.0	
465.9	PLEISTOCENE		UNCONSOLIDATED	8.5	27.5	GRAY
457.4	PLEISTOCENE		SAND & GRAVEL	1.0	36.0	
456.4	PLEISTOCENE		UNCONSOLIDATED	17.5	37.0	
438.9	CARBONDALE		GRAY SHALE	8.5	54.5	
430.4	CARBONDALE	JAMESTOWN	COAL	0.3	63.0	
430.1	CARBONDALE		BLACK SHALE	4.2	63.3	
425.9	CARBONDALE	BRERETON	LIMESTONE	7.3	67.5	DARK GRAY
418.6	CARBONDALE	ANNA	BLACK SHALE	2.6	74.8	
416.0	CARBONDALE	HERRIN	COAL	5.4	77.4	
410.6	CARBONDALE		UNDERCLAY	1.2	82.8	
409.4	CARBONDALE		GRAY SHALE	3.0	84.0	
406.4	CARBONDALE		CALCAREOUS SANDSTONE	8.0	87.0	GRAY

MAPID: 19990062000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 10' N line, 45' W line of NW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79888 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738953 **DATE COLLECTED:** 8 / 17 / 1976

SURFACE ELEVATION (FT.): 487.4 **LOGGED (FT.):** 95.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B501YY **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
487.4	PLEISTOCENE		UNCONSOLIDATED	21.0	0.0	
466.4	PLEISTOCENE		CLAY	34.0	21.0	
432.4	CARBONDALE		GRAY SHALE	7.5	55.0	
424.9	CARBONDALE	CONANT	LIMESTONE	0.5	62.5	
424.4	CARBONDALE		DARK GRAY SHALE	2.0	63.0	
422.4	CARBONDALE	BRERETON	LIMESTONE	7.8	65.0	
414.6	CARBONDALE	ENERGY	DARK GRAY SHALE	2.3	72.8	
412.3	CARBONDALE	HERRIN	COAL	5.8	75.1	
406.5	CARBONDALE		SHALE	3.1	80.9	
403.4	CARBONDALE		SANDY SHALE	1.0	84.0	
402.4	CARBONDALE		CALCAREOUS SANDSTONE	10.0	85.0	

MAPID: 19990063000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 10' S line, 671' W line of SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.796728 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739001 **DATE COLLECTED:** 4 / 1 / 1980

SURFACE ELEVATION (FT.): 495.6 **LOGGED (FT.):** 91.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B502 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
495.6	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
487.6	PLEISTOCENE		CLAY	22.0	8.0	BROWN
465.6	PLEISTOCENE		UNCONSOLIDATED	36.0	30.0	GRAY
429.6	CARBONDALE		SHALE	8.3	66.0	
421.3	CARBONDALE	BRERETON	LIMESTONE	5.4	74.3	
415.9	CARBONDALE	ANNA	BLACK SHALE	3.0	79.7	
412.9	CARBONDALE	HERRIN	COAL	5.5	82.7	
407.4	CARBONDALE		UNDERCLAY	2.8	88.2	

MAPID: 19990064000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 16' N line, 72' E line of NW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.794702 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73893 **DATE COLLECTED:** 10 / 11 / 1979

SURFACE ELEVATION (FT.): 498.8 **LOGGED (FT.):** 101.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B502PB **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
498.8	PLEISTOCENE		CLAY	33.0	0.0	BROWN
465.8	PLEISTOCENE		CLAY	16.0	33.0	GRAY
449.8	CARBONDALE		SANDY SHALE	9.0	49.0	
440.8	CARBONDALE		SANDSTONE	2.0	58.0	LIGHT GRAY
438.8	CARBONDALE		SANDY SHALE	22.0	60.0	
416.8	CARBONDALE		SANDSTONE	1.0	82.0	DARK GRAY
415.8	CARBONDALE		SANDY DARK SHALE	3.0	83.0	
412.8	CARBONDALE	BRERETON	LIMESTONE	4.3	86.0	DARK GRAY
408.5	CARBONDALE	ANNA	BLACK SHALE	1.7	90.3	
406.8	CARBONDALE	ANNA	SANDY SHALE	1.0	92.0	
405.8	CARBONDALE	ANNA	BLACK SHALE	0.3	93.0	
405.5	CARBONDALE	HERRIN	COAL	5.7	93.3	
399.8	CARBONDALE		UNDERCLAY	2.0	99.0	

MAPID: 19990065000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 5' N line, 328' W line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.793325 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738947 **DATE COLLECTED:** 6 / 21 / 1978

SURFACE ELEVATION (FT.): 489.1 **LOGGED (FT.):** 97.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B503B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
489.1	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
486.1	PLEISTOCENE		CLAY	7.0	3.0	
479.1	PLEISTOCENE		UNCONSOLIDATED	6.5	10.0	
472.6	PLEISTOCENE		UNCONSOLIDATED	19.0	16.5	GRAY
453.6	CARBONDALE		SANDSTONE	1.0	35.5	GRAY
452.6	CARBONDALE		GRAY SHALE	2.5	36.5	
450.1	CARBONDALE		SANDSTONE	3.0	39.0	GRAY
447.1	CARBONDALE		GRAY SHALE	7.8	42.0	
439.3	CARBONDALE		GRAY SHALE	2.2	49.8	
437.1	CARBONDALE		GRAY SHALE	19.9	52.0	
417.2	CARBONDALE	JAMESTOWN	COAL	0.2	71.9	
417.0	CARBONDALE		DARK GRAY SHALE	1.4	72.1	
415.6	CARBONDALE		LIMESTONE	0.8	73.5	DARK GRAY
414.8	CARBONDALE		DARK GRAY SHALE	1.2	74.3	
413.6	CARBONDALE	BRERETON	LIMESTONE	8.1	75.5	DARK GRAY
405.5	CARBONDALE	ANNA	BLACK SHALE	3.2	83.6	
402.3	CARBONDALE	HERRIN	COAL	5.7	86.8	
396.6	CARBONDALE		UNDERCLAY	1.5	92.5	
395.1	CARBONDALE		GRAY SHALE	1.0	94.0	
394.1	CARBONDALE		CALCAREOUS SANDSTONE	2.0	95.0	GRAY

MAPID: 19990066000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 5' S line, 665' E line of SE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.79232 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738963 **DATE COLLECTED:** 6 / 13 / 1978

SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 97.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B504 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
489.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
486.0	PLEISTOCENE		CLAY	4.0	3.0	
482.0	PLEISTOCENE		UNCONSOLIDATED	25.5	7.0	
456.5	CARBONDALE		SANDSTONE	1.0	32.5	GRAY
455.5	CARBONDALE		GRAY SHALE	1.5	33.5	
454.0	CARBONDALE		SANDSTONE	3.0	35.0	GRAY
451.0	CARBONDALE		GRAY SHALE	1.5	38.0	
449.5	CARBONDALE		DARK GRAY SHALE	5.5	39.5	
444.0	CARBONDALE		SANDY SHALE	2.0	45.0	
442.0	CARBONDALE		SANDSTONE	1.5	47.0	GRAY
440.5	CARBONDALE		DARK GRAY SHALE	4.5	48.5	
436.0	CARBONDALE		GRAY SHALE	15.5	53.0	
420.5	CARBONDALE	BRERETON	LIMESTONE	4.3	68.5	DARK GRAY
416.2	CARBONDALE	ANNA	BLACK SHALE	3.4	72.8	
412.8	CARBONDALE	ENERGY	GRAY SHALE	4.2	76.2	
408.6	CARBONDALE	HERRIN	COAL	5.3	80.4	
403.3	CARBONDALE		UNDERCLAY	1.3	85.7	
402.0	CARBONDALE		GRAY SHALE	5.5	87.0	
396.5	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.5	92.5	GRAY

MAPID: 19990067000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 12' N line, 320' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.711007 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.675961 **DATE COLLECTED:** 6 / 9 / 1978

SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 107.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B504B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
505.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
500.0	PLEISTOCENE		CLAY	18.0	5.0	
482.0	PLEISTOCENE		UNCONSOLIDATED	22.0	23.0	
460.0	CARBONDALE		GRAY SHALE	3.0	45.0	
457.0	CARBONDALE		SANDSTONE	4.0	48.0	GRAY
453.0	CARBONDALE		DARK GRAY SHALE	5.0	52.0	
448.0	CARBONDALE		GRAY SHALE	1.5	57.0	
446.5	CARBONDALE		SANDSTONE	1.5	58.5	GRAY
445.0	CARBONDALE		GRAY SHALE	5.5	60.0	
439.5	CARBONDALE		DARK GRAY SHALE	15.2	65.5	
424.3	CARBONDALE	JAMESTOWN	COAL	0.2	80.7	
424.1	CARBONDALE	BRERETON	LIMESTONE	7.0	80.9	DARK GRAY
417.1	CARBONDALE	ANNA	BLACK SHALE	4.5	87.9	
412.6	CARBONDALE	HERRIN	COAL	5.8	92.4	
406.8	CARBONDALE		UNDERCLAY	1.8	98.2	
405.0	CARBONDALE		GRAY SHALE	2.5	100.0	
402.5	CARBONDALE	HIGGINSVILLE	SANDY LIMESTONE	4.5	102.5	GRAY

MAPID: 19990068000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 30' N line, 1' E line of NW NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.787753 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738843 **DATE COLLECTED:** 3 / 27 / 1975

SURFACE ELEVATION (FT.): 523.7 **LOGGED (FT.):** 127.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B481DD **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.7	PLEISTOCENE		SILT	3.0	0.0	
520.7	PLEISTOCENE		CLAY	11.0	3.0	YELLOW
509.7	PLEISTOCENE		CLAY	15.0	14.0	YELLOW
494.7	PLEISTOCENE		UNCONSOLIDATED	24.0	29.0	GRAY
470.7	CARBONDALE		GRAY SHALE	5.0	53.0	
465.7	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	58.0	WHITE
461.7	CARBONDALE		GRAY SHALE	9.0	62.0	
452.7	CARBONDALE		DARK GRAY SHALE	29.0	71.0	
423.7	CARBONDALE	JAMESTOWN	COAL	2.0	100.0	
421.7	CARBONDALE		UNDERCLAY	1.0	102.0	
420.7	CARBONDALE	ENERGY	GRAY SHALE	11.0	103.0	
409.7	CARBONDALE	HERRIN	COAL	6.0	114.0	
403.7	CARBONDALE		UNDERCLAY	3.0	120.0	
400.7	CARBONDALE		GRAY SHALE	4.0	123.0	

MAPID: 19990069000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NW NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785486 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738912 **DATE COLLECTED:** 9 / 23 / 1960

SURFACE ELEVATION (FT.): 523.2 **LOGGED (FT.):** 130.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B507 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.2	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
514.2	PLEISTOCENE		CLAY	35.0	9.0	
479.2	CARBONDALE		GRAY SHALE	2.0	44.0	
477.2	CARBONDALE	ALLENBY	COAL	0.8	46.0	
476.4	CARBONDALE		GRAY SHALE	12.2	46.8	
464.2	CARBONDALE		SANDSTONE	4.0	59.0	GRAY
460.2	CARBONDALE		SANDY SHALE	3.0	63.0	
457.2	CARBONDALE	BANKSTON FORK	LIMESTONE	4.8	66.0	
452.4	CARBONDALE		SANDY SHALE	22.2	70.8	
430.2	CARBONDALE		DARK GRAY SHALE	18.6	93.0	
411.6	CARBONDALE	BRERETON	LIMESTONE	8.4	111.6	
403.2	CARBONDALE		GRAY SHALE	1.3	120.0	
401.9	CARBONDALE	ANNA	BLACK SHALE	2.2	121.3	
399.7	CARBONDALE	HERRIN	COAL	4.8	123.5	
394.9	CARBONDALE		UNDERCLAY	1.7	128.3	

MAPID: 19990070000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 30' N line, 1' W line of NE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783231 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.73882 **DATE COLLECTED:** 3 / 28 / 1975

SURFACE ELEVATION (FT.): 525.5 **LOGGED (FT.):** 147.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B483DD **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.5	PLEISTOCENE		SILT	1.0	0.0	
524.5	PLEISTOCENE		CLAY	9.0	1.0	
515.5	PLEISTOCENE		GLACIAL DRIFT	33.5	10.0	
482.0	MODESTO	PIASA	LIMESTONE	2.0	43.5	
480.0	MODESTO		GRAY SHALE	5.0	45.5	
475.0	MODESTO		BLACK SHALE	2.0	50.5	
473.0	CARBONDALE	DANVILLE	COAL	2.0	52.5	
471.0	CARBONDALE		UNDERCLAY	1.5	54.5	
469.5	CARBONDALE		GRAY SHALE	12.5	56.0	
457.0	CARBONDALE	ALLENBY	COAL	1.5	68.5	
455.5	CARBONDALE		UNDERCLAY	1.0	70.0	
454.5	CARBONDALE		GRAY SHALE	6.0	71.0	
448.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	77.0	
442.5	CARBONDALE		SANDY SHALE	38.0	83.0	
404.5	CARBONDALE	BRERETON	LIMESTONE	6.0	121.0	
398.5	CARBONDALE	ANNA	BLACK SHALE	4.0	127.0	
394.5	CARBONDALE	HERRIN	COAL	5.2	131.0	
389.3	CARBONDALE		UNDERCLAY	1.8	136.2	
387.5	CARBONDALE		SANDY SHALE	9.0	138.0	

MAPID: 19990071000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 27' S line, 330' E line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781797 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739049 **DATE COLLECTED:** 4 / 9 / 1977

SURFACE ELEVATION (FT.): 528.9 **LOGGED (FT.):** 150.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B508BJ **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
528.9	PLEISTOCENE		UNCONSOLIDATED	46.0	0.0	
482.9	MODESTO		GRAY SHALE	8.5	46.0	
474.4	MODESTO		DARK GRAY SHALE	0.8	54.5	
473.6	CARBONDALE	DANVILLE	COAL	1.7	55.3	
471.9	CARBONDALE		UNDERCLAY	1.3	57.0	
470.6	CARBONDALE		GRAY SHALE	1.6	58.3	
469.0	CARBONDALE		DARK GRAY SHALE	6.3	59.9	
462.7	CARBONDALE		GRAY SHALE	7.6	66.2	
455.1	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	73.8	LIGHT GRAY
450.8	CARBONDALE		SANDY SHALE	45.5	78.1	
405.3	CARBONDALE	CONANT	LIMESTONE	0.5	123.6	DARK GRAY
404.8	CARBONDALE	JAMESTOWN	COAL	0.4	124.1	
404.4	CARBONDALE		BLACK SHALE	0.9	124.5	
403.5	CARBONDALE	BRERETON	LIMESTONE	5.4	125.4	DARK GRAY
398.1	CARBONDALE	ANNA	BLACK SHALE	3.8	130.8	
394.3	CARBONDALE	HERRIN	COAL	5.1	134.6	
389.2	CARBONDALE		UNDERCLAY	2.3	139.7	
386.9	CARBONDALE		DARK GRAY SHALE	1.9	142.0	
385.0	CARBONDALE		CALCAREOUS SANDSTONE	6.1	143.9	GRAY

MAPID: 19990073000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780978 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738889 **DATE COLLECTED:** 9 / 22 / 1960

SURFACE ELEVATION (FT.): 529.5 **LOGGED (FT.):** 140.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B509 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
529.5	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
519.5	PLEISTOCENE		CLAY	43.3	10.0	
476.2	CARBONDALE	ALLENBY	COAL	0.7	53.3	
475.5	CARBONDALE		UNDERCLAY	2.0	54.0	
473.5	CARBONDALE		SANDSTONE	4.0	56.0	GRAY
469.5	CARBONDALE		SANDY SHALE	10.0	60.0	
459.5	CARBONDALE	ALLENBY	COAL	1.0	70.0	
458.5	CARBONDALE		GRAY SHALE	3.8	71.0	
454.7	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	74.8	
449.2	CARBONDALE		SANDY SHALE	21.7	80.3	
427.5	CARBONDALE		DARK GRAY SHALE	23.3	102.0	
404.2	CARBONDALE	BRERETON	LIMESTONE	5.2	125.3	
399.0	CARBONDALE	ANNA	BLACK SHALE	2.6	130.5	
396.4	CARBONDALE	HERRIN	COAL	4.9	133.1	
391.5	CARBONDALE		UNDERCLAY	2.0	138.0	

MAPID: 19990092000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' N line, 1' W line of NW SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.790019 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.734369 **DATE COLLECTED:** 11 / 11 / 1975

SURFACE ELEVATION (FT.): 507.1 **LOGGED (FT.):** 96.6 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B430C **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
507.1	PLEISTOCENE		LOESS	10.0	0.0	
497.1	PLEISTOCENE		GLACIAL DRIFT	23.0	10.0	
474.1	PLEISTOCENE		SAND/CLAY	10.0	33.0	DARK GRAY
464.1	CARBONDALE		SILTY SHALE	35.8	43.0	
428.3	CARBONDALE	BRERETON	LIMESTONE	5.0	78.8	BLACK
423.3	CARBONDALE	BRERETON	LIMESTONE	4.0	83.8	DARK GRAY
419.3	CARBONDALE	ANNA	BLACK SHALE	1.4	87.8	
417.9	CARBONDALE	HERRIN	COAL	5.7	89.2	
412.2	CARBONDALE		UNDERCLAY	1.7	94.9	

MAPID: 19990093000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 325' S line, 320' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.790977 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.736213 **DATE COLLECTED:** 6 / 12 / 1978

SURFACE ELEVATION (FT.): 517.4 **LOGGED (FT.):** 110.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B454A **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.4	PLEISTOCENE		CLAY	23.0	0.0	BROWN
494.4	PLEISTOCENE		CLAY	7.5	23.0	BROWN
486.9	PLEISTOCENE		GRAVEL	0.5	30.5	
486.4	PLEISTOCENE		CLAY	18.0	31.0	LIGHT BROWN
468.4	PLEISTOCENE		SILTY CLAY	4.6	49.0	GRAY
463.8	PLEISTOCENE		CLAY	4.9	53.6	
458.9	CARBONDALE		SANDY SHALE	2.1	58.5	
456.8	CARBONDALE		SANDY DARK SHALE	26.3	60.6	
430.5	CARBONDALE		DARK SHALE	4.5	86.9	
426.0	CARBONDALE	BRERETON	LIMESTONE	7.0	91.4	DARK GRAY
419.0	CARBONDALE	ANNA	BLACK SHALE	2.3	98.4	
416.7	CARBONDALE	HERRIN	COAL	5.3	100.7	
411.4	CARBONDALE		UNDERCLAY	3.6	106.0	
407.8	CARBONDALE		SANDY SHALE	0.4	109.6	

MAPID: 19990094000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 32' W line of SW NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789901 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.737106 **DATE COLLECTED:** 3 / 25 / 1975

SURFACE ELEVATION (FT.): 516.5 **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B480YY **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
516.5	PLEISTOCENE		SILT	2.0	0.0	
514.5	PLEISTOCENE		CLAY	8.0	2.0	
506.5	PLEISTOCENE		UNCONSOLIDATED	14.0	10.0	
492.5	PLEISTOCENE		GLACIAL DRIFT	22.5	24.0	
470.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	46.5	
463.0	CARBONDALE		SANDY SHALE	12.5	53.5	
450.5	CARBONDALE		SANDY DARK SHALE	18.0	66.0	
432.5	CARBONDALE		DARK SHALE	6.0	84.0	
426.5	CARBONDALE	BRERETON	LIMESTONE	7.5	90.0	
419.0	CARBONDALE	ANNA	BLACK SHALE	3.0	97.5	
416.0	CARBONDALE	HERRIN	COAL	5.8	100.5	
410.2	CARBONDALE		UNDERCLAY	1.7	106.3	
408.5	CARBONDALE		SANDY SHALE	9.0	108.0	

MAPID: 19990095000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 992' S line, 4' E line of NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789871 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738039 **DATE COLLECTED:** 6 / 8 / 1978

SURFACE ELEVATION (FT.): 519.4 **LOGGED (FT.):** 124.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B480C **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
519.4	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
516.4	PLEISTOCENE		CLAY	19.0	3.0	
497.4	PLEISTOCENE		UNCONSOLIDATED	22.0	22.0	
475.4	PLEISTOCENE		UNCONSOLIDATED	13.0	44.0	
462.4	CARBONDALE		SANDY SHALE	4.0	57.0	
458.4	CARBONDALE		SANDSTONE	2.0	61.0	GRAY
456.4	CARBONDALE		CALCAREOUS SANDSTONE	1.0	63.0	
455.4	CARBONDALE		DARK GRAY SHALE	6.0	64.0	
449.4	CARBONDALE		SANDSTONE	3.0	70.0	GRAY
446.4	CARBONDALE		DARK GRAY SHALE	2.0	73.0	
444.4	CARBONDALE		GRAY SHALE	2.0	75.0	
442.4	CARBONDALE		DARK GRAY SHALE	14.0	77.0	
428.4	CARBONDALE	JAMESTOWN	COAL	0.2	91.0	
428.2	CARBONDALE	BRERETON	LIMESTONE	1.8	91.2	DARK GRAY
426.4	CARBONDALE	ANNA	BLACK SHALE	2.5	93.0	
423.9	CARBONDALE	ENERGY	GRAY SHALE	11.0	95.5	
412.9	CARBONDALE	HERRIN	COAL	5.3	106.5	
407.6	CARBONDALE		UNDERCLAY	1.2	111.8	
406.4	CARBONDALE		GRAY SHALE	2.5	113.0	
403.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.5	115.5	GRAY

MAPID: 19990096000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NW NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.790002 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738934 **DATE COLLECTED:** 9 / 26 / 1960

SURFACE ELEVATION (FT.): 512.5 **LOGGED (FT.):** 110.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B505 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
512.5	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
504.5	PLEISTOCENE		CLAY	42.0	8.0	
462.5	CARBONDALE		SANDSTONE	10.0	50.0	GRAY
452.5	CARBONDALE		SANDY SHALE	5.5	60.0	
447.0	CARBONDALE		SANDSTONE	7.0	65.5	GRAY
440.0	CARBONDALE		SANDY SHALE	15.8	72.5	
424.2	CARBONDALE	CONANT	LIMESTONE	1.2	88.3	
423.0	CARBONDALE		DARK SHALE	0.7	89.5	
422.3	CARBONDALE		BLACK SHALE	2.2	90.2	
420.2	CARBONDALE	JAMESTOWN	COAL	0.3	92.3	
419.8	CARBONDALE	ENERGY	GRAY SHALE	9.8	92.7	
410.0	CARBONDALE	HERRIN	COAL	5.5	102.5	
404.5	CARBONDALE		UNDERCLAY	2.0	108.0	

MAPID: 19990097000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 327' S line, 8' E line of SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789899 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739864 **DATE COLLECTED:** 6 / 8 / 1978

SURFACE ELEVATION (FT.): 514.5 **LOGGED (FT.):** 136.4 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B505C **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
514.5	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
510.5	PLEISTOCENE		CLAY	23.0	4.0	
487.5	PLEISTOCENE		UNCONSOLIDATED	5.0	27.0	
482.5	PLEISTOCENE		UNCONSOLIDATED	6.0	32.0	GRAY
476.5	PLEISTOCENE		UNCONSOLIDATED	12.0	38.0	
464.5	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	50.0	BROWN
463.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	51.0	GRAY
457.5	CARBONDALE		GRAY SHALE	6.0	57.0	
451.5	CARBONDALE		SANDY SHALE	3.0	63.0	
448.5	CARBONDALE		DARK GRAY SHALE	5.5	66.0	
443.0	CARBONDALE		SANDSTONE	1.5	71.5	GRAY
441.5	CARBONDALE		DARK GRAY SHALE	18.5	73.0	
423.0	CARBONDALE	JAMESTOWN	COAL	0.2	91.5	
422.8	CARBONDALE		LIMESTONE	0.5	91.7	DARK GRAY
422.3	CARBONDALE		BLACK SHALE	1.8	92.2	
420.5	CARBONDALE	BRERETON	LIMESTONE	0.6	94.0	DARK GRAY
419.9	CARBONDALE	ANNA	BLACK SHALE	0.4	94.6	
419.5	CARBONDALE	ENERGY	GRAY SHALE	11.1	95.0	
408.4	CARBONDALE	HERRIN	COAL	6.4	106.1	
402.0	CARBONDALE		UNDERCLAY	1.6	112.5	
400.5	CARBONDALE		GRAY SHALE	2.3	114.0	
398.2	CARBONDALE	HIGGINSVILLE	SANDY LIMESTONE	9.2	116.3	GRAY
389.0	CARBONDALE		SANDY SHALE	10.9	125.5	

MAPID: 19990098000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SW SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789998 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.740762 **DATE COLLECTED:** 4 / 3 / 1973

SURFACE ELEVATION (FT.): 503.6 **LOGGED (FT.):** 111.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B530 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA CRAB ORCHARD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
503.6	PLEISTOCENE		SILT	4.0	0.0	
499.6	PLEISTOCENE		CLAY	17.0	4.0	
482.6	PLEISTOCENE		UNCONSOLIDATED	26.0	21.0	
456.6	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	47.0	
450.6	CARBONDALE		GRAY SHALE	4.0	53.0	
446.6	CARBONDALE		SANDY DARK SHALE	21.0	57.0	
425.6	CARBONDALE		DARK GRAY SHALE	9.0	78.0	
416.6	CARBONDALE		BLACK SHALE	1.0	87.0	
415.6	CARBONDALE	BRERETON	LIMESTONE	2.0	88.0	
413.6	CARBONDALE	ANNA	BLACK SHALE	4.0	90.0	
409.6	CARBONDALE	ENERGY	GRAY SHALE	9.0	94.0	
400.6	CARBONDALE	HERRIN	COAL	6.1	103.0	
394.5	CARBONDALE		UNDERCLAY	1.9	109.1	

MAPID: 19990099000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 980' S line, 8' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789836 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.741669 **DATE COLLECTED:** 6 / 14 / 1978

SURFACE ELEVATION (FT.): 499.9 **LOGGED (FT.):** 117.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B530C **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
499.9	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
491.9	PLEISTOCENE		CLAY	6.0	8.0	
485.9	PLEISTOCENE		UNCONSOLIDATED	9.0	14.0	
476.9	PLEISTOCENE		SAND	9.0	23.0	
467.9	PLEISTOCENE		GLACIAL DRIFT	15.0	32.0	GRAY
452.9	CARBONDALE		GRAY SHALE	1.5	47.0	
451.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.7	48.5	
445.7	CARBONDALE		GRAY SHALE	3.8	54.2	
441.9	CARBONDALE		SANDSTONE	6.0	58.0	GRAY
435.9	CARBONDALE		SANDY DARK SHALE	24.0	64.0	
411.9	CARBONDALE	JAMESTOWN	COAL	0.2	88.0	
411.7	CARBONDALE	BRERETON	LIMESTONE	2.3	88.2	DARK GRAY
409.4	CARBONDALE	ANNA	BLACK SHALE	3.5	90.5	
405.9	CARBONDALE	ENERGY	GRAY SHALE	9.0	94.0	
396.9	CARBONDALE	HERRIN	COAL	6.3	103.0	
390.6	CARBONDALE		UNDERCLAY	1.7	109.3	
388.9	CARBONDALE		GRAY SHALE	2.5	111.0	
386.4	CARBONDALE		CALCAREOUS SANDSTONE	3.5	113.5	GRAY

MAPID: 19990100000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NW SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.78999 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.742589 **DATE COLLECTED:** 2 / 2 / 1973
SURFACE ELEVATION (FT.): 506.1 **LOGGED (FT.):** 123.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B555 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELTA CRAB ORCHARD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
506.1	PLEISTOCENE		SILT	4.0	0.0	
502.1	PLEISTOCENE		CLAY	10.0	4.0	
492.1	PLEISTOCENE		UNCONSOLIDATED	40.0	14.0	
452.1	CARBONDALE	ALLENBY	COAL	0.5	54.0	
451.6	CARBONDALE		UNDERCLAY	0.5	54.5	
451.1	CARBONDALE		GRAY SHALE	3.0	55.0	
448.1	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	58.0	
442.1	CARBONDALE		GRAY SHALE	34.0	64.0	
408.1	CARBONDALE	BRERETON	LIMESTONE	3.0	98.0	
405.1	CARBONDALE	ANNA	BLACK SHALE	2.5	101.0	
402.6	CARBONDALE	ENERGY	GRAY SHALE	12.5	103.5	
390.1	CARBONDALE	HERRIN	COAL	5.3	116.0	
384.8	CARBONDALE		UNDERCLAY	1.8	121.3	

MAPID: 19990101000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SW NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.789986 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.744417 **DATE COLLECTED:** 4 / 3 / 1973
SURFACE ELEVATION (FT.): 514.4 **LOGGED (FT.):** 136.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B580 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELTA CRAB ORCHARD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
514.4	PLEISTOCENE		SILT	4.0	0.0	
510.4	PLEISTOCENE		CLAY	7.0	4.0	
503.4	PLEISTOCENE		UNCONSOLIDATED	47.0	11.0	
456.4	CARBONDALE		GRAY SHALE	9.0	58.0	
447.4	CARBONDALE		LIMESTONE	7.0	67.0	
440.4	CARBONDALE		GRAY SHALE	6.0	74.0	
434.4	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	80.0	
424.4	CARBONDALE		GRAY SHALE	17.0	90.0	
407.4	CARBONDALE	CONANT	LIMESTONE	2.0	107.0	
405.4	CARBONDALE	ANNA	BLACK SHALE	3.0	109.0	
402.4	CARBONDALE	ENERGY	GRAY SHALE	17.0	112.0	
385.4	CARBONDALE	HERRIN	COAL	5.7	129.0	
379.7	CARBONDALE		UNDERCLAY	1.3	134.7	

MAPID: 19990110000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SE SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781002 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731554 **DATE COLLECTED:** 1 / 29 / 1965

SURFACE ELEVATION (FT.): 510.5 **LOGGED (FT.):** 81.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B409 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.5	PLEISTOCENE		CLAY	11.0	0.0	
499.5	PLEISTOCENE		CLAY	21.0	11.0	
478.5	PLEISTOCENE		CLAY	4.0	32.0	
474.5	CARBONDALE		SANDSTONE	6.0	36.0	BROWN
468.5	CARBONDALE		SANDY SHALE	23.3	42.0	
445.2	CARBONDALE	JAMESTOWN	COAL	0.5	65.3	
444.7	CARBONDALE	BRERETON	LIMESTONE	5.3	65.8	
439.4	CARBONDALE	ANNA	BLACK SHALE	3.5	71.1	
435.9	CARBONDALE	HERRIN	COAL	4.8	74.6	
431.2	CARBONDALE		ROCK	0.3	79.3	
430.9	CARBONDALE		UNDERCLAY	1.4	79.6	

MAPID: 19990111000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 330' E line of SE SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.782138 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.733392 **DATE COLLECTED:** 11 / 11 / 1975

SURFACE ELEVATION (FT.): 512.2 **LOGGED (FT.):** 85.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B433B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
512.2	PLEISTOCENE		LOESS	9.0	0.0	
503.2	PLEISTOCENE		GLACIAL DRIFT	45.0	9.0	
458.2	CARBONDALE		SILTY SHALE	6.0	54.0	
452.2	CARBONDALE		SILTY SHALE	7.5	60.0	
444.7	CARBONDALE	CONANT	CARBONACEOUS LIMESTONE	1.5	67.5	DARK GRAY
443.2	CARBONDALE	BRERETON	LIMESTONE	5.0	69.0	DARK GRAY
438.2	CARBONDALE	ANNA	BLACK SHALE	3.0	74.0	
435.2	CARBONDALE	HERRIN	COAL	5.7	77.0	
429.5	CARBONDALE		UNDERCLAY	2.3	82.7	

MAPID: 19990112000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NW SE SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783249 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735232 **DATE COLLECTED:** 9 / 29 / 1960
SURFACE ELEVATION (FT.): 511.4 **LOGGED (FT.):** 98.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B458 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
511.4	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
499.4	PLEISTOCENE		CLAY	13.0	12.0	
486.4	PLEISTOCENE		CLAY	29.0	25.0	
457.4	CARBONDALE		SANDY SHALE	26.8	54.0	
430.6	CARBONDALE	BRERETON	LIMESTONE	5.4	80.8	
425.1	CARBONDALE		DARK SHALE	1.0	86.3	
424.1	CARBONDALE	ANNA	BLACK SHALE	2.6	87.3	
421.6	CARBONDALE	HERRIN	COAL	5.3	89.8	
416.2	CARBONDALE		UNDERCLAY	2.8	95.2	

MAPID: 19990113000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' S line, 1' W line of SW NE SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785498 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.735254 **DATE COLLECTED:** 3 / 28 / 1975
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 127.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B483 **WELL TYPE:** Coal Test
COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.0	PLEISTOCENE		CLAY	15.0	0.0	
505.0	PLEISTOCENE		GLACIAL DRIFT	21.0	15.0	
484.0	PLEISTOCENE		UNCONSOLIDATED	11.0	36.0	
473.0	CARBONDALE		GRAY SHALE	4.0	47.0	
469.0	CARBONDALE	ALLENBY	COAL	0.5	51.0	
468.5	CARBONDALE		UNDERCLAY	0.5	51.5	
468.0	CARBONDALE		GRAY SHALE	4.5	52.0	
463.5	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	56.5	
457.5	CARBONDALE		GRAY SHALE	4.5	62.5	
453.0	CARBONDALE		SANDY SHALE	36.5	67.0	
416.5	CARBONDALE	BRERETON	LIMESTONE	5.5	103.5	
411.0	CARBONDALE	ANNA	BLACK SHALE	3.5	109.0	
407.5	CARBONDALE	HERRIN	COAL	5.2	112.5	
402.3	CARBONDALE		UNDERCLAY	1.3	117.7	
401.0	CARBONDALE		SANDY SHALE	8.0	119.0	

MAPID: 19990114000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 27' S line, 330' E line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781797 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.739049 **DATE COLLECTED:** 3 / 9 / 1977

SURFACE ELEVATION (FT.): 528.9 **LOGGED (FT.):** 150.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B508BJ **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
528.9	PLEISTOCENE		SILTY CLAY	1.5	0.0	BROWN-GRAY
527.4	PLEISTOCENE		CLAY	4.5	1.5	BROWN
522.9	PLEISTOCENE		CLAY	10.0	6.0	BROWN
512.9	PLEISTOCENE		SILTY CLAY	15.0	16.0	BROWN
497.9	PLEISTOCENE		UNCONSOLIDATED	15.0	31.0	BROWN-GRAY
482.9	MODESTO		GRAY SHALE	8.5	46.0	
474.4	MODESTO		DARK GRAY SHALE	0.8	54.5	
473.6	CARBONDALE	DANVILLE	COAL	1.7	55.3	
471.9	CARBONDALE		UNDERCLAY	1.3	57.0	
470.6	CARBONDALE		GRAY SHALE	1.6	58.3	
469.0	CARBONDALE		DARK GRAY SHALE	6.3	59.9	
462.7	CARBONDALE		GRAY SHALE	7.6	66.2	
455.1	CARBONDALE	BANKSTON FORK	LIMESTONE	4.3	73.8	
450.8	CARBONDALE		SANDY SHALE	45.5	78.1	
405.3	CARBONDALE	CONANT	LIMESTONE	0.5	123.6	DARK GRAY
404.8	CARBONDALE	JAMESTOWN	COAL	0.4	124.1	
404.4	CARBONDALE		BLACK SHALE	0.9	124.5	
403.5	CARBONDALE	BRERETON	LIMESTONE	5.4	125.4	DARK GRAY
398.1	CARBONDALE	ANNA	BLACK SHALE	3.8	130.8	
394.3	CARBONDALE	HERRIN	COAL	5.1	134.6	
389.2	CARBONDALE		UNDERCLAY	2.3	139.7	
386.9	CARBONDALE		DARK GRAY SHALE	1.9	142.0	
385.0	CARBONDALE		CALCAREOUS SANDSTONE	6.1	143.9	GRAY

MAPID: 19990117000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of NE NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780965 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.744399 **DATE COLLECTED:** 4 / 4 / 1973

SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 132.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B584 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, CRAB ORCHARD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.0	PLEISTOCENE		SILT	2.0	0.0	
515.0	PLEISTOCENE		CLAY	6.0	2.0	
509.0	PLEISTOCENE		UNCONSOLIDATED	29.0	8.0	
480.0	MODESTO		GRAY SHALE	3.0	37.0	
477.0	MODESTO	PIASA	LIMESTONE	2.0	40.0	
475.0	MODESTO		GRAY SHALE	2.0	42.0	
473.0	MODESTO		BLACK SHALE	1.0	44.0	
472.0	MODESTO		GRAY SHALE	1.0	45.0	
471.0	CARBONDALE	DANVILLE	COAL	1.8	46.0	
469.2	CARBONDALE		UNDERCLAY	1.2	47.8	
468.0	CARBONDALE		SANDY SHALE	17.0	49.0	
451.0	CARBONDALE	ALLENBY	COAL	1.2	66.0	
449.8	CARBONDALE		UNDERCLAY	1.8	67.2	
448.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	69.0	
442.0	CARBONDALE		SANDY SHALE	20.0	75.0	
422.0	CARBONDALE		SANDSTONE	6.0	95.0	
416.0	CARBONDALE		DARK GRAY SHALE	16.0	101.0	
400.0	CARBONDALE	BRERETON	LIMESTONE	6.0	117.0	
394.0	CARBONDALE	ANNA	BLACK SHALE	1.0	123.0	
393.0	CARBONDALE	ENERGY	GRAY SHALE	2.0	124.0	
391.0	CARBONDALE	HERRIN	COAL	4.8	126.0	
386.2	CARBONDALE		UNDERCLAY	1.2	130.8	

MAPID: 19900705000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 0' N line, 2640' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.808185 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.746295 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 65.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 36R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0	PLEISTOCENE		SOIL	35.0	0.0	
465.0	PLEISTOCENE		SAND & GRAVEL	10.0	35.0	
455.0	CARBONDALE		GRAY SANDSTONE	20.0	45.0	

MAPID: 19901442000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.808526 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.742653 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 481.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Survey Core Study

SOURCE: DELTA COLLIERIES 16 **WELL TYPE:** Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
432.8	CARBONDALE	LAWSON	SANDSTONE	21.3	48.2	
411.5	CARBONDALE	CONANT	CALCAREOUS SHALE	0.1	69.5	
411.4	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	0.7	69.6	
410.7	CARBONDALE	ANNA	BLACK SHALE	2.8	70.3	
407.8	CARBONDALE	ENERGY	GRAY SHALE	11.2	73.2	
396.7	CARBONDALE	ENERGY	DARK GRAY SHALE	0.7	84.3	
396.0	CARBONDALE	HERRIN	COAL	5.0	85.0	

MAPID: 19923631000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.807154 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.736343 **DATE COLLECTED:** 5 / 25 / 1983

SURFACE ELEVATION (FT.): 483.8 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. E471A **WELL TYPE:** Water Well

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
483.8	PLEISTOCENE		UNCONSOLIDATED	56.0	0.0	SPOILS
427.8			GRAY SHALE	6.0	56.0	

MAPID: 19990060000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 16' N line, 323' E line of NE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.80017 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.738914 **DATE COLLECTED:** 11 / 11 / 1979

SURFACE ELEVATION (FT.): 489.3 **LOGGED (FT.):** 96.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO E524B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
489.3	PLEISTOCENE		CLAY	30.0	0.0	BROWN
459.3	PLEISTOCENE		CLAY	36.0	30.0	GRAY
423.3	CARBONDALE	BRERETON	LIMESTONE	1.0	66.0	DARK GRAY
422.3	CARBONDALE	BRERETON	DARK GRAY SHALE	2.0	67.0	
420.3	CARBONDALE	BRERETON	LIMESTONE	7.0	69.0	DARK GRAY
413.3	CARBONDALE	ENERGY	GRAY SHALE	3.0	76.0	
410.3	CARBONDALE	HERRIN	COAL	5.9	79.0	
404.4	CARBONDALE		UNDERCLAY	2.1	84.9	
402.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.0	87.0	GRAY

MAPID: 19900336000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 0' S line, 0' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.799284 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.717017 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 481.0 **LOGGED (FT.):** 213.0 **LOG TYPE:** Drillers Log

SOURCE: COX CREAMERY **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
481.0	PLEISTOCENE		UNCONSOLIDATED	23.0	0.0	
458.0			SHALE	35.0	23.0	
423.0			SANDSTONE	1.0	58.0	
422.0			GRAY SHALE	4.0	59.0	
418.0			SHALE	10.0	63.0	WHITE
408.0			SHALE	33.0	73.0	
375.0			LIMESTONE	2.0	106.0	
373.0			BLACK SHALE	5.0	108.0	
368.0			SHALE	21.0	113.0	
347.0			SANDSTONE	16.0	134.0	
331.0			SHALE	44.0	150.0	
287.0			SHALE	6.0	194.0	WHITE
281.0			BLACK SHALE	6.0	200.0	
275.0			COAL	0.0	206.0	
275.0			UNDERCLAY	7.0	206.0	

MAPID: 19900336000C **VERSION:** 2 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 0' S line, 0' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.799284 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.717017 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 481.0 **LOGGED (FT.):** 112.5 **LOG TYPE:** Drillers Log
SOURCE: COX CREAMERY **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
458.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	35.0	22.5	
423.5	CARBONDALE	LAWSON	SANDSTONE	1.0	57.5	
422.5	CARBONDALE	LAWSON	GRAY SHALE	4.0	58.5	
418.5	CARBONDALE	LAWSON	GRAY SHALE	10.0	62.5	
408.5	CARBONDALE	LAWSON	GRAY SHALE	33.0	72.5	
375.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	2.5	105.5	
373.0	CARBONDALE	HERRIN	COAL	4.5	108.0	

MAPID: 19900337000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 140' S line, 30' W line of NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785452 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.728314 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 62.5 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
505.0	PLEISTOCENE		CLAY	20.0	0.0	
485.0	CARBONDALE		BLUE SHALE	18.0	20.0	
467.0	CARBONDALE		SANDSTONE	10.0	38.0	
457.0	CARBONDALE		BLACK SHALE	9.0	48.0	
448.0	CARBONDALE	HERRIN	COAL	5.3	57.0	
442.7	CARBONDALE		UNDERCLAY	0.3	62.3	

MAPID: 19900338000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 210' S line, 20' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785535 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.72485 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 508.3 **LOGGED (FT.):** 45.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 144 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.3	PLEISTOCENE		CLAY	42.0	0.0	
466.3			CLAY	3.0	42.0	BLUE

MAPID: 19900339000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.784447 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.727007 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 514.0 **LOGGED (FT.):** 200.5 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 133 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
514.0	PLEISTOCENE		UNCONSOLIDATED	58.3	0.0	
455.7	CARBONDALE		SANDSTONE	35.0	58.3	
420.7	CARBONDALE		SANDSTONE/SHALE	17.0	93.3	
403.7	CARBONDALE	BRIAR HILL	COAL	1.1	110.3	ERODED
402.7	CARBONDALE		DARK SHALE	25.0	111.3	
377.7	CARBONDALE		BLACK SHALE	6.3	136.3	
371.4	CARBONDALE	DYKERSBURG	GRAY SHALE	15.0	142.6	
356.4	CARBONDALE	SPRINGFIELD	COAL	4.0	157.6	
352.4	CARBONDALE		UNDERCLAY	3.0	161.6	
349.4	CARBONDALE		SANDSTONE/SHALE	35.9	164.6	

MAPID: 19900339000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.784447 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.727007 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 514.0 **LOGGED (FT.):** 201.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
404.0	CARBONDALE	BRIAR HILL	COAL	1.1	110.0	
356.0	CARBONDALE	SPRINGFIELD	COAL	4.0	158.0	

MAPID: 19900340000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 280' N line, 20' W line of SE SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785602 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.719837 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 143 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
530.0	PLEISTOCENE		CLAY	43.0	0.0	
487.0	CARBONDALE		SOFT SHALE	2.0	43.0	
485.0	CARBONDALE		BLACK SHALE	1.0	45.0	
484.0	CARBONDALE	BRERETON	LIMESTONE	6.0	46.0	
478.0	CARBONDALE	ANNA	BLACK SHALE	3.0	52.0	
475.0	CARBONDALE	HERRIN	COAL	5.2	55.0	
469.8	CARBONDALE		UNDERCLAY	0.8	60.2	

MAPID: 19900341000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.78566 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.72061 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 519.0 **LOGGED (FT.):** 174.3 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 137 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
519.0	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
494.0	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	25.0	
491.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	11.3	28.0	
479.7	CARBONDALE		GRAY SHALE	20.0	39.3	
459.7	CARBONDALE	JAMESTOWN	COAL	0.3	59.3	
459.5	CARBONDALE	BRERETON	LIMESTONE	8.0	59.5	
451.5	CARBONDALE	ANNA	BLACK SHALE	2.0	67.5	
449.5	CARBONDALE	HERRIN	COAL	5.5	69.5	
444.0	CARBONDALE		DARK SHALE	4.0	75.0	
440.0	CARBONDALE		SANDSTONE	31.0	79.0	
409.0	CARBONDALE		SANDSTONE/SHALE	23.0	110.0	
386.0	CARBONDALE	BRIAR HILL	COAL	1.5	133.0	
384.5	CARBONDALE		GRAY SHALE	14.0	134.5	
370.5	CARBONDALE	DYKERSBURG	BLACK SHALE	21.0	148.5	
349.5	CARBONDALE	SPRINGFIELD	COAL	2.8	169.5	
346.7	CARBONDALE		UNDERCLAY	2.0	172.3	

MAPID: 19900342000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 40' S line, 280' E line of SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.786682 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.717066 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 525 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
525.0	PLEISTOCENE		CLAY	44.0	0.0	
481.0	CARBONDALE	HERRIN	COAL	4.0	44.0	TOP MAY BE ERODED

MAPID: 19900343000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 60' S line, 400' E line of SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.787099 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.717124 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 40.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 132 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
509.0	PLEISTOCENE		CLAY	35.0	0.0	
474.0	PLEISTOCENE		CLAY	5.0	35.0	BLUE

MAPID: 19900685000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 2640' N line, 1320' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785676 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.724301 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 507.1 **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 1R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
507.1	PLEISTOCENE		SOIL	25.0	0.0	
482.1	CARBONDALE		SHALE	10.0	25.0	
472.1	CARBONDALE		SHALE & SILTSTONE	20.0	35.0	GRAY

MAPID: 19900685000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 2640' N line, 1320' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785676 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.724301 **DATE COLLECTED:** 3 / 12 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY R-I **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.0	0.0	
-			SHALE	10.0	25.0	
-			SHALE	20.0	35.0	SOFT

MAPID: 19900686000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783336 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 509.8 **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
509.8	PLEISTOCENE		SOIL	25.0	0.0	
484.8	CARBONDALE		SHALE	7.0	25.0	
477.8	CARBONDALE		BLACK SHALE	9.0	32.0	
468.8	CARBONDALE	BRERETON	LIMESTONE	6.0	41.0	
462.8	CARBONDALE	ANNA	BLACK SHALE	3.0	47.0	
459.8	CARBONDALE	HERRIN	COAL	5.3	50.0	
454.5	CARBONDALE		UNDERCLAY	0.7	55.3	

MAPID: 19900686000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783336 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 3 / 13 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 56.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY R-2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.0	0.0	
-			SHALE	7.0	25.0	
-	CARBONDALE		SHALE	9.0	32.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	41.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	47.0	
-	CARBONDALE	HERRIN	COAL	5.3	50.0	
-	CARBONDALE		UNDERCLAY	0.7	55.3	

MAPID: 19900687000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1' N line, 1320' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785583 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731586 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 501.5 **LOGGED (FT.):** 66.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 6D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
501.5	PLEISTOCENE		SOIL	28.0	0.0	
473.5	CARBONDALE		SHALE	20.0	28.0	
453.5	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	48.0	
445.5	CARBONDALE	BRERETON	LIMESTONE	1.5	56.0	
444.0	CARBONDALE	ANNA	BLACK SHALE	3.5	57.5	
440.5	CARBONDALE	HERRIN	COAL	5.0	61.0	
435.5	CARBONDALE		UNDERCLAY	0.5	66.0	

MAPID: 19900687000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1' N line, 1320' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785583 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.731586 **DATE COLLECTED:** 3 / 22 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 66.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY D-6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	28.0	0.0	
-	PLEISTOCENE		CLAY & SHALE	20.0	28.0	
-	PLEISTOCENE		SAND & GRAVEL	8.0	48.0	
-	CARBONDALE	BRERETON	LIMESTONE	1.5	56.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.5	57.5	
-	CARBONDALE	HERRIN	COAL	5.0	61.0	
-	CARBONDALE		UNDERCLAY	0.5	66.0	

MAPID: 19900688000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783336 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 504.3 **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 3R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
504.3	PLEISTOCENE		SOIL	25.0	0.0	
479.3	CARBONDALE		SHALE	8.0	25.0	
471.3	CARBONDALE		SHALE & SILTSTONE	14.0	33.0	GRAY
457.3	CARBONDALE	BRERETON	LIMESTONE	6.0	47.0	
451.3	CARBONDALE	ANNA	BLACK SHALE	3.0	53.0	
448.3	CARBONDALE	HERRIN	COAL	5.5	56.0	
442.8	CARBONDALE		UNDERCLAY	0.5	61.5	

MAPID: 19900688000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1320' N line, 660' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783336 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 3 / 15 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 62.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY R3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	25.0	0.0	
-			SHALE	8.0	25.0	
-	CARBONDALE		SHALE	14.0	33.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	47.0	BLUE
-	CARBONDALE	ANNA	BLACK SHALE	3.0	53.0	
-	CARBONDALE	HERRIN	COAL	5.5	56.0	
-	CARBONDALE		UNDERCLAY	0.5	61.5	

MAPID: 19900689000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1320' N line, 660' W line of SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.787891 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.720641 **DATE COLLECTED:** 0 / 0 / 1948

SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 28R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
518.0	PLEISTOCENE		SOIL	25.0	0.0	
493.0	CARBONDALE		SHALE	8.0	25.0	
485.0	CARBONDALE		BLACK SHALE	8.0	33.0	
477.0	CARBONDALE	ANNA	BLACK SHALE	1.0	41.0	
476.0	CARBONDALE	HERRIN	COAL	5.0	42.0	
471.0	CARBONDALE		UNDERCLAY	1.0	47.0	

MAPID: 19900690000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.78566 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.72061 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 53.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 29R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0	PLEISTOCENE		SOIL	24.0	0.0	
476.0	CARBONDALE		SHALE & SILTSTONE	12.0	24.0	GRAY
464.0	CARBONDALE		BLACK SHALE	2.0	36.0	
462.0	CARBONDALE	BRERETON	BLUE LIMESTONE	7.0	38.0	
455.0	CARBONDALE	ANNA	BLACK SHALE	2.5	45.0	
452.5	CARBONDALE	HERRIN	COAL	5.0	47.5	
447.5	CARBONDALE		UNDERCLAY	1.0	52.5	

MAPID: 19900691000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 800' S line, 0' E line of SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781157 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.719141 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 72.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 24D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
520.0	PLEISTOCENE		SOIL	30.0	0.0	
490.0	CARBONDALE		SHALE	10.0	30.0	
480.0	CARBONDALE		SHALE & SILTSTONE	17.0	40.0	BLUE
463.0	CARBONDALE	BRERETON	LIMESTONE	6.5	57.0	
456.5	CARBONDALE	ANNA	BLACK SHALE	3.0	63.5	
453.5	CARBONDALE	HERRIN	COAL	5.3	66.5	
448.2	CARBONDALE		UNDERCLAY	0.8	71.8	

MAPID: 19901434000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 0' S line, 0' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781182 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.716933 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 75.2 **LOG TYPE:** Drillers Log
SOURCE: DELTA COLLIERIES 8 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
513.0	CARBONDALE	LAWSON	SANDSTONE	26.0	15.0	
487.0	CARBONDALE	LAWSON	GRAY SHALE	19.0	41.0	
468.0	CARBONDALE	BRERETON	LIMESTONE	7.0	60.0	
461.0	CARBONDALE	ANNA	BLACK SHALE	3.0	67.0	
458.0	CARBONDALE	HERRIN	COAL	5.2	70.0	

MAPID: 19902528000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.795734 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.728913 **DATE COLLECTED:** 12 / 0 / 1971
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 1340.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-840.0	BASE OF PENN.		UNCLASSIFIED	-	1340.0	

MAPID: 19923549000C **VERSION:** 1 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1980' S line, 1' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781118 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.722398 **DATE COLLECTED:** 3 / 12 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 73.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY D-I **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	35.0	0.0	
-	CARBONDALE		SHALE	23.0	35.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	58.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.5	64.0	
-	CARBONDALE	HERRIN	COAL	5.2	67.5	
-	CARBONDALE		UNDERCLAY	0.3	72.7	

MAPID: 19923550000C **VERSION:** 1 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1990' N line, 1' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781071 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.726058 **DATE COLLECTED:** 3 / 12 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 46.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY D-2 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	15.0	0.0	
-	CARBONDALE		SHALE	16.0	15.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	31.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	37.0	
-	CARBONDALE	HERRIN	COAL	4.3	40.0	
-	CARBONDALE		UNDERCLAY	1.7	44.3	

MAPID: 19923551000C **VERSION:** 1 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 1' N line, 1' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.780999 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.731549 **DATE COLLECTED:** 3 / 22 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 83.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY R5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	24.0	0.0	
-			SHALE	6.0	24.0	
-			SHALE	9.0	30.0	
-			SANDSTONE	3.0	39.0	
-			BLUE SHALE	25.5	42.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	67.5	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	68.0	
-	CARBONDALE	ANNA	BLACK SHALE	3.0	74.0	
-	CARBONDALE	HERRIN	COAL	5.5	77.0	
-	CARBONDALE		UNDERCLAY	0.5	82.5	

MAPID: 19900344000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763718 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.730674 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 51.3 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
462.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
428.0	CARBONDALE	BRERETON	LIMESTONE	1.5	34.0	
426.5	CARBONDALE	ENERGY	SHALE	9.5	35.5	
417.0	CARBONDALE	HERRIN	COAL	5.8	45.0	
411.2	CARBONDALE		UNDERCLAY	0.5	50.8	

MAPID: 19900345000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764882 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.729757 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 478.0 **LOGGED (FT.):** 57.8 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
478.0	PLEISTOCENE		UNCONSOLIDATED	43.0	0.0	
435.0	CARBONDALE	BRERETON	LIMESTONE	6.0	43.0	
429.0	CARBONDALE	ANNA	SHALE	2.3	49.0	
426.7	CARBONDALE	HERRIN	COAL	6.0	51.3	
420.7	CARBONDALE		UNDERCLAY	0.5	57.3	

MAPID: 19900346000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** E2 NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76834 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.729749 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 71.8 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
494.0	PLEISTOCENE		UNCONSOLIDATED	40.0	0.0	
454.0	CARBONDALE		SHALE	6.0	40.0	
448.0	CARBONDALE		SHALE	10.5	46.0	
437.5	CARBONDALE	JAMESTOWN	COAL	0.5	56.5	
437.0	CARBONDALE	BRERETON	LIMESTONE	7.5	57.0	
429.5	CARBONDALE	ANNA	SHALE	2.0	64.5	
427.5	CARBONDALE	HERRIN	COAL	4.8	66.5	
422.7	CARBONDALE		UNDERCLAY	0.5	71.3	

MAPID: 19900347000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.772962 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.728826 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 73.5 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. D11 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
503.0	PLEISTOCENE		UNCONSOLIDATED	42.0	0.0	
461.0	CARBONDALE		SHALE	16.0	42.0	
445.0	CARBONDALE	BRERETON	LIMESTONE	4.5	58.0	
440.5	CARBONDALE	ANNA	SHALE	5.0	62.5	
435.5	CARBONDALE	HERRIN	COAL	5.5	67.5	
430.0	CARBONDALE		UNDERCLAY	0.5	73.0	

MAPID: 19900348000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771839 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726083 **DATE COLLECTED:** 0 / 0 / 1912

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 120.0 **LOG TYPE:** Drillers Log

SOURCE: A. R. BYRD & SONS 2 **WELL TYPE:** Coal Test

COMMENT: LOC. CEN VERTICAL L, S HALF OF N HALF

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		SAND & GRAVEL	6.0	0.0	
-	CARBONDALE	BRERETON	GRAY LIMESTONE	4.0	6.0	
-	CARBONDALE	ANNA	BLACK SHALE	6.7	10.0	
-	CARBONDALE	HERRIN	COAL	5.3	16.7	
-	CARBONDALE		UNDERCLAY	2.0	22.0	
-	CARBONDALE	HIGGINSVILLE	GRAY LIMESTONE	8.0	24.0	
-	CARBONDALE	HIGGINSVILLE	SHALY LIMESTONE	6.0	32.0	
-	CARBONDALE		SANDY SHALE	26.0	38.0	
-	CARBONDALE		DARK SHALE	5.2	64.0	
-	CARBONDALE	BRIAR HILL	COAL	1.8	69.2	
-	CARBONDALE		SANDSTONE	3.0	71.0	
-	CARBONDALE	DYKERSBURG	DARK SHALE	19.0	74.0	
-	CARBONDALE	DYKERSBURG	BLACK SHALE	4.0	93.0	
-	CARBONDALE	DYKERSBURG	DARK SHALE	15.0	97.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	112.0	
-	CARBONDALE		UNDERCLAY	3.7	116.3	

MAPID: 19900350000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770676 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 25.0 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 14 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
461.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
449.0	CARBONDALE	BRERETON	LIMESTONE	3.5	12.0	
445.5	CARBONDALE	ANNA	SHALE	3.5	15.5	
442.0	CARBONDALE	HERRIN	COAL	5.5	19.0	
436.5	CARBONDALE		UNDERCLAY	0.5	24.5	

MAPID: 19900351000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** E2 SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.768377 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.726088 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 21.1 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 15 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
457.0	PLEISTOCENE		UNCONSOLIDATED	7.3	0.0	
449.7	CARBONDALE	BRERETON	LIMESTONE	1.3	7.3	
448.3	CARBONDALE	ANNA	SHALE	6.8	8.7	
441.6	CARBONDALE	HERRIN	COAL	5.2	15.4	
436.4	CARBONDALE		UNDERCLAY	0.5	20.6	

MAPID: 19900352000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.774156 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.725164 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 72.5 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 12 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
509.0	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
487.0	CARBONDALE		SHALE	4.0	22.0	
483.0	CARBONDALE	ANVIL ROCK	SHALE	32.5	26.0	
450.5	CARBONDALE	BRERETON	LIMESTONE	5.5	58.5	
445.0	CARBONDALE	ANNA	BLUE SHALE	4.0	64.0	
441.0	CARBONDALE	HERRIN	COAL	4.0	68.0	
437.0	CARBONDALE		UNDERCLAY	0.5	72.0	

MAPID: 19900353000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.774147 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.726078 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 61.5 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 19 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0	PLEISTOCENE		UNCONSOLIDATED	30.0	0.0	
470.0	PLEISTOCENE		CLAY	20.0	30.0	BLUE
450.0	CARBONDALE	BRERETON	LIMESTONE	2.0	50.0	
448.0	CARBONDALE	ANNA	BLACK SHALE	3.5	52.0	
444.5	CARBONDALE	HERRIN	COAL	5.5	55.5	
439.0	CARBONDALE		UNDERCLAY	0.5	61.0	

MAPID: 19900354000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769531 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.726085 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 64.2 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 16 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
503.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
483.0	CARBONDALE		SHALE	5.0	20.0	
478.0	CARBONDALE		CLAYSTONE	26.0	25.0	BLUE
452.0	CARBONDALE	BRERETON	LIMESTONE	4.0	51.0	
448.0	CARBONDALE	ANNA	BLACK SHALE	3.0	55.0	
445.0	CARBONDALE	HERRIN	COAL	5.7	58.0	
439.3	CARBONDALE		UNDERCLAY	0.5	63.7	

MAPID: 19900355000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' N line, 550' E line of SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.773773 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724251 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 28.5 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 17 **WELL TYPE:** Coal Test

COMMENT: LOC UNCLEAR, 550'SC?,LOC GRAPH SHOWS EC

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
471.0	PLEISTOCENE		UNCONSOLIDATED	15.7	0.0	
455.3	CARBONDALE	BRERETON	LIMESTONE	6.3	15.7	
449.1	CARBONDALE	ANNA	BLACK SHALE	2.9	21.9	
446.2	CARBONDALE	HERRIN	COAL	3.2	24.8	
443.0	CARBONDALE		UNDERCLAY	0.5	28.0	

MAPID: 19900356000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.775332 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.723333 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 48.5 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 21 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
492.0	PLEISTOCENE		UNCONSOLIDATED	34.0	0.0	
458.0	CARBONDALE	BRERETON	LIMESTONE	6.0	34.0	
452.0	CARBONDALE	ANNA	BLACK SHALE	3.0	40.0	
449.0	CARBONDALE	HERRIN	COAL	5.0	43.0	
444.0	CARBONDALE		UNDERCLAY	0.5	48.0	

MAPID: 19900357000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.7742 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.721507 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 23.3 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 20 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
471.0	PLEISTOCENE		UNCONSOLIDATED	7.5	0.0	
463.5	CARBONDALE		SANDSTONE	2.0	7.5	
461.5	CARBONDALE	BRERETON	LIMESTONE	5.5	9.5	
456.0	CARBONDALE	ANNA	BLACK SHALE	3.0	15.0	
453.0	CARBONDALE	HERRIN	COAL	4.8	18.0	
448.2	CARBONDALE		UNDERCLAY	0.5	22.8	

MAPID: 19900359000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE/c SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77652 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.720589 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 168.7 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 144 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
524.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
509.0	CARBONDALE		SANDY SHALE	8.0	15.0	
501.0	CARBONDALE		DARK SHALE	27.0	23.0	
474.0	CARBONDALE	BRERETON	LIMESTONE	6.0	50.0	
468.0	CARBONDALE	ANNA	BLACK SHALE	2.2	56.0	
465.8	CARBONDALE	HERRIN	COAL	5.5	58.2	
460.3	CARBONDALE		UNDERCLAY	3.0	63.7	
457.3	CARBONDALE		SANDSTONE	10.7	66.7	
446.7	CARBONDALE		SANDY SHALE	37.0	77.3	
409.7	CARBONDALE	BRIAR HILL	COAL	1.7	114.3	
408.0	CARBONDALE		SANDY SHALE	20.0	116.0	
388.0	CARBONDALE	ST. DAVID	SHALY LIMESTONE	3.0	136.0	
385.0	CARBONDALE	TURNER MINE	BLACK SHALE	6.0	139.0	
379.0	CARBONDALE	DYKERSBURG	GRAY SHALE	14.0	145.0	
365.0	CARBONDALE	SPRINGFIELD	COAL	4.7	159.0	
360.3	CARBONDALE		UNDERCLAY	5.0	163.7	

MAPID: 19900359000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE/c SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77652 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.720589 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 169.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
466.0	CARBONDALE	HERRIN	COAL	5.5	58.0	
410.0	CARBONDALE	BRIAR HILL	COAL	1.7	114.0	
365.0	CARBONDALE	SPRINGFIELD	COAL	4.7	159.0	

MAPID: 19900692000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77643 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727904 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 509.7 **LOGGED (FT.):** 83.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 5R **WELL TYPE:** Coal Test

COMMENT: NW CORNER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
509.7	PLEISTOCENE		CLAY	24.0	0.0	THIN COAL AT BASE
485.7	CARBONDALE		SHALE	6.0	24.0	
479.7	CARBONDALE		GRAY SHALE	9.0	30.0	
470.7	CARBONDALE		SANDSTONE	3.0	39.0	
467.7	CARBONDALE		BLUE SHALE	25.5	42.0	
442.2	CARBONDALE	JAMESTOWN	COAL	0.5	67.5	
441.7	CARBONDALE	BRERETON	LIMESTONE	6.0	68.0	
435.7	CARBONDALE	ANNA	BLACK SHALE	3.0	74.0	
432.7	CARBONDALE	HERRIN	COAL	5.5	77.0	
427.2	CARBONDALE		UNDERCLAY	0.5	82.5	

MAPID: 19900693000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' N line, 660' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778701 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731556 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 519.1 **LOGGED (FT.):** 98.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 6R **WELL TYPE:** Coal Test

COMMENT: 660' E. OF NW CORNER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
519.1	PLEISTOCENE		UNCONSOLIDATED	25.0	0.0	
494.1	CARBONDALE		SHALE	7.0	25.0	
487.1	CARBONDALE		GRAY SHALE	8.0	32.0	
479.1	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	40.0	
471.1	CARBONDALE	ANVIL ROCK	GRAY SHALE	8.0	48.0	
463.1	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	56.0	
460.1	CARBONDALE	BRERETON	LIMESTONE	24.0	59.0	
436.1	CARBONDALE	ANNA	BLUE SHALE	6.0	83.0	
430.1	CARBONDALE	ANNA	BLACK SHALE	4.0	89.0	
426.1	CARBONDALE	HERRIN	COAL	4.5	93.0	
421.6	CARBONDALE		UNDERCLAY	1.0	97.5	

MAPID: 19900694000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' N line, 330' W line of NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77063 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731574 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 476.6 **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 7D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
476.6	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
470.6	CARBONDALE	ANVIL ROCK	SANDSTONE	8.0	6.0	
462.6	CARBONDALE	ANVIL ROCK	SANDY SHALE	6.0	14.0	
456.6	CARBONDALE	ANVIL ROCK	BLUE SHALE	22.0	20.0	
434.6	CARBONDALE	JAMESTOWN	COAL	0.5	42.0	
434.1	CARBONDALE		GRAY SHALE	0.5	42.5	
433.6	CARBONDALE	BRERETON	LIMESTONE	5.0	43.0	
428.6	CARBONDALE	ANNA	BLACK SHALE	3.5	48.0	
425.1	CARBONDALE	HERRIN	COAL	5.0	51.5	
420.1	CARBONDALE		UNDERCLAY	0.5	56.5	

MAPID: 19900695000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 2600' S line, 1300' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76726 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.731437 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 466.6 **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 8D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
466.6	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
451.6	CARBONDALE		GRAY SHALE	24.0	15.0	
427.6	CARBONDALE	JAMESTOWN	COAL	0.5	39.0	
427.1	CARBONDALE		GRAY SHALE	0.5	39.5	
426.6	CARBONDALE	BRERETON	LIMESTONE	8.0	40.0	
418.6	CARBONDALE	ANNA	BLACK SHALE	3.0	48.0	
415.6	CARBONDALE	HERRIN	COAL	5.0	51.0	
410.6	CARBONDALE		UNDERCLAY	1.0	56.0	

MAPID: 19900696000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1620' N line, 2140' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770039 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.727104 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 62.5 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 5D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
462.0	CARBONDALE	ANVIL ROCK	SANDSTONE	2.0	28.0	WITH SHELLS
460.0	CARBONDALE	ANVIL ROCK	SHALE	20.0	30.0	
440.0	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	50.0	
434.0	CARBONDALE	HERRIN	COAL	6.0	56.0	
428.0	CARBONDALE		UNDERCLAY	0.5	62.0	

MAPID: 19900696000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1620' N line, 2140' E line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770039 **GEOLOGIST:** KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.727104 **DATE COLLECTED:** 3 / 19 / 1937

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 62.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY D5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	28.0	0.0	
-			SANDSTONE	2.0	28.0	SHELLY
-			SHALE	20.0	30.0	
-			ROCK	6.0	50.0	DRILL NOTE: SND & GRAVEL
-	CARBONDALE	HERRIN	COAL	6.0	56.0	
-	CARBONDALE		UNDERCLAY	0.5	62.0	

MAPID: 19900697000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 660' N line, 0' W line of SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781114 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.722417 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 517.4 **LOGGED (FT.):** 73.5 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 1D **WELL TYPE:** Coal Test

COMMENT: JUST IN FROM W. L. AT 3300' FROM N. L.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.4	PLEISTOCENE		UNCONSOLIDATED	35.0	0.0	
482.4	CARBONDALE		GRAY SHALE	23.0	35.0	
459.4	CARBONDALE	BRERETON	LIMESTONE	6.0	58.0	
453.4	CARBONDALE	ANNA	BLACK SHALE	3.5	64.0	
449.9	CARBONDALE	HERRIN	COAL	5.2	67.5	
444.7	CARBONDALE		UNDERCLAY	0.8	72.7	

MAPID: 19900698000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 250' N line, 0' W line of NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781006 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.730859 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 490.7 **LOGGED (FT.):** 46.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY CO. 2D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.7	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
475.7	CARBONDALE		GRAY SHALE	16.0	15.0	
459.7	CARBONDALE	BRERETON	LIMESTONE	6.0	31.0	
453.7	CARBONDALE	ANNA	BLACK SHALE	3.0	37.0	
450.7	CARBONDALE	HERRIN	COAL	4.3	40.0	
446.4	CARBONDALE		UNDERCLAY	1.7	44.3	

MAPID: 19900699000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 3040' N line, 1220' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776863 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.723169 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 497.2 **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 3D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
497.2	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
469.2	CARBONDALE		GRAY SHALE	22.0	28.0	
447.2	CARBONDALE	BRERETON	LIMESTONE	6.0	50.0	
441.2	CARBONDALE	ANNA	BLACK SHALE	4.0	56.0	
437.2	CARBONDALE	HERRIN	COAL	5.2	60.0	
432.0	CARBONDALE		UNDERCLAY	0.8	65.2	

MAPID: 19900699000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 3040' N line, 1220' W line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776863 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.723169 **DATE COLLECTED:** 3 / 15 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY D-3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	28.0	0.0	
-	CARBONDALE		SHALE	22.0	28.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	50.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	56.0	
-	CARBONDALE	HERRIN	COAL	5.2	60.0	
-	CARBONDALE		UNDERCLAY	0.8	65.2	

MAPID: 19900700000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1520' N line, 400' W line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.779661 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.727358 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 514.7 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 4D **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
514.7	PLEISTOCENE		UNCONSOLIDATED	32.0	0.0	
482.7	CARBONDALE		SHALE	10.0	32.0	
472.7	CARBONDALE		GRAY SHALE	20.0	42.0	
452.7	CARBONDALE	JAMESTOWN	COAL	0.5	62.0	
452.2	CARBONDALE		GRAY SHALE	0.5	62.5	
451.7	CARBONDALE	BRERETON	LIMESTONE	5.0	63.0	
446.7	CARBONDALE	ANNA	BLACK SHALE	4.0	68.0	
442.7	CARBONDALE	HERRIN	COAL	4.8	72.0	
437.9	CARBONDALE		UNDERCLAY	1.2	76.8	

MAPID: 19900700000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1520' N line, 400' W line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.779661 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.727358 **DATE COLLECTED:** 3 / 16 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY D-4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	32.0	0.0	
-			SHALE	10.0	32.0	
-	CARBONDALE		SHALE	20.0	42.0	
-	CARBONDALE	JAMESTOWN	COAL	0.5	62.0	
-	CARBONDALE		SHALE	0.5	62.5	
-	CARBONDALE	BRERETON	LIMESTONE	5.0	63.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	68.0	
-	CARBONDALE	HERRIN	COAL	4.8	72.0	
-	CARBONDALE		UNDERCLAY	1.2	76.8	

MAPID: 19900701000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767283 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.720596 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG 26D **WELL TYPE:** Coal Test
COMMENT: CENTER SE 1/4, SECTION 21

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
525.0	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
506.0	CARBONDALE		SANDSTONE	21.0	19.0	
485.0	CARBONDALE		SANDY SHALE	15.0	40.0	
470.0	CARBONDALE		BLUE SHALE	4.5	55.0	
465.5	CARBONDALE	JAMESTOWN	COAL	0.5	59.5	
465.0	CARBONDALE		LIMESTONE	1.0	60.0	
464.0	CARBONDALE		BLACK SHALE	1.0	61.0	
463.0	CARBONDALE	BRERETON	LIMESTONE	8.5	62.0	
454.5	CARBONDALE	ANNA	BLACK SHALE	1.0	70.5	
453.5	CARBONDALE	HERRIN	COAL	5.5	71.5	
448.0	CARBONDALE		UNDERCLAY	1.0	77.0	

MAPID: 19900702000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' S line, 1320' E line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767289 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.716935 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 525.0 **LOGGED (FT.):** 71.5 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY COAL MNG. 25D **WELL TYPE:** Coal Test
COMMENT: CENTER OF SE SECTION OF SL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
525.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
513.0	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0	12.0	
501.0	CARBONDALE	ANVIL ROCK	GRAY SHALE	20.0	24.0	
481.0	CARBONDALE	ANVIL ROCK	BLUE SHALE	10.0	44.0	
471.0	CARBONDALE	JAMESTOWN	COAL	0.5	54.0	
470.5	CARBONDALE	BRERETON	LIMESTONE	10.0	54.5	
460.5	CARBONDALE	ANNA	BLACK SHALE	0.5	64.5	
460.0	CARBONDALE	HERRIN	COAL	5.8	65.0	
454.2	CARBONDALE		UNDERCLAY	0.8	70.8	

MAPID: 19900703000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77652 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.720589 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG 30R **WELL TYPE:** Coal Test
COMMENT: CENTER OF SW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0	PLEISTOCENE		UNCONSOLIDATED	35.0	0.0	
465.0	CARBONDALE		SHALE	8.0	35.0	
457.0	CARBONDALE		GRAY SHALE	5.0	43.0	
452.0	CARBONDALE	BRERETON	LIMESTONE	6.0	48.0	
446.0	CARBONDALE	ANNA	BLACK SHALE	3.0	54.0	
443.0	CARBONDALE	HERRIN	COAL	4.5	57.0	
438.5	CARBONDALE		UNDERCLAY	1.5	61.5	

MAPID: 19900704000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1320' N line, 0' W line of SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771901 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.720609 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 44.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 32R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0	PLEISTOCENE		UNCONSOLIDATED	19.0	0.0	
466.0	CARBONDALE		SANDY SHALE	8.0	19.0	
458.0	CARBONDALE		BLACK SHALE	2.0	27.0	
456.0	CARBONDALE	BRERETON	LIMESTONE	7.0	29.0	
449.0	CARBONDALE	ANNA	BLACK SHALE	2.0	36.0	
447.0	CARBONDALE	HERRIN	COAL	5.0	38.0	
442.0	CARBONDALE		UNDERCLAY	1.0	43.0	

MAPID: 19900706000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1320' N line, 2120' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.773673 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 500.2 **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL 4R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.2	PLEISTOCENE		UNCONSOLIDATED	28.0	0.0	
472.2	CARBONDALE		SHALE	10.0	28.0	
462.2	CARBONDALE		GRAY SHALE	12.0	38.0	
450.2	CARBONDALE	BRERETON	LIMESTONE	6.0	50.0	
444.2	CARBONDALE	ANNA	BLACK SHALE	4.0	56.0	
440.2	CARBONDALE	HERRIN	COAL	5.3	60.0	
434.9	CARBONDALE		UNDERCLAY	0.7	65.3	

MAPID: 19900706000C **VERSION:** 2 **PROJECT:** NCRDS95

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1320' N line, 2120' W line
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.773673 **GEOLOGIST:** KOROSE
CONFIDENTIAL: N **LATITUDE:** 37.727925 **DATE COLLECTED:** 3 / 19 / 1937
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY R-4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	28.0	0.0	
-			SHALE	10.0	28.0	
-	CARBONDALE		SHALE	12.0	38.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.0	50.0	
-	CARBONDALE	ANNA	BLACK SHALE	4.0	56.0	
-	CARBONDALE	HERRIN	COAL	5.3	60.0	
-	CARBONDALE		UNDERCLAY	0.7	65.3	

MAPID: 19901107000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.777574 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.728816 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 1385.0 **LOG TYPE:** Electric Log
SOURCE: STARR J CURTIS ETAL **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-886.0	BASE OF PENN.		UNCLASSIFIED	-	1385.0	

MAPID: 19901438000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 0' N line, 0' W line of SE NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.77643 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.727904 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 427.6 **LOG TYPE:** Drillers Log
SOURCE: DELTA COLLIERIES 12 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION, DEPTHS CORRECTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
479.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	27.4	34.0	
451.6	CARBONDALE	CONANT	LIMESTONE	0.5	61.4	
451.1	CARBONDALE	JAMESTOWN	COAL	0.3	61.9	
450.8	CARBONDALE		GRAY SHALE	2.5	62.2	
448.3	CARBONDALE	BRERETON	LIMESTONE	5.3	64.7	
443.0	CARBONDALE	ANNA	BLACK SHALE	3.2	70.0	
439.6	CARBONDALE	HERRIN	COAL	4.8	73.4	

MAPID: 19902069000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771861 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724253 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 127.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR 130 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
439.0	CARBONDALE	BRERETON	LIMESTONE	4.0	11.0	
435.0	CARBONDALE	ANNA	BLACK SHALE	4.0	15.0	
431.0	CARBONDALE	HERRIN	COAL	5.7	19.0	
425.3	CARBONDALE		UNDERCLAY	4.3	24.7	
421.1	CARBONDALE		SHALY LIMESTONE	6.1	28.9	
415.0	CARBONDALE		DARK SHALE	41.2	35.0	
373.8	CARBONDALE	BRIAR HILL	COAL	1.3	76.2	
372.5	CARBONDALE		DARK SHALE	18.0	77.5	
354.5	CARBONDALE	ST. DAVID	SHALY LIMESTONE	2.0	95.5	
352.5	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	97.5	
348.5	CARBONDALE	DYKERSBURG	DARK SHALE	16.0	101.5	
332.5	CARBONDALE	SPRINGFIELD	COAL	4.3	117.5	
328.2	CARBONDALE		UNDERCLAY	5.2	121.8	

MAPID: 19902070000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.768427 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.721512 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 12.8 **LOG TYPE:** Drillers Log

SOURCE: WESTERN COAL & MINING CO. 18 **WELL TYPE:** Coal Test

COMMENT: HOLE ABANDONED, BIT LOST

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
476.0	PLEISTOCENE		UNCONSOLIDATED	6.8	0.0	
469.2			LIMESTONE	6.1	6.8	HOLE ABANDONED BIT LOST

MAPID: 19990050000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' W line of SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.781179 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.716935 **DATE COLLECTED:** 2 / 2 / 1965

SURFACE ELEVATION (FT.): 513.7 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B359 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
513.7	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
504.7	PLEISTOCENE		CLAY	34.0	9.0	
470.7	CARBONDALE		SANDY SHALE	15.5	43.0	
455.2	CARBONDALE	BRERETON	LIMESTONE	6.3	58.5	
448.9	CARBONDALE	ANNA	BLACK SHALE	3.3	64.8	
445.6	CARBONDALE	ENERGY	SHALE	0.3	68.1	
445.3	CARBONDALE	HERRIN	COAL	4.5	68.4	
440.8	CARBONDALE		UNDERCLAY	1.1	72.9	

MAPID: 19990051000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 330' W line of NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.779895 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727901 **DATE COLLECTED:** 2 / 18 / 1965

SURFACE ELEVATION (FT.): 517.3 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B359B **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
517.3	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
510.3	PLEISTOCENE		CLAY	31.0	7.0	
479.3	CARBONDALE		GRAY SHALE	25.0	38.0	
454.3	CARBONDALE	JAMESTOWN	COAL	0.5	63.0	
453.8	CARBONDALE	BRERETON	LIMESTONE	5.3	63.5	
448.5	CARBONDALE	ANNA	BLACK SHALE	3.4	68.8	
445.0	CARBONDALE	HERRIN	COAL	4.6	72.3	
440.5	CARBONDALE		UNDERCLAY	1.2	76.8	

MAPID: 19990052000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' W line of SE NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778734 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727902 **DATE COLLECTED:** 2 / 2 / 1965

SURFACE ELEVATION (FT.): 515.2 **LOGGED (FT.):** 79.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B360 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
515.2	PLEISTOCENE		CLAY	29.0	0.0	
486.2	PLEISTOCENE		CLAY	3.0	29.0	
483.2	CARBONDALE		GRAY SHALE	3.7	32.0	
479.5	CARBONDALE		SANDSTONE	1.5	35.7	GRAY
478.0	CARBONDALE		SANDY SHALE	25.3	37.2	
452.8	CARBONDALE		CLAYSTONE	1.3	62.4	
451.4	CARBONDALE	BRERETON	LIMESTONE	5.9	63.8	
445.5	CARBONDALE	ANNA	BLACK SHALE	2.9	69.7	
442.6	CARBONDALE	HERRIN	COAL	4.9	72.6	
437.7	CARBONDALE		UNDERCLAY	1.5	77.5	

MAPID: 19990053000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SE NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776433 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727906 **DATE COLLECTED:** 7 / 8 / 1970

SURFACE ELEVATION (FT.): 514.4 **LOGGED (FT.):** 189.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B361 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA DEEP #5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
514.4	PLEISTOCENE		CLAY	30.0	0.0	
484.4	CARBONDALE		SANDSTONE	8.0	30.0	
476.4	CARBONDALE		SANDY SHALE	5.0	38.0	
471.4	CARBONDALE		GRAY SHALE	32.0	43.0	
439.4	CARBONDALE	BRERETON	LIMESTONE	6.0	75.0	
433.4	CARBONDALE	ANNA	BLACK SHALE	3.0	81.0	
430.4	CARBONDALE	HERRIN	COAL	4.9	84.0	
425.5	CARBONDALE		UNDERCLAY	2.1	88.9	
423.4	CARBONDALE		GRAY SHALE	50.0	91.0	
373.4	CARBONDALE	BRIAR HILL	COAL	1.4	141.0	
372.0	CARBONDALE		UNDERCLAY	0.6	142.4	
371.4	CARBONDALE		GRAY SHALE	20.0	143.0	
351.4	CARBONDALE	ST. DAVID	LIMESTONE	2.0	163.0	
349.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	165.0	
346.4	CARBONDALE	DYKERSBURG	GRAY SHALE	14.3	168.0	
332.1	CARBONDALE	SPRINGFIELD	COAL	4.3	182.3	
327.8	CARBONDALE		UNDERCLAY	2.4	186.6	

MAPID: 19990054000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' W line of SE NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.774122 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727911 **DATE COLLECTED:** 7 / 29 / 1965

SURFACE ELEVATION (FT.): 510.1 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B362 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C2H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.1	PLEISTOCENE		CLAY	9.0	0.0	
501.1	PLEISTOCENE		CLAY	6.0	9.0	
495.1	PLEISTOCENE		SAND	2.0	15.0	BROWN
493.1	PLEISTOCENE		CLAY	18.0	17.0	
475.1	PLEISTOCENE		CLAY	10.0	35.0	BROWN
465.1	CARBONDALE		GRAY SHALE	9.0	45.0	
456.1	CARBONDALE		SANDY SHALE	8.3	54.0	
447.8	CARBONDALE	BRERETON	LIMESTONE	5.3	62.3	
442.4	CARBONDALE	ANNA	BLACK SHALE	3.5	67.7	
438.9	CARBONDALE	HERRIN	COAL	4.8	71.2	
434.2	CARBONDALE		UNDERCLAY	2.1	75.9	

MAPID: 19990055000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771865 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724255 **DATE COLLECTED:** 7 / 10 / 1970

SURFACE ELEVATION (FT.): 493.6 **LOGGED (FT.):** 154.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B363 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, DEEP #5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.6	PLEISTOCENE		CLAY	14.0	0.0	
479.6	PLEISTOCENE		CLAY	32.0	14.0	
447.6	CARBONDALE		SANDSTONE	2.0	46.0	
445.6	CARBONDALE	ANNA	BLACK SHALE	2.8	48.0	
442.8	CARBONDALE	HERRIN	COAL	4.6	50.8	
438.3	CARBONDALE		UNDERCLAY	1.7	55.3	
436.6	CARBONDALE		GRAY SHALE	2.0	57.0	
434.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	3.0	59.0	
431.6	CARBONDALE		GRAY SHALE	25.0	62.0	
406.6	CARBONDALE		DARK GRAY SHALE	20.0	87.0	
386.6	CARBONDALE	BRIAR HILL	COAL	1.5	107.0	
385.1	CARBONDALE		UNDERCLAY	1.5	108.5	
383.6	CARBONDALE		GRAY SHALE	19.0	110.0	
364.6	CARBONDALE	ST. DAVID	LIMESTONE	1.7	129.0	
362.9	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	130.7	
359.2	CARBONDALE	DYKERSBURG	GRAY SHALE	13.3	134.4	
345.8	CARBONDALE	SPRINGFIELD	COAL	4.4	147.8	
341.4	CARBONDALE		UNDERCLAY	1.8	152.2	

MAPID: 19990056000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 60' N line, 200' W line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766511 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727755 **DATE COLLECTED:** 8 / 27 / 1990

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 39.9 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B365N **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		CLAY	8.8	0.0	BROWN
481.2	CARBONDALE		SHALE	5.2	8.8	
476.0	CARBONDALE		GRAY SHALE	4.6	14.0	
471.4	CARBONDALE	JAMESTOWN	COAL	0.3	18.6	
471.1	CARBONDALE		CALCAREOUS SHALE	1.2	18.9	
469.9	CARBONDALE	BRERETON	LIMESTONE	5.6	20.1	GRAY
464.3	CARBONDALE	ANNA	BLACK SHALE	3.4	25.7	
460.9	CARBONDALE	HERRIN	COAL	5.3	29.1	
455.7	CARBONDALE		UNDERCLAY	3.4	34.3	
452.3	CARBONDALE		SHALE WITH LIMESTONE	2.2	37.7	

MAPID: 19990057000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 180' N line, 150' E line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762724 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727352 **DATE COLLECTED:** 8 / 27 / 1990

SURFACE ELEVATION (FT.): 474.5 **LOGGED (FT.):** 50.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B341AA **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA, HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
474.5	PLEISTOCENE		UNCONSOLIDATED	0.8	0.0	BROWN
473.7	CARBONDALE		SHALE	13.2	0.8	
460.5	CARBONDALE		SANDY SHALE	20.0	14.0	
440.5	CARBONDALE		SANDY SHALE	1.5	34.0	LIMY
439.0	CARBONDALE		BLACK SHALE	0.5	35.5	
438.5	CARBONDALE		SANDY SHALE	1.0	36.0	LIMY
437.5	CARBONDALE	BRERETON	LIMESTONE	5.5	37.0	DARK GRAY
432.0	CARBONDALE	ANNA	BLACK SHALE	3.0	42.5	
429.0	CARBONDALE	HERRIN	CAVITY	5.0	45.5	OLD MINE

MAPID: 19990106000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of SW SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778788 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724247 **DATE COLLECTED:** 12 / 23 / 1948

SURFACE ELEVATION (FT.): 517.6 **LOGGED (FT.):** 81.7 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B310 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
517.6	PLEISTOCENE		CLAY	27.8	0.0	WITH SAND AND GRAVEL
489.8	CARBONDALE		SANDY SHALE	9.8	27.8	
480.1	CARBONDALE		SANDSTONE	5.8	37.5	WHITE
474.3	CARBONDALE		BLUE SHALE	23.3	43.3	
451.0	CARBONDALE	JAMESTOWN	COAL	0.3	66.6	
450.7	CARBONDALE	BRERETON	LIMESTONE	6.0	66.9	
444.7	CARBONDALE	ANNA	BLACK SHALE	3.0	72.9	
441.7	CARBONDALE	HERRIN	COAL	5.3	75.9	
436.4	CARBONDALE		UNDERCLAY	0.5	81.2	

MAPID: 19990107000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of SE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778756 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726069 **DATE COLLECTED:** 12 / 26 / 1948

SURFACE ELEVATION (FT.): 492.1 **LOGGED (FT.):** 50.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B335 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
492.1	PLEISTOCENE		CLAY	4.0	0.0	
488.1	CARBONDALE		SANDY SHALE	5.5	4.0	
482.6	CARBONDALE		BLUE SHALE	25.5	9.5	
457.1	CARBONDALE	BRERETON	LIMESTONE	7.3	35.0	
449.8	CARBONDALE	ANNA	BLACK SHALE	2.8	42.3	
447.0	CARBONDALE	HERRIN	COAL	4.9	45.1	
442.1	CARBONDALE		UNDERCLAY	0.5	50.0	

MAPID: 19990108000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' N line, 1' W line of NE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778734 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727896 **DATE COLLECTED:** 2 / 2 / 1965

SURFACE ELEVATION (FT.): 512.2 **LOGGED (FT.):** 79.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B360 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
512.2	PLEISTOCENE		CLAY	29.0	0.0	
483.2	PLEISTOCENE		CLAY	3.0	29.0	
480.2	CARBONDALE		GRAY SHALE	3.7	32.0	
476.5	CARBONDALE		SANDSTONE	1.5	35.7	GRAY
475.0	CARBONDALE		SANDY SHALE	25.3	37.2	
449.8	CARBONDALE		BLACK SHALE	1.3	62.4	
448.4	CARBONDALE	BRERETON	LIMESTONE	5.9	63.8	
442.5	CARBONDALE	ANNA	BLACK SHALE	2.9	69.7	
439.6	CARBONDALE	HERRIN	COAL	4.9	72.6	
434.7	CARBONDALE		UNDERCLAY	1.5	77.5	

MAPID: 19990109000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of NW NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778719 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.729732 **DATE COLLECTED:** 2 / 5 / 1965

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B385 **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA C&H

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	PLEISTOCENE		CLAY	13.0	0.0	
477.0	CARBONDALE		GRAY SHALE	4.0	13.0	
473.0	CARBONDALE		SANDY SHALE	28.0	17.0	
445.0	CARBONDALE	JAMESTOWN	COAL	0.5	45.0	
444.5	CARBONDALE	BRERETON	LIMESTONE	5.8	45.5	
438.7	CARBONDALE	ANNA	BLACK SHALE	3.0	51.3	
435.7	CARBONDALE	HERRIN	COAL	4.8	54.3	
430.8	CARBONDALE		UNDERCLAY	1.8	59.2	

MAPID: 19900360000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760249 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.729738 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 442.0 **LOGGED (FT.):** 30.0 **LOG TYPE:** Drillers Log
SOURCE: WESTERN COAL & MINING CO. 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
442.0	PLEISTOCENE		UNCONSOLIDATED	27.0	0.0	
415.0			SHALE	1.0	27.0	
414.0			COAL	1.5	28.0	
412.5			UNDERCLAY	0.5	29.5	

MAPID: 19900361000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750962 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.725989 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 44.8 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 128 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
464.0	CARBONDALE	LAWSON	SILTY SHALE	25.0	2.0	
439.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	7.0	27.0	
432.0	CARBONDALE	ANNA	BLACK SHALE	3.0	34.0	
429.0	CARBONDALE	ENERGY	GRAY SHALE	1.0	37.0	
428.0	CARBONDALE	HERRIN	COAL	6.8	38.0	

MAPID: 19900361000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750962 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.725989 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 150.5 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			UNCONSOLIDATED	13.0	0.0	
-			SHALE	14.0	13.0	
-			LIMESTONE	7.0	27.0	
-			BLACK SHALE	4.0	34.0	
-	CARBONDALE	HERRIN	COAL	6.8	38.0	
-	CARBONDALE		UNDERCLAY	3.8	44.8	
-	CARBONDALE		ROCK	31.0	48.7	
-	CARBONDALE	BRIAR HILL	COAL	1.3	79.7	
-	CARBONDALE		ROCK	39.1	80.9	
-	CARBONDALE		SANDSTONE	3.0	120.0	
-	CARBONDALE		LIMESTONE	2.7	123.0	
-	CARBONDALE		BLACK SHALE	19.5	125.7	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	145.2	
-	CARBONDALE		UNDERCLAY	0.0	149.3	

MAPID: 19900361000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750962 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.725989 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 466.0 **LOGGED (FT.):** 150.7 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 128 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
466.0	PLEISTOCENE		UNCONSOLIDATED	2.0	0.0	
464.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	25.0	2.0	
439.0	CARBONDALE	BRERETON	BLACK LIMESTONE	7.0	27.0	
432.0	CARBONDALE	ANNA	BLACK SHALE	3.0	34.0	
429.0	CARBONDALE	ANNA	DARK SHALE	1.0	37.0	
428.0	CARBONDALE	HERRIN	COAL	6.8	38.0	
421.2	CARBONDALE		UNDERCLAY	3.8	44.8	
417.3	CARBONDALE		SANDSTONE	6.0	48.7	
411.3	CARBONDALE		SANDSTONE/SHALE	10.0	54.7	
401.3	CARBONDALE		DARK SHALE	15.0	64.7	
386.3	CARBONDALE	BRIAR HILL	COAL	1.3	79.7	
385.1	CARBONDALE		SANDSTONE/SHALE	25.8	80.9	
359.3	CARBONDALE		SANDSTONE	16.5	106.7	
342.8	CARBONDALE	ST. DAVID	BLACK LIMESTONE	2.5	123.2	
340.3	CARBONDALE	DYKERSBURG	BLACK SHALE	19.5	125.7	
320.8	CARBONDALE	SPRINGFIELD	COAL	4.2	145.2	
316.7	CARBONDALE		UNDERCLAY	1.3	149.3	

MAPID: 19900362000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 55' S line, 260' W line of NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.761725 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724409 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 512.9 **LOGGED (FT.):** 85.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 125 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
512.9	PLEISTOCENE		CLAY	24.0	0.0	
488.9	CARBONDALE	ANVIL ROCK	SANDSTONE	20.0	24.0	
468.9	CARBONDALE	ANVIL ROCK	BLUE SHALE	22.0	44.0	
446.9	CARBONDALE		BLACK SHALE	0.3	66.0	
446.6	CARBONDALE		LIMESTONE	0.7	66.3	
445.9	CARBONDALE		BLACK SHALE	1.5	67.0	
444.4	CARBONDALE	BRERETON	LIMESTONE	7.5	68.5	
436.9	CARBONDALE	ANNA	BLACK SHALE	2.0	76.0	
434.9	CARBONDALE	HERRIN	COAL	5.7	78.0	
429.2	CARBONDALE		UNDERCLAY	1.3	83.7	

MAPID: 19900363000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 240' N line, 540' E line of SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.745855 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.719794 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 470.6 **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 116 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.6	PLEISTOCENE		CLAY	26.0	0.0	
444.6			BOULDER	6.0	26.0	AND WASH

MAPID: 19900364000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753302 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724183 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 448.0 **LOGGED (FT.):** 107.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 145 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
448.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
428.0	CARBONDALE		SANDSTONE/SHALE	29.0	20.0	
399.0	CARBONDALE	BRIAR HILL	COAL	1.4	49.0	
397.6	CARBONDALE		SANDSTONE/SHALE	0.6	50.4	
397.0	CARBONDALE		SANDSTONE	5.0	51.0	
392.0	CARBONDALE		SANDSTONE/SHALE	45.0	56.0	
347.0	CARBONDALE	SPRINGFIELD	COAL	4.0	101.0	
343.0	CARBONDALE		UNDERCLAY	2.0	105.0	

MAPID: 19900365000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 1240' S line, 1660' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.749746 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.720253 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 28.3 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	20.0	0.0	
460.0			SHALE	0.5	20.0	
459.5			BLACK SHALE	2.0	20.5	
457.5	CARBONDALE	HERRIN	COAL	5.4	22.5	
452.2	CARBONDALE		UNDERCLAY	0.0	27.8	

MAPID: 19900366000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753302 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.724183 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 175.4 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 147 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
535.0	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
525.0	CARBONDALE		SANDSTONE	2.0	10.0	
523.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	12.0	
520.0	CARBONDALE	ANVIL ROCK	SANDSTONE	20.0	15.0	
500.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	24.8	35.0	
475.2	CARBONDALE		BLACK SHALE	2.5	59.8	
472.7	CARBONDALE	BRERETON	LIMESTONE	5.0	62.3	
467.7	CARBONDALE	BRERETON	LIMESTONE	1.0	67.3	
466.7	CARBONDALE	ANNA	BLACK SHALE	1.2	68.3	
465.6	CARBONDALE	HERRIN	COAL	5.3	69.4	
460.3	CARBONDALE		UNDERCLAY	2.0	74.7	
458.3	CARBONDALE		SANDSTONE	1.1	76.7	
457.2	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.0	77.8	
455.2	CARBONDALE		SANDSTONE	2.0	79.8	
453.2	CARBONDALE		SANDSTONE/SHALE	44.0	81.8	
409.2	CARBONDALE	BRIAR HILL	COAL	2.5	125.8	
406.7	CARBONDALE		SANDSTONE/SHALE	25.0	128.3	
381.7	CARBONDALE	ST. DAVID	LIMESTONE	2.0	153.3	
379.7	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	15.8	155.3	
363.9	CARBONDALE	SPRINGFIELD	COAL	2.3	171.1	
361.6	CARBONDALE		UNDERCLAY	2.0	173.4	

MAPID: 19900366000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:**

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753302 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.724183 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 175.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.0	CARBONDALE	SS BELOW NO. 7		2.0	10.0	
523.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	12.0	
520.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	20.0	15.0	
466.0	CARBONDALE	HERRIN	COAL	5.3	69.0	
456.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	2.0	79.0	
409.0	CARBONDALE	BRIAR HILL	COAL	2.5	126.0	
364.0	CARBONDALE	SPRINGFIELD	COAL	2.3	171.0	

MAPID: 19900367000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 220' S line, 340' W line of SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.752159 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.717456 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 493.5 **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL 114 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.5	PLEISTOCENE		CLAY	19.5	0.0	
474.0	CARBONDALE	BRERETON	LIMESTONE	2.0	19.5	
472.0	CARBONDALE	ANNA	BLACK SHALE	0.7	21.5	
471.3	CARBONDALE	HERRIN	COAL	4.5	22.2	
466.8	CARBONDALE		UNDERCLAY	1.3	26.7	

MAPID: 19900368000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 485' S line, 660' W line of SE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.75572 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.718216 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 508.2 **LOGGED (FT.):** 44.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 126 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.2	PLEISTOCENE		CLAY	22.0	0.0	
486.2	CARBONDALE	ANVIL ROCK	SANDSTONE	5.0	22.0	
481.2	CARBONDALE	CONANT	LIMESTONE & SHALE	0.7	27.0	
480.5	CARBONDALE	JAMESTOWN	COAL	0.2	27.7	
480.4	CARBONDALE	BRERETON	LIMESTONE	7.5	27.8	
472.9	CARBONDALE	ANNA	BLACK SHALE	1.2	35.3	
471.7	CARBONDALE	HERRIN	COAL	5.6	36.5	
466.1	CARBONDALE		UNDERCLAY	1.9	42.1	

MAPID: 19900369000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 110' S line, 380' W line

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.761381 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.717229 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 479.5 **LOGGED (FT.):** 19.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL 110 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
479.5	PLEISTOCENE		CLAY	12.0	0.0	
467.5	CARBONDALE	HERRIN	COAL	5.0	12.0	
462.5	CARBONDALE		UNDERCLAY	2.0	17.0	

MAPID: 19900707000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 2500' S line, 1200' E line of NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.757433 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.731119 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 438.4 **LOGGED (FT.):** 35.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL 9R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
438.4	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
416.4	CARBONDALE	ANVIL ROCK	SANDSTONE	3.0	22.0	
413.4	CARBONDALE	ANNA	BLACK SHALE	3.5	25.0	
409.9	CARBONDALE	HERRIN	COAL	5.7	28.5	
404.2	CARBONDALE		UNDERCLAY	0.8	34.2	

MAPID: 19900708000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 2460' S line, 0' W line of NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753263 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.730974 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 437.4 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 10R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.4	PLEISTOCENE		UNCONSOLIDATED	24.0	0.0	
413.4			GRAY SHALE	3.0	24.0	
410.4			SANDSTONE	6.0	27.0	
404.4			SANDY SHALE	13.0	33.0	
391.4			BLUE SHALE	14.0	46.0	

MAPID: 19900709000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 1320' N line, 1000' E line of NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.756757 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727893 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 24R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
448.0	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	16.0	22.0	
432.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	7.0	38.0	
425.0	CARBONDALE	BRERETON	LIMESTONE	7.0	45.0	
418.0	CARBONDALE	ANNA	BLACK SHALE	3.0	52.0	
415.0	CARBONDALE	HERRIN	COAL	5.0	55.0	
410.0	CARBONDALE		UNDERCLAY	1.0	60.0	

MAPID: 19900730000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 1320' N line, 1' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743971 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727768 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 23R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
465.0	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	8.0	15.0	
457.0	CARBONDALE	ANVIL ROCK	GRAY SHALE	3.0	23.0	
454.0	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	8.0	26.0	
446.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	8.0	34.0	
438.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	8.0	42.0	
430.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	3.0	50.0	
427.0	CARBONDALE	JAMESTOWN	COAL	0.5	53.0	
426.5	CARBONDALE		BLACK SHALE	1.5	53.5	
425.0	CARBONDALE	BRERETON	BLUE LIMESTONE	7.0	55.0	
418.0	CARBONDALE	ANNA	BLACK SHALE	2.0	62.0	
416.0	CARBONDALE	HERRIN	COAL	5.5	64.0	
410.5	CARBONDALE		UNDERCLAY	0.5	69.5	

MAPID: 19900730000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 1320' N line, 1' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743971 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.727768 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT: OTHER LOGS AVAILABLE IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	15.0	0.0	
465.0			ROCK	24.0	15.0	
441.0			SHALE	3.0	39.0	
438.0			SANDSTONE	8.0	42.0	
430.0			BLACK SHALE	3.0	50.0	
427.0			COAL	0.5	53.0	
426.4			BLACK SHALE	1.4	53.6	
425.0			LIMESTONE	7.0	55.0	
418.0			BLACK SHALE	2.0	62.0	
416.0	CARBONDALE	HERRIN	COAL	5.5	64.0	
410.5	CARBONDALE		UNDERCLAY	0.0	69.5	

MAPID: 19900731000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 920' N line, 1320' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748554 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.728919 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY COAL MNG. 21D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
473.0	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	10.0	12.0	
463.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	10.0	22.0	
453.0	CARBONDALE	ANVIL ROCK	SANDY SHALE	13.0	32.0	
440.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	6.0	45.0	
434.0	CARBONDALE	BRERETON	BLUE LIMESTONE	7.0	51.0	
427.0	CARBONDALE	ANNA	BLACK SHALE	1.5	58.0	
425.5	CARBONDALE	HERRIN	COAL	5.5	59.5	
420.0	CARBONDALE		UNDERCLAY	1.0	65.0	

MAPID: 19900731000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 920' N line, 1320' E line of NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748554 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.728919 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 66.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.0			UNCONSOLIDATED	34.5	0.0	
450.5			SHALE	16.5	34.5	
434.0			LIMESTONE	7.0	51.0	
427.0			BLACK SHALE	1.5	58.0	
425.5	CARBONDALE	HERRIN	COAL	5.5	59.5	
420.0	CARBONDALE		UNDERCLAY	0.0	65.0	

MAPID: 19902419000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 900' S line, 430' E line of SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.754822 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.719356 **DATE COLLECTED:** 8 / 0 / 1970
SURFACE ELEVATION (FT.): 487.0 **LOGGED (FT.):** 1302.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-815.0	BASE OF PENN.		UNCLASSIFIED	-	1302.0	

MAPID: 19990028000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 1' S line, 1' E line of NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743971 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.72776 **DATE COLLECTED:** 2 / 16 / 1965
SURFACE ELEVATION (FT.): 488.3 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO B375 **WELL TYPE:** Coal Test
COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
488.3	PLEISTOCENE		CLAY	12.0	0.0	
476.3	CARBONDALE	ANVIL ROCK	SANDSTONE	9.0	12.0	BROWN
467.3	CARBONDALE	ANVIL ROCK	SANDSTONE	21.0	21.0	GRAY
446.3	CARBONDALE		SANDY SHALE	14.3	42.0	
432.0	CARBONDALE	BRERETON	LIMESTONE	6.7	56.3	
425.4	CARBONDALE	ANNA	BLACK SHALE	0.8	62.9	
424.5	CARBONDALE	HERRIN	COAL	4.6	63.8	
420.0	CARBONDALE		UNDERCLAY	1.7	68.3	

MAPID: 19990029000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 180' W line of SE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748002 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726884 **DATE COLLECTED:** 8 / 24 / 1990

SURFACE ELEVATION (FT.): 496.8 **LOGGED (FT.):** 89.5 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B348A **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
496.8	PLEISTOCENE		UNCONSOLIDATED	8.5	0.0	BROWN
488.3	CARBONDALE		SANDSTONE	2.5	8.5	WEATHERED
485.8	CARBONDALE		SANDSTONE	3.0	11.0	BROWN
482.8	CARBONDALE	ALLENBY	COAL	0.5	14.0	
482.3	CARBONDALE		SANDY SHALE	8.0	14.5	
474.3	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	22.5	BROWN
469.3	CARBONDALE		CALCAREOUS SHALE	1.5	27.5	
467.8	CARBONDALE		SANDY SHALE	1.0	29.0	
466.8	CARBONDALE		LIMESTONE	0.5	30.0	GRAY
466.3	CARBONDALE		SANDSTONE	7.0	30.5	GRAY
459.3	CARBONDALE		SANDY SHALE	3.0	37.5	
456.3	CARBONDALE		SANDY LIMESTONE	1.5	40.5	GRAY
454.8	CARBONDALE		SANDY SHALE	23.5	42.0	
431.3	CARBONDALE	CONANT	LIMESTONE	0.5	65.5	GRAY
430.8	CARBONDALE		DARK GRAY SHALE	0.5	66.0	
430.3	CARBONDALE	JAMESTOWN	COAL	0.1	66.5	
430.2	CARBONDALE		BLACK SHALE	0.2	66.6	
430.0	CARBONDALE		LIMESTONE	1.0	66.8	GRAY
429.0	CARBONDALE		BLACK SHALE	1.4	67.8	
427.6	CARBONDALE	BRERETON	LIMESTONE	6.3	69.2	GRAY
421.3	CARBONDALE	ANNA	BLACK SHALE	1.1	75.5	
420.2	CARBONDALE	HERRIN	COAL	5.7	76.6	
414.5	CARBONDALE		GRAY SHALE	3.7	82.3	
410.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	3.5	86.0	

MAPID: 19990030000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 660' S line, 1' E line of SW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748634 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.725963 **DATE COLLECTED:** 4 / 17 / 1947

SURFACE ELEVATION (FT.): 500.1 **LOGGED (FT.):** 88.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B348 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.1	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
495.1	PLEISTOCENE		SAND	12.0	5.0	CLAY
483.1	CARBONDALE		SMUT	1.0	17.0	
482.1	CARBONDALE		SHALE	5.0	18.0	
477.1	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	23.0	
471.1	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	39.5	29.0	
431.6	CARBONDALE	JAMESTOWN	COAL	0.5	68.5	
431.1	CARBONDALE		SANDSTONE	3.0	69.0	
428.1	CARBONDALE	BRERETON	LIMESTONE	6.9	72.0	
421.2	CARBONDALE	ANNA	BLACK SHALE	2.1	78.9	
419.1	CARBONDALE	HERRIN	COAL	5.7	81.0	
413.4	CARBONDALE		UNDERCLAY	1.3	86.7	

MAPID: 19990031000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.750997 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.725984 **DATE COLLECTED:** 3 / 29 / 1947

SURFACE ELEVATION (FT.): 489.9 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B347 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
489.9	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
484.9	PLEISTOCENE		SAND	8.0	5.0	CLAY
476.9	CARBONDALE		SHALY SANDSTONE	41.5	13.0	
435.4	CARBONDALE	BRERETON	LIMESTONE	6.2	54.5	
429.2	CARBONDALE	ANNA	BLACK SHALE	1.8	60.7	
427.4	CARBONDALE	HERRIN	COAL	5.6	62.5	
421.8	CARBONDALE		UNDERCLAY	1.9	68.1	

MAPID: 19990032000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 500' N line, 250' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.752534 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726198 **DATE COLLECTED:** 8 / 28 / 1990

SURFACE ELEVATION (FT.): 493.2 **LOGGED (FT.):** 178.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B346NE **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.2	PLEISTOCENE		MINE OPENING	5.0	0.0	SPOILS
488.2	PLEISTOCENE		CLAY	8.5	5.0	BROWN
479.7	CARBONDALE	ANVIL ROCK	SANDSTONE	7.4	13.5	TAN
472.3	CARBONDALE	ANVIL ROCK	SANDY SHALE	3.0	20.9	
469.3	CARBONDALE	ANVIL ROCK	SILTY SANDSTONE	16.0	23.9	TAN
453.3	CARBONDALE		SANDY SHALE	10.1	39.9	
443.2	CARBONDALE		CALCAREOUS SHALE	1.0	50.0	
442.2	CARBONDALE		CALCAREOUS SHALE	1.8	51.0	
440.4	CARBONDALE	BRERETON	LIMESTONE	6.2	52.8	GRAY
434.2	CARBONDALE	ANNA	BLACK SHALE	2.3	59.0	
431.9	CARBONDALE	HERRIN	COAL	5.4	61.3	
426.5	CARBONDALE		SILTY SHALE	3.5	66.7	
423.0	CARBONDALE		SILTSTONE	10.8	70.2	GREEN-GRAY
412.2	CARBONDALE		SILTSTONE	2.0	81.0	GREEN-GRAY
410.2	CARBONDALE		SILTSTONE	9.0	83.0	LIGHT GRAY
401.2	CARBONDALE		SILTY SHALE	23.9	92.0	
377.3	CARBONDALE	BRIAR HILL	COAL	0.5	115.9	
376.8	CARBONDALE		DARK GRAY SHALE	0.6	116.4	
376.2	CARBONDALE		GRAY SHALE	0.5	117.0	
375.7	CARBONDALE		SANDY SHALE	2.5	117.5	LS NODS
373.2	CARBONDALE		SANDY SHALE	4.0	120.0	
369.2	CARBONDALE		SILTY SHALE	12.2	124.0	SIDERITE BNDS
357.0	CARBONDALE	ST. DAVID	LIMESTONE	1.6	136.2	GRAY
355.4	CARBONDALE	TURNER MINE	BLACK SHALE	6.2	137.8	
349.2	CARBONDALE	DYKERSBURG	GRAY SHALE	15.9	144.0	
333.3	CARBONDALE	SPRINGFIELD	COAL	4.1	159.9	
329.2	CARBONDALE		GRAY SHALE	3.0	164.0	
326.2	CARBONDALE		SILTSTONE	3.3	167.0	GREEN-GRAY
322.9	CARBONDALE		SHALE	3.7	170.3	
319.2	CARBONDALE		SILTSTONE	4.0	174.0	

MAPID: 19990045000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759319 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726811 **DATE COLLECTED:** 8 / 30 / 1990

SURFACE ELEVATION (FT.): 481.3 **LOGGED (FT.):** 159.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B343A-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13 MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
481.3	PLEISTOCENE		CLAY	5.3	0.0	BROWN
476.0	CARBONDALE	ANVIL ROCK	SANDSTONE	8.7	5.3	BROWN
467.3	CARBONDALE	ANVIL ROCK	BROWN SHALE	4.0	14.0	SANDY
463.3	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	11.5	18.0	GRAY
451.8	CARBONDALE	ANVIL ROCK	SANDSTONE	3.3	29.5	LIGHT GRAY
448.5	CARBONDALE		SILTY SHALE	12.0	32.8	
436.5	CARBONDALE		CALCAREOUS SHALE	1.0	44.8	
435.5	CARBONDALE		BLACK SHALE	0.7	45.8	
434.8	CARBONDALE	BRERETON	LIMESTONE	6.3	46.5	GRAY
428.5	CARBONDALE	ANNA	BLACK SHALE	2.7	52.8	
425.8	CARBONDALE	HERRIN	COAL	5.3	55.5	
420.5	CARBONDALE		UNDERCLAY	3.8	60.8	
416.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.9	64.6	TAN
414.8	CARBONDALE		SILTSTONE	5.5	66.5	LIGHT GRAY
409.3	CARBONDALE		SILTSTONE	3.5	72.0	GREEN-GRAY
405.8	CARBONDALE		SILTY SHALE	9.5	75.5	
396.3	CARBONDALE		SILTY SHALE	25.1	85.0	
371.2	CARBONDALE	BRIAR HILL	COAL	0.7	110.1	
370.5	CARBONDALE		SANDY SHALE	1.0	110.8	
369.5	CARBONDALE		CALCAREOUS SANDSTONE	1.5	111.8	LIGHT GRAY
368.0	CARBONDALE		SANDY SHALE	4.7	113.3	
363.3	CARBONDALE		SILTY SHALE	14.3	118.0	
349.0	CARBONDALE	ST. DAVID	LIMESTONE	1.9	132.3	GRAY
347.1	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	134.2	
343.1	CARBONDALE	TURNER MINE	LIMESTONE	0.5	138.2	GRAY
342.6	CARBONDALE	TURNER MINE	BLACK SHALE	1.8	138.7	
340.8	CARBONDALE	DYKERSBURG	GRAY SHALE	9.1	140.5	
331.7	CARBONDALE	SPRINGFIELD	MINE OPENING	8.1	149.6	OLD #5 MINE WORKS
323.6	CARBONDALE		UNDERCLAY	1.3	157.7	

MAPID: 19990046000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 500' N line, 250' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.752486 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726195 **DATE COLLECTED:** 8 / 29 / 1990

SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 167.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B346NE-1 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.0	PLEISTOCENE		MINE OPENING	3.5	0.0	SPOILS
489.5	PLEISTOCENE		CLAY	9.8	3.5	BROWN
479.7	CARBONDALE	ANVIL ROCK	SANDSTONE	5.3	13.3	GRAY
474.4	CARBONDALE	ANVIL ROCK	GRAY SHALE	2.2	18.6	
472.2	CARBONDALE	ANVIL ROCK	SANDY SHALE	2.7	20.8	
469.5	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	23.5	LIGHT GRAY
463.5	CARBONDALE		SILTY SHALE	1.5	29.5	
462.0	CARBONDALE		SANDY SHALE	1.4	31.0	
460.6	CARBONDALE		SANDSTONE	1.6	32.4	LIGHT GRAY
459.0	CARBONDALE		SANDY SHALE	6.0	34.0	
453.0	CARBONDALE		SILTY SHALE	10.6	40.0	
442.4	CARBONDALE	JAMESTOWN	COAL	0.2	50.6	
442.2	CARBONDALE		CALCAREOUS SHALE	0.2	50.8	
442.0	CARBONDALE	BRERETON	LIMESTONE	0.3	51.0	
441.7	CARBONDALE	BRERETON	DARK GRAY SHALE	1.6	51.3	
440.1	CARBONDALE	BRERETON	LIMESTONE	5.9	52.9	GRAY
434.2	CARBONDALE	ANNA	BLACK SHALE	2.4	58.8	
431.8	CARBONDALE	HERRIN	COAL	5.2	61.2	
426.6	CARBONDALE		UNDERCLAY	3.3	66.4	
423.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.7	69.7	WITH SHALE BANDS; GRAY
420.6	CARBONDALE		SILTY SHALE	2.1	72.4	WITH LIMESTONE BANDS
418.5	CARBONDALE		SILTSTONE	13.0	74.5	LIGHT GRAY
405.5	CARBONDALE		SILTSTONE	1.5	87.5	LIGHT GRAY
404.0	CARBONDALE		SILTY SHALE	3.0	89.0	
401.0	CARBONDALE		SILTY SHALE	23.4	92.0	
377.6	CARBONDALE	BRIAR HILL	COAL	0.5	115.4	
377.1	CARBONDALE		SANDY SHALE	6.1	115.9	
371.0	CARBONDALE		SILTY SHALE	14.6	122.0	
356.4	CARBONDALE	ST. DAVID	LIMESTONE	1.1	136.6	GRAY
355.3	CARBONDALE	TURNER MINE	BLACK SHALE	1.2	137.7	
354.1	CARBONDALE	TURNER MINE	LIMESTONE	1.2	138.9	GRAY
352.9	CARBONDALE	TURNER MINE	BLACK SHALE	1.9	140.1	
351.0	CARBONDALE	DYKERSBURG	GRAY SHALE	16.2	142.0	
334.8	CARBONDALE	SPRINGFIELD	MINE OPENING	8.8	158.2	OLD #5 WORKS

MAPID: 19990058000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 20' N line, 810' W line of SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759778 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727847 **DATE COLLECTED:** 5 / 1 / 1964

SURFACE ELEVATION (FT.): 476.1 **LOGGED (FT.):** 63.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO B368N **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
476.1	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
469.1	CARBONDALE		SANDSTONE	13.0	7.0	BROWN
456.1	CARBONDALE		SANDY SHALE	23.4	20.0	
432.7	CARBONDALE	BRERETON	LIMESTONE	9.1	43.4	
423.6	CARBONDALE	ANNA	BLACK SHALE	2.5	52.5	
421.1	CARBONDALE	HERRIN	COAL	5.4	55.0	
415.7	CARBONDALE		UNDERCLAY	2.6	60.4	

MAPID: 19990059000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 247' N line, 330' W line of SE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.756796 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727192 **DATE COLLECTED:** 5 / 21 / 1968

SURFACE ELEVATION (FT.): 493.6 **LOGGED (FT.):** 73.3 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. B344AC **WELL TYPE:** Coal Test

COMMENT: PERMIT 286; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
493.6	PLEISTOCENE		CLAY	21.0	0.0	
472.6	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0	21.0	BROWN
460.6	CARBONDALE	ANVIL ROCK	SANDSTONE	22.0	33.0	GRAY
438.6	CARBONDALE		SANDY SHALE	1.3	55.0	
437.3	CARBONDALE	JAMESTOWN	COAL	0.5	56.3	
436.8	CARBONDALE		UNDERCLAY	0.5	56.8	
436.3	CARBONDALE	BRERETON	LIMESTONE	5.0	57.3	
431.3	CARBONDALE	ANNA	BLACK SHALE	3.0	62.3	
428.3	CARBONDALE	ENERGY	GRAY SHALE	1.1	65.3	
427.3	CARBONDALE	HERRIN	COAL	5.3	66.3	
422.0	CARBONDALE		UNDERCLAY	1.8	71.6	

MAPID: 19900370000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE/c NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73938 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.727787 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 453.0 **LOGGED (FT.):** 184.5 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 138 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
453.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
441.0	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0	12.0	
429.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	4.0	24.0	
425.0	CARBONDALE	ANVIL ROCK	SANDSTONE	18.4	28.0	
406.6	CARBONDALE	ANVIL ROCK	SANDSTONE	9.0	46.4	
397.6	CARBONDALE	ANVIL ROCK	BROWN SHALE	2.0	55.4	
395.6	CARBONDALE	BRERETON	LIMESTONE	4.0	57.4	
391.6	CARBONDALE	BRERETON	LIMESTONE	1.5	61.4	
390.1	CARBONDALE	ANNA	BLACK SHALE	1.6	62.9	
388.5	CARBONDALE	HERRIN	COAL	5.3	64.5	
383.2	CARBONDALE		UNDERCLAY	1.5	69.8	
381.7	CARBONDALE		SANDSTONE/SHALE	40.5	71.3	
341.2	CARBONDALE	BRIAR HILL	COAL	1.2	111.8	
340.1	CARBONDALE		SANDSTONE	4.0	112.9	
336.1	CARBONDALE		SANDSTONE/SHALE	62.1	116.9	
274.0	CARBONDALE	SPRINGFIELD	COAL	3.5	179.0	
270.5	CARBONDALE		UNDERCLAY	2.0	182.5	

MAPID: 19900370000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE/c NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73938 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.727787 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 453.0 **LOGGED (FT.):** 185.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
441.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	43.0	12.0	
389.0	CARBONDALE	HERRIN	COAL	5.3	64.0	
341.0	CARBONDALE	BRIAR HILL	COAL	1.2	112.0	
340.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	4.0	113.0	
274.0	CARBONDALE	SPRINGFIELD	COAL	3.6	179.0	

MAPID: 19900371000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727922 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.726007 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 189.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 120 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0	PLEISTOCENE		UNCONSOLIDATED	10.5	0.0	
459.5	PLEISTOCENE		CLAY & GRAVEL	3.5	10.5	
456.0	CARBONDALE	ANVIL ROCK	SANDSTONE	17.0	14.0	
439.0	CARBONDALE		SANDY SHALE	7.0	31.0	
432.0	CARBONDALE		BLACK SHALE	1.0	38.0	
431.0	CARBONDALE		BLACK SHALE	13.0	39.0	
418.0	CARBONDALE	BRERETON	LIMESTONE	6.0	52.0	
412.0	CARBONDALE	ANNA	BLACK SHALE	5.5	58.0	
406.5	CARBONDALE	ENERGY	GRAY SHALE	2.0	63.5	
404.5	CARBONDALE	HERRIN	COAL	1.5	65.5	
403.0	CARBONDALE		SANDY SHALE	3.0	67.0	
400.0	CARBONDALE		SANDSTONE	2.0	70.0	
398.0	CARBONDALE		SHALE	21.6	72.0	
376.4	CARBONDALE	BRIAR HILL	COAL	0.5	93.6	
375.9	CARBONDALE		SANDY SHALE	5.9	94.1	
370.0	CARBONDALE		SANDSTONE	55.0	100.0	
315.0	CARBONDALE		SANDY SHALE	4.0	155.0	
311.0	CARBONDALE	DYKERSBURG	SANDY SHALE	24.8	159.0	
286.2	CARBONDALE	SPRINGFIELD	COAL	4.3	183.8	
282.0	CARBONDALE		UNDERCLAY	1.0	188.0	

MAPID: 19900371000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727922 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.726007 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 189.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
470.0			UNCONSOLIDATED	17.0	0.0	
453.0			ROCK	48.5	17.0	
404.5	CARBONDALE	HERRIN	COAL	1.5	65.5	
403.0	CARBONDALE		ROCK	26.6	67.0	
376.4	CARBONDALE	BRIAR HILL	COAL	0.5	93.6	
375.9	CARBONDALE		ROCK	63.9	94.1	
312.0	CARBONDALE		SHALE	25.8	158.0	
286.2	CARBONDALE	SPRINGFIELD	COAL	4.3	183.8	
282.0	CARBONDALE		UNDERCLAY	0.0	188.0	

MAPID: 19900372000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.737091 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.725961 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 437.0 **LOGGED (FT.):** 135.6 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 142 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
437.0	PLEISTOCENE		UNCONSOLIDATED	29.0	0.0	
408.0	CARBONDALE		GRAY SHALE	10.0	29.0	
398.0	CARBONDALE		SANDSTONE/SHALE	11.0	39.0	
387.0	CARBONDALE		SANDSTONE	52.0	50.0	
335.0	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	27.0	102.0	
308.0	CARBONDALE	SPRINGFIELD	COAL	4.6	129.0	
303.4	CARBONDALE		UNDERCLAY	2.0	133.6	

MAPID: 19900372000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.737091 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.725961 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 135.6 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			UNCONSOLIDATED	29.0	0.0	
-			ROCK	75.0	29.0	
-			SHALE	25.6	104.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.6	129.6	
-	CARBONDALE		UNDERCLAY	0.0	133.6	

MAPID: 19900373000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727959 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.718595 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 422.0 **LOGGED (FT.):** 115.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 136 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
422.0	PLEISTOCENE		UNCONSOLIDATED	35.0	0.0	
387.0	CARBONDALE		SANDSTONE/SHALE	5.0	35.0	
382.0	CARBONDALE		SANDSTONE	40.0	40.0	
342.0	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	29.7	80.0	
312.3	CARBONDALE	SPRINGFIELD	COAL	4.3	109.7	
308.0	CARBONDALE		UNDERCLAY	1.0	114.0	

MAPID: 19900373000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727959 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.718595 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 422.0 **LOGGED (FT.):** 115.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
422.0			UNCONSOLIDATED	35.0	0.0	
387.0			ROCK	49.0	35.0	
338.0			SHALE	25.7	84.0	
312.3	CARBONDALE	SPRINGFIELD	COAL	4.3	109.7	
308.0	CARBONDALE		UNDERCLAY	0.0	114.0	

MAPID: 19900409900M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE SE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.735404 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.717221 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**

SOURCE: MINE NOTES-LANTHROP COAL BANK **WELL TYPE:** Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	-		

MAPID: 19900732000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.726791 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.723231 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 19D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
455.0	PLEISTOCENE		SOIL	12.0	0.0	
443.0	CARBONDALE		SANDSTONE	5.0	12.0	
438.0	CARBONDALE		SHALE & SILTSTONE	13.0	17.0	GRAY
425.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	30.0	
420.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	30.0	35.0	
390.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	11.0	65.0	BLUE
379.0	CARBONDALE	BRERETON	LIMESTONE	7.0	76.0	
372.0	CARBONDALE	ANNA	BLACK SHALE	1.0	83.0	
371.0	CARBONDALE	HERRIN	COAL	5.3	84.0	
365.7	CARBONDALE		UNDERCLAY	0.7	89.3	

MAPID: 19900733000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73938 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727787 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 71.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 20D **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0	PLEISTOCENE		SOIL	12.0	0.0	
468.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	39.0	12.0	
429.0	CARBONDALE		BLACK SHALE	4.0	51.0	
425.0	CARBONDALE		BLACK SHALE	2.5	55.0	
422.5	CARBONDALE	BRERETON	LIMESTONE	6.0	57.5	
416.5	CARBONDALE	ANNA	BLACK SHALE	1.5	63.5	
415.0	CARBONDALE	HERRIN	COAL	5.5	65.0	
409.5	CARBONDALE		UNDERCLAY	0.5	70.5	

MAPID: 19900734000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730207 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727847 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 22R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0	PLEISTOCENE		SOIL	18.0	0.0	
447.0	CARBONDALE	ANVIL ROCK	BROWN SANDSTONE	8.0	18.0	
439.0	CARBONDALE	ANVIL ROCK	BLACK SHALE	2.0	26.0	
437.0	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	8.0	28.0	
429.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	20.0	36.0	BLUE
409.0	CARBONDALE		LIMESTONE	2.0	56.0	
407.0	CARBONDALE		BLACK SHALE	1.0	58.0	
406.0	CARBONDALE	BRERETON	LIMESTONE	7.0	59.0	
399.0	CARBONDALE	ANNA	BLACK SHALE	2.0	66.0	
397.0	CARBONDALE	HERRIN	COAL	5.3	68.0	
391.7	CARBONDALE		UNDERCLAY	0.7	73.3	

MAPID: 19900734000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730207 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.727847 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT: NEAR CENTER OF NE 1/4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.0			UNCONSOLIDATED	18.0	0.0	
447.0			ROCK	25.0	18.0	
422.0			SHALE	13.0	43.0	
409.0			LIMESTONE	2.0	56.0	
407.0			BLACK SHALE	1.0	58.0	
406.0			LIMESTONE	7.0	59.0	
399.0			SHALE	2.0	66.0	
397.0	CARBONDALE	HERRIN	COAL	5.3	68.0	
391.7			UNDERCLAY	0.0	73.3	

MAPID: 19923632000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 120' S line, 80' E line of NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734951 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.728202 **DATE COLLECTED:** 1 / 6 / 1986

SURFACE ELEVATION (FT.): 468.9 **LOGGED (FT.):** 216.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO. A554PF **WELL TYPE:** Coal Test

COMMENT: PERMIT 208 DELTA MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
468.9	PLEISTOCENE		CLAY	6.5	0.0	BROWN
462.4	CARBONDALE		GRAY SHALE	2.0	6.5	
460.4	CARBONDALE	ANVIL ROCK	SANDSTONE	7.5	8.5	BROWN
452.9	CARBONDALE	ANVIL ROCK	SANDSTONE	27.5	16.0	GRAY
425.4	CARBONDALE		GRAY SHALE	10.5	43.5	
414.9	CARBONDALE	CONANT	LIMESTONE	0.8	54.0	DARK GRAY
414.1	CARBONDALE	JAMESTOWN	BLACK SHALE	1.6	54.8	
412.5	CARBONDALE	BRERETON	LIMESTONE	3.6	56.4	DARK GRAY
408.9	CARBONDALE	ANNA	BLACK SHALE	3.4	60.0	
405.5	CARBONDALE	HERRIN	COAL	5.5	63.4	
400.0	CARBONDALE		GRAY SHALE	4.1	68.9	
395.9	CARBONDALE		LIMESTONE	2.6	73.0	
393.3	CARBONDALE		SANDSTONE	24.4	75.6	
368.9	CARBONDALE		SANDY SHALE	5.1	100.0	
363.8	CARBONDALE	BRIAR HILL	COAL	0.6	105.1	
363.2	CARBONDALE		SANDY SHALE	6.3	105.7	DARK
356.9	CARBONDALE	DYKERSBURG	SANDSTONE	28.0	112.0	GRAY
328.9	CARBONDALE	DYKERSBURG	GRAY SHALE	50.0	140.0	
278.9	CARBONDALE	SPRINGFIELD	COAL	2.0	190.0	OLD WORKINGS
276.9	CARBONDALE		GRAY SHALE	24.0	192.0	

MAPID: 199273B0012F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.740549 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.717691 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 48.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: COMPOSITE SECT.GEO DATA FROM DRIFT ENTRY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	15.0	0.0	
425.0			ROCK	19.8	15.0	
405.2	CARBONDALE	JAMESTOWN	COAL	0.3	34.8	
405.0	CARBONDALE		SHALE	3.5	35.0	
401.5	CARBONDALE		LIMESTONE	5.7	38.5	
395.8	CARBONDALE		BLACK SHALE	1.1	44.2	
394.8	CARBONDALE	HERRIN	COAL	3.0	45.2	

MAPID: 199273B0013F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NW SW SW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743408 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.718152 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 10.7 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Roadcut
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	2.0		
-	CARBONDALE		UNDERCLAY	2.0		
-			ROCK	6.7		

MAPID: 199273B0011F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.735973 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.717683 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 11.4 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Underground mine
COMMENT: LANTHROP COAL BANK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			LIMESTONE	5.0		
-			BLACK SHALE	1.1		
-			COAL	5.3		

MAPID: 19990038000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 250' S line, 500' W line of NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.728465 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.728548 **DATE COLLECTED:** 8 / 27 / 1990

SURFACE ELEVATION (FT.): 472.6 **LOGGED (FT.):** 78.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A557I **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
472.6	PLEISTOCENE		CLAY	14.0	0.0	BROWN
458.6	CARBONDALE		SHALE	1.8	14.0	
456.8	CARBONDALE	ANVIL ROCK	SANDSTONE	2.4	15.8	BROWN
454.4	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	1.6	18.2	LIGHT BROWN
452.8	CARBONDALE	ANVIL ROCK	SANDSTONE	1.2	19.8	BROWN
451.6	CARBONDALE		SANDY SHALE	2.5	21.0	
449.1	CARBONDALE		SANDY SHALE	15.5	23.5	
433.6	CARBONDALE		SILTY SHALE	15.8	39.0	
417.8	CARBONDALE		CALCAREOUS SHALE	0.7	54.8	
417.1	CARBONDALE	JAMESTOWN	COAL W/ BLACK SHALE	0.3	55.5	
416.8	CARBONDALE		CALCAREOUS SHALE	0.7	55.8	
416.1	CARBONDALE		DARK GRAY SHALE	1.7	56.5	
414.4	CARBONDALE		CALCAREOUS SHALE	0.6	58.2	
413.8	CARBONDALE	BRERETON	LIMESTONE	5.5	58.8	GRAY
408.3	CARBONDALE	ENERGY	CALCAREOUS SHALE	0.2	64.3	
408.1	CARBONDALE	ENERGY	GRAY SHALE	1.1	64.5	
407.0	CARBONDALE	HERRIN	COAL	5.3	65.6	
401.7	CARBONDALE		GRAY SHALE	3.1	70.9	
398.6	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.0	74.0	

MAPID: 19990039000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 50' S line, 50' W line of SW NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730031 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727987 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 64.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A557 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
459.0	PLEISTOCENE		CLAY	20.0	0.0	
439.0	CARBONDALE		SHALY SANDSTONE	28.0	20.0	INTERBEDDED
411.0	CARBONDALE		BLACK SHALE	1.0	48.0	
410.0	CARBONDALE	BRERETON	LIMESTONE	7.0	49.0	
403.0	CARBONDALE	ANNA	BLACK SHALE	1.5	56.0	
401.5	CARBONDALE	HERRIN	COAL	5.3	57.5	
396.2	CARBONDALE		UNDERCLAY	1.3	62.8	

MAPID: 19990040000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 1' N line, 200' W line of SW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733843 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727803 **DATE COLLECTED:** 8 / 24 / 1990

SURFACE ELEVATION (FT.): 477.6 **LOGGED (FT.):** 81.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A555N **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
477.6	PLEISTOCENE		CLAY	11.0	0.0	BROWN
466.6	PLEISTOCENE		CLAY	3.0	11.0	LIGHT GRAY
463.6	PLEISTOCENE		CLAY	2.3	14.0	BROWN
461.3	CARBONDALE		LIMESTONE	0.5	16.3	GRAY
460.8	CARBONDALE		SILTSTONE	8.2	16.8	
452.6	CARBONDALE		SILTSTONE	10.0	25.0	GRAY
442.6	CARBONDALE		SANDY SHALE	3.5	35.0	
439.1	CARBONDALE	ANVIL ROCK	SHALE & SANDSTONE	5.0	38.5	INTER
434.1	CARBONDALE	ANVIL ROCK	SANDSTONE	2.5	43.5	GRAY
431.6	CARBONDALE	ANVIL ROCK	SHALY SANDSTONE	2.0	46.0	INTERBEDDED
429.6	CARBONDALE		SILTY SHALE	11.4	48.0	
418.2	CARBONDALE		CALCAREOUS SHALE	0.8	59.4	
417.4	CARBONDALE	JAMESTOWN	COAL	0.2	60.2	
417.2	CARBONDALE		LIMESTONE	0.5	60.4	GRAY
416.7	CARBONDALE		BLACK SHALE	1.7	60.9	
415.0	CARBONDALE		CALCAREOUS SHALE	0.6	62.6	
414.4	CARBONDALE	BRERETON	LIMESTONE	6.5	63.2	GRAY
407.9	CARBONDALE	ANNA	BLACK SHALE	1.5	69.7	
406.4	CARBONDALE	HERRIN	COAL	5.5	71.2	
400.9	CARBONDALE		GRAY SHALE	3.1	76.7	
397.8	CARBONDALE	HIGGINSVILLE	SILTY LIMESTONE	1.2	79.8	GRAY

MAPID: 19990041000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 1' N line, 1' E line of NE SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734795 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727815 **DATE COLLECTED:** 4 / 12 / 1956

SURFACE ELEVATION (FT.): 466.7 **LOGGED (FT.):** 68.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A555 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
466.7	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
459.7	CARBONDALE		SANDSTONE	33.0	7.0	BROWN
426.7	CARBONDALE		SANDY SHALE	12.0	40.0	
414.7	CARBONDALE		BLACK SHALE	2.0	52.0	
412.7	CARBONDALE	BRERETON	LIMESTONE	5.5	54.0	
407.2	CARBONDALE	ANNA	BLACK SHALE	1.7	59.5	
405.5	CARBONDALE	HERRIN	COAL	5.4	61.2	
400.1	CARBONDALE		UNDERCLAY	1.4	66.6	

MAPID: 19990042000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 1' S line, 50' E line of SW NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.737259 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727804 **DATE COLLECTED:** 4 / 11 / 1956

SURFACE ELEVATION (FT.): 474.8 **LOGGED (FT.):** 74.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A554 **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
474.8	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
466.8	CARBONDALE	ANVIL ROCK	SANDSTONE	38.0	8.0	BROWN
428.8	CARBONDALE		BLUE SHALE	9.0	46.0	
419.8	CARBONDALE		LIMESTONE	1.5	55.0	
418.3	CARBONDALE		BLACK SHALE	4.8	56.5	
413.5	CARBONDALE	BRERETON	LIMESTONE	4.5	61.3	
409.0	CARBONDALE	ANNA	BLACK SHALE	0.7	65.8	
408.3	CARBONDALE	HERRIN	COAL	5.3	66.5	
403.0	CARBONDALE		UNDERCLAY	2.3	71.8	

MAPID: 19990043000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 120' N line, 660' W line of SW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.732501 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727501 **DATE COLLECTED:** 3 / 18 / 1967

SURFACE ELEVATION (FT.): 473.4 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A531DJ **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.4	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
462.4	CARBONDALE	ANVIL ROCK	SANDSTONE	6.0	11.0	
456.4	CARBONDALE	ANVIL ROCK	GRAY SHALE	4.0	17.0	
452.4	CARBONDALE	ANVIL ROCK	SANDSTONE	4.0	21.0	
448.4	CARBONDALE	ANVIL ROCK	GRAY SHALE	1.0	25.0	
447.4	CARBONDALE	ANVIL ROCK	SANDSTONE	11.0	26.0	
436.4	CARBONDALE		GRAY SHALE	7.0	37.0	
429.4	CARBONDALE		SANDSTONE	0.6	44.0	
428.8	CARBONDALE		DARK GRAY SHALE	12.0	44.6	
416.8	CARBONDALE	BRERETON	LIMESTONE	6.0	56.6	
410.8	CARBONDALE	ANNA	BLACK SHALE	2.0	62.6	
408.8	CARBONDALE	ENERGY	GRAY SHALE	0.6	64.6	
408.2	CARBONDALE	HERRIN	COAL	5.2	65.2	
403.0	CARBONDALE		UNDERCLAY	1.6	70.4	

MAPID: 19990044000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 300' N line, 150' E line of SW NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739768 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.72686 **DATE COLLECTED:** 8 / 24 / 1990

SURFACE ELEVATION (FT.): 480.2 **LOGGED (FT.):** 65.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A527A **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.2	PLEISTOCENE		CLAY	0.3	0.0	BROWN
479.9	PLEISTOCENE		UNCONSOLIDATED	11.7	0.3	BROWN
468.2	CARBONDALE	ANVIL ROCK	SANDSTONE	5.0	12.0	
463.2	CARBONDALE	ANVIL ROCK	SANDSTONE	17.5	17.0	BROWN
445.7	CARBONDALE	ANVIL ROCK	SANDSTONE	2.5	34.5	GRAY
443.2	CARBONDALE	CONANT	SANDY LIMESTONE	0.8	37.0	GRAY
442.4	CARBONDALE		CALCAREOUS SANDSTONE	4.2	37.8	GRAY
438.2	CARBONDALE	JAMESTOWN	COAL	0.4	42.0	
437.8	CARBONDALE		BLACK SHALE	2.2	42.4	
435.6	CARBONDALE	BRERETON	LIMESTONE	5.9	44.6	DARK GRAY
429.7	CARBONDALE	ANNA	BLACK SHALE	1.5	50.5	
428.2	CARBONDALE	HERRIN	COAL	5.5	52.0	
422.7	CARBONDALE		GRAY SHALE	2.9	57.5	
419.8	CARBONDALE	HIGGINSVILLE	SILTY LIMESTONE	4.6	60.4	GRAY

MAPID: 19990047000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 120' S line, 80' E line of NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724986 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.720353 **DATE COLLECTED:** 1 / 6 / 1986

SURFACE ELEVATION (FT.): 468.9 **LOGGED (FT.):** 216.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A554PF **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA HWY 13

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
468.9	PLEISTOCENE		CLAY	6.5	0.0	BROWN
462.4	CARBONDALE		GRAY SHALE	2.0	6.5	
460.4	CARBONDALE	ANVIL ROCK	SANDSTONE	7.5	8.5	BROWN
452.9	CARBONDALE	ANVIL ROCK	SANDSTONE	27.5	16.0	GRAY
425.4	CARBONDALE		GRAY SHALE	10.5	43.5	
414.9	CARBONDALE		LIMESTONE	0.8	54.0	DARK GRAY
414.1	CARBONDALE		BLACK SHALE	1.6	54.8	
412.5	CARBONDALE	BRERETON	LIMESTONE	3.6	56.4	DARK GRAY
408.9	CARBONDALE	ANNA	BLACK SHALE	3.4	60.0	
405.5	CARBONDALE	HERRIN	COAL	5.5	63.4	
400.0	CARBONDALE		GRAY SHALE	4.1	68.9	
395.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.6	73.0	
393.3	CARBONDALE		SANDSTONE	24.4	75.6	
368.9	CARBONDALE		SANDY SHALE	5.1	100.0	
363.8	CARBONDALE	BRIAR HILL	COAL	0.6	105.1	
363.2	CARBONDALE	DYKERSBURG	SANDY DARK SHALE	6.3	105.7	
356.9	CARBONDALE	DYKERSBURG	SANDSTONE	28.0	112.0	GRAY
328.9	CARBONDALE	DYKERSBURG	GRAY SHALE	50.0	140.0	
278.9	CARBONDALE	SPRINGFIELD	MINE OPENING	2.0	190.0	OLD #5 WORKS
276.9	CARBONDALE		GRAY SHALE	24.0	192.0	

MAPID: 19900066401M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 110' N line, 260' E line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.70817 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.723766 **DATE COLLECTED:** 8 / 23 / 1967

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 4.0 **LOG TYPE:** Measured section

SOURCE: MINE NOTES-GLUSKOTER SAHARA MINE # 5 **WELL TYPE:** Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	CARBONDALE		SHALE	-		
-	CARBONDALE	SPRINGFIELD	COAL	4.0		
-	CARBONDALE		UNDERCLAY	-		

MAPID: 19900374000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NE NE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.716992 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.731081 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 411.0 **LOGGED (FT.):** 162.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 123 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
411.0	PLEISTOCENE		UNCONSOLIDATED	45.0	0.0	
366.0	CARBONDALE		GRAY SHALE	20.0	45.0	
346.0	CARBONDALE		SANDSTONE/SHALE	5.0	65.0	
341.0	CARBONDALE		SANDSTONE	46.0	70.0	
295.0	CARBONDALE		UNDERCLAY	1.5	116.0	
293.5	CARBONDALE		SANDSTONE	15.0	117.5	
278.5	CARBONDALE	DYKERSBURG	SANDSTONE/SHALE	23.5	132.5	
255.0	CARBONDALE	SPRINGFIELD	COAL	5.0	156.0	
250.0	CARBONDALE		UNDERCLAY	1.0	161.0	

MAPID: 19900374000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NE NE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.716992 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.731081 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 411.0 **LOGGED (FT.):** 162.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
411.0			UNCONSOLIDATED	45.0	0.0	
366.0			ROCK	86.0	45.0	
280.0			SANDSTONE	1.0	131.0	
279.0			SHALE	24.0	132.0	
255.0	CARBONDALE	SPRINGFIELD	COAL	5.0	156.0	
250.0	CARBONDALE		UNDERCLAY	0.0	161.0	

MAPID: 19900375000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SE SW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713615 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.717134 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 187.0 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	5.0	55.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.1	181.0	

MAPID: 19900375000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SE SW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713615 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.717134 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 187.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR C C **WELL TYPE:** Coal Test

COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	20.0	0.0	
430.0			ROCK	9.0	20.0	
421.0			SANDSTONE	1.0	29.0	
420.0			SHALE	18.0	30.0	
402.0			LIMESTONE	6.5	48.0	
395.5			BLACK SHALE	0.4	54.5	
395.1	CARBONDALE	HERRIN	COAL	5.0	54.9	
390.1	CARBONDALE		UNDERCLAY	96.1	59.9	
294.0	CARBONDALE		UNDERCLAY	16.0	156.0	
278.0	CARBONDALE		BLACK SHALE	9.0	172.0	
269.0	CARBONDALE	SPRINGFIELD	COAL	4.1	181.0	
265.0			UNDERCLAY	0.0	185.0	

MAPID: 19900375000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SE SW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713615 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.717134 **DATE COLLECTED:** 0 / 0 / 1906

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 187.0 **LOG TYPE:** Drillers Log

SOURCE: BIG FOUR R.R. 131 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	10.0	20.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	18.0	30.0	
-	CARBONDALE		LIMESTONE	6.5	48.0	
-	CARBONDALE	ANNA	BLACK SHALE	0.4	54.5	
-	CARBONDALE	HERRIN	COAL	5.0	54.9	
-	CARBONDALE		UNDERCLAY	8.1	59.9	
-	CARBONDALE		SANDY SHALE	22.0	68.0	
-	CARBONDALE		SANDSTONE	15.0	90.0	
-	CARBONDALE		BLACK SHALE	1.0	105.0	
-	CARBONDALE		SANDSTONE	66.0	106.0	
-	CARBONDALE	DYKERSBURG	BLACK SHALE	9.0	172.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.1	181.0	
-	CARBONDALE		UNDERCLAY	1.9	185.1	

MAPID: 19900410000M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719931 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.717632 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 4.0 **LOG TYPE:**

SOURCE: MINE NOTES **WELL TYPE:** Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	4.0		

MAPID: 19900735000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721027 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.727851 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 59.3 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY MINING 21R **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
425.0	CARBONDALE	LAWSON	SANDSTONE	9.0	20.0	
416.0	CARBONDALE	LAWSON	SILTY SHALE	13.0	29.0	
403.0	CARBONDALE		BLACK SHALE	2.0	42.0	
401.0	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	9.0	44.0	
392.0	CARBONDALE	ANNA	BLACK SHALE	1.0	53.0	
391.0	CARBONDALE	HERRIN	COAL	5.3	54.0	

MAPID: 19900735000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721027 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.727851 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
445.0			UNCONSOLIDATED	20.0	0.0	
425.0			ROCK	14.0	20.0	
411.0			SHALE	8.0	34.0	
403.0			BLACK SHALE	2.0	42.0	
401.0			LIMESTONE	9.0	44.0	
392.0			BLACK SHALE	1.0	53.0	
391.0	CARBONDALE	HERRIN	COAL	5.3	54.0	
385.7	CARBONDALE		UNDERCLAY	0.0	59.3	

MAPID: 19900735000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721027 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.727851 **DATE COLLECTED:** 0 / 0 / 1937

SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: PITTSBURG & MIDWAY 21R **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
445.0	PLEISTOCENE		SOIL	20.0	0.0	
425.0	CARBONDALE	ANVIL ROCK	SANDSTONE	9.0	20.0	
416.0	CARBONDALE	ANVIL ROCK	SHALE & SILTSTONE	13.0	29.0	GRAY
403.0	CARBONDALE		BLACK SHALE	2.0	42.0	
401.0	CARBONDALE	BRERETON	LIMESTONE	9.0	44.0	
392.0	CARBONDALE	ANNA	BLACK SHALE	1.0	53.0	
391.0	CARBONDALE	HERRIN	COAL	5.3	54.0	
385.7	CARBONDALE		UNDERCLAY	0.7	59.3	

MAPID: 199273B0015F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.710688 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.728725 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 21.9 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Roadcut

COMMENT: ROADCUT JUST EAST OF I C CUTOFF

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
420.0			UNCONSOLIDATED	-	0.0	
-			ROCK	7.8		
-			COAL	0.9		
-			ROCK	1.5		
-			UNKNOWN	1.5		
-			ROCK	10.3		

MAPID: 199273B0014F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719922 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.71949 **DATE COLLECTED:** 0 / 0 / 1925

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 8.0 **LOG TYPE:**

SOURCE: FLD NOTES-CADY "OLD STRIP MINE" **WELL TYPE:** Strip Mine

COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	8.0		
-			BLACK SHALE	-		
-			COAL	-		

MAPID: 19990033000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 660' S line, 330' W line of NW NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724462 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.729694 **DATE COLLECTED:** 2 / 18 / 1965

SURFACE ELEVATION (FT.): 443.3 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A584B **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.3	PLEISTOCENE		CLAY	10.0	0.0	
433.3	CARBONDALE		GRAY SHALE	3.0	10.0	
430.3	CARBONDALE		SANDY SHALE	10.5	13.0	
419.8	CARBONDALE	ANVIL ROCK	SANDSTONE	4.5	23.5	
415.3	CARBONDALE	ANVIL ROCK	SANDY SHALE	15.0	28.0	
400.3	CARBONDALE	ANVIL ROCK	SANDSTONE	1.0	43.0	
399.3	CARBONDALE		BLACK SHALE	2.0	44.0	
397.3	CARBONDALE	BRERETON	LIMESTONE	6.1	46.0	
391.2	CARBONDALE	ANNA	BLACK SHALE	1.9	52.1	
389.3	CARBONDALE	HERRIN	COAL	4.8	54.0	
384.5	CARBONDALE		UNDERCLAY	1.2	58.8	

MAPID: 19990034000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 90' N line, 250' W line of SW NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.710965 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.729408 **DATE COLLECTED:** 3 / 19 / 1957

SURFACE ELEVATION (FT.): 416.4 **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A561FG **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
416.4	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
406.4	CARBONDALE		GRAY SHALE	8.0	10.0	
398.4	CARBONDALE	BRERETON	LIMESTONE	6.2	18.0	
392.2	CARBONDALE	ANNA	BLACK SHALE	0.8	24.2	
391.4	CARBONDALE	HERRIN	COAL	5.3	25.0	
386.1	CARBONDALE		UNDERCLAY	1.7	30.3	

MAPID: 19990035000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 480' S line, 20' W line of SW NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.72095 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.729176 **DATE COLLECTED:** 3 / 8 / 1957

SURFACE ELEVATION (FT.): 435.8 **LOGGED (FT.):** 47.0 **LOG TYPE:** Drillers Log

SOURCE: AMAX COAL CO A561D **WELL TYPE:** Coal Test

COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.8	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
421.8	PLEISTOCENE		SAND & GRAVEL	8.0	14.0	
413.8	CARBONDALE		SANDY SHALE	12.5	22.0	
401.3	CARBONDALE	BRERETON	LIMESTONE	4.3	34.5	
397.0	CARBONDALE	BRERETON	CAVITY	0.5	38.8	WATER
396.5	CARBONDALE	BRERETON	LIMESTONE	1.5	39.3	
395.0	CARBONDALE	ANNA	BLACK SHALE	0.8	40.8	
394.3	CARBONDALE	HERRIN	COAL	5.0	41.5	
389.3	CARBONDALE		UNDERCLAY	0.5	46.5	

MAPID: 19990036000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 160' N line, 180' E line of SW NE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719347 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.729259 **DATE COLLECTED:** 3 / 19 / 1957
SURFACE ELEVATION (FT.): 436.1 **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO A561E **WELL TYPE:** Coal Test
COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
436.1	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
428.1	CARBONDALE		SANDY SHALE	10.0	8.0	
418.1	CARBONDALE		BLUE SHALE	14.0	18.0	
404.1	CARBONDALE		BLACK SHALE	2.0	32.0	
402.1	CARBONDALE	BRERETON	LIMESTONE	7.0	34.0	
395.1	CARBONDALE	ANNA	BLACK SHALE	1.0	41.0	
394.1	CARBONDALE	HERRIN	COAL	5.2	42.0	
388.9	CARBONDALE		UNDERCLAY	2.8	47.2	
386.1	CARBONDALE		SANDSTONE	7.0	50.0	GRAY

MAPID: 19990037000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 460' S line, 220' E line of SE NW NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721785 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.729127 **DATE COLLECTED:** 3 / 18 / 1957
SURFACE ELEVATION (FT.): 433.9 **LOGGED (FT.):** 57.0 **LOG TYPE:** Drillers Log
SOURCE: AMAX COAL CO A560G **WELL TYPE:** Coal Test
COMMENT: PERMIT 263; DELTA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
433.9	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
425.9	PLEISTOCENE		SAND	9.0	8.0	
416.9	CARBONDALE		BLUE SHALE	19.0	17.0	
397.9	CARBONDALE		BLACK SHALE	1.0	36.0	
396.9	CARBONDALE	BRERETON	LIMESTONE	6.0	37.0	
390.9	CARBONDALE	ANNA	BLACK SHALE	1.0	43.0	
389.9	CARBONDALE	HERRIN	COAL	5.3	44.0	
384.6	CARBONDALE		UNDERCLAY	2.8	49.3	
381.9	CARBONDALE		SANDSTONE	5.0	52.0	GRAY

MAPID: 19900376000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 400' N line, 600' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723602 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.71562 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 44.7 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	29.0	0.0	
-	CARBONDALE	ANVIL ROCK	GRAY SANDSTONE	2.0	29.0	
-	CARBONDALE		BLACK SHALE	0.5	31.0	
-	CARBONDALE	BRERETON	LIMESTONE	6.5	31.5	
-	CARBONDALE	ANNA	BLACK SHALE	1.8	38.0	
-	CARBONDALE	HERRIN	COAL	4.8	39.8	

MAPID: 19900376000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 400' N line, 600' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723602 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.71562 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 44.7 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
460.0			UNCONSOLIDATED	29.0	0.0	
431.0			SANDSTONE	2.0	29.0	
429.0			BLACK SHALE	0.5	31.0	
428.5			LIMESTONE	6.5	31.5	
422.0			BLACK SHALE	1.8	38.0	
420.2	CARBONDALE	HERRIN	COAL	4.8	39.8	

MAPID: 19900377000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 700' N line, 600' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723604 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.714792 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 51.4 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. B **WELL TYPE:** Coal Test

COMMENT: HL 300' S OF B NO C 40'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	19.0	0.0	
-	CARBONDALE	ANVIL ROCK	SANDSTONE	14.0	19.0	
-	CARBONDALE		BLACK SHALE	6.0	33.0	
-	CARBONDALE	JAMESTOWN	COAL	0.2	39.0	
-	CARBONDALE		BLACK SHALE	0.8	39.2	
-	CARBONDALE	BRERETON	LIMESTONE	5.5	40.0	
-	CARBONDALE	ANNA	BLACK SHALE	0.9	45.5	
-	CARBONDALE	HERRIN	COAL	5.0	46.4	

MAPID: 19900377000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 700' N line, 600' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723604 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.714792 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 51.4 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	19.0	0.0	
431.0			SANDSTONE	14.0	19.0	
417.0			BLACK SHALE	6.0	33.0	
411.0			COAL	0.2	39.0	
410.8			BLACK SHALE	0.8	39.2	
410.0			LIMESTONE	5.0	40.0	
405.0			BLACK SHALE	1.5	45.0	
403.5	CARBONDALE	HERRIN	COAL	5.0	46.5	

MAPID: 19900378000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.709606 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.714795 **DATE COLLECTED:** 4 / 19 / 1905

SURFACE ELEVATION (FT.): 378.0 **LOGGED (FT.):** 62.8 **LOG TYPE:** Drillers Log

SOURCE: PEABODY COAL 2 **WELL TYPE:** Coal Test

COMMENT: SIT. ABOUT CENTER OF W. SIDE OF LAND

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
378.0	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
358.0	CARBONDALE		LIGHT SHALE	6.3	20.0	
351.7	CARBONDALE	JAMESTOWN	COAL	0.3	26.3	
351.4	CARBONDALE		SANDY SHALE	0.4	26.6	
351.0	CARBONDALE	BRERETON	GRAY LIMESTONE	1.1	27.0	
349.9	CARBONDALE	ENERGY	LIGHT SHALE	6.8	28.1	
343.2	CARBONDALE	ENERGY	BLUE SHALE	2.3	34.8	
340.9	CARBONDALE	ENERGY	BLACK SHALE	2.0	37.1	
338.9	CARBONDALE	ENERGY	LIGHT SHALE	1.9	39.1	
337.0	CARBONDALE	ENERGY	BLUE SHALE	7.0	41.0	
330.0	CARBONDALE	ENERGY	LIGHT SHALE	6.3	48.0	
323.7	CARBONDALE	HERRIN	COAL	8.0	54.3	
315.7	CARBONDALE		UNDERCLAY	0.5	62.3	

MAPID: 19900378000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.709606 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.714795 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 262.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
468.0			UNCONSOLIDATED	30.0	0.0	
438.0			COAL	1.3	30.0	
436.7			ROCK	38.7	31.3	
398.0			COAL	0.9	70.0	
396.7			ROCK	53.8	71.3	
343.0			SHALE	26.5	125.0	
316.5	CARBONDALE	SPRINGFIELD	COAL	3.4	151.5	
313.1			UNDERCLAY	1.1	154.9	
312.0			ROCK	81.0	156.0	
231.0			COAL	2.5	237.0	
228.5			ROCK	0.0	239.5	

MAPID: 19900379000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 850' S line, 740' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713981 **GEOLOGIST:** HOPKINS

CONFIDENTIAL: N **LATITUDE:** 37.704247 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 166.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
515.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	22.0	9.0	
484.0	CARBONDALE	HERRIN	COAL	5.2	40.0	
473.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	18.0	51.0	
432.0	CARBONDALE	BRIAR HILL	COAL	1.3	92.0	
364.0	CARBONDALE	SPRINGFIELD	COAL	4.1	160.0	

MAPID: 19900379000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 850' S line, 740' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713981 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.704247 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 166.0 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
524.0			UNCONSOLIDATED	9.0	0.0	
515.0			ROCK	23.7	9.0	
491.3			COAL	0.1	32.7	
491.2			BLACK SHALE	1.6	32.8	
489.7			LIMESTONE	6.1	34.3	
483.6	CARBONDALE	HERRIN	COAL	5.2	40.4	
478.4	CARBONDALE	HERRIN	UNDERCLAY	0.7	45.6	
477.7	CARBONDALE		ROCK	45.3	46.3	
432.5	CARBONDALE		COAL	1.3	91.5	
431.2	CARBONDALE		ROCK	52.3	92.8	
379.0	CARBONDALE		SHALE	15.5	145.0	
363.5	CARBONDALE	SPRINGFIELD	COAL	4.1	160.5	

MAPID: 19900379000C **VERSION:** 3 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 850' S line, 740' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.713981 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.704247 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 45.2 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 155 **WELL TYPE:** Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
516.4	CARBONDALE	LAWSON	SANDSTONE	22.0	7.6	
494.4	CARBONDALE	LAWSON	SILTY SHALE	1.7	29.6	
492.7	CARBONDALE	JAMESTOWN	COAL	1.1	31.3	
491.7	CARBONDALE		DARK GRAY SHALE	1.6	32.3	
490.1	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	6.1	33.9	
484.0	CARBONDALE	HERRIN	COAL	5.2	40.0	

MAPID: 19900410100M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SE SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.721725 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.703367 **DATE COLLECTED:** 0 / 0 / 1956

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 15.0 **LOG TYPE:**

SOURCE: MINE NOTES-WYVAN C C **WELL TYPE:** Strip Mine

COMMENT: EAST HALF OF SW SW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	15.0	0.0	
485.0	CARBONDALE	HERRIN	COAL	5.3	15.0	

MAPID: 19901094000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NW SW NW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.715925 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.714375 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: O'GARA COAL CO. S-16 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
-	CARBONDALE		SANDSTONE	19.0	15.0	
-	CARBONDALE		SANDY SHALE	11.0	34.0	
-	CARBONDALE		BLACK SHALE	0.3	45.0	
-	CARBONDALE	JAMESTOWN	COAL	0.2	45.3	
-	CARBONDALE		BLACK SHALE	0.5	45.5	
-	CARBONDALE	BRERETON	LIMESTONE	0.5	46.0	
-	CARBONDALE	BRERETON	LIMESTONE	5.6	46.5	
-	CARBONDALE		PYRITE	0.3	52.1	
-	CARBONDALE	HERRIN	COAL	4.8	52.3	
-	CARBONDALE		CLAYSTONE	2.9	57.1	

MAPID: 19901094000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NW SW NW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.715925 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.714375 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: O'GARA C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	15.0	0.0	
435.0			ROCK	10.0	15.0	
425.0			SANDSTONE	9.0	25.0	
416.0			SHALE	11.3	34.0	
404.7			COAL	0.2	45.3	
404.5			SHALE	1.0	45.5	
403.5			LIMESTONE	5.6	46.5	
397.9			PYRITE	0.3	52.1	
397.7	CARBONDALE	HERRIN	COAL	4.8	52.3	
392.9	CARBONDALE		UNDERCLAY	0.0	57.1	

MAPID: 19901202000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 990' S line, 660' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.714259 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.704635 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 53.0 **LOG TYPE:** Drillers Log

SOURCE: O'GARA C C **WELL TYPE:** Coal Test

COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	12.0	0.0	
488.0			SANDSTONE	16.0	12.0	
472.0			SHALE	12.0	28.0	
460.0			LIMESTONE	6.0	40.0	
454.0			COAL	5.0	46.0	
449.0			CLAYSTONE	0.0	51.0	

MAPID: 19901203000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SE NW SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71252 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.706964 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 49.0 **LOG TYPE:** Drillers Log

SOURCE: O'GARA C C **WELL TYPE:** Coal Test

COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	16.0	0.0	
484.0			SANDSTONE	18.0	16.0	
466.0			BLACK SHALE	1.5	34.0	
464.5			LIMESTONE	6.5	35.5	
458.0			SHALE	0.2	42.0	
457.8	CARBONDALE	HERRIN	COAL	5.0	42.2	
452.8	CARBONDALE		CLAYSTONE	0.0	47.2	

MAPID: 19902560000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 990' N line, 500' E line of NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71824 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.71396 **DATE COLLECTED:** 1 / 0 / 1973
SURFACE ELEVATION (FT.): 467.0 **LOGGED (FT.):** 2771.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD., AYRSHIRE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
249.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	218.0	
-	CARBONDALE	SURVANT	COAL	3.0		
127.0	CARBONDALE	COLCHESTER	COAL	0.5	340.0	
83.0	CARBONDALE	DEKOVEN	COAL	3.0	384.0	
79.0	CARBONDALE	LOWER DEKOVEN	COAL	1.2	388.0	
71.0	CARBONDALE	DAVIS	COAL	3.0	396.0	
28.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	439.0	

MAPID: 19902560000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 990' N line, 500' E line of NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71824 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.71396 **DATE COLLECTED:** 1 / 0 / 1973
SURFACE ELEVATION (FT.): 467.0 **LOGGED (FT.):** 1395.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
135.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	332.0	
71.0	SPOON	DAVIS	UNCLASSIFIED	-	396.0	
-928.0	BASE OF PENN.		UNCLASSIFIED	-	1395.0	

MAPID: 19900380000C **VERSION:** 1 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:**
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734882 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.709399 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 166.0 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0	CARBONDALE	BRIAR HILL	COAL	1.8	40.0	
381.0	CARBONDALE	SPRINGFIELD	COAL	3.7	99.0	
291.0	CARBONDALE	HOUCHIN CREEK	COAL	2.2	189.0	

MAPID: 19900380000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:**
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734882 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.709399 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 165.8 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	17.0	0.0	
463.0			ROCK	7.0	17.0	
456.0			SHALE	9.0	24.0	
447.0			BLACK SHALE	2.3	33.0	
444.7			LIMESTONE	7.4	35.3	
437.3			BLACK SHALE	1.2	42.7	
436.2	CARBONDALE	HERRIN	COAL	5.1	43.8	
431.1	CARBONDALE		UNDERCLAY	2.0	48.9	
429.1			ROCK	45.0	50.9	
384.1	CARBONDALE	BRIAR HILL	COAL	1.6	95.9	
382.5	CARBONDALE		ROCK	36.5	97.5	
346.0	CARBONDALE		BLACK SHALE	25.8	134.0	
320.2	CARBONDALE	SPRINGFIELD	COAL	4.0	159.8	
316.1	CARBONDALE		UNDERCLAY	0.0	163.9	

MAPID: 19900381000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.741771 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.707568 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 102.7 **LOG TYPE:** Drillers Log
SOURCE: SALINE COUNTY COAL CO. 116 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
447.3	MODESTO		SILTY SHALE	7.2	32.7	
440.1	CARBONDALE	BRIAR HILL	COAL	1.8	39.9	ORIGINALLY CORRELATED AS DANVILLE
438.3	CARBONDALE		SILTY SHALE	7.7	41.7	
430.6	CARBONDALE		LIMESTONE	1.5	49.4	
429.1	CARBONDALE		BLACK SHALE	1.2	50.9	
427.9	CARBONDALE		DARK GRAY SHALE	10.0	52.1	
417.9	CARBONDALE		SILTY SHALE	31.9	62.1	
386.0	CARBONDALE		BLACK SHALE	5.0	94.0	
381.0	CARBONDALE	SPRINGFIELD	COAL	3.7	99.0	ORIGINALLY CORRELATED AS HERRIN

MAPID: 19900381000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.741771 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.707568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 250.4 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			UNCONSOLIDATED	36.2	0.0	
-			ROCK	4.2	36.2	
-	CARBONDALE	BRIAR HILL	COAL	1.8	40.3	
-	CARBONDALE		ROCK	31.8	42.2	
-	CARBONDALE		SHALE	20.4	74.0	
-	CARBONDALE		BLACK SHALE	5.0	94.4	
-	CARBONDALE	SPRINGFIELD	COAL	3.7	99.4	
-	CARBONDALE		UNDERCLAY	6.8	103.1	
-	CARBONDALE		ROCK	79.4	109.8	
-	CARBONDALE		COAL	2.2	189.3	
-	CARBONDALE		ROCK	46.2	191.4	
-			COAL	1.3	237.6	
-			ROCK	0.0	238.9	

MAPID: 19900381000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.741771 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.707568 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 250.4 **LOG TYPE:** Drillers Log

SOURCE: SALINE COUNTY COAL CO. 116 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0	PLEISTOCENE		UNCONSOLIDATED	33.2	0.0	
446.8	CARBONDALE		CLAYSTONE & SHALE	3.0	33.2	
443.8	CARBONDALE		SANDY SHALE	4.2	36.2	
439.7	CARBONDALE	BRIAR HILL	COAL	1.8	40.3	
437.8	CARBONDALE		UNDERCLAY	2.0	42.2	
435.8	CARBONDALE		SANDY SHALE	5.7	44.2	
430.2	CARBONDALE		LIMESTONE	1.5	49.8	
428.7	CARBONDALE		BLACK SHALE	1.2	51.3	
427.5	CARBONDALE		DARK SHALE	10.0	52.5	
417.5	CARBONDALE		SANDY SHALE	31.9	62.5	
385.6	CARBONDALE		BLACK SHALE	5.0	94.4	
380.6	CARBONDALE	SPRINGFIELD	COAL	3.7	99.4	
376.9	CARBONDALE		UNDERCLAY	6.8	103.1	
370.2	CARBONDALE		SANDY SHALE	12.0	109.8	
358.2	CARBONDALE		SANDSTONE	6.0	121.8	
352.2	CARBONDALE		SANDY SHALE	38.0	127.8	
314.2	CARBONDALE		DARK SHALE	13.4	165.8	
300.7	CARBONDALE		BLACK SHALE	5.0	179.3	
295.7	CARBONDALE		LIMESTONE	5.0	184.3	
290.7	CARBONDALE	HOUCHIN CREEK	COAL	2.2	189.3	
288.6	CARBONDALE		UNDERCLAY	3.7	191.4	
284.9	CARBONDALE		SANDSTONE/SHALE	40.0	195.1	
244.9	CARBONDALE		BLACK SHALE	2.5	235.1	
242.4	CARBONDALE	SURVANT	COAL	1.3	237.6	
241.1	CARBONDALE		UNDERCLAY	3.7	238.9	
237.4	CARBONDALE		SHALE	7.8	242.6	
229.6	CARBONDALE		UNKNOWN	0.0	250.4	

MAPID: 19900410200M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.736007 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.712162 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: MINE NOTES **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	-		

MAPID: 19900410300M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** SW NW NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733704 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.713996 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 7.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-BLACK DIAMOND C C **WELL TYPE:** Underground mine
COMMENT: DATA FROM B.M. COAL REPORT 1937

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	HERRIN	COAL	7.0		

MAPID: 19900420700M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** SW NE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.738284 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.714007 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 20.0 **LOG TYPE:**
SOURCE: MINE NOTES **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
490.0			UNCONSOLIDATED	20.0	0.0	
470.0	CARBONDALE	HERRIN	COAL	-	20.0	

MAPID: 19901933000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.738296 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.712174 **DATE COLLECTED:** 7 / 0 / 1956
SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 2846.0 **LOG TYPE:** Electric Log
SOURCE: BARTMES, ROSS, TURNER 1 **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
263.0	CARBONDALE	HOUCHIN CREEK	COAL	3.0	250.0	
-	CARBONDALE	SURVANT	COAL	0.8		
133.0	CARBONDALE	COLCHESTER	COAL	2.0	380.0	
88.0	CARBONDALE	DEKOVEN	COAL	3.0	425.0	
83.0	CARBONDALE	LOWER DEKOVEN	COAL	2.0	430.0	
78.0	CARBONDALE	DAVIS	COAL	5.0	435.0	
53.0	TRADEWATER	SEAHORNE LS	LIMESTONE	0.5	460.0	

MAPID: 19901933000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.738296 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.712174 **DATE COLLECTED:** 7 / 0 / 1956
SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 1420.0 **LOG TYPE:** Electric Log
SOURCE: BARTMES, ROSS **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
135.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	378.0	
78.0	SPOON	DAVIS	UNCLASSIFIED	-	435.0	
-907.0	BASE OF PENN.		UNCLASSIFIED	-	1420.0	

MAPID: 199273B0016F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.736007 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.712162 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 7.7 **LOG TYPE:**
SOURCE: FLD NOTES-CADY OLD STRIP PIT **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	-	0.0	
-			LIMESTONE	6.2		
-			SHALE	0.5		
-			COAL	1.1		

MAPID: 19900094700M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** NE NE NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.744637 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.708956 **DATE COLLECTED:** 0 / 0 / 1977
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 74.3 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-JOHN NELSON, HARRISBURG C C **WELL TYPE:** Underground mine
COMMENT: SEVERAL FAULT ZONES NOTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNCONSOLIDATED	70.0	0.0	
-			SHALE	-		
400.0	CARBONDALE	SPRINGFIELD	COAL	4.3	70.0	

MAPID: 19900382000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 540' N line, 180' E line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758661 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.715411 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 495.6 **LOGGED (FT.):** 35.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 113 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.6	PLEISTOCENE		CLAY	30.0	0.0	
465.6			SANDSTONE/SHALE	5.0	30.0	UNDER NO.6 COAL; LIGHT

MAPID: 19900383000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 210' N line, 285' E line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.75902 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.716325 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 495.8 **LOGGED (FT.):** 30.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 127 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
495.8	PLEISTOCENE		CLAY	23.5	0.0	
472.3	CARBONDALE	HERRIN	COAL	4.7	23.5	TOP MAY BE ERODED
467.6	CARBONDALE		UNDERCLAY	1.8	28.2	

MAPID: 19900384000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 400' N line, 180' E line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763338 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.715831 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 44.4 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 109 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0	PLEISTOCENE		CLAY	22.0	0.0	
478.0	CARBONDALE		SHALE	2.0	22.0	
476.0	CARBONDALE	BRERETON	LIMESTONE	7.0	24.0	
469.0	CARBONDALE	ANNA	BLACK SHALE	7.0	31.0	
462.0	CARBONDALE	HERRIN	COAL	5.0	38.0	
457.0	CARBONDALE		UNDERCLAY	1.4	43.0	

MAPID: 19900385000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778898 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.711433 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 544.0 **LOGGED (FT.):** 55.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 105 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
544.0	PLEISTOCENE		CLAY	8.0	0.0	
536.0	CARBONDALE		LIMESTONE	5.0	8.0	
531.0	CARBONDALE		BLACK SHALE	1.0	13.0	
530.0	CARBONDALE		BLUE SHALE	25.0	14.0	
505.0	CARBONDALE	BRERETON	LIMESTONE	7.0	39.0	
498.0	CARBONDALE	ANNA	BLACK SHALE	2.0	46.0	
496.0	CARBONDALE	HERRIN	COAL	5.2	48.0	
490.8	CARBONDALE		UNDERCLAY	1.8	53.2	

MAPID: 19900386000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 400' N line, 50' W line of NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771826 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.70844 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log

SOURCE: PYRAMID COAL CO. 130 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
527.0	PLEISTOCENE		CLAY	12.0	0.0	
515.0	CARBONDALE		SHALE	1.0	12.0	
514.0	CARBONDALE	BRERETON	LIMESTONE	8.0	13.0	
506.0	CARBONDALE	ANNA	BLACK SHALE	0.3	21.0	
505.7	CARBONDALE	HERRIN	COAL	5.2	21.3	
500.5	CARBONDALE		UNDERCLAY	1.5	26.5	

MAPID: 19900387000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE/c

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771992 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.709545 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 201.7 **LOG TYPE:** Drillers Log

SOURCE: PARKS SCHOOLHOUSE **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
508.0	PLEISTOCENE		UNCONSOLIDATED	21.0	0.0	
487.0	CARBONDALE		SANDSTONE	24.0	21.0	
463.0	CARBONDALE		SHALE & SILTSTONE	23.0	45.0	BLUE
440.0	CARBONDALE	ALLENBY	COAL	2.0	68.0	
438.0	CARBONDALE		LIGHT SHALE	12.0	70.0	
426.0	CARBONDALE		SANDSTONE	10.0	82.0	
416.0	CARBONDALE	BRERETON	LIMESTONE	2.0	92.0	
414.0	CARBONDALE	ANNA	BLACK SHALE	3.0	94.0	
411.0	CARBONDALE	ENERGY	SANDSTONE	2.0	97.0	
409.0	CARBONDALE	ENERGY	BLACK SHALE	6.0	99.0	
403.0	CARBONDALE	ENERGY	BLACK SHALE	4.0	105.0	
399.0	CARBONDALE	HERRIN	COAL	5.0	109.0	
394.0	CARBONDALE		UNDERCLAY	1.0	114.0	
393.0	CARBONDALE		LIGHT SHALE	3.0	115.0	
390.0	CARBONDALE		BLACK SHALE	10.0	118.0	
380.0	CARBONDALE		SANDSTONE	2.0	128.0	
378.0	CARBONDALE		LIGHT SHALE	4.0	130.0	
374.0	CARBONDALE	BRIAR HILL	COAL	2.0	134.0	
372.0	CARBONDALE		LIGHT SHALE	18.0	136.0	
354.0	CARBONDALE		SANDSTONE	6.0	154.0	
348.0	CARBONDALE		LIGHT SHALE	20.0	160.0	
328.0	CARBONDALE		BLUE SHALE	12.0	180.0	
316.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	192.0	
314.0	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	194.0	
313.0	CARBONDALE	SPRINGFIELD	COAL	4.0	195.0	
309.0	CARBONDALE		LIGHT SHALE	2.7	199.0	

MAPID: 19900387000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** SE/c
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771992 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.709545 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 202.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0	CARBONDALE	BRIAR HILL	COAL	2.0	68.0	
399.0	CARBONDALE	SPRINGFIELD	COAL	5.0	109.0	
374.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	134.0	

MAPID: 19900710000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 1320' N line, 0' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771968 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.713291 **DATE COLLECTED:** 0 / 0 / 1937
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 54.0 **LOG TYPE:** Drillers Log
SOURCE: PITTSBURG & MIDWAY 31R **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
550.0	PLEISTOCENE		SOIL	18.0	0.0	
532.0	CARBONDALE		BLACK SHALE	9.0	18.0	
523.0	CARBONDALE		SHALE & SILTSTONE	12.0	27.0	BLUE
511.0	CARBONDALE	BRERETON	LIMESTONE	6.0	39.0	
505.0	CARBONDALE	ANNA	BLACK SHALE	3.0	45.0	
502.0	CARBONDALE	HERRIN	COAL	5.5	48.0	
496.5	CARBONDALE		UNDERCLAY	0.5	53.5	

MAPID: 19901431000C **VERSION:** 1 **PROJECT:** ROOF STUDY

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 100' S line, 20' E line of NE NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.772035 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.713515 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 519.0 **LOGGED (FT.):** 41.0 **LOG TYPE:** Drillers Log
SOURCE: DELTA COLLIERIES 4 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
496.5	CARBONDALE	LAWSON	GRAY SHALE	4.0	22.5	
492.5	CARBONDALE	BRERETON	LIMESTONE	8.0	26.5	
484.5	CARBONDALE	ANNA	BLACK SHALE	1.5	34.5	
483.0	CARBONDALE	HERRIN	COAL	5.0	36.0	

MAPID: 19900389000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783452 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.715117 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 522.5 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 137 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
522.5	PLEISTOCENE		CLAY	42.0	0.0	
480.5			SANDSTONE/SHALE	6.0	42.0	BLUE

MAPID: 19900390000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 25' N line, 25' E line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785798 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.716884 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 50.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 136 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
524.0	PLEISTOCENE		CLAY	45.0	0.0	
479.0			SANDSTONE/SHALE	5.0	45.0	BLUE

MAPID: 19900391000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.787977 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.715139 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 521.3 **LOGGED (FT.):** 41.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 135 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
521.3	PLEISTOCENE		CLAY	41.0	0.0	NO COAL

MAPID: 19900392000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 20' S line, 720' E line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.78822 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.713371 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 41.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 134 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
523.0	PLEISTOCENE		CLAY	41.0	0.0	NO COAL

MAPID: 19900393000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE/c SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.797023 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.711551 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 529.0 **LOGGED (FT.):** 256.5 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
529.0	PLEISTOCENE		UNCONSOLIDATED	50.0	0.0	
479.0	CARBONDALE		SANDSTONE/SHALE	28.0	50.0	
451.0	CARBONDALE	BRIAR HILL	COAL	1.0	78.0	
450.0	CARBONDALE		UNDERCLAY	1.0	79.0	
449.0	CARBONDALE		SANDSTONE/SHALE	10.0	80.0	
439.0	CARBONDALE		LIGHT SHALE	14.0	90.0	
425.0	CARBONDALE	ST. DAVID	LIMESTONE	2.0	104.0	
423.0	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	106.0	
418.0	CARBONDALE	DYKERSBURG	LIGHT SHALE	9.5	111.0	
408.5	CARBONDALE	SPRINGFIELD	COAL	2.5	120.5	
406.0	CARBONDALE	SPRINGFIELD	BONE COAL	0.1	123.0	
405.9	CARBONDALE	SPRINGFIELD	COAL	1.5	123.1	
404.4	CARBONDALE		UNDERCLAY	11.4	124.6	
393.0	CARBONDALE		SHALE & SILTSTONE	55.0	136.0	
338.0	CARBONDALE	EXCELLO	BLACK SHALE	4.0	191.0	
334.0	CARBONDALE	HOUCHIN CREEK	COAL	2.2	195.0	
331.8	CARBONDALE		UNDERCLAY	3.0	197.2	
328.8	CARBONDALE		SANDSTONE/SHALE	31.8	200.2	
297.0	CARBONDALE		SHALE & SILTSTONE	18.0	232.0	
279.0	CARBONDALE	SURVANT	COAL	2.3	250.0	
276.7	CARBONDALE		SANDSTONE/SHALE	4.3	252.3	

MAPID: 19900393000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NE/c SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.797023 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.711551 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 529.0 **LOGGED (FT.):** 257.0 **LOG TYPE:** Drillers Log
SOURCE: NO COMPANY **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
451.0	CARBONDALE	BRIAR HILL	COAL	1.0	78.0	
409.0	CARBONDALE	SPRINGFIELD	COAL	4.1	120.0	
334.0	CARBONDALE	HOUCHIN CREEK	COAL	2.2	195.0	

MAPID: 19900394000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 70' S line, 30' E line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.785829 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.709848 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 28.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 104 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
521.0	PLEISTOCENE		CLAY	17.5	0.0	
503.5	CARBONDALE	BRERETON	LIMESTONE & CONGLOMERATE	1.5	17.5	
502.0	CARBONDALE	ANNA	BLACK SHALE	1.3	19.0	
500.7	CARBONDALE	HERRIN	COAL	5.4	20.3	
495.2	CARBONDALE		UNDERCLAY	2.3	25.8	

MAPID: 19900395000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 970' N line, 30' E line of NE SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.78132 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.706943 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 525.5 **LOGGED (FT.):** 19.0 **LOG TYPE:** Drillers Log
SOURCE: PYRAMID COAL CO. 131 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
525.5	PLEISTOCENE		CLAY	12.0	0.0	
513.5	CARBONDALE	HERRIN	COAL	5.8	12.0	TOP MAY BE ERODED
507.7	CARBONDALE		UNDERCLAY	1.2	17.8	

MAPID: 19923633000C **VERSION:** 1 **PROJECT:** LUMP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 15' S line, 30' W line of NW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.818039 **GEOLOGIST:** J.MCBETH

CONFIDENTIAL: N **LATITUDE:** 37.713426 **DATE COLLECTED:** 7 / 22 / 1987

SURFACE ELEVATION (FT.): 596.9 **LOGGED (FT.):** 126.7 **LOG TYPE:** Drillers Log

SOURCE: LORENZO MINING L-5 **WELL TYPE:** Coal Test

COMMENT: PERMIT 203 CORED FROM 87'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
596.9	PLEISTOCENE		UNKNOWN	29.0	0.0	
567.9	PLEISTOCENE		UNCONSOLIDATED	27.0	29.0	
540.9	CARBONDALE		GRAY SHALE	11.0	56.0	
529.9	CARBONDALE		SILTY SHALE	5.0	67.0	GRAY
524.9	CARBONDALE	BRIAR HILL	COAL	0.9	72.0	
524.0	CARBONDALE		SILTY SHALE	17.5	72.9	GRAY
506.5	CARBONDALE		SHALE	9.5	90.4	DARK WITH SIDERITE
497.0	CARBONDALE		SHALE	1.5	99.9	FOSSILS
495.5	CARBONDALE		LIMESTONE	0.9	101.4	FOSSILS
494.6	CARBONDALE		BLACK SHALE	2.6	102.3	
492.0	CARBONDALE		LIMESTONE	0.8	104.9	
491.2	CARBONDALE		CALCAREOUS BLACK SHALE	1.8	105.7	
489.4	CARBONDALE	DYKERSBURG	GRAY SHALE	5.0	107.5	
484.4	CARBONDALE	SPRINGFIELD	COAL	4.1	112.5	
480.3	CARBONDALE		CORE LOSS	6.0	116.6	CORE LOSS
474.4	CARBONDALE		SHALEY CLAYSTONE	0.9	122.5	
473.5	CARBONDALE		SILTSTONE	3.3	123.4	

MAPID: 19900753000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 9' N line, 24' W line of NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771959 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.70213 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 522.7 **LOGGED (FT.):** 76.5 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL 37E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
522.7	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
514.7	CARBONDALE		SANDY SHALE	3.0	8.0	
511.7	CARBONDALE		SANDSTONE	14.0	11.0	
497.7	CARBONDALE		SANDY SHALE	5.0	25.0	
492.7	CARBONDALE		GRAY SHALE	22.8	30.0	
469.9	CARBONDALE	BRIAR HILL	COAL	1.7	52.8	
468.3	CARBONDALE		GRAY SHALE	22.1	54.4	

MAPID: 19900755000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 606' N line, 711' E line of NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769933 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.70045 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 485.7 **LOGGED (FT.):** 54.6 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL 41E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.7	CARBONDALE		SHALE	10.0	0.0	
475.7	CARBONDALE	BRIAR HILL	COAL	1.2	10.0	
474.5	CARBONDALE		GRAY SHALE	22.8	11.2	
451.7	CARBONDALE		ROCK	1.7	34.0	
450.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	35.7	
445.7	CARBONDALE	DYKERSBURG	GRAY SHALE	10.8	40.0	
434.9	CARBONDALE	SPRINGFIELD	COAL	3.8	50.8	

MAPID: 19900757000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 11' N line, 29' E line of NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767547 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.702052 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 485.8 **LOGGED (FT.):** 68.1 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL 38E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
485.8	CARBONDALE		SANDY SHALE	8.0	0.0	
477.8	CARBONDALE		GRAY SHALE	14.8	8.0	
463.0	CARBONDALE	BRIAR HILL	COAL	1.4	22.8	
461.6	CARBONDALE		SHALE	21.8	24.2	
439.8	CARBONDALE		ROCK	1.5	46.0	
438.3	CARBONDALE		GRAY SHALE	0.8	47.5	
437.5	CARBONDALE	TURNER MINE	BLACK SHALE	2.8	48.3	
434.6	CARBONDALE	DYKERSBURG	GRAY SHALE	12.7	51.2	
422.0	CARBONDALE	SPRINGFIELD	COAL	4.3	63.8	

MAPID: 19900758000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 631' N line, 18' E line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767526 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.70034 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 39.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 39E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
464.0	PLEISTOCENE		UNCONSOLIDATED	4.5	0.0	
459.5	CARBONDALE		SANDY SHALE	3.0	4.5	
456.5	CARBONDALE		GRAY SHALE	10.1	7.5	
446.4	CARBONDALE		ROCK	1.1	17.6	
445.3	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	18.7	
441.3	CARBONDALE	DYKERSBURG	GRAY SHALE	13.0	22.7	
428.3	CARBONDALE	SPRINGFIELD	COAL	4.2	35.7	

MAPID: 19900763000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 433' S line, 18' E line of NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762941 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.699549 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 469.9 **LOGGED (FT.):** 48.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 44E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
469.9	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
464.9	CARBONDALE		SANDY SHALE	5.0	5.0	
459.9	CARBONDALE		GRAY SHALE	15.3	10.0	
444.6	CARBONDALE		ROCK	1.8	25.3	
442.8	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	27.1	
437.8	CARBONDALE	DYKERSBURG	GRAY SHALE	12.3	32.1	
425.5	CARBONDALE	SPRINGFIELD	COAL	4.1	44.4	

MAPID: 19901144000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 18' N line, 15' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767428 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698369 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 475.2 **LOGGED (FT.):** 36.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 640 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
475.2	CARBONDALE	DYKERSBURG	SANDY SHALE	8.0	0.0	
467.2	CARBONDALE		GRAY SHALE	7.0	8.0	
460.2	CARBONDALE		ROCK	1.5	15.0	
458.7	CARBONDALE		BLACK SHALE	1.8	16.5	
456.9	CARBONDALE		ROCK	2.6	18.3	
454.4	CARBONDALE		GRAY SHALE	11.6	20.8	
442.8	CARBONDALE	SPRINGFIELD	COAL	4.3	32.4	GOOD

MAPID: 19901145000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 389' N line, 0' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767491 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697348 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 452.3 **LOGGED (FT.):** 11.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 590 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
452.3			SHALE	7.8	0.0	
444.5	CARBONDALE	SPRINGFIELD	COAL	3.9	7.8	GOOD

MAPID: 19901146000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 649' N line, 270' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76656 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696616 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 448.2 **LOGGED (FT.):** 10.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 540C&1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
448.2	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	TRS C & F.C.

MAPID: 19901147000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 6' N line, 680' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765253 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698371 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 477.4 **LOGGED (FT.):** 46.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 1E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
477.4	PLEISTOCENE		UNCONSOLIDATED	5.2	0.0	
472.2	CARBONDALE		SANDY SHALE	9.9	5.2	
462.3	CARBONDALE		SHALE	11.2	15.1	
451.1	CARBONDALE	ST. DAVID	ROCK	1.0	26.3	
450.1	CARBONDALE	TURNER MINE	BLACK SHALE	4.7	27.3	
445.5	CARBONDALE	DYKERSBURG	SHALE & SILTSTONE	10.9	31.9	GRAY
434.6	CARBONDALE	SPRINGFIELD	COAL	3.9	42.8	GOOD

MAPID: 19901147000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 6' N line, 680' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765253 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.698371 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 47.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
434.0	CARBONDALE	SPRINGFIELD	COAL	3.9	43.0	

MAPID: 19901148000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764028 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.699283 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 447.3 **LOGGED (FT.):** 22.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 2E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
447.3	PLEISTOCENE		UNCONSOLIDATED	1.5	0.0	
445.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	1.5	
443.5	CARBONDALE	DYKERSBURG	GRAY SHALE	14.1	3.8	
429.4	CARBONDALE	SPRINGFIELD	COAL	4.1	17.9	GOOD

MAPID: 19901149000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 630' N line, 5' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762929 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696614 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 15.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 3E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
441.0	CARBONDALE	DYKERSBURG	SHALE	3.1	9.0	
437.9	CARBONDALE	SPRINGFIELD	COAL	3.6	12.1	SOFT

MAPID: 19901150000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 461' N line, 5' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762925 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697081 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 442.2 **LOGGED (FT.):** 9.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 4E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
442.2	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
436.2	CARBONDALE	SPRINGFIELD	COAL	3.3	6.0	

MAPID: 19901151000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 379' N line, 3' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762912 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697307 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 439.6 **LOGGED (FT.):** 13.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 535A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
439.6	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
434.6	PLEISTOCENE		CLAY	8.0	5.0	

MAPID: 19901152000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 293' N line, 3' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76291 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697545 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 437.9 **LOGGED (FT.):** 14.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 610 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
437.9	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	

MAPID: 19901153000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 220' N line, 3' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762907 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697746 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 439.4 **LOGGED (FT.):** 14.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 610-A **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
439.4	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	MUD, VERY SOFT COAL

MAPID: 19901154000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 145' N line, 3' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762905 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697953 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 441.4 **LOGGED (FT.):** 13.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 635 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
441.4	PLEISTOCENE		UNCONSOLIDATED	12.5	0.0	
428.9	CARBONDALE	SPRINGFIELD	COAL	0.5	12.5	ROTTEN; TOP ERODED

MAPID: 19901155000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 674' S line, 322' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764031 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696577 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 454.9 **LOGGED (FT.):** 17.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 555 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.9	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
451.9	CARBONDALE	DYKERSBURG	SHALE	10.8	3.0	
441.1	CARBONDALE	SPRINGFIELD	COAL	3.8	13.8	GOOD

MAPID: 19901156000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SE SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764069 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695631 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 447.3 **LOGGED (FT.):** 8.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 530-B2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
447.3	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
442.3	CARBONDALE	SPRINGFIELD	COAL	1.5	5.0	ROTTEN; TOP ERODED
440.8	CARBONDALE	SPRINGFIELD	COAL	2.0	6.5	FAIR

MAPID: 19901157000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 534' S line, 209' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763643 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696186 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 444.3 **LOGGED (FT.):** 10.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 530-B-1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
444.3	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
434.3	CARBONDALE	SPRINGFIELD	COAL	0.0	10.0	OUTCROP

MAPID: 19901158000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 365' S line, 177' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763536 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695718 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 447.2 **LOGGED (FT.):** 6.4 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 505B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
447.2	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
444.2	CARBONDALE	SPRINGFIELD	COAL	1.0	3.0	ROTTEN; TOP ERODED
443.2	CARBONDALE	SPRINGFIELD	COAL	2.4	4.0	FAIR

MAPID: 19901159000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 187' S line, 200' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763621 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695227 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 460.1 **LOGGED (FT.):** 14.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 480B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.1	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
452.1	CARBONDALE	DYKERSBURG	SHALE	3.3	8.0	
448.8	CARBONDALE	SPRINGFIELD	COAL	1.0	11.3	ROTTEN
447.8	CARBONDALE	SPRINGFIELD	COAL	2.0	12.3	FAIR

MAPID: 19901160000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 25' S line, 165' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763504 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.694779 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 455.1 **LOGGED (FT.):** 7.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 455B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
455.1	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
449.1	CARBONDALE	SPRINGFIELD	COAL	1.8	6.0	SOOT; TOP ERODED

MAPID: 19901161000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 740' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765493 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695645 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 465.4 **LOGGED (FT.):** 18.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 500 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
465.4	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
462.4	CARBONDALE	DYKERSBURG	SHALE	11.8	3.0	
450.6	CARBONDALE	SPRINGFIELD	COAL	3.8	14.8	GOOD

MAPID: 19901162000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 190' S line, 330' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764073 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695241 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 467.9 **LOGGED (FT.):** 22.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 480 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
467.9	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
453.9	CARBONDALE	DYKERSBURG	SHALE	4.7	14.0	
449.2	CARBONDALE	SPRINGFIELD	COAL	0.7	18.7	SOFT
448.6	CARBONDALE	SPRINGFIELD	COAL	3.0	19.3	FAIR

MAPID: 19901163000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 190' S line, 495' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764646 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695248 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 464.9 **LOGGED (FT.):** 17.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 475B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
464.9	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
456.9	CARBONDALE	DYKERSBURG	SHALE	5.5	8.0	
451.4	CARBONDALE	SPRINGFIELD	COAL	0.8	13.5	SOFT
450.6	CARBONDALE	SPRINGFIELD	COAL	3.0	14.3	FAIR

MAPID: 19901164000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 742' N line, 344' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766306 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696354 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 461.8 **LOGGED (FT.):** 18.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 545 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
461.8	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
453.8	CARBONDALE	DYKERSBURG	SHALE	6.4	8.0	
447.4	CARBONDALE	SPRINGFIELD	COAL	3.8	14.4	FAIR

MAPID: 19901165000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 554' N line, 182' W line of NW SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766863 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696883 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 454.3 **LOGGED (FT.):** 13.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 565B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.3	CARBONDALE	DYKERSBURG	SHALE	10.0	0.0	
444.3	CARBONDALE	SPRINGFIELD	COAL	3.5	10.0	GOOD

MAPID: 19901166000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 677' N line, 5' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.767481 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696553 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 457.2 **LOGGED (FT.):** 13.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 540 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
457.2	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
453.2	CARBONDALE	DYKERSBURG	SHALE	5.8	4.0	
447.4	CARBONDALE	SPRINGFIELD	COAL	0.7	9.8	SOFT
446.7	CARBONDALE	SPRINGFIELD	COAL	3.0	10.5	FAIR

MAPID: 19901168000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 373' S line, 433' E line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769007 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695809 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 18.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 72E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
458.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
450.0	CARBONDALE	DYKERSBURG	SANDY SHALE	7.0	8.0	
443.0	CARBONDALE	DYKERSBURG	GRAY SHALE	3.2	15.0	
439.8	CARBONDALE	SPRINGFIELD	COAL	3.5	18.2	

MAPID: 19901169000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 593' S line, 468' E line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769126 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696417 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 16.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 73E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
464.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
461.0			SHALE	13.5	3.0	

MAPID: 19901170000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 532' S line, 648' E line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769753 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696258 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 462.0 **LOGGED (FT.):** 17.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 74E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
462.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
457.0	CARBONDALE	DYKERSBURG	SHALE	8.6	5.0	
448.4	CARBONDALE	SPRINGFIELD	COAL	4.0	13.6	NO.5 FAIR

MAPID: 19901171000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 717' S line, 653' E line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.769765 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696769 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 14.4 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 75E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
458.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
455.0	CARBONDALE	DYKERSBURG	SHALE	7.4	3.0	
447.6	CARBONDALE	SPRINGFIELD	COAL	4.0	10.4	

MAPID: 19901172000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 701' S line, 429' W line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770592 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696735 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 6.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 76E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
-	CARBONDALE	SPRINGFIELD	COAL	2.3	4.0	TOP ERODED

MAPID: 19901173000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 976' S line, 415' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770633 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697495 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 15.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 77E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
459.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
455.0	CARBONDALE	DYKERSBURG	SHALE	6.6	4.0	
448.4	CARBONDALE	SPRINGFIELD	COAL	4.5	10.6	GOOD

MAPID: 19901174000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 706' S line, 260' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771179 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696756 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 21.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 78E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
-	CARBONDALE	DYKERSBURG	SHALE	8.5	9.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.1	17.5	FAIR

MAPID: 19901175000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 1009' S line, 23' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771994 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697603 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 14.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 79E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
459.0	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
456.0	CARBONDALE	DYKERSBURG	SHALE	7.8	3.0	
448.2	CARBONDALE	SPRINGFIELD	COAL	3.8	10.8	GOOD

MAPID: 19901176000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 984' S line, 284' W line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771088 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697522 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 18.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 80E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
461.0	PLEISTOCENE		UNCONSOLIDATED	2.0	0.0	
459.0	CARBONDALE	DYKERSBURG	SHALE	12.2	2.0	
446.8	CARBONDALE	SPRINGFIELD	COAL	4.2	14.2	GOOD

MAPID: 19901177000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 277' N line, 260' W line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771173 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.697711 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 10.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 81E **WELL TYPE:** Coal Test
COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	

MAPID: 19901178000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 130' N line, 348' W line of SW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770863 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698112 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 4.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 82E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	2.8	0.0	
-	CARBONDALE	SPRINGFIELD	COAL	1.5	2.8	TOP ERODED

MAPID: 19901179000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:**
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.772095 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.694818 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 65.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 83E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	16.5	0.0	
-	CARBONDALE		SHALE	17.0	16.5	
-	CARBONDALE	ST. DAVID	ROCK	1.8	33.5	
-	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	35.3	
-	CARBONDALE	TURNER MINE	BLACK SHALE	0.8	39.5	
-	CARBONDALE	DYKERSBURG	GRAY SHALE	20.9	40.3	
-	CARBONDALE	SPRINGFIELD	COAL	4.3	61.3	GOOD

MAPID: 19901180000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 6' N line, 382' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764218 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698356 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 19.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 650B+1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	CARBONDALE	DYKERSBURG	SHALE	5.0	10.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.2	15.0	GOOD

MAPID: 19901181000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 0' N line, 335' E line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764014 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.702024 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 445.2 **LOGGED (FT.):** 17.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 655 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
445.2	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
433.2	CARBONDALE	DYKERSBURG	SHALE	1.5	12.0	
431.7	CARBONDALE	SPRINGFIELD	COAL	3.8	13.5	GOOD

MAPID: 19901182000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 10' N line, 258' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763787 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.69834 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 441.8 **LOGGED (FT.):** 13.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 26E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
441.8	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
431.8	CARBONDALE	DYKERSBURG	SHALE	1.4	10.0	
430.4	CARBONDALE	SPRINGFIELD	COAL	2.3	11.4	

MAPID: 19901183000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 7' N line, 154' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763426 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698343 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 443.4 **LOGGED (FT.):** 16.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 27E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
443.4	PLEISTOCENE		UNCONSOLIDATED	13.6	0.0	
429.8	CARBONDALE	SPRINGFIELD	COAL	2.7	13.6	TOP ERODED

MAPID: 19901184000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 600' S line, 332' E line of SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764146 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.689066 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 11.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 28E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
443.0	CARBONDALE	DYKERSBURG	SHALE	1.2	7.0	
441.8	CARBONDALE	SPRINGFIELD	COAL	3.3	8.2	

MAPID: 19901185000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 591' S line, 258' E line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763811 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696347 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 446.4 **LOGGED (FT.):** 8.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 29E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
446.4	PLEISTOCENE		UNCONSOLIDATED	6.5	0.0	
439.9	CARBONDALE	SPRINGFIELD	COAL	1.5	6.5	TOP ERODED

MAPID: 19901186000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 606' S line, 216' E line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.763665 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696384 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 447.8 **LOGGED (FT.):** 10.4 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 30E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
447.8	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
444.8	CARBONDALE	DYKERSBURG	SHALE	3.5	3.0	
441.3	CARBONDALE	SPRINGFIELD	COAL	3.9	6.5	

MAPID: 19901187000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 240' S line, 660' E line of NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765217 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695395 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 454.8 **LOGGED (FT.):** 3.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 31E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.8	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
451.8	CARBONDALE	SPRINGFIELD	SMUT	-	3.0	TOP ERODED

MAPID: 19901188000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 700' S line, 680' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765274 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696665 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 36.4 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 32E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
477.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
469.0	CARBONDALE		SANDY SHALE	7.6	8.0	
461.4	CARBONDALE	ST. DAVID	ROCK	0.3	15.6	
461.1	CARBONDALE		SANDY SHALE	1.2	15.9	
459.9	CARBONDALE	TURNER MINE	BLACK SHALE	3.9	17.1	
456.0	CARBONDALE	DYKERSBURG	GRAY SHALE	11.5	21.0	
444.5	CARBONDALE	SPRINGFIELD	COAL	3.9	32.5	

MAPID: 19901189000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 380' E line of NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764242 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.695629 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 474.4 **LOGGED (FT.):** 29.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL 33E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
474.4	PLEISTOCENE		UNCONSOLIDATED	13.5	0.0	
460.9	CARBONDALE		SHALE	1.0	13.5	
459.9	CARBONDALE		SHALE	2.5	14.5	
457.4	CARBONDALE	DYKERSBURG	GRAY SHALE	7.9	17.0	
449.5	CARBONDALE	SPRINGFIELD	COAL	4.1	24.9	

MAPID: 19901190000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 340' N line, 500' E line of SE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.764637 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.69744 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 473.2 **LOGGED (FT.):** 40.8 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL 34E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
473.2	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
466.2	CARBONDALE		SANDY SHALE	7.5	7.0	
458.7	CARBONDALE		GRAY SHALE	4.5	14.5	
454.2	CARBONDALE	ST. DAVID	ROCK	1.0	19.0	
453.2	CARBONDALE		SHALE	1.0	20.0	
452.2	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	21.0	
448.2	CARBONDALE	DYKERSBURG	GRAY SHALE	11.8	25.0	
436.4	CARBONDALE	SPRINGFIELD	COAL	4.0	36.8	

MAPID: 19901191000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 609' N line, 300' W line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.766455 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696725 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 449.8 **LOGGED (FT.):** 10.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 35E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
449.8	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
443.8	CARBONDALE	DYKERSBURG	SHALE	1.3	6.0	
442.5	CARBONDALE	SPRINGFIELD	COAL	2.8	7.3	NO. 5 FAIR

MAPID: 19901196000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 677' S line, 30' W line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771953 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.700355 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 476.9 **LOGGED (FT.):** 38.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 40E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
476.9	PLEISTOCENE		UNCONSOLIDATED	4.5	0.0	
472.4	CARBONDALE		SHALE	5.5	4.5	
466.9	CARBONDALE		GRAY SHALE	6.3	10.0	
460.6	CARBONDALE	ST. DAVID	ROCK	1.8	16.3	
458.9	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	18.0	
455.1	CARBONDALE	DYKERSBURG	GRAY SHALE	13.0	21.8	
442.1	CARBONDALE	SPRINGFIELD	COAL	4.2	34.8	

MAPID: 19901198000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 0' S line, 899' E line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.770603 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698466 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 455.5 **LOGGED (FT.):** 10.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 42E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
455.5	PLEISTOCENE		UNCONSOLIDATED	4.5	0.0	
451.0	CARBONDALE	DYKERSBURG	SHALE	2.1	4.5	
448.9	CARBONDALE	SPRINGFIELD	COAL	4.2	6.6	

MAPID: 19901199000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 650' S line, 647' W line of NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.765217 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.700182 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 462.5 **LOGGED (FT.):** 41.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 43E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
462.5	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
457.5	CARBONDALE		GRAY SHALE	14.5	5.0	
443.0	CARBONDALE	ST. DAVID	ROCK	1.3	19.5	
441.7	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	20.8	
437.8	CARBONDALE	DYKERSBURG	GRAY SHALE	12.9	24.7	
424.9	CARBONDALE	SPRINGFIELD	COAL	4.3	37.6	

MAPID: 19901201000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** 52' S line, 1059' W line of NE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.7638 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698511 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 438.4 **LOGGED (FT.):** 10.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL 45E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
438.4	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
433.4	CARBONDALE	DYKERSBURG	SHALE	2.0	5.0	
431.4	CARBONDALE	SPRINGFIELD	COAL	3.9	7.0	

MAPID: 19900082000M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SW SW NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748419 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.691446 **DATE COLLECTED:** 0 / 0 / 1952
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 41.3 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-COULTER & MCKENNA C C **WELL TYPE:** Underground mine
COMMENT: SAMPLED IN ROOM 9 OFF MAIN EAST BY SIMON

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	-		
-	CARBONDALE	SPRINGFIELD	COAL	4.1		

MAPID: 19900414300M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.745537 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.690049 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-HILL C C # 2 **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	SPRINGFIELD	COAL	-		

MAPID: 19900414200M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SE SE SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.745005 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.687738 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 36.3 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-HILL C C MINE # 1 **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	32.0	0.0	
418.0	CARBONDALE	SPRINGFIELD	COAL	4.3	32.0	

MAPID: 19900414400M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NW SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.747864 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.690062 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 5.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-ADAMS C C **WELL TYPE:** Underground mine
COMMENT: SEAM DATA FROM MINE INDEX

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	5.0	0.0	
445.0	CARBONDALE	SPRINGFIELD	COAL	0.0	5.0	

MAPID: 19900769000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 64' S line, 64' E line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758438 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698532 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 465.9 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 50E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
465.9	PLEISTOCENE		UNCONSOLIDATED	4.5	0.0	
461.4	CARBONDALE		SHALE	21.1	4.5	
440.3	CARBONDALE		ROCK	2.3	25.6	
438.1	CARBONDALE		BLACK SHALE	3.3	27.8	
434.8	CARBONDALE		ROCK	0.9	31.1	
433.9	CARBONDALE	TURNER MINE	BLACK SHALE	0.8	32.0	
433.1	CARBONDALE	DYKERSBURG	GRAY SHALE	11.2	32.8	
421.9	CARBONDALE	SPRINGFIELD	COAL	4.0	44.0	GOOD

MAPID: 19901117000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 6' S line, 472' W line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.761251 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.69837 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 440.5 **LOGGED (FT.):** 16.9 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 46E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.5	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
428.5	CARBONDALE		SOFT SHALE	3.9	12.0	
424.6	CARBONDALE	SPRINGFIELD	COAL	1.0	15.9	MAY NOT BE COMPLETE THICKNESS

MAPID: 19901118000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 6' S line, 395' W line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.761518 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698369 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 443.4 **LOGGED (FT.):** 19.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 47E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
443.4	PLEISTOCENE		UNCONSOLIDATED	7.5	0.0	
435.9	CARBONDALE	DYKERSBURG	SHALE	7.9	7.5	
428.0	CARBONDALE	SPRINGFIELD	COAL	4.2	15.4	GOOD

MAPID: 19901119000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 970' S line, 211' W line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76213 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.701032 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 458.6 **LOGGED (FT.):** 48.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 48E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
458.6	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
452.5	CARBONDALE		SHALE	21.3	6.1	
431.3	CARBONDALE	ST. DAVID	ROCK	0.8	27.3	
430.5	CARBONDALE	TURNER MINE	BLACK SHALE	4.3	28.1	
426.3	CARBONDALE	DYKERSBURG	GRAY SHALE	11.5	32.3	
414.8	CARBONDALE	SPRINGFIELD	COAL	4.3	43.8	GOOD

MAPID: 19901119000C **VERSION:** 2 **PROJECT:** CIRC 431

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 970' S line, 211' W line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.76213 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 37.701032 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 459.0 **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
415.0	CARBONDALE	SPRINGFIELD	COAL	4.3	44.0	

MAPID: 19901120000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 980' S line, 1011' W line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759351 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.701058 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 460.7 **LOGGED (FT.):** 50.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 49E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.7	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
453.7	CARBONDALE		SHALE	19.9	7.0	
433.8	CARBONDALE		ROCK	0.8	26.9	
432.9	CARBONDALE		BLACK SHALE	2.6	27.8	
430.4	CARBONDALE	ST. DAVID	ROCK	0.7	30.3	
429.7	CARBONDALE	DYKERSBURG	GRAY SHALE	14.9	31.0	
414.8	CARBONDALE	SPRINGFIELD	COAL	4.2	45.9	GOOD

MAPID: 19901122000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 8' S line, 755' E line of NW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760841 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.698376 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 440.9 **LOGGED (FT.):** 15.3 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 51E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.9	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
431.9	CARBONDALE	DYKERSBURG	SHALE	2.3	9.0	
429.6	CARBONDALE	SPRINGFIELD	COAL	4.0	11.3	GOOD

MAPID: 19901123000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SW SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.761755 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695613 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 438.5 **LOGGED (FT.):** 11.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 52E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
438.5	PLEISTOCENE		UNCONSOLIDATED	5.5	0.0	
433.0	CARBONDALE	DYKERSBURG	GRAY SHALE	2.3	5.5	
430.7	CARBONDALE	SPRINGFIELD	COAL	3.8	7.8	GOOD

MAPID: 19901124000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 502' N line, 659' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760619 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696967 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 440.9 **LOGGED (FT.):** 13.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 53E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.9	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
437.9	CARBONDALE	DYKERSBURG	SHALE	6.3	3.0	
431.6	CARBONDALE	SPRINGFIELD	COAL	3.7	9.3	FAIR

MAPID: 19901125000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 716' S line, 713' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760434 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696673 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 441.8 **LOGGED (FT.):** 10.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC.COAL CO. 54E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
441.8	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
435.8	CARBONDALE	DYKERSBURG	SHALE	2.5	6.0	
433.3	CARBONDALE	SPRINGFIELD	COAL	2.3	8.5	ROTTEN

MAPID: 19901126000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 1088' N line, 740' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760354 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.69535 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 454.4 **LOGGED (FT.):** 17.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 55E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.4	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
449.4	CARBONDALE	DYKERSBURG	SHALE	9.0	5.0	
440.4	CARBONDALE	SPRINGFIELD	COAL	3.5	14.0	ROTTEN

MAPID: 19901127000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 265' S line, 813' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.7601 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695428 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 461.9 **LOGGED (FT.):** 26.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 56E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
461.9	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
457.9	CARBONDALE		SHALE	18.0	4.0	
439.9	CARBONDALE	SPRINGFIELD	COAL	4.1	22.0	FAIR

MAPID: 19901128000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 16' S line, 810' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760117 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.694741 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 23.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 57E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
463.0	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
459.0	CARBONDALE		SHALE	15.8	4.0	
443.2	CARBONDALE	SPRINGFIELD	COAL	3.8	19.8	ROTTEN

MAPID: 19901129000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 481' S line, 437' E line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759767 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696022 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 463.9 **LOGGED (FT.):** 41.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 58E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
463.9	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
457.9	CARBONDALE		SHALE	12.5	6.0	
445.4	CARBONDALE	ST. DAVID	ROCK	0.7	18.5	
444.7	CARBONDALE	TURNER MINE	BLACK SHALE	5.3	19.2	
439.4	CARBONDALE	DYKERSBURG	GRAY SHALE	12.4	24.5	
427.0	CARBONDALE	SPRINGFIELD	COAL	4.1	36.9	GOOD

MAPID: 19901130000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 696' N line, 788' W line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.760176 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.696431 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 445.4 **LOGGED (FT.):** 29.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 59E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
445.4			SHALE	1.5	0.0	
443.9	CARBONDALE	TURNER MINE	BLACK SHALE	4.5	1.5	
439.4	CARBONDALE	DYKERSBURG	GRAY SHALE	19.8	6.0	
419.6	CARBONDALE	SPRINGFIELD	COAL	3.8	25.8	GOOD

MAPID: 19901131000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 160' S line, 327' E line of SW NW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759397 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.695137 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 454.6 **LOGGED (FT.):** 17.7 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 60E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
454.6	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
450.6	CARBONDALE	DYKERSBURG	SHALE	9.7	4.0	
440.9	CARBONDALE	SPRINGFIELD	COAL	4.0	13.7	GOOD

MAPID: 19901132000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 175' N line, 118' E line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758684 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.69421 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 455.2 **LOGGED (FT.):** 14.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 61E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
455.2	PLEISTOCENE		UNCONSOLIDATED	4.0	0.0	
451.2	CARBONDALE	DYKERSBURG	SHALE	6.5	4.0	
444.7	CARBONDALE	SPRINGFIELD	COAL	3.5	10.5	ROTTEN

MAPID: 19901133000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 245' N line, 6' E line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758297 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.694017 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 473.7 **LOGGED (FT.):** 30.3 **LOG TYPE:** Drillers Log
SOURCE: UNIED ELEC. COAL CO. 62E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
473.7	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
463.7	CARBONDALE	DYKERSBURG	SHALE	16.6	10.0	
447.1	CARBONDALE	SPRINGFIELD	COAL	3.7	26.6	FAIR

MAPID: 19901134000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 333' N line, 210' E line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.759008 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.693776 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 10.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 66E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
488.0	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
483.0	CARBONDALE	DYKERSBURG	SHALE	3.8	5.0	
479.2	CARBONDALE	SPRINGFIELD	COAL	2.1	8.8	ROTTEN

MAPID: 19901135000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 354' N line, 3' E line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.75829 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.693716 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 457.3 **LOGGED (FT.):** 22.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 64E **WELL TYPE:** Coal Test
COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
457.3	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0	
442.3			SHALE	7.0	15.0	

MAPID: 19901136000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 897' N line, 4' E line of NW SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.758316 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.692217 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 466.7 **LOGGED (FT.):** 30.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 65E **WELL TYPE:** Coal Test
COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
466.7	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
449.7			SHALE	13.0	17.0	

MAPID: 19901138000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 478' S line, 718' W line of NE SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.755806 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.692339 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 474.8 **LOGGED (FT.):** 20.8 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 67E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
474.8	PLEISTOCENE		UNCONSOLIDATED	3.0	0.0	
471.8	CARBONDALE	DYKERSBURG	SANDY SHALE	14.2	3.0	
457.6	CARBONDALE	SPRINGFIELD	COAL	3.6	17.2	

MAPID: 19901139000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 30' N line, 737' W line of NE SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.755706 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.694605 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 484.3 **LOGGED (FT.):** 32.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 68E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
484.3	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
474.3	CARBONDALE	DYKERSBURG	SANDY SHALE	16.2	10.0	
458.1	CARBONDALE	DYKERSBURG	GRAY SHALE	3.0	26.2	
455.1	CARBONDALE	SPRINGFIELD	COAL	2.9	29.2	

MAPID: 19901140000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 0' S line, 40' E line of NE SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753801 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.691009 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 473.0 **LOGGED (FT.):** 26.4 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC.COAL CO. 69E **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
473.0	CARBONDALE		SHALE	7.0	0.0	
466.0	CARBONDALE	TURNER MINE	BLACK SHALE	4.8	7.0	
461.2	CARBONDALE	DYKERSBURG	GRAY SHALE	10.5	11.8	
450.7	CARBONDALE	SPRINGFIELD	COAL	4.1	22.3	GOOD

MAPID: 19901141000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 300' S line, 100' W line of SW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753241 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.695508 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 61.2 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 70E **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
499.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	TO TOP OF COAL NO.5A
488.0	CARBONDALE		UNKNOWN	16.5	11.0	#5A IS IN THIS INTERVAL
471.5	CARBONDALE		SHALE	9.3	27.5	
462.2	CARBONDALE		ROCK	0.5	36.8	
461.7	CARBONDALE		BLACK SHALE	2.5	37.3	
459.2	CARBONDALE	ST. DAVID	ROCK	1.8	39.8	
457.4	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	41.6	
456.4	CARBONDALE	DYKERSBURG	GRAY SHALE	14.9	42.6	
441.5	CARBONDALE	SPRINGFIELD	COAL	3.7	57.5	GOOD

MAPID: 199273B0017F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SE SE SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.745577 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.688203 **DATE COLLECTED:** 0 / 0 / 1925

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 4.2 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY, BELL HILL MINE **WELL TYPE:** Underground mine

COMMENT: OTHER FLD NOTES ON THIS MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SHALE	-		
-	CARBONDALE	SPRINGFIELD	COAL	4.2		

MAPID: 199273B0018F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SE SE SE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.745005 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.687738 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 16.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS, BILL HILL MINE **WELL TYPE:** Underground mine
COMMENT: OTHER FLD NOTES ON THIS MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	3.0	0.0	
497.0			BLACK SHALE	6.3	3.0	
490.7	CARBONDALE	SPRINGFIELD	COAL	4.5	9.3	
486.2	CARBONDALE		UNDERCLAY	3.0	13.8	
483.2			LIMESTONE	-	16.8	

MAPID: 19900069601M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 1060' N line, 1080' E line of NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.738729 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.699117 **DATE COLLECTED:** 0 / 0 / 1962
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 4.2 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-GLUSKOTER **WELL TYPE:** Underground mine
COMMENT: SAMPLE # 1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			BLACK SHALE	-		
-	CARBONDALE	SPRINGFIELD	COAL	4.2		
-			UNDERCLAY	-		

MAPID: 19900069602M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2460' N line, 1360' E line of NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739767 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.695253 **DATE COLLECTED:** 0 / 0 / 1962
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 4.1 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-GLUSKOTER **WELL TYPE:** Underground mine
COMMENT: SAMPLE # 2; OTHER SAMPLES AVAILABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	-		
-	CARBONDALE	SPRINGFIELD	COAL	4.1		

MAPID: 19900414900M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 338' S line, 1481' W line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739272 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.688158 **DATE COLLECTED:** 0 / 0 / 1948
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 76.5 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-HELM C C **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
490.0			UNCONSOLIDATED	72.0	0.0	
418.0	CARBONDALE	SPRINGFIELD	COAL	4.5	72.0	

MAPID: 19900415000M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733913 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.693679 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 30.7 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-TWO WAY C C **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	25.0	0.0	
475.0	CARBONDALE	SPRINGFIELD	COAL	5.7	25.0	

MAPID: 19900415100M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NW NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.731499 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.701106 **DATE COLLECTED:** 0 / 0 / 1947
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 28.0 **LOG TYPE:**
SOURCE: MINE NOTES-PRODUCERS MNG C **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
520.0			UNCONSOLIDATED	20.0	0.0	
500.0	CARBONDALE	HERRIN	COAL	8.0	20.0	

MAPID: 19900420800M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.733943 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.691822 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 10.4 **LOG TYPE:** Measured section
SOURCE: MINE NOTES **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			UNDERCLAY	-		
525.0	CARBONDALE	HERRIN	COAL	5.4	5.0	

MAPID: 199273B0019F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW NE NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739007 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.698801 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 5.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0			UNCONSOLIDATED	-	0.0	
-			LIMESTONE	5.0		
-	CARBONDALE	HERRIN	COAL	-		
-			SANDSTONE	-		

MAPID: 199273B0024F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734528 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.691362 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SANDSTONE	-		
-			LIMESTONE	-		
-	CARBONDALE	HERRIN	COAL	-		

MAPID: 199273B0020F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.726993 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.693641 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 16.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	-		
-			SHALE	15.0		
-	CARBONDALE	BRIAR HILL	COAL	0.5		
-	CARBONDALE		CLAYSTONE	0.5		

MAPID: 199273B0021F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW NE SW NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.741347 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.696959 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	BRIAR HILL	COAL	-		

MAPID: 199273B0023F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.732829 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.689026 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 37.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: TRAVERSE DN RAVINE NW TO SE NOTES AVAIL.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
530.0			UNCONSOLIDATED	15.0	0.0	
515.0			SANDSTONE	10.0	15.0	
505.0			LIMESTONE	4.0	25.0	
501.0			BLACK SHALE	1.7	29.0	
499.3	CARBONDALE	HERRIN	COAL	5.7	30.7	
493.7	CARBONDALE		UNDERCLAY	0.8	36.3	

MAPID: 199273B0022F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW NW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734528 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.691362 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 32.4 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY DRIFT MINE **WELL TYPE:** Underground mine
COMMENT: SAME LOCATION AS M1994208

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	ANVIL ROCK	SANDSTONE	12.0		
-	CARBONDALE		SHALE	-		
-	CARBONDALE		LIMESTONE	-		
-	CARBONDALE		BLACK SHALE	-		
-	CARBONDALE	HERRIN	COAL	5.4		
-	CARBONDALE		UNDERCLAY	5.0		
-			SANDSTONE	10.0		

MAPID: 199273B0029F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730493 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.690868 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FLD NOTES-PAYNE DELTA MNG CO **WELL TYPE:** Strip Mine
COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	SPRINGFIELD	COAL	-		
-	CARBONDALE		UNDERCLAY	-		

MAPID: 19900069600M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** SW SW NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.715495 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.695421 **DATE COLLECTED:** 0 / 0 / 1963
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 114.2 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-THUNDERBIRD C C, CARMAC MINE **WELL TYPE:** Underground mine
COMMENT: DATA FROM BM COAL REPORT 1963

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	110.0	0.0	
370.0	CARBONDALE	SPRINGFIELD	COAL	4.2	110.0	

MAPID: 19900415200M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.708542 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.700913 **DATE COLLECTED:** 0 / 0 / 1948
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 35.0 **LOG TYPE:**
SOURCE: MINE NOTES-REGENHARDT & SOUTHERN C C **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	30.0	0.0	
470.0	CARBONDALE	HERRIN	COAL	5.0	30.0	

MAPID: 19900420900M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.7212 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.698256 **DATE COLLECTED:** 0 / 0 / 1964
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 19.5 **LOG TYPE:**
SOURCE: MINE NOTES-MORSE C C **WELL TYPE:** Strip Mine
COMMENT: DATA FROM BM COAL REPORT 1964

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-				15.0	0.0	
-	CARBONDALE	HERRIN	COAL	4.5	15.0	

MAPID: 19901874000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** 350' S line, 330' W line of SE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720171 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.688052 **DATE COLLECTED:** 8 / 0 / 1955
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 2746.0 **LOG TYPE:** Electric Log
SOURCE: OIL MANAGEMENT, INC., CARNEY ROY **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
330.0	CARBONDALE	HOUCHIN CREEK	COAL	2.0	102.0	
-	CARBONDALE	SURVANT	COAL	0.8		
197.0	CARBONDALE	COLCHESTER	COAL	2.0	235.0	
152.0	CARBONDALE	DEKOVEN	COAL	3.0	280.0	
152.0	CARBONDALE	LOWER DEKOVEN	COAL	0.0	280.0	
142.0	CARBONDALE	DAVIS	COAL	3.5	290.0	
82.0	TRADEWATER	SEAHORNE LS	LIMESTONE	2.0	350.0	

MAPID: 19901874000C **VERSION:** 2 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** 350' S line, 330' W line of SE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.720171 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.688052 **DATE COLLECTED:** 8 / 0 / 1955
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 1430.0 **LOG TYPE:** Electric Log
SOURCE: OIL MANAGEMENT, INC. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
196.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	236.0	FAULTS?
142.0	SPOON	DAVIS	UNCLASSIFIED	-	290.0	
-998.0	BASE OF PENN.		UNCLASSIFIED	-	1430.0	

MAPID: 199273B0026F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW SW NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71143 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.699556 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 7.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			COAL	-		
-			SANDSTONE	4.0		
-			SHALE	3.0		

MAPID: 199273B0027F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW NW NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.711406 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.701408 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 10.0 **LOG TYPE:**
SOURCE: FLD NOTES-CADY **WELL TYPE:** Strip Mine
COMMENT: ABANDONED STRIP PIT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.0			UNKNOWN	-	0.0	
-			LIMESTONE	10.0		
-			COAL	-		

MAPID: 199273B0028F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.712022 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.698171 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT: CRUMPLED AND DISTORTED SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	BRIAR HILL	COAL	-		
-			LIMESTONE	-		
-			CLAYSTONE	-		
-			COAL	-		

MAPID: 199273B0025F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 9S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE SW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.71327 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.68984 **DATE COLLECTED:** 0 / 0 / 1935
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 84.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-BENSON **WELL TYPE:** Outcrop
COMMENT: TRAVERSE DOWN RAVINE NW TO SE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	25.0		
-			LIMESTONE	5.0		
-			BLACK SHALE	2.0		
-	CARBONDALE	HERRIN	COAL	-		
-			UNDERCLAY	1.0		
-			SANDSTONE	45.0		
-			SHALE	6.0		

MAPID: 19901033000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE SW
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.053179 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.673737 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 665.0 **LOG TYPE:** Electric Log
SOURCE: CARTERVL OIL & GAS **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-233.0	BASE OF PENN.		UNCLASSIFIED	-	665.0	

MAPID: 19900089104M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 500' N line, 1900' E line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.139163 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.685201 **DATE COLLECTED:** 8 / 7 / 1974
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 59.2 **LOG TYPE:**
SOURCE: MINE NOTES-PEPPERS **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	40.0	0.0	
410.0	SPOON		COAL	1.2	40.0	
408.8	SPOON		SHALE	10.6	41.2	
398.2	SPOON		LIMESTONE	0.6	51.8	
397.7	SPOON		SHALE	1.7	52.3	
396.0	SPOON		LIMESTONE	0.3	54.0	
395.8	SPOON	MURPHYSBORO	COAL	5.0	54.2	

MAPID: 199271B0003F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 300' N line, 1200' E line
QUADRANGLE: CARBONDALE **LONGITUDE:** -89.136722 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.685715 **DATE COLLECTED:** 0 / 0 / 1974
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 59.2 **LOG TYPE:**
SOURCE: FLD NOTES-PEPPERS, TAB C C **WELL TYPE:** Strip Mine
COMMENT: TAB MINE HIGHWALL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNCONSOLIDATED	40.0	0.0	
430.0	SPOON		COAL	2.2	40.0	
427.8	SPOON		SHALE	9.8	42.2	
418.0	SPOON		LIMESTONE	0.6	52.0	
417.4	SPOON		SHALE	1.7	52.6	
415.7	SPOON	MURPHYSBORO	COAL	5.0	54.3	

MAPID: 19901100000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.053235 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.666303 **DATE COLLECTED:** 1 / 0 / 1941
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 630.0 **LOG TYPE:** Electric Log
SOURCE: AUSTIN OIL & GAS **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-185.0	BASE OF PENN.		UNCLASSIFIED	-	630.0	

MAPID: 19902379000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.053461 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.642108 **DATE COLLECTED:** 7 / 16 / 1969
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 265.0 **LOG TYPE:** Drillers Log
SOURCE: LOUIS GWIN, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.0			UNCONSOLIDATED	57.0	0.0	
483.0			ROCK	16.0	57.0	
467.0			COAL WITH SHALE	1.0	73.0	
466.0			ROCK	191.0	74.0	

MAPID: 19902394000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 1E **SECTION:** 16 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.099575 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.652423 **DATE COLLECTED:** 11 / 5 / 1969
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 232.0 **LOG TYPE:** Drillers Log
SOURCE: LOUIS GWIN, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
520.0			UNCONSOLIDATED	102.0	0.0	
418.0			ROCK	70.0	102.0	
348.0			COAL	2.0	172.0	
346.0			ROCK	58.0	174.0	

MAPID: 19902289000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NE
QUADRANGLE: MARION **LONGITUDE:** -88.992046 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.666892 **DATE COLLECTED:** 7 / 0 / 1965
SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 590.0 **LOG TYPE:** Electric Log
SOURCE: MARGRAVE & MCKENZIE **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-114.0	BASE OF PENN.		UNCLASSIFIED	-	590.0	

MAPID: 19923287000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NW SE
QUADRANGLE: MARION **LONGITUDE:** -88.954741 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.661411 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 798.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-288.0	BASE OF PENN.		UNCLASSIFIED	-	798.0	

MAPID: 19901095000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** 900' S line, 330' E line
QUADRANGLE: CRAB ORCHARD LAKE **LONGITUDE:** -89.003613 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.628053 **DATE COLLECTED:** 2 / 0 / 1941
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 2202.0 **LOG TYPE:** Drillers Log
SOURCE: CAROLYN OIL CO **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
552.0			UNCONSOLIDATED	105.0	0.0	
447.0			ROCK	87.0	105.0	
360.0			COAL	2.0	192.0	
358.0			ROCK	2008.0	194.0	

MAPID: 19900398000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE NE
QUADRANGLE: MARION **LONGITUDE:** -88.948274 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.637499 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 148.0 **LOG TYPE:** Drillers Log
SOURCE: NASON CC 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	48.0	0.0	
-	PLEISTOCENE		CLAY	73.4	48.0	BLUE
-			SANDSTONE	26.6	121.4	

MAPID: 19900399000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE NE SW

QUADRANGLE: MARION **LONGITUDE:** -88.957518 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.630189 **DATE COLLECTED:** 0 / 0 / 1921

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 149.0 **LOG TYPE:** Drillers Log

SOURCE: NASON CC 3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	9.0	0.0	
-			SANDSTONE	13.0	9.0	
-			SANDSTONE	91.5	22.0	
-			BLUE SHALE	0.5	113.5	
-			SANDSTONE	5.0	114.0	
-			BLUE SHALE	1.0	119.0	
-			SANDSTONE	29.0	120.0	

MAPID: 19900400000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW SW NE

QUADRANGLE: MARION **LONGITUDE:** -88.93655 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.635841 **DATE COLLECTED:** 0 / 0 / 1921

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 72.5 **LOG TYPE:** Drillers Log

SOURCE: NASON CC 6 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	17.0	0.0	
-			BROWN SANDSTONE	55.5	17.0	

MAPID: 19900401000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:**

QUADRANGLE: MARION **LONGITUDE:** -88.937728 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.633067 **DATE COLLECTED:** 0 / 0 / 1921

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 125.0 **LOG TYPE:** Drillers Log

SOURCE: NASON CC 5 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		CLAY	11.0	0.0	
-			BROWN SANDSTONE	39.0	11.0	
-			SANDSTONE	4.0	50.0	
-			SHALE	2.0	54.0	
-			SANDSTONE	3.0	56.0	
-			SHALE	3.0	59.0	
-			SANDSTONE	7.0	62.0	
-			BLUE SHALE	6.0	69.0	
-			SANDY SHALE	6.3	75.0	
-			COAL	0.8	81.3	
-			COAL	1.0	82.0	
-			UNDERCLAY	6.0	83.0	BASTARD
-			SANDSTONE	21.0	89.0	
-			SANDSTONE	15.0	110.0	

MAPID: 19900401000C **VERSION:** 2 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:**

QUADRANGLE: MARION **LONGITUDE:** -88.937728 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.633067 **DATE COLLECTED:** 0 / 0 / 1921

SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 125.0 **LOG TYPE:** Drillers Log

SOURCE: **WELL TYPE:** Coal Test

COMMENT: LOCATION CENTER OF SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
535.0			UNCONSOLIDATED	11.0	0.0	
524.0	SPOON		SANDSTONE	43.0	11.0	
481.0	SPOON		SHALE	2.0	54.0	
479.0	SPOON		SANDSTONE	3.0	56.0	
476.0	SPOON		SHALE	3.0	59.0	
473.0	SPOON		SANDSTONE	7.0	62.0	
466.0	SPOON		SHALE	12.3	69.0	
453.7	SPOON		BONE COAL	0.8	81.3	
453.0	SPOON		COAL	1.0	82.0	
452.0	SPOON		UNDERCLAY	6.0	83.0	
446.0	SPOON		SANDSTONE	36.0	89.0	

MAPID: 19901891000C **VERSION:** 1 **PROJECT:** NCRDS17

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 40' S line, 900' W line of NW NE
QUADRANGLE: GOREVILLE **LONGITUDE:** -88.934608 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.622324 **DATE COLLECTED:** / / 1955
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 90.0 **LOG TYPE:** Drillers Log
SOURCE: STONEFORT CC 7 **WELL TYPE:** Coal Test
COMMENT: 4,1 HOLE #7

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
448.0			SANDSTONE	23.0	12.0	
425.0			SHALE	55.0	35.0	GY, SANDY. CORE LAST 50

MAPID: 19901892000C **VERSION:** 1 **PROJECT:** NCRDS17

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 225' S line, 552' E line of NE NW
QUADRANGLE: GOREVILLE **LONGITUDE:** -88.939648 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.622697 **DATE COLLECTED:** / / 1955
SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log
SOURCE: STONEFORT CC 8 **WELL TYPE:** Coal Test
COMMENT: 4,1 HOLE #8

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
486.0	PLEISTOCENE		UNCONSOLIDATED	7.0	0.0	
479.0			SANDSTONE	33.0	7.0	
446.0			SHALE	27.5	40.0	GY CORE BEGINS
418.5			SANDSTONE	2.5	67.5	

MAPID: 19902104000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of SW NE
QUADRANGLE: GOREVILLE **LONGITUDE:** -88.952863 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.619161 **DATE COLLECTED:** 7 / 0 / 1957
SURFACE ELEVATION (FT.): 507.5 **LOGGED (FT.):** 634.0 **LOG TYPE:** Electric Log
SOURCE: DAY WALTER L **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-126.5	BASE OF PENN.		UNCLASSIFIED	-	634.0	

MAPID: 19923454000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** 450' S line, 550' W line

QUADRANGLE: LICK CREEK **LONGITUDE:** -89.000564 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.612172 **DATE COLLECTED:** 5 / 23 / 1988

SURFACE ELEVATION (FT.): 650.0 **LOGGED (FT.):** 300.0 **LOG TYPE:** Survey Core Study

SOURCE: COGEOMAP G1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
650.0	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
637.0	TRADEWATER		SANDSTONE	22.2	13.0	BROWN
614.8	TRADEWATER		SANDSTONE/SHALE	29.8	35.2	GRAY
585.0	TRADEWATER		SANDSTONE	29.0	65.0	SHALEY, WITH COAL STRINGERS AT TOP
556.0	TRADEWATER		SHALE	17.2	94.0	BIOTURBATED; GRAY
538.8	TRADEWATER	MURRAY BLUFF	SANDSTONE	1.2	111.2	CONGLOMERATE SIDERITE PEBBLES; LIGHT
537.6	TRADEWATER	MURRAY BLUFF	SANDSTONE	59.6	112.4	CLAYEY, PEBBLES, BIOTURBATED, LIGHT
478.0	TRADEWATER	MURRAY BLUFF	CLAYSTONE & SILTSTONE	0.1	172.0	WITH COAL
477.9	TRADEWATER		SANDSTONE	25.2	172.1	SHALEY, LIGHT, WITH COAL STRINGERS
452.7	TRADEWATER		COAL	1.1	197.3	SMITH MEMBER
451.6	TRADEWATER		SANDSTONE	2.0	198.4	CLAYEY
449.6	TRADEWATER		SHALE	8.7	200.4	CLAYEY
440.9	TRADEWATER		SANDSTONE	5.0	209.1	SHALEY, BIOTURBATED
435.9	TRADEWATER		SANDSTONE/COAL	0.9	214.1	CONGLOMERATE
435.0	TRADEWATER		SHALE	1.0	215.0	DARK, WITH SLICKENSIDES
434.0	TRADEWATER		CLAYSTONE & SILTSTONE	5.7	216.0	NOTE- FAILED COAL ZONE; DARK
428.3	TRADEWATER		SANDSTONE	75.8	221.7	SILTY; GRAY
352.5	TRADEWATER		SANDSTONE	0.9	297.5	SHALE/SIDERITE CONGLOMERATE
351.6	TRADEWATER	REYNOLDSBURG	COAL	1.1	298.4	
350.5	TRADEWATER		UNDERCLAY	0.5	299.5	

MAPID: 19902290000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE NE

QUADRANGLE: LICK CREEK **LONGITUDE:** -89.003621 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.622824 **DATE COLLECTED:** 9 / 0 / 1965

SURFACE ELEVATION (FT.): 596.0 **LOGGED (FT.):** 650.0 **LOG TYPE:** Electric Log

SOURCE: HILDRETH, Y. E. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-54.0	BASE OF PENN.		UNCLASSIFIED	-	650.0	

MAPID: 19901031000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE NE
QUADRANGLE: MARION **LONGITUDE:** -88.875119 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.682541 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 946.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-501.0	BASE OF PENN.		UNCLASSIFIED	-	946.0	

MAPID: 19902524000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.842653 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.668291 **DATE COLLECTED:** 12 / 0 / 1971
SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 1100.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-656.0	BASE OF PENN.		UNCLASSIFIED	-	1100.0	

MAPID: 19901211000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW SE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.84504 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.644366 **DATE COLLECTED:** 2 / 0 / 1942
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 880.0 **LOG TYPE:** Electric Log
SOURCE: SUPERIOR OIL COMPANY **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-386.0	BASE OF PENN.		UNCLASSIFIED	-	880.0	

MAPID: 19901886000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NE
QUADRANGLE: MARION **LONGITUDE:** -88.91603 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.655003 **DATE COLLECTED:** 9 / 0 / 1955
SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 740.0 **LOG TYPE:** Electric Log
SOURCE: COLLINS BROTHERS OIL CO. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-289.0	BASE OF PENN.		UNCLASSIFIED	-	740.0	

MAPID: 19923232000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 20 **QUARTERS/FOOTAGES:** 990' S line, 330' E line of NW SE
QUADRANGLE: MARION **LONGITUDE:** -88.898371 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.632816 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 529.0 **LOGGED (FT.):** 778.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-249.0	BASE OF PENN.		UNCLASSIFIED	-	778.0	

MAPID: 19902090000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE SE
QUADRANGLE: MARION **LONGITUDE:** -88.877734 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.629324 **DATE COLLECTED:** 5 / 0 / 1957
SURFACE ELEVATION (FT.): 522.0 **LOGGED (FT.):** 760.0 **LOG TYPE:** Electric Log
SOURCE: EAST CENT. DEV. CO., INC **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-238.0	BASE OF PENN.		UNCLASSIFIED	-	760.0	

MAPID: 199272D0035F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW NE SE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.822287 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.619101 **DATE COLLECTED:** 0 / 0 / 1961
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 91.5 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-PARHAM **WELL TYPE:** Outcrop
COMMENT: PIT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	2.0	0.0	
-			SANDSTONE	3.0		
-			SHALE	10.0		
-	SPOON		COAL	1.3		
-	SPOON		CLAYSTONE	0.8		
-	SPOON		COAL	0.4		
-	SPOON		UNDERCLAY	5.0		
-	SPOON			1.0		
-	SPOON		SHALE	5.0		
-	SPOON		SANDSTONE	33.0		

MAPID: 19901723000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** 50' S line, 350' E line

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.83804 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.612278 **DATE COLLECTED:** 0 / 0 / 1952

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 538.0 **LOG TYPE:** Drillers Log

SOURCE: A. R. DOUGLAS, DRILLER **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	45.0	0.0	
-			SHALE	55.0		
-			SANDSTONE	26.0		
-			SHALE	14.0		
-			COAL	2.0		
-			SHALE	1.0		
-			SANDSTONE	3.0		
-			SHALE	24.0		
-			SANDSTONE	93.0		
-			SHALE	15.0		
-			SANDSTONE	25.0		
-			SANDSTONE	38.0		
-			SHALE	3.0		
-			SANDSTONE	136.0		
-			SILTSTONE	6.0		
465.0			SHALE	0.0	35.0	

MAPID: 19901724000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 26 **QUARTERS/FOOTAGES:** 2750' S line, 400' E line

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.838385 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.619723 **DATE COLLECTED:** 0 / 0 / 1953

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 402.0 **LOG TYPE:** Drillers Log

SOURCE: A. R. DOUGLAS, DRILLER **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
510.0			UNCONSOLIDATED	57.0	0.0	
453.0			ROCK	106.0	57.0	
347.0			COAL	2.0	163.0	
345.0			ROCK	237.0	165.0	

MAPID: 19902393000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 1420' S line, 300' E line of NE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.856873 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.608345 **DATE COLLECTED:** 10 / 24 / 1969
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 100.0 **LOG TYPE:** Drillers Log
SOURCE: GREER-DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
550.0			CLAYSTONE	35.0	0.0	
515.0			SHALE	27.0	35.0	
488.0			SANDSTONE	38.0	62.0	

MAPID: 19902455000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.838039 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.611224 **DATE COLLECTED:** 9 / 30 / 1970
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 210.0 **LOG TYPE:** Drillers Log
SOURCE: BEANLAND, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			CLAYSTONE	18.0	0.0	
-			SANDSTONE	40.0		
-			SHALE	16.0		
-			SANDSTONE	46.0		
-			SANDSTONE/SHALE	48.0		
-			SANDSTONE	42.0		

MAPID: 199272D0039F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.820021 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.613906 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 15.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: IN LEDGES ALONG CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			SANDSTONE	15.0	0.0	

MAPID: 19900096400M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 1 **QUARTERS/FOOTAGES:** 600' N line, 10' E line of SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.716874 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.678469 **DATE COLLECTED:** 0 / 0 / 1977
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 24.6 **LOG TYPE:**
SOURCE: MINE NOTES-JOHN NELSON, THOMAS MINE **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0			UNCONSOLIDATED	20.0	0.0	
400.0			BLACK SHALE	2.5	20.0	
397.5	CARBONDALE	HOUCHIN CREEK	COAL	2.1	22.5	

MAPID: 19900415700M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 820' N line, 300' E line of NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.726975 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.684851 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 35.3 **LOG TYPE:**
SOURCE: MINE NOTES-DELTA C MNG C **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	31.0	0.0	
409.0	CARBONDALE	SPRINGFIELD	COAL	4.3	31.0	

MAPID: 19900415800M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE NE NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.726494 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.686678 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 30.3 **LOG TYPE:**
SOURCE: MINE NOTES-FRETTO CONST. C. **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	25.0	0.0	
375.0	CARBONDALE	SPRINGFIELD	COAL	5.3	25.0	

MAPID: 19901108000C **VERSION:** 1 **PROJECT:** NCRDS87

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 700' N line, 350' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727146 **GEOLOGIST:** WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.685184 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 190.0 **LOG TYPE:** Drillers Log

SOURCE: DELTA COAL MINING CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
435.0			UNCONSOLIDATED	30.0	0.0	
405.0	SPOON		GRAY SHALE	50.0	30.0	
355.0	SPOON		BLACK SHALE	8.0	80.0	
347.0	SPOON		LIMESTONE	3.0	88.0	
344.0	SPOON	DEKOVEN	COAL	4.5	91.0	UNCERTAIN CORRELATION
339.5	SPOON		LIMESTONE	16.5	95.5	
323.0	SPOON		BLACK SHALE	5.0	112.0	
318.0	SPOON	DAVIS	COAL	1.0	117.0	UNCERTAIN CORRELATION
317.0	SPOON		GRAY SHALE	29.0	118.0	
288.0			UNCLASSIFIED	43.0	147.0	

MAPID: 19901108000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 700' N line, 350' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727146 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.685184 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 190.0 **LOG TYPE:** Drillers Log

SOURCE: DELTA COAL MNG C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
430.0			UNCONSOLIDATED	30.0	0.0	
400.0			ROCK	40.0	30.0	
360.0			SHALE	10.0	70.0	
350.0			BLACK SHALE	8.0	80.0	
342.0			LIMESTONE	3.0	88.0	
339.0			COAL	4.5	91.0	
334.5			LIMESTONE	21.5	95.5	
313.0			COAL	1.0	117.0	
312.0			SHALE	0.0	118.0	

MAPID: 19901108000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 700' N line, 350' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727146 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.685184 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 190.0 **LOG TYPE:** Drillers Log

SOURCE: DELTA COAL MINING CO. **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		BROWN SANDSTONE	30.0	0.0	
-	CARBONDALE		SHALE & SILTSTONE	20.0	30.0	SOME STREAKS LIME
-	CARBONDALE		SHALE & SILTSTONE	20.0	50.0	GRAY
-	CARBONDALE		BLACK SHALE	10.0	70.0	
-	CARBONDALE		BLACK SHALE	8.0	80.0	
-	CARBONDALE		BLACK LIMESTONE	3.0	88.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.5	91.0	(SAMPLE)
-	CARBONDALE		SANDY LIMESTONE	4.5	95.5	GRAY
-	CARBONDALE	HANOVER	LIMESTONE	12.0	100.0	
-	CARBONDALE	EXCELLO	BLACK SHALE	5.0	112.0	
-	CARBONDALE	HOUCHIN CREEK	COAL	1.0	117.0	
-	CARBONDALE		BLACK SHALE	10.0	118.0	
-	CARBONDALE		BLACK SHALE	9.0	128.0	
-	CARBONDALE		BLACK SHALE	10.0	137.0	
-	CARBONDALE		SHALE & SILTSTONE	13.0	147.0	BROWN
-	CARBONDALE		SHALE & SILTSTONE	15.0	160.0	GRAY
-	CARBONDALE		SHALE & SILTSTONE	15.0	175.0	BLACK

MAPID: 199273B0032F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** NE NW NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.738074 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.686781 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-WELLER **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	CARBONDALE	BRIAR HILL	COAL	-		
-			SHALE	-		

MAPID: 199273B0031F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** SW NE NE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.73692 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.686555 **DATE COLLECTED:** 0 / 0 / 1925

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 13.0 **LOG TYPE:** Measured section

SOURCE: F273B031 **WELL TYPE:** Outcrop

COMMENT: AREA STRIP. TRAVERSE DOWN CREEK NW TO SE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	CARBONDALE	SPRINGFIELD	COAL	1.0		
-			UNDERCLAY	-		
-			SHALE	10.0		
-			UNKNOWN	1.0		
-			CLAYSTONE	1.0		
-			SHALE	-		

MAPID: 19923233000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.801224 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.673089 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 469.0 **LOGGED (FT.):** 1100.0 **LOG TYPE:** Electric Log

SOURCE: MONJEB MINERALS, INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-631.0	BASE OF PENN.		UNCLASSIFIED	-	1100.0	

MAPID: 19901001000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SW SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.762545 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.660029 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 55.4 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 431 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	21.0	0.0	
-	CARBONDALE		ROCK	3.0	21.0	
-	CARBONDALE		DARK SHALE	4.0	24.0	
-	CARBONDALE		SANDSTONE	15.2	28.0	
-	CARBONDALE	DEKOVEN	COAL	1.9	43.2	UPPER
-	CARBONDALE		DARK SHALE	2.3	45.1	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.2	47.3	
-	CARBONDALE		UNDERCLAY	3.7	48.5	DARK
-	CARBONDALE		BLACK SHALE	1.0	52.2	
-	CARBONDALE	DAVIS	COAL	2.4	53.2	SANDSTONE

MAPID: 19901002000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.75178 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.660815 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 58.3 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 433 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	22.0	0.0	
-	CARBONDALE		SANDSTONE	23.3	22.0	
-	CARBONDALE	DEKOVEN	COAL	1.8	45.3	UPPER
-	CARBONDALE		UNCLASSIFIED	1.2	47.1	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.7	48.3	
-	CARBONDALE		SHALE	2.0	49.9	
-	CARBONDALE		BLACK SHALE	2.9	51.9	
-	CARBONDALE	DAVIS	COAL	3.5	54.8	

MAPID: 19901003000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW NE NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.757645 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.670956 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 61.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 507 **WELL TYPE:** Coal Test

COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	21.7	0.0	
-			SHALE	26.8	21.7	
-			BLACK SHALE	0.8	48.5	
-			ROCK	11.7	49.3	

MAPID: 19901004000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.744034 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.65935 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 51.4 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
405.0			UNCONSOLIDATED	18.0	0.0	
387.0			ROCK	18.3	18.0	
368.7	SPOON	DEKOVEN	COAL	2.3	36.3	
366.4	SPOON		SHALE	1.8	38.6	
364.6	SPOON	DEKOVEN	COAL	0.4	40.4	
364.2	SPOON		UNDERCLAY	0.8	40.8	
363.4	SPOON		SHALE	7.4	41.6	
356.0	SPOON	DAVIS	COAL	2.1	49.0	
353.9	SPOON		UNDERCLAY	0.0	51.1	

MAPID: 19901106000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734908 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.659093 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 59.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 437 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
407.0	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
394.0	CARBONDALE		SANDSTONE	30.3	13.0	
363.7	CARBONDALE		SHALE	2.4	43.3	
361.3	CARBONDALE	DEKOVEN	COAL	2.4	45.7	UPPER
358.9	CARBONDALE		UNCLASSIFIED	0.3	48.1	
358.6	CARBONDALE	LOWER DEKOVEN	COAL	1.3	48.4	
357.2	CARBONDALE		SHALE	3.7	49.8	
353.6	CARBONDALE		BLACK SHALE	2.5	53.4	
351.1	CARBONDALE	DAVIS	COAL	3.2	55.9	

MAPID: 19901106000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SW SW SE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734908 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.659093 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 59.1 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
407.0			UNCONSOLIDATED	13.0	0.0	
394.0			ROCK	32.7	13.0	
361.3	SPOON	DEKOVEN	COAL	4.1	45.7	
357.2	SPOON		SHALE	3.7	49.8	
353.6	SPOON		BLACK SHALE	2.5	53.4	
351.1	SPOON	DAVIS	COAL	3.2	55.9	

MAPID: 19901450000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of SE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.735482 **GEOLOGIST:** JACOBSON

CONFIDENTIAL: N **LATITUDE:** 37.65865 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 404.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**

SOURCE: FREEMAN UNITED F3 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
356.0	CARBONDALE	DEKOVEN	COAL	4.1	48.0	
356.0	CARBONDALE	LOWER DEKOVEN	COAL	0.0	48.0	
351.0	CARBONDALE	DAVIS	COAL	3.6	53.0	

MAPID: 19901875000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727203 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.672342 **DATE COLLECTED:** 8 / 0 / 1955

SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 1250.0 **LOG TYPE:** Electric Log

SOURCE: OIL MANAGEMENT, INC. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
301.0	CARBONDALE	COLCHESTER	UNCLASSIFIED	-	140.0	
249.0	SPOON	DAVIS	UNCLASSIFIED	-	192.0	
-809.0	BASE OF PENN.		UNCLASSIFIED	-	1250.0	

MAPID: 199273B0033F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE SW NW NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.742962 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.670222 **DATE COLLECTED:** 0 / 0 / 1925

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Roadcut

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			COAL	-		
-			SHALE	-		

MAPID: 19901023000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SW NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723587 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.651367 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Other Core Study
SOURCE: UNITED ELECTRIC COAL CO. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
378.0	CARBONDALE	DEKOVEN	COAL	3.1	22.0	
378.0	CARBONDALE	LOWER DEKOVEN	COAL	0.0	22.0	
358.0	CARBONDALE	DAVIS	COAL	3.1	42.0	68% SANDSTONE IN DAVIS-DEKOVEN INTERVAL

MAPID: 19901023000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SW NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723587 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.651367 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 45.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	6.0	0.0	
394.0			SANDSTONE	16.0	6.0	
378.0	SPOON	DEKOVEN	COAL	3.1	22.0	
374.9	SPOON		UNDERCLAY	2.0	25.1	
372.9	SPOON		SANDSTONE	15.0	27.1	
357.9	SPOON	DAVIS	COAL	3.1	42.1	

MAPID: 19901023000C **VERSION:** 3 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SW NW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.723587 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.651367 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 45.2 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC. COAL CO. 389-B **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	6.0	0.0	
-	CARBONDALE		SANDSTONE	16.0	6.0	
-	CARBONDALE	DEKOVEN	COAL	3.1	22.0	
-	CARBONDALE		UNDERCLAY	2.0	25.1	
-	CARBONDALE		SANDSTONE	15.0	27.1	
-	CARBONDALE	DAVIS	COAL	3.1	42.1	

MAPID: 19901452000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** 0' S line, 0' E line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.708237 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.642804 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FREEMAN UNITED F5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
422.0	CARBONDALE	DEKOVEN	COAL	3.5	25.0	
422.0	CARBONDALE	LOWER DEKOVEN	COAL	0.0	25.0	
404.0	CARBONDALE	DAVIS	COAL	3.7	43.0	

MAPID: 19901456000C **VERSION:** 1 **PROJECT:** RJJ-DAVIS

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** 1320' N line, 1320' E line
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.712644 **GEOLOGIST:** JACOBSON
CONFIDENTIAL: N **LATITUDE:** 37.654456 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 398.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: SEYMOUR COAL MINING CORP 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
331.5	CARBONDALE	DEKOVEN	COAL	3.8	66.5	
331.5	CARBONDALE	LOWER DEKOVEN	COAL	0.0	66.5	
325.2	CARBONDALE	DAVIS	COAL	3.0	72.8	

MAPID: 199273B0034F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE NW NW SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.724756 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.649551 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 8.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Underground mine
COMMENT: ELEV. FROM OLD MAP. AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNKNOWN	13.8	0.0	
436.2			SANDSTONE	6.0	13.8	
430.2	CARBONDALE		COAL	2.8	19.8	
-	CARBONDALE		SANDSTONE	-		

MAPID: 19901007000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.74357 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.64526 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 335 **WELL TYPE:** Coal Test

COMMENT: NO C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-			SANDSTONE	43.0	10.0	
-			SHALE	11.8	53.0	
-			BLACK SHALE	2.2	64.8	
-			SHALE	3.0	67.0	

MAPID: 19901008000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739532 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.651927 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 48.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 386 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0	
-	CARBONDALE		SANDSTONE	21.3	13.0	
-	CARBONDALE		SHALE	0.9	34.3	
-	CARBONDALE	DEKOVEN	COAL	1.9	35.3	
-	CARBONDALE		UNCLASSIFIED	1.5	37.2	
-	CARBONDALE		LIGHT SHALE	5.2	38.7	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.2	43.8	
-	CARBONDALE		SANDSTONE	3.0	45.0	

MAPID: 19901008000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739532 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.651927 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 70.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	13.0	0.0	
387.0			ROCK	22.3	13.0	
364.7	SPOON	DEKOVEN	COAL	1.9	35.3	
362.8	SPOON		SHALE	6.7	37.2	
356.2	SPOON	DEKOVEN	COAL	1.2	43.8	
355.0			SANDSTONE	0.0	45.0	

MAPID: 19901009000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730431 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.651601 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 36.6 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELEC. COAL CO. 1009 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0	
-	CARBONDALE		SANDSTONE	1.4	17.0	
-	CARBONDALE	DEKOVEN	COAL	1.9	18.4	UPPER
-	CARBONDALE		UNCLASSIFIED	0.3	20.3	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.4	20.6	
-	CARBONDALE		UNDERCLAY	0.8	22.0	
-	CARBONDALE		SHALE	7.9	22.8	
-	CARBONDALE		BLACK SHALE	3.2	30.7	
-	CARBONDALE	DAVIS	COAL	2.8	33.8	

MAPID: 19901009000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.730431 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.651601 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 36.6 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
400.0			UNCONSOLIDATED	17.0	0.0	
383.0			SANDSTONE	1.4	17.0	
381.6			COAL	3.6	18.4	
378.0			UNDERCLAY	0.8	22.0	
377.2			SHALE	11.1	22.8	
366.2			COAL	2.8	33.8	

MAPID: 199273B0037F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW NE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.739567 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.648281 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 16.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	15.0		
-	CARBONDALE		COAL	1.5		
-			SHALE	1.3		

MAPID: 199273B0036F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SE NE SW
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.737294 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.648191 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 7.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	3.3		
-	CARBONDALE		COAL	2.1		
-	CARBONDALE		CLAYSTONE	0.5		
-	CARBONDALE		COAL	1.3		
-	CARBONDALE		UNDERCLAY	-		

MAPID: 199273B0035F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE SE SW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.736739 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.646796 **DATE COLLECTED:** 0 / 0 / 1925

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 13.5 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Underground mine

COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	-		
-			SHALE	10.0		
-			BLACK SHALE	0.5		
-	CARBONDALE		COAL	3.0		

MAPID: 19901010000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SE NE SW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.755482 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.648957 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 32.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 357B **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	PLEISTOCENE		SAND	22.0	10.0	NO COAL

MAPID: 19901011000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW SE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748849 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.652133 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 52.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 384 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
-	PLEISTOCENE		SAND	26.0	5.0	
-	CARBONDALE	DEKOVEN	COAL	2.0	31.0	UPPER
-	CARBONDALE		LIGHT SHALE	0.6	33.0	
-	CARBONDALE		DARK SHALE	0.7	33.6	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.5	34.3	
-	CARBONDALE		LIGHT SHALE	1.8	35.8	
-	CARBONDALE		BLACK SHALE	2.5	37.5	
-	CARBONDALE	DAVIS	COAL	2.3	40.0	
-	TRADEWATER		UNDERCLAY	4.0	42.3	
-	TRADEWATER		LIGHT SHALE	4.5	46.3	
-	TRADEWATER		SANDSTONE	1.2	50.8	

MAPID: 19901011000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW SW SE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.748849 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.652133 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 52.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test
COMMENT: AREA NOW STRIPPED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	5.0	0.0	
445.0			SANDSTONE	26.0	5.0	
419.0	SPOON	DEKOVEN	COAL	2.0	31.0	
417.0	SPOON		SHALE	1.3	33.0	
415.7	SPOON	DEKOVEN	COAL	1.5	34.3	
414.2	SPOON		SHALE	4.3	35.8	
410.0	SPOON	DAVIS	COAL	2.3	40.0	
407.7	SPOON		UNDERCLAY	4.0	42.3	
403.7	SPOON		ROCK	0.0	46.3	

MAPID: 19901012000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SW NW SE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771781 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.649082 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 32.3 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 354 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-	PLEISTOCENE		SAND	6.5	14.0	
-	CARBONDALE	DEKOVEN	COAL	1.8	20.5	UPPER
-	CARBONDALE		UNCLASSIFIED	2.2	22.3	
-	CARBONDALE	LOWER DEKOVEN	COAL	1.2	24.4	
-	CARBONDALE		LIGHT SHALE	4.8	25.6	
-	CARBONDALE	DAVIS	COAL	2.0	30.3	

MAPID: 19901013000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778572 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.65472 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 31.5 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 377A **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	20.0	0.0	
-	PLEISTOCENE		SAND	11.5	20.0	NO COAL; WHITE

MAPID: 19901014000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** SE SW NW

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.778566 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.652871 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 16.6 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 377B **WELL TYPE:** Coal Test

COMMENT: COAL VERY ROTTEN BOTTOM SEAM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	10.0	0.0	
-	CARBONDALE	DAVIS	COAL	3.6	10.0	
-	TRADEWATER		UNDERCLAY	3.0	13.6	

MAPID: 19901876000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE SW
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.776281 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.649127 **DATE COLLECTED:** 9 / 0 / 1955
SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 1030.0 **LOG TYPE:** Electric Log
SOURCE: ASHLAND OIL&REF. CO. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-545.0	BASE OF PENN.		UNCLASSIFIED	-	1030.0	

MAPID: 19922901000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 990' N line, 330' E line of SE NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.801294 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.638227 **DATE COLLECTED:** 12 / 0 / 1979
SURFACE ELEVATION (FT.): 549.0 **LOGGED (FT.):** 970.0 **LOG TYPE:** Electric Log
SOURCE: MITCHELL, RONALD L. **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-421.0	BASE OF PENN.		UNCLASSIFIED	-	970.0	

MAPID: 19900999000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771816 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 37.643552 **DATE COLLECTED:** 8 / 0 / 1939
SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 1050.0 **LOG TYPE:** Electric Log
SOURCE: ROBERTS & REECE **WELL TYPE:** Producer-Oil and Gas
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-551.0	BASE OF PENN.		UNCLASSIFIED	-	1050.0	

MAPID: 19901015000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.771816 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.643552 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 1059.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 304C **WELL TYPE:** Coal Test

COMMENT: LOC. ON MAP 14-100-64

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	12.5	0.0	
-	PLEISTOCENE		SAND	19.5	12.5	
-			ROCK	2.0	32.0	SOOT BAND TOP AND BOTTOM; RED
-			LIGHT SHALE	8.5	34.0	
-			BLACK SHALE	1.5	42.5	
-			SANDSTONE	16.0	44.0	
-			ROCK	-	60.0	THICKNESS UNKNOWN, NO COAL

MAPID: 19901016000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NW NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.753173 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.64161 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 308 **WELL TYPE:** Coal Test

COMMENT: LOC. ON MAP 14-100-64, NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
510.0	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
501.0			SANDSTONE	51.0	9.0	

MAPID: 19901017000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** SW SW NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.734567 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.637506 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 64.3 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 287 **WELL TYPE:** Coal Test

COMMENT: LOC. ON MAP 14-100-64

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	5.0	0.0	
-	TRADEWATER		SAND	17.8	5.0	
-	TRADEWATER	WISE RIDGE	COAL	0.1	22.8	
-	TRADEWATER		SANDSTONE	7.9	22.8	
-	TRADEWATER		GRAY SHALE	3.8	30.8	
-	TRADEWATER		BLACK SHALE	8.9	34.6	
-	TRADEWATER		GRAY SHALE	4.0	43.5	
-	TRADEWATER		ROCK	0.8	47.5	
-	TRADEWATER		SHALE	8.7	48.3	
-	TRADEWATER	MT. RORAH	COAL	0.7	57.0	
-	TRADEWATER		UNDERCLAY	0.6	57.7	
-	TRADEWATER		SHALE	6.0	58.3	

MAPID: 19901104000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.743609 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.64152 **DATE COLLECTED:** 3 / 0 / 1941

SURFACE ELEVATION (FT.): 468.0 **LOGGED (FT.):** 1000.0 **LOG TYPE:** Electric Log

SOURCE: BROWN-WADE-WALTER **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-532.0	BASE OF PENN.		UNCLASSIFIED	-	1000.0	

MAPID: 199273B0038F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NE NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.727122 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.643173 **DATE COLLECTED:** 0 / 0 / 1925
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 39.5 **LOG TYPE:** Drillers Log
SOURCE: FLD NOTES-CADY **WELL TYPE:** Water Well
COMMENT: PROBABLY A WATER WELL-NO LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
440.0			UNKNOWN	8.0	0.0	
432.0			SANDSTONE	14.0	8.0	
418.0			COAL	3.0	22.0	
415.0			UNKNOWN	12.0	25.0	
403.0			COAL	3.5	37.0	

MAPID: 19900410800M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SE NW NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.714556 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.639904 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 3.3 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-BROKAW CHANEY MINE **WELL TYPE:** Underground mine
COMMENT: 500 NW OF CENTER NE/4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SHALE	-		
-			COAL	3.3		

MAPID: 19900421000M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NE NE
QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.709402 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.640134 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-BROKAW TRAUNELLS MINE **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SHALE	-		
-			COAL	-		

MAPID: 199273B0039F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW SE SE NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.719155 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.63738 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 29.5 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Underground mine

COMMENT: POSSIBLY A DRIFT MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	-		
-			BLACK SHALE	-		
-	CARBONDALE	DEKOVEN	COAL	3.5		
-	CARBONDALE		UNKNOWN	20.0		
-	CARBONDALE		SHALE	-		
-	CARBONDALE		BLACK SHALE	2.5		
-	CARBONDALE	DAVIS	COAL	3.5		

MAPID: 19900421400M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SE SW NE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.711391 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.618165 **DATE COLLECTED:** 0 / 0 / 1954

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-STONEHOUSE **WELL TYPE:** Underground mine

COMMENT: 2 ABANDONED DRIFTS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
470.0			UNKNOWN	0.0	0.0	

MAPID: 19923470000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** 2160' N line, 1220' E line

QUADRANGLE: STONEFORT **LONGITUDE:** -88.712697 **GEOLOGIST:** C KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.62252 **DATE COLLECTED:** 7 / 29 / 1986

SURFACE ELEVATION (FT.): 565.0 **LOGGED (FT.):** 196.0 **LOG TYPE:** Survey Core Study

SOURCE: COGEOMAP S-1 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
565.0	PLEISTOCENE		UNCONSOLIDATED	11.0	0.0	
554.0	SPOON		SANDSTONE	47.9	11.0	SHALEY, BROWN, COAL STREAKS; SUB-DAVIS
506.1	SPOON		SANDSTONE	4.6	58.9	SHALEY, NO COAL, BROWN; SUB-DAVIS
501.5	SPOON		SHALE	6.0	63.5	DARK
495.5	SPOON	SEAHORNE LS	SHALE	3.3	69.5	HARD; BLACK
492.2	SPOON		CLAYSTONE & SILTSTONE	7.3	72.8	SILTY; GRAY
484.9	SPOON	STONEFORT	LIMESTONE	0.9	80.1	
484.0	SPOON		SHALE	4.9	81.0	DARK
479.1	SPOON	WISE RIDGE	COAL	0.6	85.9	BRIGHT
478.5	SPOON		SANDSTONE	8.5	86.5	
470.0	SPOON		MUDSTONE	8.0	95.0	SILTY
462.0	SPOON		SHALE	3.0	103.0	SILTY; DARK
459.0	SPOON		SHALE	6.5	106.0	HARD; BLACK
452.5	SPOON	MT. RORAH	COAL	2.9	112.5	CLAYSTONE BANDS
449.6	SPOON		CLAYSTONE & SILTSTONE	2.1	115.4	DARK
447.5	SPOON		MUDSTONE	2.5	117.5	
445.0	SPOON		SHALE	14.3	120.0	GRAY
430.7	SPOON	CREAL SPRING	LIMESTONE	1.5	134.3	
429.2	SPOON		CLAYSTONE & SILTSTONE	1.1	135.8	
428.1	SPOON		SANDSTONE	11.1	136.9	SILTY
417.0	SPOON		SHALE	40.8	148.0	DARK
376.2	SPOON		LIMESTONE	0.2	188.8	NODULES
376.0	SPOON		SHALE & SANDSTONE	7.0	189.0	

MAPID: 199273C0006F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NW NE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.711918 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.620405 **DATE COLLECTED:** 0 / 0 / 1926

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 47.1 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Roadcut

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
520.0			ROCK	13.0	0.0	
507.0			COAL	0.8	13.0	
506.2			UNKNOWN	27.2	13.8	
479.0			SHALE	3.0	41.0	
476.0	SPOON	STONEFORT	COAL	3.1	44.0	
472.9	SPOON		UNDERCLAY	-	47.1	

MAPID: 199273C0037F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SE NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.710733 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.623055 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SANDSTONE	0.0		
-			SHALE	0.0		

MAPID: 199273C0040F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW NE NE

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.711825 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.625765 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 99.4 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-FULLER/WANLESS **WELL TYPE:** Roadcut

COMMENT: ROAD CUT ON HILL N. OF STONEFORT.FAULTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0				20.0	0.0	
-			SANDSTONE	30.0		
-			SHALE	2.7		
-			BLACK SHALE	2.5		
-			CLAYSTONE	9.1		
-			SHALE	1.6		
-			CLAYSTONE & SHALE	2.0		
-			COAL	0.9		
-			SANDSTONE	0.6		
-			CLAYSTONE	7.0		
-			SHALE	12.5		
-	SPOON		COAL	1.2		
-			CLAYSTONE	4.5		
-			UNKNOWN	4.0		
-			COAL	1.0		

MAPID: 199273C0039F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SE NE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.709679 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.618587 **DATE COLLECTED:** 0 / 0 / 1939

SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY/PAYNE **WELL TYPE:** Roadcut

COMMENT: SECTION DOWN STONEFORT HILL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0	SPOON	STONEFORT	SANDSTONE	10.0	0.0	
-	SPOON	STONEFORT	BLACK SHALE	4.0		
-	SPOON		UNDERCLAY	3.0		
-	SPOON		COAL	0.0		
-	SPOON		UNDERCLAY	3.0		
-	SPOON	STONEFORT	LIMESTONE	1.0		
-			DARK SHALE	0.3		
-			SHALE	2.5		
-			UNDERCLAY	4.0		
-			SANDSTONE	4.0		
-			UNDERCLAY	4.0		
-			SANDSTONE/SHALE	6.0		
-			SHALE	10.0		
-			COAL	4.0		

MAPID: 199273C0002F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW NE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.711951 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.618619 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 52.8 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Roadcut

COMMENT: SEE WANLESS NOTES IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
490.0	SPOON		SANDSTONE	10.0	0.0	
-	SPOON			3.0		
-	SPOON		UNDERCLAY	4.0		
-	SPOON		COAL	-		
-	SPOON		UNDERCLAY	3.0		
-	SPOON		CLAYSTONE	1.0		
-	SPOON	STONEFORT	LIMESTONE	1.0		
-				2.0		
-			SHALE	0.8		
-			SANDSTONE	1.0		
-			SHALE & SANDSTONE	10.0		
-			SHALE	5.0		
-			SHALE	10.0		
-			COAL	2.0		

MAPID: 199273C0038F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW SW SW SW

QUADRANGLE: STONEFORT **LONGITUDE:** -88.726175 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.61462 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 30.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-			SANDSTONE	30.0		
-			SHALE	0.0		

MAPID: 199273C0010F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW NW NE SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.712496 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.619967 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 136.3 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Roadcut
COMMENT: OTHER MEASURED SECTIONS IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
510.0			UNCONSOLIDATED	20.0	0.0	
490.0			ROCK	47.5	20.0	
442.5			COAL	0.9	67.5	
441.6			ROCK	77.5	68.4	
364.1	SPOON	DELONG	COAL	1.2	145.9	
362.9			CLAYSTONE	4.0	147.1	
358.9			UNKNOWN	4.0	151.1	
354.9			COAL	1.0	155.1	

MAPID: 199273C0009F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.713103 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.617738 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 3.7 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT: "IN RAVINE BELOW MINE"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	SPOON	STONEFORT	COAL	2.2		
-	SPOON		CLAYSTONE	0.5		
-	SPOON		COAL	1.0		
-	SPOON		ROCK	-		

MAPID: 199273C0008F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE NE NE SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.709068 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.620794 **DATE COLLECTED:** 0 / 0 / 1926
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT: BED OF CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	-		
-	SPOON	STONEFORT	COAL	-		

MAPID: 199273C0007F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SW SW NW

QUADRANGLE: STONEFORT **LONGITUDE:** -88.724985 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.622968 **DATE COLLECTED:** 0 / 0 / 1926

SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 1.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			ROCK	-		
-			COAL	1.0		
-			ROCK	-		

MAPID: 199273C0004F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 25 **QUARTERS/FOOTAGES:** NW SE SW

QUADRANGLE: STONEFORT **LONGITUDE:** -88.721056 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.616907 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 68.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Roadcut

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	28.0		
-				4.0		
-			CLAYSTONE	3.0		
-			SHALE	9.0		
-			COAL	1.0		
-			UNDERCLAY/SHALE	20.0		
-			COAL	3.7		
-			UNDERCLAY	4.0		
-			SHALE	19.0		

MAPID: 19901018000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 1255' N line, 100' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.744605 **GEOLOGIST:** NORTH

CONFIDENTIAL: N **LATITUDE:** 37.625932 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC COAL CO. 210 **WELL TYPE:** Coal Test

COMMENT: LOC. ON MAP 14-100-64

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	18.0	0.0	
-	TRADEWATER	WISE RIDGE	COAL	0.6	18.0	
-	TRADEWATER		ROCK	0.7	18.6	
-	TRADEWATER		LIGHT SHALE	17.8	19.3	
-	TRADEWATER		DARK SHALE	5.0	37.0	
-	TRADEWATER		BLACK SHALE	3.0	42.0	
-	TRADEWATER	MT. RORAH	COAL	0.5	45.0	
-	TRADEWATER		GRAY SHALE	14.5	45.5	

MAPID: 19901018000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** 1255' N line, 100' W line of NW

QUADRANGLE: CARRIER MILLS **LONGITUDE:** -88.744605 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.625932 **DATE COLLECTED:** 0 / 0 / 1938

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 60.0 **LOG TYPE:** Drillers Log

SOURCE: UNITED ELECTRIC C C **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	18.0	0.0	
432.0			COAL	0.6	18.0	
431.4			ROCK	26.4	18.6	
405.0			COAL	0.5	45.0	
404.5			ROCK	0.0	45.5	

MAPID: 199273C0011F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SE NE SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.727287 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.619293 **DATE COLLECTED:** 0 / 0 / 1926
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 4.3 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			BLACK SHALE	-		
-			COAL	1.3		
-			UNDERCLAY	3.0		

MAPID: 199273C0012F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:** NE SW SW NW
QUADRANGLE: STONEFORT **LONGITUDE:** -88.743251 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.6233 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 47.1 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-FULLER **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			SANDSTONE	-	0.0	
-			SHALE	5.6		
-			BLACK SHALE	2.3		
-			SHALE	1.3		
-			CLAYSTONE	2.6		
-	SPOON	STONEFORT		0.7		
-			SHALE	6.3		
-			COAL	0.7		
-			SANDSTONE	0.7		
-			CLAYSTONE	3.0		
-			SANDSTONE	2.0		
-			SHALE	3.0		
-			CLAYSTONE	5.0		
-			SHALE	3.0		

MAPID: 199273C0041F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 26 **QUARTERS/FOOTAGES:**
QUADRANGLE: STONEFORT **LONGITUDE:** -88.735837 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.621771 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Outcrop
COMMENT: SEVERAL DEP MEASUREMENTS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			SANDSTONE	0.0	0.0	
-			BLACK SHALE	0.0		

MAPID: 19901019000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 100' S line, 3280' E line
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.756382 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.615083 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 132B **WELL TYPE:** Coal Test
COMMENT: LOC. ON MAP 14-100-64 NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-			SHALE	58.0	14.0	

MAPID: 19901019000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 100' S line, 3280' E line
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.756382 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.615083 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 72.0 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0			UNCONSOLIDATED	14.0	0.0	
446.0			SHALE	58.0	14.0	

MAPID: 19923289000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 990' S line, 330' E line of NW SE

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.750847 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.621092 **DATE COLLECTED:**

SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 910.0 **LOG TYPE:** Electric Log

SOURCE: **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-387.0	BASE OF PENN.		UNCLASSIFIED	-	910.0	

MAPID: 19923289000C **VERSION:** 2 **PROJECT:** COGEOMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** 990' S line, 330' E line of NW SE

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.750847 **GEOLOGIST:** C.P.WEIBEL

CONFIDENTIAL: N **LATITUDE:** 37.621092 **DATE COLLECTED:** 1 / 11 / 1983

SURFACE ELEVATION (FT.): 519.0 **LOGGED (FT.):** 2420.0 **LOG TYPE:**

SOURCE: MONJEB MINERAL INC. **WELL TYPE:** Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
-393.0			UNKNOWN	53.0	912.0	
-446.0			LIMESTONE	155.0	965.0	
-601.0			UNKNOWN	66.0	1120.0	
-667.0			UNKNOWN	96.0	1186.0	
-763.0			UNKNOWN	71.0	1282.0	
-834.0			LIMESTONE	128.0	1353.0	
-962.0			SANDSTONE	63.0	1481.0	
-1025.0			LIMESTONE	16.0	1544.0	
-1041.0			SANDSTONE	102.0	1560.0	
-1143.0			LIMESTONE	58.0	1662.0	
-1201.0			SANDSTONE	121.0	1720.0	
-1322.0			LIMESTONE	83.0	1841.0	
-1405.0			SHALE	59.0	1924.0	
-1464.0			LIMESTONE	2.0	1983.0	
-1466.0			SANDSTONE	128.0	1985.0	
-1594.0			UNKNOWN	82.0	2113.0	
-1676.0			SANDSTONE	17.0	2195.0	
-1693.0			LIMESTONE	40.0	2212.0	
-1733.0			SANDSTONE	22.0	2252.0	
-1755.0			LIMESTONE	47.0	2274.0	
-1802.0			SANDSTONE	0.0	2321.0	

MAPID: 199272D0036F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** SW SE NW

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.758024 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.623201 **DATE COLLECTED:** 0 / 0 / 1926

SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 20.5 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			COAL	0.5		
-			CLAYSTONE & SHALE	-		
-			SANDSTONE	8.0		
-			SHALE	4.0		
-			UNDERCLAY	-		

MAPID: 199273C0013F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 27 **QUARTERS/FOOTAGES:** NW SE NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.748535 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.62482 **DATE COLLECTED:** 0 / 0 / 1926

SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 2.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	-		
-			UNKNOWN	20.0		
-			SHALE	-		
-	SPOON		COAL	1.5		
-			CLAYSTONE	0.5		

MAPID: 19900096500M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NW SW SW NE

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.79056 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.624071 **DATE COLLECTED:** 4 / 20 / 1977

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 2.8 **LOG TYPE:**

SOURCE: MINE NOTES-POPP, OXFORD MNG C **WELL TYPE:** Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	-	0.0	
-			COAL	0.6		
-			SHALE	0.1		
-			COAL	0.2		
-			CLAYSTONE	0.5		
-	SPOON		COAL	1.4		

MAPID: 19901881000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE NE

QUADRANGLE: CRAB ORCHARD **LONGITUDE:** -88.783243 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.62728 **DATE COLLECTED:** 9 / 0 / 1955

SURFACE ELEVATION (FT.): 555.0 **LOGGED (FT.):** 1070.0 **LOG TYPE:** Electric Log

SOURCE: PORTIS, R. W. DRLG. **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-515.0	BASE OF PENN.		UNCLASSIFIED	-	1070.0	

MAPID: 19923419000C **VERSION:** 1 **PROJECT:** NCRDS99

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** 1900' S line, 500' E line

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.783798 **GEOLOGIST:** C KOROSE

CONFIDENTIAL: N **LATITUDE:** 37.62065 **DATE COLLECTED:** 11 / 7 / 1985

SURFACE ELEVATION (FT.): 570.0 **LOGGED (FT.):** 100.8 **LOG TYPE:** Survey Core Study

SOURCE: COGEOMAP C-4 **WELL TYPE:** Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
570.0	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
562.0	SPOON		SANDSTONE	14.8	8.0	SUB-DAVIS; IRON STAINED; BROWN
547.2	SPOON	CARRIER MILLS	SHALE	6.5	22.8	WEATHERED TO BROWN; GRAY
540.8	SPOON	CARRIER MILLS	SHALE	6.9	29.2	SIDERITE LENSES; CARB BASE; DARK
533.9	SPOON		SHALE	1.7	36.1	SILTY
532.2	SPOON		CLAYSTONE & SILTSTONE	2.8	37.8	CALCAREOUS, TYPICAL UNDERCLAY
529.5	SPOON		LIMESTONE	0.5	40.5	
529.0	SPOON	STONEFORT	LIMESTONE	4.8	41.0	WITH CLAYSTONE, GREENISH CAST
524.2	SPOON		SHALE	2.7	45.8	DARK
521.6	SPOON		LIMESTONE	2.6	48.4	
519.0	SPOON		SHALE	1.5	51.0	CARBONACEOUS; BLACK
517.5	SPOON	WISE RIDGE	COAL	0.6	52.5	
516.9	SPOON		UNDERCLAY	3.8	53.1	GREENISH TINT; GRAY
513.1	SPOON		SHALE	1.8	56.9	PURPLISH TINT; GRAY
511.3	SPOON		SHALE	0.5	58.7	WITH SOME COAL ZONES; DARK
510.8	SPOON		UNDERCLAY	1.5	59.2	
509.4	SPOON		LIMESTONE	0.4	60.6	
509.0	SPOON		CLAYSTONE & SILTSTONE	5.9	61.0	SILTY, WITH SOME SIDERITE
503.1	SPOON		SHALE	8.9	66.9	DARK TO BLACK, SLICKENSIDED; DARK
494.3	SPOON	MT. RORAH	COAL	1.5	75.7	BRIGHT BANDED, PYRITIC LENSES
492.8	SPOON	MT. RORAH	SHALE	0.2	77.2	CARBONACEOUS; DARK
492.6	SPOON	MT. RORAH	SHALE	0.7	77.4	AS ABOVE, PYRITIZED; DARK
491.9	SPOON	MT. RORAH	COAL	0.6	78.1	AS ABOVE
491.4	SPOON		UNDERCLAY	1.3	78.6	COAL STRINGERS
490.1	SPOON		LIMESTONE	1.1	79.9	
489.0	SPOON		SHALE	7.2	81.0	SILTY; GRAY
481.8	SPOON		SHALE	1.0	88.2	SIDERITIC; GREEN-GRAY
480.7	SPOON	CREAL SPRING	LIMESTONE	2.9	89.3	
477.9			SHALE	5.6	92.1	SILTY
472.3			SANDSTONE	3.1	97.7	

MAPID: 199272D0038F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 29 **QUARTERS/FOOTAGES:** NW SE SW NE

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.788297 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.624076 **DATE COLLECTED:** 4 / 20 / 1977

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 4.5 **LOG TYPE:** Measured section

SOURCE: MINE NOTES-POPP **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			UNCONSOLIDATED	0.0	0.0	
-	SPOON		COAL	1.0		
-	SPOON		CLAYSTONE	3.5		

MAPID: 199272D0034F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** NW SW SW

QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.817704 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.618193 **DATE COLLECTED:** 0 / 0 / 1960

SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 133.4 **LOG TYPE:**

SOURCE: FLD NOTES-R. I 214 **WELL TYPE:** Strip Mine

COMMENT: CREAL SPRINGS QUARRY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
500.0			SANDSTONE	18.0	0.0	
-			SHALE	1.5		
-			BLACK SHALE	2.0		
-			SHALE	14.5		
-	SPOON	STONEFORT	LIMESTONE	0.7		
-			SHALE	3.1		
-	SPOON	WISE RIDGE	COAL	1.0		
-			UNDERCLAY	1.7		
-				5.0		
-			BLACK SHALE	0.1		
-			UNDERCLAY	1.2		
-			SHALE	16.8		
-	SPOON		COAL	2.1		
-			UNDERCLAY	4.8		
-			SHALE	9.0		
-			SHALE	1.0		
-	SPOON		LIMESTONE	1.5		
-			SHALE	5.0		
-	SPOON	GRANGER	SANDSTONE	40.0		

MAPID: 199272D0040F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 100' N line, 500' W line of NE SW
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.812476 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.622416 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 16.5 **LOG TYPE:** Measured section
SOURCE: FLD. NOTES-WANLESS **WELL TYPE:** Roadcut
COMMENT: ROAD CUT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
450.0			UNCONSOLIDATED	-	0.0	
-			SANDSTONE	2.0		
-			SHALE	5.0		
-			UNKNOWN	3.0		
-				1.5		
-	SPOON		LIMESTONE	0.8		
-	SPOON		SHALE	1.2		
-	SPOON		SHALE	1.7		
-	SPOON		BLACK SHALE	1.3		

MAPID: 199272D0041F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' S line, 660' E line of NE SW
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.811794 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.619991 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: FLD. NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: TRAVERSE ALONG SUGAR CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SHALE	-		
-			UNKNOWN	2.0		
-			COAL	-		
-			UNKNOWN	-		
-	SPOON	CURLEW	LIMESTONE	-		
-	SPOON		SANDSTONE	75.0		

MAPID: 19902582000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 31 **QUARTERS/FOOTAGES:** NW NE NW
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.812988 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.614549 **DATE COLLECTED:** 6 / 3 / 1973
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 160.0 **LOG TYPE:** Drillers Log
SOURCE: GREER, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
550.0			CLAYSTONE	46.0	0.0	
504.0			SANDSTONE	100.0	46.0	
404.0			SANDSTONE	14.0	146.0	

MAPID: 19901103000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE SE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.784171 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.606145 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 110.0 **LOG TYPE:** Drillers Log
SOURCE: ASKEW & MILLER, DRILLERS **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.0			UNCONSOLIDATED	9.0	0.0	
531.0			ROCK	64.0	9.0	
467.0			COAL	0.5	73.0	
466.5			ROCK	36.5	73.5	

MAPID: 199272D0042F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.783151 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.614478 **DATE COLLECTED:** 0 / 0 / 1956
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 35.4 **LOG TYPE:** Measured section
SOURCE: FLD. NOTES- W. H. SMITH **WELL TYPE:** Roadcut
COMMENT: ROAD CUT ON RT 166

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
550.0			UNKNOWN	30.5	0.0	
-			SHALE	6.0		
-				0.4		
-	SPOON		SHALE	1.5		
-	SPOON		BLACK SHALE	1.3		

MAPID: 199272D0064F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 32 **QUARTERS/FOOTAGES:** NW NE SE
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.785314 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.607074 **DATE COLLECTED:** 0 / 0 / 1933
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 110.0 **LOG TYPE:** Drillers Log
SOURCE: ASKEW & MILLER **WELL TYPE:** Water Well
COMMENT: NOTES SAY "SEE LOG"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
520.0			UNKNOWN	73.0	0.0	
-			COAL	0.5		
-			UNKNOWN	36.5		

MAPID: 19902317000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.780688 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.601489 **DATE COLLECTED:** 6 / 16 / 1967
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 75.0 **LOG TYPE:** Drillers Log
SOURCE: RIDER, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.0			CLAYSTONE	10.0	0.0	
530.0			ROCK	50.0	10.0	
480.0			SILTSTONE	3.0	60.0	
477.0			ROCK	9.0	63.0	
468.0			SILTSTONE	3.0	72.0	

MAPID: 19922676000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 33 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: CREAL SPRINGS **LONGITUDE:** -88.780688 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.601489 **DATE COLLECTED:** 1 / 18 / 1974
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 215.0 **LOG TYPE:** Drillers Log
SOURCE: GREER, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.0			CLAYSTONE	48.0	0.0	
-			SANDSTONE/SHALE	167.0		

MAPID: 19900093500M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SE NE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.746202 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.604606 **DATE COLLECTED:** 8 / 24 / 1977

SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 64.6 **LOG TYPE:**

SOURCE: MINE NOTES-NELSON, WESTERN MINING C **WELL TYPE:** Strip Mine

COMMENT: SECTION FROM NW FACING HIWALL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
540.0			UNCONSOLIDATED	5.0	0.0	
-			SANDSTONE	10.0		
-			SHALE	8.0		
-			SHALE	0.5		
-			BLACK SHALE	5.1		
-				0.7		
-			LIMESTONE	1.3		
-			CLAYSTONE	5.7		
-			LIMESTONE	1.1		
-			SHALE	3.2		
-			COAL	0.3		
-			LIMESTONE	0.7		
-			SHALE	2.0		
-			SANDSTONE	3.0		
-				12.0		
-			SHALE	6.0		
-	SPOON		COAL	-		

MAPID: 199273C0043F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** SW SE SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.748501 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.601058 **DATE COLLECTED:** 0 / 0 / 1926

SURFACE ELEVATION (FT.): 570.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop

COMMENT: "SMALL WASH IN W. SIDE OF HILL"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	4.0		
-				-		
-			SHALE	-		
-			UNDERCLAY	-		
-			LIMESTONE	-		
-			SANDSTONE	-		

MAPID: 199273C0014F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NE NE SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.745617 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.606838 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 3.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			BLACK SHALE	0.0		
-			COAL	3.0		

MAPID: 19900416200M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SE SE SE SE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.72746 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.600161 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-HARRIS & HANKS C C **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
420.0	SPOON	NEW BURNSIDE	COAL	0.0	0.0	

MAPID: 19900421300M **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW SW SW
QUADRANGLE: STONEFORT **LONGITUDE:** -88.744503 **GEOLOGIST:** BARGH M.
CONFIDENTIAL: N **LATITUDE:** 37.600526 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Measured section
SOURCE: MINE NOTES-BALD HILL MINE **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	SPOON		COAL	-		

MAPID: 19901020000C **VERSION:** 1 **PROJECT:** NCRDS98

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2725' S line, 2500' E line
QUADRANGLE: STONEFORT **LONGITUDE:** -88.735482 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 37.607406 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 61.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELECTRIC COAL CO. 87 **WELL TYPE:** Coal Test
COMMENT: LOCMAP14-100-64,NO COAL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0	
-			SHALE	24.0	14.0	
-			SANDSTONE	23.5	38.0	

MAPID: 19901020000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** 2725' S line, 2500' E line
QUADRANGLE: STONEFORT **LONGITUDE:** -88.735482 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.607406 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 61.5 **LOG TYPE:** Drillers Log
SOURCE: UNITED ELEC COAL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			UNCONSOLIDATED	14.0	0.0	
402.0			SHALE	24.0	38.0	
378.5			SANDSTONE	23.6	61.5	

MAPID: 19922611000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NW NE
QUADRANGLE: STONEFORT **LONGITUDE:** -88.732459 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 37.613348 **DATE COLLECTED:** 12 / 27 / 1973
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 165.0 **LOG TYPE:** Drillers Log
SOURCE: BEANLAND, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
440.0			CLAYSTONE	25.0	0.0	
402.0			SHALE	13.0	38.0	
365.0			SANDSTONE	37.0	75.0	
275.0			SANDSTONE	90.0	165.0	

MAPID: 19922655000C **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE SW NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.73249 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.609741 **DATE COLLECTED:** 4 / 16 / 1974

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 208.0 **LOG TYPE:** Drillers Log

SOURCE: BEANLAND, DRILLER **WELL TYPE:** Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0			CLAYSTONE	6.0	0.0	
454.0			SHALE	18.0	6.0	
436.0			SHALE	56.0	24.0	
380.0			SANDSTONE	110.0	80.0	

MAPID: 199273C0045F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW

QUADRANGLE: STONEFORT **LONGITUDE:** -88.740508 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.603589 **DATE COLLECTED:** 0 / 0 / 1932

SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 76.3 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
460.0				15.0	0.0	
-	SPOON	WILEY	SANDSTONE	5.0		
-			UNKNOWN	2.0		
-			SHALE	5.0		
-			UNKNOWN	3.0		
-	SPOON	STONEFORT	SILTSTONE	3.5		
-			UNDERCLAY	2.0		
-			UNKNOWN	6.0		
-	SPOON	STONEFORT	LIMESTONE	-		
-			UNKNOWN	10.0		
-			CLAYSTONE	2.0		
-			SHALE	1.5		
-			SHALE	1.3		
-			CLAYSTONE	0.1		
-			UNDERCLAY	2.5		
-				1.0		
-			UNDERCLAY	3.5		
-			UNKNOWN	2.5		
-			SHALE	0.7		
-			SHALE	0.5		
-			UNKNOWN	3.0		
-			SHALE	0.8		
-			SANDSTONE	-		
-			UNKNOWN	2.5		
-				3.0		

MAPID: 199273C0044F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE SW SE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.732553 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.602525 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 10.0 **LOG TYPE:** Measured section

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-			SANDSTONE	6.0		
-			SHALE	-		
-			SHALE	-		
-			LIMESTONE	4.0		

MAPID: 19901882000C **VERSION:** 1 **PROJECT:** CUSMAP

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.709764 **GEOLOGIST:**

CONFIDENTIAL: N **LATITUDE:** 37.607625 **DATE COLLECTED:** 10 / 0 / 1955

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 773.0 **LOG TYPE:** Electric Log

SOURCE: HIGGINS C S **WELL TYPE:** Producer-Oil and Gas

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-368.0	BASE OF PENN.		UNCLASSIFIED	-	773.0	

MAPID: 19901882000C **VERSION:** 2 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.709764 **GEOLOGIST:** BARGH,M

CONFIDENTIAL: N **LATITUDE:** 37.607625 **DATE COLLECTED:** 10 / 27 / 1955

SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 2040.0 **LOG TYPE:** Multiple log types

SOURCE: C. S. HIGGINS **WELL TYPE:** Oil and Gas Test

COMMENT: 4,5. TOPS FROM SCOUT TICKET SS #25988.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
405.0			UNKNOWN	995.0	0.0	
-			UNKNOWN	-		
-590.0			UNKNOWN	102.0	995.0	
-692.0			SANDSTONE	104.0	1097.0	
-796.0			SANDSTONE	50.0	1201.0	
-846.0			UNKNOWN	113.0	1251.0	
-959.0			UNKNOWN	62.0	1364.0	
-1021.0			UNKNOWN	59.0	1426.0	
-1080.0			UNKNOWN	45.0	1485.0	
-1125.0			UNKNOWN	27.0	1530.0	
-1152.0			UNKNOWN	45.0	1557.0	
-1197.0			UNKNOWN	97.0	1602.0	
-1294.0			UNKNOWN	204.0	1699.0	
-1498.0			UNKNOWN	100.0	1903.0	
-1598.0			SANDSTONE	104.0	2003.0	
-1702.0			UNKNOWN	46.0	2107.0	
-1748.0			UNKNOWN	25.0	2153.0	
-1773.0			UNKNOWN	7.0	2178.0	
-1780.0			UNKNOWN	30.0	2185.0	
-1810.0			UNKNOWN	29.0	2215.0	
-1839.0			UNKNOWN	-	2244.0	

MAPID: 199273C0016F **VERSION:** 1 **PROJECT:** BLM

COUNTY: WILLIAMSON **TWP/RNG:** 10S 4E **SECTION:** 36 **QUARTERS/FOOTAGES:** SW NE NE

QUADRANGLE: STONEFORT **LONGITUDE:** -88.71203 **GEOLOGIST:** BARGH M.

CONFIDENTIAL: N **LATITUDE:** 37.611373 **DATE COLLECTED:** 0 / 0 / 1916

SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 80.0 **LOG TYPE:** Drillers Log

SOURCE: FLD NOTES-BROKAW **WELL TYPE:** Water Well

COMMENT: "JOYNERS WELL" PROBABLY WATERWELL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	THICKNESS (FT.) OVERBURDEN	COMMENT
410.0			SANDSTONE	70.0	0.0	
340.0			UNKNOWN	5.0	70.0	
335.0			COAL	5.0	75.0	