

Status Report

Total Records: 1247

Top 3 County Records		Top 3 Log Type Records		Top 3 Coal Records		Top 3 Member Records	
Jefferson	1247	Electric Log	582	HERRIN	840	HERRIN COAL	840
		Drillers Log	209	SPRINGFIELD	430	SPRINGFIELD COAL	430
		Survey Core Study	71	DANVILLE	300	PIASA LIMESTONE	301

Data Summary

Cross-tabulation of all selected logs, individual logs will vary.

Tabulation of logged intervals only, individual logs will vary.

Depth and Thickness measurements in feet

Member	Lithology	Avg. Depth	Min. Depth	Max. Depth	Avg. Thk	Min. Thk	Max. Thk
OPDYKE	COAL	32.2	26.5	42.3	1.8	0.8	2.3
BELLE RIVE	COAL	34.8	30.8	38.8	1.7	1.5	1.8
MILLERSVILLE	LIMESTONE	119.4	42.0	186.0	6.3	1.0	49.0
WITT	COAL	138.5	138.5	138.5	0.5	0.5	0.5
FLAT CREEK	COAL	118.4	45.0	200.0	1.3	0.8	2.5
CARTHAGE	LIMESTONE	342.0	146.0	536.0	6.4	1.0	14.5
NEW HAVEN	COAL	268.6	178.0	384.3	1.1	0.4	3.5
MACOUPIN	LIMESTONE	210.0	210.0	210.0	3.0	2.0	4.0
WOMAC	COAL	287.2	203.5	394.0	1.4	0.5	5.3
BURROUGHS	LIMESTONE	276.0	276.0	276.0	2.0	2.0	2.0
CARLINVILLE	LIMESTONE	292.0	231.0	364.1	5.0	1.0	16.4
CRAMER	LIMESTONE	513.6	513.6	513.6	1.4	1.4	1.4
MOUND CITY	SHALE	477.0	476.0	478.0	2.0	2.0	2.0
CHAPEL	COAL	423.8	319.5	524.0	1.2	0.3	4.0
LAKE CREEK	COAL	507.5	505.0	510.0	1.4	1.0	1.7
POND CREEK	COAL	528.8	505.0	543.3	0.7	0.2	1.0
DEGRAFF	COAL	571.8	494.5	691.0	1.0	0.5	1.8
PIASA	LIMESTONE	709.4	355.0	1010.0	5.3	0.2	16.0
DANVILLE	COAL	744.9	366.0	1052.0	2.3	0.2	9.0
GALUM	LIMESTONE	790.8	686.0	895.5	3.5	3.0	4.0
ALLENBY	COAL	829.9	562.0	925.0	1.3	0.3	2.5
SS BELOW NO. 7	SANDSTONE	847.3	716.0	924.0	6.9	4.0	18.0
BANKSTON FORK	LIMESTONE	742.5	440.0	1041.0	7.6	0.3	48.0
ANVIL ROCK	SANDSTONE	845.5	574.8	946.0	12.5	4.0	23.8
LAWSON	SHALE	785.9	471.0	1055.0	39.7	2.1	169.1
CONANT	LIMESTONE	781.1	580.0	950.0	3.3	0.4	10.0
JAMESTOWN	COAL	834.8	681.0	952.0	1.4	0.3	3.0
BRERETON	LIMESTONE	798.7	461.0	1083.0	5.7	0.5	19.0
ANNA	SHALE	808.5	417.3	1086.0	2.5	0.2	9.0
ENERGY	SHALE	677.1	368.0	1063.0	52.5	1.0	141.1

HERRIN	COAL	788.5	453.0	1088.0	5.9	0.5	18.9
HIGGINSVILLE	LIMESTONE	727.2	642.0	803.0	7.3	1.0	15.0
VERMILIONVILLE	SANDSTONE	926.3	788.0	996.0	15.0	6.0	34.0
BRIAR HILL	COAL	898.9	677.5	1090.0	1.1	0.2	2.3
CANTON	SHALE	958.6	832.0	1038.0	10.7	4.0	23.0
ST. DAVID	LIMESTONE	776.8	689.0	1013.4	1.6	0.4	4.5
TURNER MINE	SHALE	766.2	691.5	1014.8	3.2	0.6	12.5
DYKERSBURG	SHALE	878.9	717.9	1045.0	3.6	1.0	7.7
SPRINGFIELD	COAL	852.2	491.0	1129.0	4.2	0.2	7.0
SS BELOW NO. 5	SANDSTONE	993.1	890.0	1062.0	20.5	4.0	54.0
HOUCHIN CREEK	COAL	1034.3	798.0	1190.0	-	-	-
COLCHESTER	COAL	895.1	604.0	1108.0	-	-	-
BEECH CREEK	LIMESTONE	2050.6	1714.0	2509.0	-	-	-
UPPER DEVONIAN S		3769.9	3464.0	4470.0	-	-	-
BASE UPPER DEVON		3869.3	3587.0	4535.0	-	-	-
GRASSY CREEK	SHALE	3783.9	3493.0	4474.0	-	-	-
				Net Coal	28.1		

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: 08100119000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 2480' S line, 970' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.048391 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.466591 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 560.0 **LOGGED (FT.):** 941.0 **LOG TYPE:** Drillers Log
SOURCE: **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-235.0	MODESTO	PIASA	CALCAREOUS SHALE	3.0	795.0
-238.0	CARBONDALE	DANVILLE	BLACK SHALE	9.0	798.0
-247.0	CARBONDALE		CLAYSTONE	8.0	807.0
-255.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	815.0
-265.0	CARBONDALE	LAWSON	CLAYSTONE	9.0	825.0
-274.0	CARBONDALE	LAWSON	SILTY SHALE	16.0	834.0
-290.0	CARBONDALE	LAWSON	CLAYSTONE	5.0	850.0
-295.0	CARBONDALE	LAWSON	LIMESTONE	12.0	855.0
-307.0	CARBONDALE	LAWSON	LIMESTONE AND SANDSTONE	16.0	867.0

MAPID: 08100961000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 2 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.055238 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.46609 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 583.0 **LOGGED (FT.):** 2021.0 **LOG TYPE:** Electric Log
SOURCE: ALLEN, W. O. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-348.0	CARBONDALE	SPRINGFIELD	COAL	-	931.0
-483.0	CARBONDALE	COLCHESTER	COAL	-	1066.0
-1438.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2021.0

MAPID: 08100279000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE NE NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.080608 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.473421 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 616.0 **LOGGED (FT.):** 2180.0 **LOG TYPE:**
SOURCE: WISER OC, HOYT E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
124.0	BOND	CARTHAGE	LIMESTONE	-	492.0

MAPID: 08100702000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.073654 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.466452 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 587.0 **LOGGED (FT.):** 1926.0 **LOG TYPE:** Electric Log
SOURCE: ESSEX ROYALTY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-325.0	CARBONDALE	SPRINGFIELD	COAL	-	912.0
-449.0	CARBONDALE	COLCHESTER	COAL	-	1036.0
-1339.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1926.0

MAPID: 08100702000C VERSION: 2

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 3 QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.073654

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.466452

DATE COLLECTED: 0 / 0 / 1946

SURFACE ELEVATION (FT.): 587.0 LOGGED (FT.): 2397.0

LOG TYPE:

SOURCE: ESSEX CORP, CARPENTER 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
118.0	BOND	CARTHAGE	LIMESTONE	-	469.0
-275.0	CARBONDALE	HERRIN	COAL	-	862.0

MAPID: 08100648000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 4 QUARTERS/FOOTAGES: NE NW NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.094491

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.473393

DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 604.0 LOGGED (FT.): 2305.0

LOG TYPE:

SOURCE: BAYER K M, TELFORD E 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
113.0	BOND	CARTHAGE	LIMESTONE	-	491.0
-276.0	CARBONDALE	HERRIN	COAL	-	880.0

MAPID: 08101398000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 4 QUARTERS/FOOTAGES: 990' S line, 330' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.089973

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.463314

DATE COLLECTED:

SURFACE ELEVATION (FT.): 577.0 LOGGED (FT.): 872.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-239.0	MODESTO	PIASA	CALCAREOUS SHALE	16.0	816.0
-255.0	MODESTO		SHALE	10.0	832.0
-265.0	CARBONDALE	DANVILLE	COAL	2.0	842.0
-267.0	CARBONDALE		DARK GRAY SHALE	2.0	844.0
-269.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	4.0	846.0
-273.0	CARBONDALE	LAWSON	SHALE	6.0	850.0
-279.0	CARBONDALE	CONANT	LIMESTONE	1.0	856.0
-280.0	CARBONDALE		DARK GRAY SHALE	3.0	857.0
-283.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	4.0	860.0
-287.0	CARBONDALE	ANNA	BLACK SHALE	2.0	864.0
-289.0	CARBONDALE	HERRIN	COAL	6.0	866.0

MAPID: 08124783000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.094498 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.473335 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 604.0 **LOGGED (FT.):** 1896.0 **LOG TYPE:** Electric Log
SOURCE: BAYER, KENNETH M. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-328.0	CARBONDALE	SPRINGFIELD	COAL	-	932.0
-454.0	CARBONDALE	COLCHESTER	COAL	-	1058.0
-1292.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1896.0

MAPID: 08101399000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.117767 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.46503 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 1884.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-298.0	CARBONDALE	SPRINGFIELD	COAL	-	862.0
-430.0	CARBONDALE	COLCHESTER	COAL	-	994.0
-1320.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1884.0

MAPID: 08100004000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** NW NW SW
QUADRANGLE: IRVINGTON **LONGITUDE:** -89.143374 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.466912 **DATE COLLECTED:** 0 / 0 / 1922
SURFACE ELEVATION (FT.): 532.4 **LOGGED (FT.):** 1668.0 **LOG TYPE:**
SOURCE: ROLEUM OG, HARDY **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
144.4	BOND	CARTHAGE	LIMESTONE	-	388.0
-250.6	CARBONDALE	HERRIN	COAL	-	783.0

MAPID: 08100123000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 6 QUARTERS/FOOTAGES: NW NE NE

QUADRANGLE: IRVINGTON LONGITUDE: -89.129323 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.473121 DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 1714.0 LOG TYPE: Electric Log

SOURCE: ALGONA OIL, INC. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-243.0	CARBONDALE	SPRINGFIELD	COAL	-	742.0	
-380.0	CARBONDALE	COLCHESTER	COAL	-	879.0	
-1215.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1714.0	

MAPID: 08100123000C VERSION: 2

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 6 QUARTERS/FOOTAGES: NW NE NE

QUADRANGLE: IRVINGTON LONGITUDE: -89.129323 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.473121 DATE COLLECTED: 0 / 0 / 1938

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 2134.0 LOG TYPE:

SOURCE: ALGONA OC, SMITHY EDW 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
187.0	BOND	CARTHAGE	LIMESTONE	-	312.0	
-210.0	CARBONDALE	HERRIN	COAL	-	709.0	

MAPID: 08101447000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 6 QUARTERS/FOOTAGES: 990' S line, 2215' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.133782 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.463177 DATE COLLECTED:

SURFACE ELEVATION (FT.): 550.0 LOGGED (FT.): 751.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-142.0	MODESTO	PIASA	LIMESTONE	5.0	692.0
-147.0	MODESTO		LIMESTONE W/ SHALE	20.0	697.0
-167.0	CARBONDALE	DANVILLE	COAL	3.0	717.0
-170.0	CARBONDALE		DARK GRAY SHALE	3.0	720.0
-173.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	723.0
-176.0	CARBONDALE	LAWSON	CLAYSTONE	4.0	726.0
-180.0	CARBONDALE	CONANT	LIMESTONE & SHALE	1.5	730.0
-181.5	CARBONDALE		SHALE	1.5	731.5
-183.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	8.0	733.0
-191.0	CARBONDALE	ANNA	BLACK SHALE	2.0	741.0
-193.0	CARBONDALE	HERRIN	COAL	8.0	743.0

MAPID: 08100943000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE NW

QUADRANGLE: IRVINGTON LONGITUDE: -89.138896 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.455885 DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 1842.0 LOG TYPE: Electric Log

SOURCE: MCMANMAY, J. L. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-386.0	CARBONDALE	SPRINGFIELD	COAL	-	912.0
-519.0	CARBONDALE	COLCHESTER	COAL	-	1045.0
-1316.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1842.0

MAPID: 08101361000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 7 QUARTERS/FOOTAGES: 1650' N line, 990' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.129585

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.455847

DATE COLLECTED:

SURFACE ELEVATION (FT.): 561.0

LOGGED (FT.): 790.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-158.0	MODESTO	PIASA	LIMESTONE	3.0	719.0
-161.0	MODESTO		LIMESTONE W/ SHALE	23.0	722.0
-184.0	CARBONDALE	DANVILLE	COAL	2.5	745.0
-186.5	CARBONDALE		DARK GRAY SHALE	2.5	747.5
-189.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	750.0
-194.0	CARBONDALE	LAWSON	SILTY SHALE	9.0	755.0
-203.0	CARBONDALE	CONANT	LIMESTONE & SHALE	4.0	764.0
-207.0	CARBONDALE		SHALE	6.0	768.0
-213.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	5.0	774.0
-218.0	CARBONDALE	ANNA	BLACK SHALE	3.0	779.0
-222.0	CARBONDALE	HERRIN	COAL	7.0	783.0

MAPID: 08100711000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 8 QUARTERS/FOOTAGES: NW NW NW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.124893

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.459468

DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 560.0

LOGGED (FT.): 1925.0

LOG TYPE:

SOURCE: ALGONA OC, BATES C I 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
182.0	BOND	CARTHAGE	LIMESTONE	-	378.0
-207.0	CARBONDALE	HERRIN	COAL	7.0	767.0

MAPID: 08101187000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 8 QUARTERS/FOOTAGES: 1650' N line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.115477

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.45595

DATE COLLECTED:

SURFACE ELEVATION (FT.): 580.0 LOGGED (FT.): 828.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-193.0	CARBONDALE		SHALE	20.0	773.0
-213.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	793.0
-216.0	CARBONDALE	LAWSON	CLAYSTONE	4.0	796.0
-220.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	17.0	800.0
-237.0	CARBONDALE	ANNA	BLACK SHALE	3.0	817.0
-240.0	CARBONDALE	HERRIN	COAL	8.0	820.0

MAPID: 08102460000C VERSION: 1

PROJECT: J JOHNSON

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

QUADRANGLE: WALNUT HILL LONGITUDE: -89.113213

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.455887

DATE COLLECTED:

SURFACE ELEVATION (FT.): 576.0 LOGGED (FT.): 1902.0

LOG TYPE: Electric Log

SOURCE: RAY & OBER OIL CO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-420.0	CARBONDALE	COLCHESTER	COAL	-	996.0
-1326.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1902.0

MAPID: 08100284000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 9 QUARTERS/FOOTAGES: NW NE NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.092318

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.459656

DATE COLLECTED: 0 / 0 / 1940

SURFACE ELEVATION (FT.): 578.0 LOGGED (FT.): 2089.0

LOG TYPE:

SOURCE: GRANDPRAIR, KASTEN 3

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
127.0	BOND	CARTHAGE	LIMESTONE	-	451.0
-264.0	CARBONDALE	HERRIN	COAL	-	842.0

MAPID: 08100290000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE NW SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.094797 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.452238 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 567.0 **LOGGED (FT.):** 2356.0 **LOG TYPE:**
SOURCE: PETRIE ETL, ROPER S M 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
148.0	BOND	CARTHAGE	LIMESTONE	-	419.0
-253.0	CARBONDALE	HERRIN	COAL	-	820.0

MAPID: 08100294000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.092448 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.454077 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 567.0 **LOGGED (FT.):** 1893.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-303.0	CARBONDALE	SPRINGFIELD	COAL	-	870.0
-441.0	CARBONDALE	COLCHESTER	COAL	-	1008.0
-1326.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1893.0

MAPID: 08100294000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.092448 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.454077 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 2070.0 **LOG TYPE:**
SOURCE: MAGNOLIA, STNECPHR R 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
146.0	BOND	CARTHAGE	LIMESTONE	-	418.0
-245.0	CARBONDALE	HERRIN	COAL	-	809.0

MAPID: 08100659000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 11 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.06688 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.449768 **DATE COLLECTED:** 0 / 0 / 1946
SURFACE ELEVATION (FT.): 534.0 **LOGGED (FT.):** 2357.0 **LOG TYPE:**
SOURCE: KEATING A, NELSON E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
121.0	BOND	CARTHAGE	LIMESTONE	-	413.0
-280.0	CARBONDALE	HERRIN	COAL	-	814.0

MAPID: 08100297000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.05068 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.458883 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 543.0 **LOGGED (FT.):** 1953.0 **LOG TYPE:** Electric Log
SOURCE: VAWTER IRVIN J **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-347.0	CARBONDALE	SPRINGFIELD	COAL	-	890.0
-477.0	CARBONDALE	COLCHESTER	COAL	-	1020.0
-1410.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1953.0

MAPID: 08100297000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.05068 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.458883 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 543.0 **LOGGED (FT.):** 2166.0 **LOG TYPE:**
SOURCE: VAWTER I J, OLDHAM R O 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
110.0	BOND	CARTHAGE	LIMESTONE	-	433.0
-273.0	CARBONDALE	HERRIN	COAL	-	816.0

MAPID: 08100687000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** 2310' N line, 330' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034657 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.453157 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 2465.0 **LOG TYPE:**
SOURCE: RBNSN&BRHM, COPPLE ETL 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
102.0	BOND	CARTHAGE	LIMESTONE	-	450.0

MAPID: 08100687000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** 2310' N line, 330' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034657 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.453157 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-	CARBONDALE	DANVILLE	COAL	-	2.0
-	CARBONDALE	LAWSON	SILTY SHALE	-	38.0
-	CARBONDALE	LAWSON	SANDSTONE	-	42.0

MAPID: 08100649000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034906 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.434821 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 2073.0 **LOG TYPE:**
SOURCE: CAMERON OC, COPPLE 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
150.0	BOND	CARTHAGE	LIMESTONE	-	397.0

MAPID: 08100650000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034891 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.436629 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 551.0 **LOGGED (FT.):** 2080.0 **LOG TYPE:**
SOURCE: IND FRM BR, COPPLE G 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
141.0	BOND	CARTHAGE	LIMESTONE	-	410.0	

MAPID: 08100651000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034937 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431207 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 555.0 **LOGGED (FT.):** 2165.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, PAYNE H 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
157.0	BOND	CARTHAGE	LIMESTONE	-	398.0	

MAPID: 08100652000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034922 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433013 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 555.0 **LOGGED (FT.):** 2165.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, PAYNE H 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
156.0	BOND	CARTHAGE	LIMESTONE	-	399.0	

MAPID: 08100685000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.037257 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431222 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 546.0 **LOGGED (FT.):** 2081.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, PAYNE H 4 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
159.0	BOND	CARTHAGE	LIMESTONE	-	387.0	

MAPID: 08100686000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.037223 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.434844 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 2064.0 **LOG TYPE:**
SOURCE: MAGNOLIA, BLAKE S 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
150.0	BOND	CARTHAGE	LIMESTONE	-	380.0

MAPID: 08101569000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SW SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.051151 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.433149 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 1963.0 **LOG TYPE:** Electric Log
SOURCE: BUFAY OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-1411.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1963.0

MAPID: 08101759000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:** 1650' S line, 1650' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.039539 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.434889 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 553.0 **LOGGED (FT.):** 921.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-186.0	MODESTO	PIASA	LIMESTONE	5.0	739.0
-191.0	MODESTO		DARK GRAY SHALE	15.0	744.0
-206.0	CARBONDALE	DANVILLE	COAL	2.0	759.0
-208.0	CARBONDALE	LAWSON	SILTY SHALE	30.0	761.0
-238.0	CARBONDALE	LAWSON	SANDSTONE	50.0	791.0

MAPID: 08100006000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 15 QUARTERS/FOOTAGES: 1320' S line, 2640' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.079777

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.43446

DATE COLLECTED: 0 / 0 / 1911

SURFACE ELEVATION (FT.): 495.2 LOGGED (FT.): 755.0

LOG TYPE:

SOURCE: CRAVAT CC 2, WRIGHT

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
145.2	BOND	CARTHAGE	LIMESTONE	-	350.0
-253.8	CARBONDALE	HERRIN	COAL	5.0	749.0

MAPID: 08100006000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 15 QUARTERS/FOOTAGES: 1320' S line, 2640' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.079777

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.43446

DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 754.0

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-197.0	MODESTO	PIASA	LIMESTONE	2.0	692.0
-199.0	MODESTO		SHALE & SANDSTONE	22.0	694.0
-221.0	CARBONDALE	DANVILLE	DARK GRAY SHALE	2.0	716.0
-223.0	CARBONDALE		GRAY SHALE	6.0	718.0
-229.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	724.0
-236.0	CARBONDALE		SILTY SHALE	2.0	731.0
-238.0	CARBONDALE	BRERETON	LIMESTONE	13.0	733.0
-251.0	CARBONDALE	ANNA	BLACK SHALE	2.9	746.0
-254.0	CARBONDALE	HERRIN	COAL	5.0	749.0

MAPID: 08100006000C VERSION: 3

PROJECT: NCRDS87

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 15 QUARTERS/FOOTAGES: 1320' S line, 2640' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.079777 GEOLOGIST: WEIBEL

CONFIDENTIAL: N LATITUDE: 38.43446 DATE COLLECTED: 1 / 0 / 1911

SURFACE ELEVATION (FT.): 495.2 LOGGED (FT.): 755.3 LOG TYPE: Drillers Log

SOURCE: CRAVAT WELL TYPE: Diamond Drill

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
495.2			UNCONSOLIDATED	18.0	0.0	
477.2	MATTOON		SANDSTONE	26.0	18.0	
451.2	BOND	MILLERSVILLE	LIMESTONE	4.0	44.0	UNCERTAIN CORRELATION
447.2	BOND		SHALE	64.0	48.0	
383.2	BOND		COAL	0.3	112.0	
382.9	BOND		SHALE	0.7	112.3	
382.2	BOND		SHALE & SANDSTONE	22.0	113.0	
360.2	BOND		SANDSTONE	19.0	135.0	
341.2	BOND		SHALE	1.0	154.0	
340.2	BOND		LIMESTONE	2.0	155.0	
338.2	BOND		SHALE	8.0	157.0	
330.2	BOND		SHALE & SANDSTONE	63.0	165.0	
267.2	BOND		SHALE	2.0	228.0	
265.2	BOND		BLACK SHALE	1.0	230.0	
264.2	BOND		LIMESTONE	1.5	231.0	
262.7	BOND		UNDERCLAY	0.5	232.5	
262.2	BOND		SHALE & SANDSTONE	31.0	233.0	
231.2	BOND		LIMESTONE	2.0	264.0	
229.2	BOND		SHALE	4.5	266.0	
224.7	BOND		COAL	0.7	270.5	
224.0	BOND		BONE COAL	0.6	271.2	
223.4	BOND		SHALE	25.3	271.8	
198.2	BOND		LIMESTONE	1.0	297.0	
197.2	BOND		SHALE	10.0	298.0	
187.2	BOND		SHALE & SANDSTONE	42.0	308.0	
145.2	BOND	CARTHAGE	LIMESTONE	9.0	350.0	
136.2	MODESTO		BLACK SHALE	4.0	359.0	
132.2	MODESTO		SHALE	7.0	363.0	
125.2	MODESTO		COAL	0.5	370.0	
124.7	MODESTO		SHALE	2.5	370.5	
122.2	MODESTO		SHALE & SANDSTONE	53.0	373.0	
69.2	MODESTO		BLACK SHALE	3.0	426.0	
66.2	MODESTO		LIMESTONE	1.0	429.0	
65.2	MODESTO		SHALE & SANDSTONE	115.0	430.0	
-49.8	MODESTO		DARK SHALE	8.6	545.0	
-58.4	MODESTO		COAL	1.3	553.6	
-59.6	MODESTO		UNDERCLAY	1.2	554.8	
-60.8	MODESTO		SHALE	132.0	556.0	
-192.8	MODESTO		BLACK SHALE	1.0	688.0	

-193.8	MODESTO		SHALE	3.0	689.0
-196.8	MODESTO	PIASA	LIMESTONE	2.0	692.0
-198.8	MODESTO		SHALE	4.0	694.0
-202.8	MODESTO		SHALE & SANDSTONE	18.0	698.0
-220.8	CARBONDALE		DARK SHALE	2.0	716.0
-222.8	CARBONDALE		SHALE	6.0	718.0
-228.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	724.0
-235.8	CARBONDALE		SHALE	2.0	731.0
-237.8	CARBONDALE	BRERETON	LIMESTONE	13.0	733.0
-250.8	CARBONDALE	ANNA	BLACK SHALE	2.9	746.0
-253.7	CARBONDALE	HERRIN	COAL	5.0	748.9
-258.7	CARBONDALE		UNDERCLAY	1.4	753.9

MAPID: 08101402000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.085643 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.433686 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 1842.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-288.0	CARBONDALE	SPRINGFIELD	COAL	-	790.0
-420.0	CARBONDALE	COLCHESTER	COAL	-	922.0
-1340.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1842.0

MAPID: 08101848000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 16 **QUARTERS/FOOTAGES:** 990' S line, 330' W line of SE SW NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.094938 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.441096 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 544.0 **LOGGED (FT.):** 1896.0 **LOG TYPE:** Electric Log
SOURCE: RUTHERFORD, HOMER **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-306.0	CARBONDALE	SPRINGFIELD	COAL	-	850.0
-451.0	CARBONDALE	COLCHESTER	COAL	-	995.0
-1352.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1896.0

MAPID: 08101403000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 17 QUARTERS/FOOTAGES: 2310' N line, 330' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.108786 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.43925 DATE COLLECTED:

SURFACE ELEVATION (FT.): 564.0 LOGGED (FT.): 1910.0 LOG TYPE: Electric Log

SOURCE: SKILES OIL CORP WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-270.0	CARBONDALE	SPRINGFIELD	COAL	-	834.0
-402.0	CARBONDALE	COLCHESTER	COAL	-	966.0
-1346.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1910.0

MAPID: 08101403000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 17 QUARTERS/FOOTAGES: 2310' N line, 330' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.108786 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.43925 DATE COLLECTED:

SURFACE ELEVATION (FT.): 564.0 LOGGED (FT.): 802.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-180.0	MODESTO	PIASA	LIMESTONE	6.0	744.0
-186.0	MODESTO		DARK GRAY SHALE	10.0	750.0
-196.0	CARBONDALE	DANVILLE	COAL	4.0	760.0
-200.0	CARBONDALE		SHALE	8.0	764.0
-208.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	3.0	772.0
-211.0	CARBONDALE	LAWSON	CLAYSTONE	3.0	775.0
-214.0	CARBONDALE	CONANT	LIMESTONE	6.0	778.0
-220.0	CARBONDALE		CALCAREOUS SHALE	4.0	784.0
-224.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	8.0	788.0
-232.0	CARBONDALE	ANNA	BLACK SHALE	2.0	796.0
-232.0	CARBONDALE	HERRIN	COAL	6.0	796.0

MAPID: 08100300000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 18 QUARTERS/FOOTAGES: 150' N line, 1470' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.131388

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.445301

DATE COLLECTED: 0 / 0 / 1939

SURFACE ELEVATION (FT.): 567.0 LOGGED (FT.): 2356.0

LOG TYPE:

SOURCE: ALGONA OC, BATES D I 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
203.0	BOND	CARTHAGE	LIMESTONE	-	364.0	
-202.0	CARBONDALE	HERRIN	COAL	-	769.0	

MAPID: 08100300000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 18 QUARTERS/FOOTAGES: 150' N line, 1470' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.131388

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.445301

DATE COLLECTED:

SURFACE ELEVATION (FT.): 567.0 LOGGED (FT.): 777.0

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-148.0	MODESTO	PIASA	LIMESTONE	2.0	715.0	
-150.0	CARBONDALE		SILTY SHALE	19.0	717.0	
-169.0	CARBONDALE	BANKSTON FORK	LIMESTONE	18.0	736.0	
-187.0	CARBONDALE		SILTY SHALE	3.0	754.0	
-190.0	CARBONDALE	BRERETON	LIMESTONE	12.0	757.0	
-202.0	CARBONDALE	HERRIN	COAL	8.0	769.0	

MAPID: 08123282000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 18 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW

QUADRANGLE: IRVINGTON LONGITUDE: -89.13678

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.439234

DATE COLLECTED:

SURFACE ELEVATION (FT.): 567.0 LOGGED (FT.): 3718.0

LOG TYPE: Electric Log

SOURCE: ILLINI DRILLING CO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-243.0	CARBONDALE	SPRINGFIELD	COAL	-	810.0	
-1269.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1836.0	
-3061.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3628.0	TOP OF NEW ALBANY
-3067.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3634.0	
-3151.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3718.0	BASE OF NEW ALBANY

MAPID: 08101422000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE NE

QUADRANGLE: IRVINGTON LONGITUDE: -89.129875 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.42639 DATE COLLECTED:

SURFACE ELEVATION (FT.): 544.0 LOGGED (FT.): 1827.0 LOG TYPE: Electric Log

SOURCE: LINDSAY, THEODORE R. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-237.0	CARBONDALE	SPRINGFIELD	COAL	-	781.0
-380.0	CARBONDALE	COLCHESTER	COAL	-	924.0
-1283.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1827.0

MAPID: 08102442000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 19 QUARTERS/FOOTAGES: 1650' N line, 330' W line

QUADRANGLE: IRVINGTON LONGITUDE: -89.143973 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.426377 DATE COLLECTED:

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 748.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-131.0	MODESTO	PIASA	LIMESTONE & SHALE	8.0	683.0
-139.0	MODESTO		SHALE	13.0	691.0
-152.0	CARBONDALE	DANVILLE	COAL	3.0	704.0
-155.0	CARBONDALE		SHALE	2.0	707.0
-157.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	5.0	709.0
-162.0	CARBONDALE	LAWSON	CLAYSTONE	6.0	714.0
-168.0	CARBONDALE	CONANT	LIMESTONE & SHALE	5.0	720.0
-173.0	CARBONDALE		SHALE	4.0	725.0
-177.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	8.0	729.0
-185.0	CARBONDALE	ANNA	BLACK SHALE	3.0	737.0
-188.0	CARBONDALE	HERRIN	COAL	8.0	740.0

MAPID: 08100303000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 20 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.115903 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.42455 DATE COLLECTED: 0 / 0 / 1942

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 2377.0 LOG TYPE:

SOURCE: YNGLNG&MOH, FOUTS EVA 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
168.0	BOND	CARTHAGE	LIMESTONE	-	373.0

MAPID: 08100303000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 20 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.115903

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.42455

DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0

LOGGED (FT.): 790.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-163.0	MODESTO	PIASA	LIMESTONE	6.0	706.0
-169.0	CARBONDALE		SHALE	6.0	712.0
-175.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	718.0
-181.0	CARBONDALE	LAWSON	SILTY SHALE	39.0	724.0
-220.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	13.0	763.0
-239.0	CARBONDALE	HERRIN	COAL	8.0	782.0

MAPID: 08100303000C VERSION: 3

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 20 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.115903

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.42455

DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0

LOGGED (FT.): 1874.0

LOG TYPE: Electric Log

SOURCE: YINGLING & MOHAWK

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-262.0	CARBONDALE	SPRINGFIELD	COAL	-	805.0
-404.0	CARBONDALE	COLCHESTER	COAL	-	947.0
-1331.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1874.0

MAPID: 08100005000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 21 QUARTERS/FOOTAGES: 1650' S line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.099692

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.420812

DATE COLLECTED: 0 / 0 / 1911

SURFACE ELEVATION (FT.): 542.9

LOGGED (FT.): 853.0

LOG TYPE:

SOURCE: CRAVAT CC 1, BREESE S

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
172.9	BOND	CARTHAGE	LIMESTONE	-	370.0

MAPID: 08100005000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 21 QUARTERS/FOOTAGES: 1650' S line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.099692 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.420812 DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0 LOGGED (FT.): 1018.7 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-141.0	MODESTO	PIASA	LIMESTONE & SHALE	9.5	684.0
-150.0	CARBONDALE		ROCK	57.0	693.0
-207.0	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	19.0	750.0
-226.0	CARBONDALE	LAWSON	SANDSTONE	26.0	769.0
-252.0	CARBONDALE	LAWSON	COAL	0.1	795.0
-252.0	CARBONDALE	LAWSON	SANDSTONE	47.0	795.0
-299.0	CARBONDALE	LAWSON	CARBONACEOUS SANDSTONE	77.0	842.0

MAPID: 08100714000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 21 QUARTERS/FOOTAGES: 330' S line, 330' W line of SW NW NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.097306 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.428211 DATE COLLECTED:

SURFACE ELEVATION (FT.): 560.0 LOGGED (FT.): 1915.0 LOG TYPE: Electric Log

SOURCE: DORLAN JOHN H WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-299.0	CARBONDALE	SPRINGFIELD	COAL	-	859.0
-453.0	CARBONDALE	COLCHESTER	COAL	-	1013.0
-1355.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1915.0

MAPID: 08100684000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 22 QUARTERS/FOOTAGES: 2310' S line, 1650' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.076534 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.422566 DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 547.0 LOGGED (FT.): 2440.0 LOG TYPE:

SOURCE: MAGNOLIA, WITZEL P 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
153.0	BOND	CARTHAGE	LIMESTONE	-	394.0

MAPID: 08100684000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 22 QUARTERS/FOOTAGES: 2310' S line, 1650' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.076534

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.422566

DATE COLLECTED:

SURFACE ELEVATION (FT.): 547.0

LOGGED (FT.): 902.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-225.0	MODESTO	PIASA	LIMESTONE	6.0	772.0	
-231.0	MODESTO		SHALE	14.0	778.0	
-245.0	CARBONDALE		SHALE & SANDSTONE	28.0	792.0	
-273.0	CARBONDALE	LAWSON	SANDSTONE	82.0	820.0	

MAPID: 08100684000C VERSION: 3

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 22 QUARTERS/FOOTAGES: 2310' S line, 1650' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.076534

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.422566

DATE COLLECTED:

SURFACE ELEVATION (FT.): 547.0

LOGGED (FT.): 1912.0

LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-351.0	CARBONDALE	SPRINGFIELD	COAL	-	898.0	
-459.0	CARBONDALE	COLCHESTER	COAL	-	1006.0	
-1365.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1912.0	

MAPID: 08100713000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 23 QUARTERS/FOOTAGES: 330' S line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.060605

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416921

DATE COLLECTED:

SURFACE ELEVATION (FT.): 505.0

LOGGED (FT.): 0.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	LAWSON	SILTY SHALE	78.0		
-	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	20.0		

MAPID: 08100093000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE SW SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.039825 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.416779 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 2403.0 **LOG TYPE:**
SOURCE: OBRNG&DNCN, ERNST G A 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
151.0	BOND	CARTHAGE	LIMESTONE	-	385.0
-222.0	CARBONDALE	HERRIN	COAL	-	758.0

MAPID: 08100653000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.034963 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.429399 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 2162.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, SANDRS ETL 4 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
152.0	BOND	CARTHAGE	LIMESTONE	-	400.0

MAPID: 08100654000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW NE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.037315 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.427608 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 2080.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, SANDRS ETL 6 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
150.0	BOND	CARTHAGE	LIMESTONE	-	397.0

MAPID: 08100682000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.035108 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.422185 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 2063.0 **LOG TYPE:**
SOURCE: CAMERON OC, BOGGS ELLA 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
139.0	BOND	CARTHAGE	LIMESTONE	-	385.0

MAPID: 08100701000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** 2310' N line, 990' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.048955 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.424049 **DATE COLLECTED:** 0 / 0 / 1946
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 2115.0 **LOG TYPE:**
SOURCE: DUNCAN W, PHELPS E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
143.0	BOND	CARTHAGE	LIMESTONE	-	393.0

MAPID: 08100701000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** 2310' N line, 990' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.048955 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.424049 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 905.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-196.0	MODESTO	PIASA	LIMESTONE	6.0	732.0
-202.0	CARBONDALE		SHALE	7.0	738.0
-209.0	CARBONDALE	LAWSON	SILTY SHALE	39.0	745.0
-248.0	CARBONDALE	LAWSON	SANDSTONE	8.0	784.0
-256.0	CARBONDALE	LAWSON	SILTY SHALE	8.0	792.0
-264.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	25.0	800.0

MAPID: 08100701000C **VERSION:** 3 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 24 **QUARTERS/FOOTAGES:** 2310' N line, 990' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.048955 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.424049 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 1907.0 **LOG TYPE:** Electric Log
SOURCE: DUNCAN, WALTER **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-306.0	CARBONDALE	SPRINGFIELD	COAL	-	842.0	
-443.0	CARBONDALE	COLCHESTER	COAL	-	979.0	
-1371.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1907.0	

MAPID: 08100681000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.035225 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.411297 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 1895.0 **LOG TYPE:** Electric Log
SOURCE: CAMERON OIL CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-291.0	CARBONDALE	SPRINGFIELD	COAL	-	824.0	
-421.0	CARBONDALE	COLCHESTER	COAL	-	954.0	
-1362.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1895.0	

MAPID: 08100681000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** NE SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.035225 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.411297 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 2070.0 **LOG TYPE:**
SOURCE: CAMERON OC, FOU&PHELPS 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
145.0	BOND	CARTHAGE	LIMESTONE	-	388.0	
-231.0	CARBONDALE	HERRIN	COAL	-	764.0	

MAPID: 08101879000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 25 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.035236

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.414964

DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0

LOGGED (FT.): 778.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-198.0	MODESTO	PIASA	LIMESTONE	4.0	734.0	
-202.0	MODESTO		SHALE	7.0	738.0	
-209.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	745.0	
-220.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	10.0	756.0	
-230.0	CARBONDALE	BRERETON	LIMESTONE	5.0	766.0	
-235.0	CARBONDALE	ANNA	SHALE	3.0	771.0	
-237.0	CARBONDALE	HERRIN	COAL	5.0	773.0	

MAPID: 08101406000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 26 QUARTERS/FOOTAGES: 990' S line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.062985

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.404192

DATE COLLECTED:

SURFACE ELEVATION (FT.): 555.0

LOGGED (FT.): 1930.0

LOG TYPE: Electric Log

SOURCE: BAYER PETRO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-309.0	CARBONDALE	SPRINGFIELD	COAL	-	864.0	
-450.0	CARBONDALE	COLCHESTER	COAL	-	1005.0	
-1375.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1930.0	

MAPID: 08101406000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 26 QUARTERS/FOOTAGES: 990' S line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.062985

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.404192

DATE COLLECTED:

SURFACE ELEVATION (FT.): 555.0

LOGGED (FT.): 813.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-203.0	MODESTO	PIASA	LIMESTONE	4.0	758.0	
-207.0	MODESTO		SHALE	5.0	762.0	
-212.0	CARBONDALE		CALCAREOUS SHALE	13.0	767.0	
-225.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	780.0	
-234.0	CARBONDALE	CONANT	LIMESTONE & SHALE	7.0	789.0	
-241.0	CARBONDALE		SHALE	4.0	796.0	
-245.0	CARBONDALE	BRERETON	LIMESTONE	7.0	800.0	
-252.0	CARBONDALE	HERRIN	COAL	6.0	807.0	

MAPID: 08123105000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 26 QUARTERS/FOOTAGES: 660' S line, 660' W line of NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.059441

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.410542

DATE COLLECTED:

SURFACE ELEVATION (FT.): 551.0

LOGGED (FT.): 3827.0

LOG TYPE: Electric Log

SOURCE: MITCHELL, GEO N DRLG CO

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-308.0	CARBONDALE	SPRINGFIELD	COAL	-	859.0	
-1371.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1922.0	
-3164.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3715.0	TOP OF NEW ALBANY
-3190.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3741.0	
-3276.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3827.0	BASE OF NEW ALBANY

MAPID: 08100917000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 27 **QUARTERS/FOOTAGES:** 1650' N line, 2310' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.081361 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.41167 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 839.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-244.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	784.0	
-254.0	CARBONDALE	LAWSON	SHALE	26.0	794.0	
-280.0	CARBONDALE	BRERETON	LIMESTONE	12.0	820.0	
-292.0	CARBONDALE	ANNA	BLACK SHALE	2.0	832.0	
-294.0	CARBONDALE	HERRIN	COAL	5.0	834.0	

MAPID: 08124908000C **VERSION:** 1 **PROJECT:** EIA-DOE
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 27 **QUARTERS/FOOTAGES:**
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.080237 **GEOLOGIST:** E. PRUSSEN
CONFIDENTIAL: N **LATITUDE:** 38.408866 **DATE COLLECTED:** 11 / 11 / 1983
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 604.8 **LOG TYPE:** Other Core Study
SOURCE: EXXON 15-321 **WELL TYPE:** Coal Test
COMMENT: NO LOCN W/IN SECTION, TOO SHALLOW FOR #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
445.0			UNCLASSIFIED	0.0	0.0	NO LOCN W/IN SECT, TOO SHALLOW FOR #6

MAPID: 08102630000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 1E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 990' E line of NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.102196 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.409816 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 539.0 **LOGGED (FT.):** 1857.0 **LOG TYPE:** Electric Log
SOURCE: PHOENIX PROD. CO., INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-288.0	CARBONDALE	SPRINGFIELD	COAL	-	827.0	
-420.0	CARBONDALE	COLCHESTER	COAL	-	959.0	
-1318.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1857.0	

MAPID: 08100683000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 29 QUARTERS/FOOTAGES: 1650' S line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.116018

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.411729

DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 2360.0

LOG TYPE:

SOURCE: OIL MANGMT, HAIL D G 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
167.0	BOND	CARTHAGE	LIMESTONE	-	364.0
-228.0	CARBONDALE	HERRIN	COAL	-	759.0

MAPID: 08100683000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 29 QUARTERS/FOOTAGES: 1650' S line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.116018

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.411729

DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 766.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-167.0	MODESTO	PIASA	LIMESTONE & SHALE	5.0	698.0
-172.0	CARBONDALE		CLAYSTONE & SHALE	7.0	703.0
-179.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	16.0	710.0
-195.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	10.0	726.0
-205.0	CARBONDALE	CONANT	LIMESTONE & SHALE	10.0	736.0
-215.0	CARBONDALE		SHALE	6.0	746.0
-221.0	CARBONDALE	BRERETON	LIMESTONE	5.0	752.0
-226.0	CARBONDALE	ANNA	BLACK SHALE	3.0	757.0
-229.0	CARBONDALE	HERRIN	COAL	6.0	760.0

MAPID: 08100683000C VERSION: 3

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 29 QUARTERS/FOOTAGES: 1650' S line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.116018

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.411729

DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 1858.0

LOG TYPE: Electric Log

SOURCE: OIL MANAGEMENT, INC.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-266.0	CARBONDALE	SPRINGFIELD	COAL	-	797.0
-413.0	CARBONDALE	COLCHESTER	COAL	-	944.0
-1327.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1858.0

MAPID: 08100892000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 30 QUARTERS/FOOTAGES: 330' N line, 355' E line of SW

QUADRANGLE: IRVINGTON LONGITUDE: -89.137149 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.408118 DATE COLLECTED:

SURFACE ELEVATION (FT.): 529.0 LOGGED (FT.): 1741.0 LOG TYPE: Electric Log

SOURCE: DARE, LEO WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-196.0	CARBONDALE	SPRINGFIELD	COAL	-	725.0
-326.0	CARBONDALE	COLCHESTER	COAL	-	855.0
-1212.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1741.0

MAPID: 08100922000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 30 QUARTERS/FOOTAGES: 1650' N line, 990' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.129908 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.411871 DATE COLLECTED:

SURFACE ELEVATION (FT.): 527.0 LOGGED (FT.): 737.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-168.0	CARBONDALE		SHALE	10.0	695.0
-178.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	705.0
-188.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	715.0
-197.0	CARBONDALE	JAMESTOWN	COAL	1.0	724.0
-198.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	3.0	725.0
-201.0	CARBONDALE	ANNA	BLACK SHALE	2.0	728.0
-203.0	CARBONDALE	HERRIN	COAL	7.0	730.0

MAPID: 08100905000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 31 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.134776

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.395242

DATE COLLECTED:

SURFACE ELEVATION (FT.): 537.0

LOGGED (FT.): 700.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-89.0	MODESTO	PIASA	LIMESTONE	7.0	626.0
-96.0	CARBONDALE		SHALE & SANDSTONE	30.0	633.0
-126.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	663.0
-136.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	8.0	673.0
-144.0	CARBONDALE	JAMESTOWN	BONE COAL	0.5	681.0
-144.5	CARBONDALE		SHALE	3.5	681.5
-148.0	CARBONDALE	BRERETON	LIMESTONE	8.0	685.0
-156.0	CARBONDALE	ANNA	BLACK SHALE	2.0	693.0
-157.0	CARBONDALE	HERRIN	COAL	6.0	694.0

MAPID: 08100945000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 330' E line of SW NE

QUADRANGLE: IRVINGTON LONGITUDE: -89.132494

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.397082

DATE COLLECTED:

SURFACE ELEVATION (FT.): 537.0

LOGGED (FT.): 1762.0

LOG TYPE: Electric Log

SOURCE: KAPP, LOUIS H., JR.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-171.0	CARBONDALE	SPRINGFIELD	COAL	-	708.0
-294.0	CARBONDALE	COLCHESTER	COAL	-	831.0
-1225.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1762.0

MAPID: 08101407000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 32 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: IRVINGTON LONGITUDE: -89.12542

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.400698

DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0

LOGGED (FT.): 1817.0

LOG TYPE: Electric Log

SOURCE: SHAW L R

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-233.0	CARBONDALE	SPRINGFIELD	COAL	-	759.0
-362.0	CARBONDALE	COLCHESTER	COAL	-	888.0
-1291.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1817.0

MAPID: 08101407000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 32 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: IRVINGTON LONGITUDE: -89.12542 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.400698 DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 736.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-130.0	MODESTO	PIASA	LIMESTONE	4.0	656.0	
-134.0	CARBONDALE		SHALE & SANDSTONE	26.0	660.0	
-160.0	CARBONDALE	GALUM	LIMESTONE	4.0	686.0	
-164.0	CARBONDALE		CLAYSTONE	10.0	690.0	
-174.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	6.0	700.0	
-180.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	706.0	
-189.0	CARBONDALE	BRERETON	LIMESTONE	10.0	715.0	
-199.0	CARBONDALE	ANNA	BLACK SHALE	2.0	725.0	
-203.0	CARBONDALE	HERRIN	COAL	7.0	729.0	

MAPID: 08100304000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 33 QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.097906 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.389681 DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 1842.0 LOG TYPE: Electric Log

SOURCE: CHERRY, KIDD & O'NEAL WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-278.0	CARBONDALE	SPRINGFIELD	COAL	-	804.0	
-412.0	CARBONDALE	COLCHESTER	COAL	-	938.0	
-1316.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1842.0	

MAPID: 08100304000C VERSION: 2

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 33 QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.097906 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.389681 DATE COLLECTED: 0 / 0 / 1942

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 2404.0 LOG TYPE:

SOURCE: CHRYKD&ONL, GIORDANO 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
176.0	BOND	CARTHAGE	LIMESTONE	-	350.0	
-234.0	CARBONDALE	HERRIN	COAL	-	760.0	

MAPID: 08100712000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 33 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.10697 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.400648 DATE COLLECTED:

SURFACE ELEVATION (FT.): 533.0 LOGGED (FT.): 778.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-169.0	MODESTO	PIASA	LIMESTONE & SHALE	6.0	702.0
-175.0	CARBONDALE		SHALE & SANDSTONE	34.0	708.0
-209.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	742.0
-219.0	CARBONDALE	LAWSON	SHALE	8.0	752.0
-227.0	CARBONDALE	BRERETON	LIMESTONE	8.0	760.0
-235.0	CARBONDALE	ANNA	BLACK SHALE	3.0	768.0
-238.0	CARBONDALE	HERRIN	COAL	7.0	771.0

MAPID: 08101408000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 34 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.079184 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.400594 DATE COLLECTED:

SURFACE ELEVATION (FT.): 540.0 LOGGED (FT.): 1919.0 LOG TYPE: Electric Log

SOURCE: FLEMING, F. J. DRLG. CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-306.0	CARBONDALE	SPRINGFIELD	COAL	-	846.0
-445.0	CARBONDALE	COLCHESTER	COAL	-	985.0
-1379.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1919.0

MAPID: 08101169000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 35 QUARTERS/FOOTAGES: 2310' S line, 330' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.069993 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.393398 DATE COLLECTED:

SURFACE ELEVATION (FT.): 546.0 LOGGED (FT.): 795.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-209.0	CARBONDALE	DANVILLE	COAL	1.0	755.0
-210.0	CARBONDALE		SILTY SHALE	16.0	756.0
-226.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	8.0	772.0
-234.0	CARBONDALE	LAWSON	SHALE	6.0	780.0
-240.0	CARBONDALE	HERRIN	COAL	9.0	786.0

MAPID: 08100305000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 36 QUARTERS/FOOTAGES: 1650' N line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.04457 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.39684 DATE COLLECTED: 0 / 0 / 1942

SURFACE ELEVATION (FT.): 525.0 LOGGED (FT.): 2426.0 LOG TYPE:

SOURCE: SCHWAB D, HUTCH&HALD 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
154.0	BOND	CARTHAGE	LIMESTONE	-	371.0
-232.0	CARBONDALE	HERRIN	COAL	-	757.0

MAPID: 08100305000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 36 QUARTERS/FOOTAGES: 1650' N line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.04457 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.39684 DATE COLLECTED:

SURFACE ELEVATION (FT.): 525.0 LOGGED (FT.): 765.0 LOG TYPE: Electric Log

SOURCE: POOR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-175.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	700.0
-185.0	CARBONDALE		SHALE & SANDSTONE	16.0	710.0
-201.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	14.0	726.0
-215.0	CARBONDALE	LAWSON	SHALE	8.0	740.0
-223.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	6.0	748.0
-229.0	CARBONDALE	ANNA	SHALE	4.0	754.0
-233.0	CARBONDALE	HERRIN	COAL	7.0	758.0

MAPID: 08100305000C VERSION: 3

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 1E SECTION: 36 QUARTERS/FOOTAGES: 1650' N line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.04457 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.39684 DATE COLLECTED:

SURFACE ELEVATION (FT.): 525.0 LOGGED (FT.): 1912.0 LOG TYPE: Electric Log

SOURCE: SCHWAB DICK WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-287.0	CARBONDALE	SPRINGFIELD	COAL	-	812.0
-427.0	CARBONDALE	COLCHESTER	COAL	-	952.0
-1387.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1912.0

MAPID: 08100222000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW NW SE
QUADRANGLE: KELL **LONGITUDE:** -88.968309 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.467122 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 597.0 **LOGGED (FT.):** 1988.0 **LOG TYPE:**
SOURCE: ALMA OC, CUNINGHM E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
204.0	BOND	CARTHAGE	LIMESTONE	-	393.0	
-183.0	CARBONDALE	HERRIN	COAL	-	780.0	COAL ERODED OR ABSENT

MAPID: 08100227000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: KELL **LONGITUDE:** -88.978052 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.463459 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 575.0 **LOGGED (FT.):** 1956.0 **LOG TYPE:**
SOURCE: CARTER OC, RAY F 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
198.0	BOND	CARTHAGE	LIMESTONE	-	377.0	
-168.0	CARBONDALE	HERRIN	COAL	-	743.0	

MAPID: 08100228000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW NE SE
QUADRANGLE: KELL **LONGITUDE:** -88.963494 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.467133 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 561.0 **LOGGED (FT.):** 1992.0 **LOG TYPE:**
SOURCE: REGENT OC, LUCHSINGER 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
209.0	BOND	CARTHAGE	LIMESTONE	-	352.0	
-168.0	CARBONDALE	HERRIN	COAL	-	729.0	

MAPID: 08100229000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** SE SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.970624 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.470761 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 609.0 **LOGGED (FT.):** 2006.0 **LOG TYPE:**
SOURCE: FRAZIER C, LUCHSINGER 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
190.0	BOND	CARTHAGE	LIMESTONE	-	419.0

MAPID: 08100230000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE SW NW
QUADRANGLE: KELL **LONGITUDE:** -88.975373 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.472574 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 585.0 **LOGGED (FT.):** 1979.0 **LOG TYPE:**
SOURCE: FRAZIER C, LUCHSINGER 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
193.0	BOND	CARTHAGE	LIMESTONE	-	392.0

MAPID: 08101060000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 2240' N line, 1350' W line
QUADRANGLE: KELL **LONGITUDE:** -88.974328 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.469414 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 594.0 **LOGGED (FT.):** 811.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-112.0	CARBONDALE	LAWSON	SHALE	34.0	706.0
-146.0	CARBONDALE	LAWSON	SILTY SHALE	60.0	740.0
-206.0	CARBONDALE	LAWSON	SHALE	5.0	800.0
-211.0	CARBONDALE	HERRIN	COAL	6.0	805.0

MAPID: 08101461000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 672' N line, 686' W line of SW
QUADRANGLE: KELL **LONGITUDE:** -88.976696 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.46829 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 571.0 **LOGGED (FT.):** 1826.0 **LOG TYPE:** Electric Log
SOURCE: CARTER OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-234.0	CARBONDALE	SPRINGFIELD	COAL	-	805.0	
-334.0	CARBONDALE	COLCHESTER	COAL	-	905.0	
-1255.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1826.0	

MAPID: 08100233000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: KELL **LONGITUDE:** -88.987439 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.46865 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 575.0 **LOGGED (FT.):** 1960.0 **LOG TYPE:**
SOURCE: CARTER OC, BOGGS A 4 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
203.0	BOND	CARTHAGE	LIMESTONE	-	372.0	

MAPID: 08100236000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: KELL **LONGITUDE:** -88.994646 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.466594 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 561.0 **LOGGED (FT.):** 1975.0 **LOG TYPE:**
SOURCE: ALMA OC, COPPLE J H 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
193.0	BOND	CARTHAGE	LIMESTONE	-	368.0	

MAPID: 08100242000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: KELL **LONGITUDE:** -88.987275 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.474403 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 572.0 **LOGGED (FT.):** 1962.0 **LOG TYPE:**
SOURCE: CARTER OC, HALL CARL 7 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
185.0	BOND	CARTHAGE	LIMESTONE	-	387.0	
-182.0	CARBONDALE	HERRIN	COAL	-	754.0	

MAPID: 08100243000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SE NE
QUADRANGLE: KELL **LONGITUDE:** -88.982611 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.470627 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 576.0 **LOGGED (FT.):** 1964.0 **LOG TYPE:**
SOURCE: CARTER OC, HALL CARL 8 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
203.0	BOND	CARTHAGE	LIMESTONE	-	373.0	

MAPID: 08100306000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: KELL **LONGITUDE:** -88.981684 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.464284 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 3589.0 **LOG TYPE:** Electric Log
SOURCE: CARTER OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-261.0	CARBONDALE	SPRINGFIELD	COAL	-	825.0	
-371.0	CARBONDALE	COLCHESTER	COAL	-	935.0	
-1210.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1774.0	
-2900.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3464.0	TOP OF NEW ALBANY
-2929.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3493.0	
-3025.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3589.0	BASE OF NEW ALBANY

MAPID: 08100306000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: KELL **LONGITUDE:** -88.981684 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.464284 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 3735.0 **LOG TYPE:**
SOURCE: CARTER OC, SANDERS A 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
200.0	BOND	CARTHAGE	LIMESTONE	-	364.0
-160.0	CARBONDALE	HERRIN	COAL	-	724.0

MAPID: 08101198000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 990' E line
QUADRANGLE: KELL **LONGITUDE:** -88.982741 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.463345 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 569.0 **LOGGED (FT.):** 719.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-76.0	CARBONDALE		SHALE	50.0	645.0
-126.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	695.0
-127.0	CARBONDALE	LAWSON	SILTY SHALE	13.0	696.0
-140.0	CARBONDALE	ANNA	BLACK SHALE	3.0	709.0
-143.0	CARBONDALE	HERRIN	COAL	7.0	712.0

MAPID: 08101761000C **VERSION:** 1 **PROJECT:** ISGS98
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 6 **QUARTERS/FOOTAGES:** 990' N line, 330' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.031985 **GEOLOGIST:** CHENOWETH
CONFIDENTIAL: N **LATITUDE:** 38.471371 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 899.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-277.0	CARBONDALE	HERRIN	COAL	3.0	824.0
-352.0	CARBONDALE	SPRINGFIELD	COAL	-	899.0

MAPID: 08100655000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** 1650' N line, 990' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.020599 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.457269 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 566.0 **LOGGED (FT.):** 2383.0 **LOG TYPE:**
SOURCE: STRKLNDR F, THOMPSON L 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
112.0	BOND	CARTHAGE	LIMESTONE	-	454.0	

MAPID: 08100655000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** 1650' N line, 990' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.020599 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.457269 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 566.0 **LOGGED (FT.):** 980.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-213.0	MODESTO	PIASA	LIMESTONE	5.0	779.0	
-218.0	CARBONDALE		SHALE	16.0	784.0	
-234.0	CARBONDALE	LAWSON	SILTY SHALE	40.0	800.0	
-274.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	14.0	840.0	
-288.0	CARBONDALE	LAWSON	SANDSTONE	14.0	854.0	
-302.0	CARBONDALE	LAWSON	SHALE	4.0	868.0	
-306.0	CARBONDALE	LAWSON	SANDSTONE	18.0	872.0	

MAPID: 08100143000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: KELL **LONGITUDE:** -88.987639 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.461354 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 542.0 **LOGGED (FT.):** 1941.0 **LOG TYPE:**
SOURCE: CARTER OC, ALLEN W O 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
200.0	BOND	CARTHAGE	LIMESTONE	-	342.0	
-155.0	CARBONDALE	HERRIN	COAL	-	697.0	

MAPID: 08100247000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 2310' W line
QUADRANGLE: KELL **LONGITUDE:** -88.990348 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.448434 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 1948.0 **LOG TYPE:**
SOURCE: REDWINE N, CAMERON 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
214.0	BOND	CARTHAGE	LIMESTONE	-	338.0

MAPID: 08100247000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 2310' W line
QUADRANGLE: KELL **LONGITUDE:** -88.990348 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.448434 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 836.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-86.0	MODESTO	PIASA	LIMESTONE & SHALE	8.0	638.0
-94.0	MODESTO		CLAYSTONE & SHALE	8.0	646.0
-102.0	CARBONDALE		SHALE	36.0	654.0
-138.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	13.0	690.0
-151.0	CARBONDALE	LAWSON	SANDSTONE	60.0	703.0

MAPID: 08100249000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.990116 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.455777 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 1919.0 **LOG TYPE:**
SOURCE: ALMA OC, COPPLE N 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
192.0	BOND	CARTHAGE	LIMESTONE	-	341.0

MAPID: 08100251000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SE NE SE
QUADRANGLE: KELL **LONGITUDE:** -88.980756 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.452353 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 576.0 **LOGGED (FT.):** 1962.0 **LOG TYPE:**
SOURCE: CARTER OC, DOUTHIT E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
196.0	BOND	CARTHAGE	LIMESTONE	-	380.0	
-173.0	CARBONDALE	HERRIN	COAL	-	749.0	

MAPID: 08100254000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: KELL **LONGITUDE:** -88.990147 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.453944 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 1918.0 **LOG TYPE:**
SOURCE: ALMA OC, RAY HENRY 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
200.0	BOND	CARTHAGE	LIMESTONE	-	327.0	

MAPID: 08100255000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW SW SE
QUADRANGLE: KELL **LONGITUDE:** -88.987897 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.448495 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 556.0 **LOGGED (FT.):** 1936.0 **LOG TYPE:**
SOURCE: REDWINE N, RAY HENRY 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
216.0	BOND	CARTHAGE	LIMESTONE	-	340.0	

MAPID: 08100663000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** NE SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.990085 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.45761 **DATE COLLECTED:** 0 / 0 / 1946
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 2139.0 **LOG TYPE:**
SOURCE: YNGLNG BRO, COPPLE 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
188.0	BOND	CARTHAGE	LIMESTONE	-	364.0	

MAPID: 08123975000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE NE
QUADRANGLE: KELL **LONGITUDE:** -88.983043 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.455966 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 605.0 **LOGGED (FT.):** 3633.0 **LOG TYPE:** Electric Log
SOURCE: EXXON CORPORATION **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-260.0	CARBONDALE	SPRINGFIELD	COAL	-	865.0	
-455.0	CARBONDALE	COLCHESTER	COAL	-	1060.0	
-1204.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1809.0	
-2900.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3505.0	TOP OF NEW ALBANY
-2933.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3538.0	
-3028.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3633.0	BASE OF NEW ALBANY

MAPID: 08100008000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: KELL **LONGITUDE:** -88.975943 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.45237 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 561.0 **LOGGED (FT.):** 1947.0 **LOG TYPE:**
SOURCE: CARTER OC, COBB INEZ 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
196.0	BOND	CARTHAGE	LIMESTONE	-	365.0	
-167.0	CARBONDALE	HERRIN	COAL	-	728.0	

MAPID: 08100117000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.971003 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.456064 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 572.0 **LOGGED (FT.):** 2055.0 **LOG TYPE:**
SOURCE: CARTER OC, DOBBS EDGR 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
193.0	BOND	CARTHAGE	LIMESTONE	-	379.0
-174.0	CARBONDALE	HERRIN	COAL	-	746.0

MAPID: 08100146000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: KELL **LONGITUDE:** -88.966249 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.452328 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 1232.0 **LOG TYPE:**
SOURCE: CARTER OC, TATE R A SWD1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
193.0	BOND	CARTHAGE	LIMESTONE	-	371.0
-185.0	CARBONDALE	HERRIN	COAL	-	749.0

MAPID: 08100308000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE SW NW
QUADRANGLE: KELL **LONGITUDE:** -88.975842 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.456072 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 572.0 **LOGGED (FT.):** 1963.0 **LOG TYPE:**
SOURCE: CARTER OC, DOBBS RAY 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
195.0	BOND	CARTHAGE	LIMESTONE	-	377.0
-181.0	CARBONDALE	HERRIN	COAL	-	753.0

MAPID: 08101893000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 1547' S line, 1432' E line
QUADRANGLE: KELL **LONGITUDE:** -88.965227 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.451937 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 553.0 **LOGGED (FT.):** 750.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-151.0	CARBONDALE	DANVILLE	COAL	1.0	704.0	
-152.0	CARBONDALE		CLAYSTONE & SHALE	15.0	705.0	
-167.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	720.0	
-170.0	CARBONDALE	LAWSON	SILTY SHALE	19.0	723.0	
-189.0	CARBONDALE	BRERETON	LIMESTONE	3.0	742.0	
-192.0	CARBONDALE	ANNA	BLACK SHALE	2.0	745.0	
-194.0	CARBONDALE	HERRIN	COAL	3.0	747.0	

MAPID: 08123960000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NW
QUADRANGLE: KELL **LONGITUDE:** -88.940102 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.461484 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 597.0 **LOGGED (FT.):** 2145.0 **LOG TYPE:** Electric Log
SOURCE: SHERMAN, ERNEST **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-279.0	CARBONDALE	SPRINGFIELD	COAL	-	876.0	
-453.0	CARBONDALE	COLCHESTER	COAL	-	1050.0	
-1548.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2145.0	

MAPID: 08100634000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' S line, 990' E line
QUADRANGLE: KELL **LONGITUDE:** -88.926821 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433322 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 2869.0 **LOG TYPE:**
SOURCE: TEXAS CO, RIGGS G M 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
78.0	BOND	CARTHAGE	LIMESTONE	-	440.0	

MAPID: 08100634000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' S line, 990' E line
QUADRANGLE: KELL **LONGITUDE:** -88.926821 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433322 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-	CARBONDALE	DANVILLE	COAL	2.0	
-	CARBONDALE		SHALE	36.0	
-	CARBONDALE	LAWSON	SILTY SHALE	34.0	
-	CARBONDALE	LAWSON	SANDSTONE	52.0	

MAPID: 08101847000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: KELL **LONGITUDE:** -88.943064 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.433484 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 556.0 **LOGGED (FT.):** 2027.0 **LOG TYPE:** Electric Log
SOURCE: CARTER OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-308.0	CARBONDALE	SPRINGFIELD	COAL	-	864.0
-442.0	CARBONDALE	COLCHESTER	COAL	-	998.0
-1471.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2027.0

MAPID: 08101847000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: KELL **LONGITUDE:** -88.943064 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433484 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 556.0 **LOGGED (FT.):** 796.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-184.0	CARBONDALE		CALCAREOUS SHALE	30.0	740.0
-214.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	770.0
-218.0	CARBONDALE	LAWSON	SILTY SHALE	18.0	774.0
-236.0	CARBONDALE	HERRIN	COAL	4.0	792.0

MAPID: 08100115000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SW NW
QUADRANGLE: KELL **LONGITUDE:** -88.97618 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.443023 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 1930.0 **LOG TYPE:**
SOURCE: CARTER OC, MOORE A 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
196.0	BOND	CARTHAGE	LIMESTONE	-	321.0	

MAPID: 08100263000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** SW NW SW
QUADRANGLE: KELL **LONGITUDE:** -88.978735 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.437372 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 2207.0 **LOG TYPE:**
SOURCE: LUTTRELL H, MOONEY D J 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
202.0	BOND	CARTHAGE	LIMESTONE	-	316.0	

MAPID: 08100688000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 795' N line, 2040' W line
QUADRANGLE: KELL **LONGITUDE:** -88.972238 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.445393 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 3769.0 **LOG TYPE:**
SOURCE: REDWINE N, LAUX V 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
186.0	BOND	CARTHAGE	LIMESTONE	-	334.0	
-188.0	CARBONDALE	HERRIN	COAL	-	708.0	

MAPID: 08100688000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 795' N line, 2040' W line
QUADRANGLE: KELL **LONGITUDE:** -88.972238 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.445393 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 712.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-130.0	CARBONDALE		SHALE	30.0	650.0	
-160.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	680.0	
-166.0	CARBONDALE	LAWSON	SHALE	18.0	686.0	
-184.0	CARBONDALE	BRERETON	LIMESTONE	4.0	704.0	
-188.0	CARBONDALE	HERRIN	COAL	4.0	708.0	

MAPID: 08100688000C **VERSION:** 3 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 795' N line, 2040' W line
QUADRANGLE: KELL **LONGITUDE:** -88.972238 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.445393 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 3610.0 **LOG TYPE:** Electric Log
SOURCE: REDWINE, NASH ETAL **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-250.0	CARBONDALE	SPRINGFIELD	COAL	-	770.0	
-365.0	CARBONDALE	COLCHESTER	COAL	-	885.0	
-1263.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1783.0	
-2963.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3483.0	TOP OF NEW ALBANY
-2996.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3516.0	
-3090.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3610.0	BASE OF NEW ALBANY

MAPID: 08100269000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: KELL **LONGITUDE:** -88.983341 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.44297 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 543.0 **LOGGED (FT.):** 1919.0 **LOG TYPE:**
SOURCE: ALMA OC, GOSSETT J 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
200.0	BOND	CARTHAGE	LIMESTONE	-	343.0	

MAPID: 08100599000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE NW NW
QUADRANGLE: KELL **LONGITUDE:** -88.994978 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.44648 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 580.0 **LOGGED (FT.):** 2255.0 **LOG TYPE:**
SOURCE: RABUS A G, LEHER 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
235.0	BOND	CARTHAGE	LIMESTONE	-	345.0

MAPID: 08100689000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NE SW NE
QUADRANGLE: KELL **LONGITUDE:** -88.985694 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.442922 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 1945.0 **LOG TYPE:**
SOURCE: SLIVKA WM, DOUTIT&HLN 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
218.0	BOND	CARTHAGE	LIMESTONE	-	332.0

MAPID: 08101898000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** 990' N line, 2310' W line
QUADRANGLE: KELL **LONGITUDE:** -88.99044 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.444787 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 558.0 **LOGGED (FT.):** 872.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-97.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	655.0
-107.0	MODESTO		SHALE	19.0	665.0
-126.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	44.0	684.0
-170.0	CARBONDALE	LAWSON	SANDSTONE	50.0	728.0

MAPID: 08100679000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** SW SW NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.032681 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.440709 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 551.0 **LOGGED (FT.):** 2084.0 **LOG TYPE:**
SOURCE: DUNCN&OBER, JENKINS E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
143.0	BOND	CARTHAGE	LIMESTONE	-	408.0	

MAPID: 08100680000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE NE SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.028118 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.436999 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 553.0 **LOGGED (FT.):** 2167.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, DAWSON H F 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
156.0	BOND	CARTHAGE	LIMESTONE	-	397.0	

MAPID: 08100690000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** NE SE SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.028168 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.43515 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 554.0 **LOGGED (FT.):** 2350.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, SCHALERT C 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
161.0	BOND	CARTHAGE	LIMESTONE	-	393.0	

MAPID: 08101908000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** 990' S line, 330' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.018903 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.435067 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 555.0 **LOGGED (FT.):** 900.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-177.0	MODESTO	PIASA	LIMESTONE & SHALE	6.0	732.0	
-183.0	MODESTO		SHALE	12.0	738.0	
-195.0	CARBONDALE	LAWSON	SHALE	25.0	750.0	
-220.0	CARBONDALE	LAWSON	SANDSTONE	50.0	775.0	

MAPID: 08102675000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** 990' S line, 627' E line of SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.029211 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.435113 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 562.0 **LOGGED (FT.):** 3756.0 **LOG TYPE:** Electric Log
SOURCE: SUPERIOR OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-250.0	CARBONDALE	SPRINGFIELD	COAL	-	812.0	
-453.0	CARBONDALE	COLCHESTER	COAL	-	1015.0	
-1322.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1884.0	
-3075.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3637.0	TOP OF NEW ALBANY
-3107.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3669.0	
-3194.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3756.0	BASE OF NEW ALBANY

MAPID: 08100691000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SW NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.026085 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.425931 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 528.0 **LOGGED (FT.):** 2138.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, FRIEDRICH 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
164.0	BOND	CARTHAGE	LIMESTONE	-	364.0	

MAPID: 08100692000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.021409 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.427748 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 545.0 **LOGGED (FT.):** 2155.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, FRIEDRICH 7 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
164.0	BOND	CARTHAGE	LIMESTONE	-	381.0	

MAPID: 08100693000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.019316 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.418543 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 537.0 **LOGGED (FT.):** 2155.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, GARREN 4 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
155.0	BOND	CARTHAGE	LIMESTONE	-	382.0	
-206.0	CARBONDALE	HERRIN	COAL	-	743.0	

MAPID: 08100694000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** NE SE NW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.028358 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.427779 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 534.0 **LOGGED (FT.):** 2154.0 **LOG TYPE:**
SOURCE: CAMERON OC, HIGH ETAL 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
163.0	BOND	CARTHAGE	LIMESTONE	-	371.0	

MAPID: 08100695000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.023857 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.422244 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 2157.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, HIGH ETAL 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
164.0	BOND	CARTHAGE	LIMESTONE	-	376.0
-208.0	CARBONDALE	HERRIN	COAL	-	748.0

MAPID: 08100696000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.02858 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.418592 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 2133.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, PRICE P 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
142.0	BOND	CARTHAGE	LIMESTONE	-	361.0
-236.0	CARBONDALE	HERRIN	COAL	-	739.0

MAPID: 08100700000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.033058 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.418613 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 2149.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, FANNON M J 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
139.0	BOND	CARTHAGE	LIMESTONE	-	394.0
-243.0	CARBONDALE	HERRIN	COAL	-	776.0

MAPID: 08102785000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1733' N line, 2310' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.026047 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.427502 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 549.0 **LOGGED (FT.):** 3738.0 **LOG TYPE:** Electric Log
SOURCE: SUPERIOR OIL COMPANY **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-351.0	CARBONDALE	SPRINGFIELD	COAL	-	900.0	
-526.0	CARBONDALE	COLCHESTER	COAL	-	1075.0	
-1316.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1865.0	
-3073.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3622.0	TOP OF NEW ALBANY
-3105.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3654.0	
-3189.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3738.0	BASE OF NEW ALBANY

MAPID: 08102785000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1733' N line, 2310' E line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.026047 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.427502 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 549.0 **LOGGED (FT.):** 866.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-145.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	694.0	
-155.0	MODESTO		DARK GRAY SHALE	5.0	704.0	
-160.0	CARBONDALE	DANVILLE	COAL	3.0	709.0	
-163.0	CARBONDALE		CLAYSTONE & SHALE	10.0	712.0	
-173.0	CARBONDALE	LAWSON	SILTY SHALE	28.0	722.0	
-201.0	CARBONDALE	LAWSON	SANDSTONE	44.0	750.0	

MAPID: 08100678000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** 2600' N line, 990' W line
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.014519 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.425157 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 2138.0 **LOG TYPE:**
SOURCE: SUPRIOR OC, WITENBRINKSWD1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
155.0	BOND	CARTHAGE	LIMESTONE	-	381.0	
-213.0	CARBONDALE	HERRIN	COAL	-	749.0	

MAPID: 08100678000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 20 QUARTERS/FOOTAGES: 2600' N line, 990' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.014519 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.425157 DATE COLLECTED:

SURFACE ELEVATION (FT.): 538.0 LOGGED (FT.): 756.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-160.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	698.0
-170.0	MODESTO		DARK GRAY SHALE	4.0	708.0
-174.0	CARBONDALE	DANVILLE	COAL	3.0	712.0
-177.0	CARBONDALE		CLAYSTONE & SHALE	5.0	715.0
-182.0	CARBONDALE	LAWSON	SILTY SHALE	12.0	720.0
-194.0	CARBONDALE	LAWSON	SANDSTONE	6.0	732.0
-200.0	CARBONDALE	LAWSON	DARK GRAY SHALE	8.0	738.0
-208.0	CARBONDALE	BRERETON	LIMESTONE	4.0	746.0
-212.0	CARBONDALE	ANNA	BLACK SHALE	2.0	750.0
-214.0	CARBONDALE	HERRIN	COAL	4.0	752.0

MAPID: 08100697000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 20 QUARTERS/FOOTAGES: SW NE SW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.012181 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.42224 DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 535.0 LOGGED (FT.): 2325.0 LOG TYPE:

SOURCE: STRKLN D F, GARREN 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
155.0	BOND	CARTHAGE	LIMESTONE	-	380.0
-206.0	CARBONDALE	HERRIN	COAL	-	741.0

MAPID: 08100698000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 20 QUARTERS/FOOTAGES: SW SW SW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.017 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.418536 DATE COLLECTED:

SURFACE ELEVATION (FT.): 535.0 LOGGED (FT.): 1885.0 LOG TYPE: Electric Log

SOURCE: YINGLING & BEATTY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-275.0	CARBONDALE	SPRINGFIELD	COAL	-	810.0
-450.0	CARBONDALE	COLCHESTER	COAL	-	985.0
-1350.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1885.0

MAPID: 08100698000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 20 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.017 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.418536 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 529.0 **LOGGED (FT.):** 2068.0 **LOG TYPE:**
SOURCE: YNGLG&BETY, GARREN 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
156.0	BOND	CARTHAGE	LIMESTONE	-	373.0
-210.0	CARBONDALE	HERRIN	COAL	-	739.0

MAPID: 08100271000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: KELL **LONGITUDE:** -88.98148 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.4185 **DATE COLLECTED:** 0 / 0 / 1939
SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 2200.0 **LOG TYPE:**
SOURCE: MINERVA OC, SARGENT 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
219.0	BOND	CARTHAGE	LIMESTONE	-	264.0

MAPID: 08100272000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** SE SE NE
QUADRANGLE: KELL **LONGITUDE:** -88.981348 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.42604 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 526.0 **LOGGED (FT.):** 1975.0 **LOG TYPE:**
SOURCE: CARTER OC, WILLIAMS W 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
231.0	BOND	CARTHAGE	LIMESTONE	-	295.0

MAPID: 08100717000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 21 QUARTERS/FOOTAGES: 2310' S line, 2310' E line

QUADRANGLE: KELL LONGITUDE: -88.988304 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.424 DATE COLLECTED:

SURFACE ELEVATION (FT.): 528.0 LOGGED (FT.): 849.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-97.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	625.0
-107.0	MODESTO		DARK GRAY SHALE	8.0	635.0
-115.0	CARBONDALE	DANVILLE	COAL	2.0	643.0
-117.0	CARBONDALE		SILTY SHALE	20.0	645.0
-137.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	34.0	665.0
-171.0	CARBONDALE	LAWSON	SANDSTONE	14.0	699.0
-185.0	CARBONDALE	LAWSON	SHALE	6.0	713.0
-191.0	CARBONDALE	LAWSON	SANDSTONE	38.0	719.0

MAPID: 08100278000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 22 QUARTERS/FOOTAGES: 2310' S line, 330' W line

QUADRANGLE: KELL LONGITUDE: -88.97904 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.423931 DATE COLLECTED: 0 / 0 / 1941

SURFACE ELEVATION (FT.): 496.0 LOGGED (FT.): 1939.0 LOG TYPE:

SOURCE: NYE C ETAL, PURCELL 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
227.0	BOND	CARTHAGE	LIMESTONE	-	269.0

MAPID: 08100278000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** 2310' S line, 330' W line
QUADRANGLE: KELL **LONGITUDE:** -88.97904 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.423931 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 778.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-98.0	MODESTO	PIASA	LIMESTONE & SHALE	10.0	597.0	
-108.0	MODESTO		DARK GRAY SHALE	11.0	607.0	
-119.0	CARBONDALE	DANVILLE	COAL	4.0	618.0	
-123.0	CARBONDALE	LAWSON	SILTY SHALE	34.0	622.0	
-157.0	CARBONDALE	LAWSON	SANDSTONE	6.0	656.0	
-163.0	CARBONDALE	LAWSON	SILTY SHALE	18.0	662.0	
-181.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	20.0	680.0	

MAPID: 08100677000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** NW SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.974094 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.427934 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 537.0 **LOGGED (FT.):** 1994.0 **LOG TYPE:**
SOURCE: SCHDR&GWIN, DUNCAN C W 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
212.0	BOND	CARTHAGE	LIMESTONE	-	325.0	

MAPID: 08124277000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** 380' N line, 330' W line of SW NW
QUADRANGLE: KELL **LONGITUDE:** -88.978976 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.427826 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 514.0 **LOGGED (FT.):** 3638.0 **LOG TYPE:** Electric Log
SOURCE: PRIOR, JOHN **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-211.0	CARBONDALE	SPRINGFIELD	COAL	-	725.0	
-401.0	CARBONDALE	COLCHESTER	COAL	-	915.0	
-1258.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1772.0	
-3000.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3514.0	TOP OF NEW ALBANY
-3031.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3545.0	
-3124.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3638.0	BASE OF NEW ALBANY

MAPID: 08100923000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** 1650' N line, 330' E line
QUADRANGLE: KELL **LONGITUDE:** -88.924773 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.413069 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 560.0 **LOGGED (FT.):** 792.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-149.0	MODESTO	PIASA	CALCAREOUS SHALE	13.0	709.0
-162.0	CARBONDALE	LAWSON	SILTY SHALE	41.0	722.0
-203.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	8.0	763.0
-211.0	CARBONDALE	LAWSON	SHALE	8.0	771.0
-219.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	3.0	779.0
-222.0	CARBONDALE	ANNA	BLACK SHALE	3.0	782.0
-225.0	CARBONDALE	HERRIN	COAL	7.0	785.0

MAPID: 08124704000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NW
QUADRANGLE: KELL **LONGITUDE:** -88.957529 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.416748 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 558.0 **LOGGED (FT.):** 1758.0 **LOG TYPE:** Electric Log
SOURCE: GENTLES, ALBERT **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-266.0	CARBONDALE	SPRINGFIELD	COAL	-	824.0
-396.0	CARBONDALE	COLCHESTER	COAL	-	954.0
-1200.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1758.0

MAPID: 08100274000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 27 **QUARTERS/FOOTAGES:** NW NW NE
QUADRANGLE: KELL **LONGITUDE:** -88.969496 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.416668 **DATE COLLECTED:** 0 / 0 / 1940
SURFACE ELEVATION (FT.): 542.0 **LOGGED (FT.):** 2400.0 **LOG TYPE:**
SOURCE: CARTER OC, STALY&PURL 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
223.0	BOND	CARTHAGE	LIMESTONE	-	319.0
-160.0	CARBONDALE	HERRIN	COAL	-	702.0

MAPID: 08101132000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 27 QUARTERS/FOOTAGES: 990' S line, 330' W line

QUADRANGLE: KELL LONGITUDE: -88.979401 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.405269 DATE COLLECTED:

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 840.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-142.0	MODESTO	PIASA	CALCAREOUS SHALE	12.0	683.0	
-154.0	MODESTO		DARK GRAY SHALE	10.0	695.0	
-164.0	CARBONDALE	DANVILLE	COAL	2.0	705.0	
-166.0	CARBONDALE		SILTY SHALE	13.0	707.0	
-179.0	CARBONDALE	LAWSON	SILTY SHALE	37.0	720.0	
-216.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	23.0	757.0	

MAPID: 08124736000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 28 QUARTERS/FOOTAGES: 500' S line, 330' W line of SE SE

QUADRANGLE: KELL LONGITUDE: -88.984182 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.403877 DATE COLLECTED:

SURFACE ELEVATION (FT.): 524.0 LOGGED (FT.): 1891.0 LOG TYPE: Electric Log

SOURCE: BREHM INVESTMENT GROUP, INC. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-330.0	CARBONDALE	SPRINGFIELD	COAL	-	854.0	
-462.0	CARBONDALE	COLCHESTER	COAL	-	986.0	
-1367.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1891.0	

MAPID: 08101392000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 29 QUARTERS/FOOTAGES: 1650' N line, 330' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.017051

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.41307

DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 750.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-162.0	MODESTO	PIASA	CALCAREOUS SHALE	10.0	693.0
-172.0	MODESTO		DARK GRAY SHALE	9.0	703.0
-181.0	CARBONDALE	DANVILLE	COAL	4.0	712.0
-185.0	CARBONDALE		CLAYSTONE	4.0	716.0
-189.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	12.0	720.0
-201.0	CARBONDALE	LAWSON	CLAYSTONE	8.0	732.0
-209.0	CARBONDALE	BRERETON	LIMESTONE	3.5	740.0
-212.5	CARBONDALE	ANNA	BLACK SHALE	3.5	743.5
-216.0	CARBONDALE	HERRIN	COAL	3.0	747.0

MAPID: 08100581000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.028606

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416729

DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 2063.0

LOG TYPE:

SOURCE: CAMERON OC, BIZOT J C 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
145.0	BOND	CARTHAGE	LIMESTONE	-	386.0
-229.0	CARBONDALE	HERRIN	COAL	-	760.0

MAPID: 08100581000C VERSION: 2

PROJECT: CONTROL

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.028606

GEOLOGIST: HINES

CONFIDENTIAL: N LATITUDE: 38.416729

DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 2063.0

LOG TYPE: Survey Sample Study

SOURCE: CAMERON OC

WELL TYPE: Oil and Gas Test

COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			NO RECORD	0.0	0.0

MAPID: 08100664000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: SE NE SW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.028669 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.407298 DATE COLLECTED: 0 / 0 / 1946

SURFACE ELEVATION (FT.): 525.0 LOGGED (FT.): 2068.0 LOG TYPE:

SOURCE: GULF REF, ALBERT 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
146.0	BOND	CARTHAGE	LIMESTONE	-	379.0
-234.0	CARBONDALE	HERRIN	COAL	-	759.0

MAPID: 08100699000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: NW NE NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.021658 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416694 DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 539.0 LOGGED (FT.): 2165.0 LOG TYPE:

SOURCE: BAYER, MARTEENY 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
155.0	BOND	CARTHAGE	LIMESTONE	-	384.0
-207.0	CARBONDALE	HERRIN	COAL	-	746.0

MAPID: 08101974000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: 990' S line, 1650' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.02405 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.405305 DATE COLLECTED:

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 743.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-162.0	MODESTO	PIASA	CALCAREOUS SHALE	12.0	685.0
-174.0	MODESTO		DARK GRAY SHALE	6.0	697.0
-180.0	CARBONDALE	DANVILLE	COAL	2.0	703.0
-182.0	CARBONDALE		SHALE	2.0	705.0
-184.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	5.0	707.0
-189.0	CARBONDALE	LAWSON	SHALE	3.0	712.0
-192.0	CARBONDALE	LAWSON	SANDSTONE	6.0	715.0
-198.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	721.0
-207.0	CARBONDALE	BRERETON	LIMESTONE	6.0	730.0
-213.0	CARBONDALE	ANNA	BLACK SHALE	4.0	736.0
-217.0	CARBONDALE	HERRIN	COAL	3.0	740.0

MAPID: 08124843000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 30 QUARTERS/FOOTAGES: 430' S line, 330' W line of NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.026326 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.411305 DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 3763.0 LOG TYPE: Electric Log

SOURCE: OELZE, ELMER JR. OIL WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1351.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1887.0	
-3111.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3647.0	TOP OF NEW ALBANY
-3141.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3677.0	
-3227.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3763.0	BASE OF NEW ALBANY

MAPID: 08100586000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 31 QUARTERS/FOOTAGES: NW NW NE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.026398 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.401604 DATE COLLECTED: 0 / 0 / 1943

SURFACE ELEVATION (FT.): 518.0 LOGGED (FT.): 2381.0 LOG TYPE:

SOURCE: GULF REF, SLOAT I 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
148.0	BOND	CARTHAGE	LIMESTONE	-	370.0	
-228.0	CARBONDALE	HERRIN	COAL	-	746.0	

MAPID: 08100720000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 2E SECTION: 31 QUARTERS/FOOTAGES: 1650' S line, 1650' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.024209 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.391587 DATE COLLECTED:

SURFACE ELEVATION (FT.): 496.0 LOGGED (FT.): 861.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-150.0	MODESTO	PIASA	CALCAREOUS SHALE	9.0	646.0	
-159.0	MODESTO		DARK GRAY SHALE	8.0	655.0	
-167.0	CARBONDALE	LAWSON	GRAY SHALE	24.0	663.0	
-191.0	CARBONDALE	LAWSON	SILTY SHALE	20.0	687.0	
-211.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	12.0	707.0	
-223.0	CARBONDALE	LAWSON	SILTY SHALE	10.0	719.0	
-233.0	CARBONDALE	LAWSON	SANDSTONE	33.0	729.0	

MAPID: 08123137000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 31 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NE
QUADRANGLE: WALNUT HILL **LONGITUDE:** -89.019498 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.39779 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 3746.0 **LOG TYPE:** Electric Log
SOURCE: BEESON, RICHARD W. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1349.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1843.0	
-3134.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3628.0	TOP OF NEW ALBANY
-3167.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3661.0	
-3252.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3746.0	BASE OF NEW ALBANY

MAPID: 08100721000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** 990' N line, 1650' W line
QUADRANGLE: KELL **LONGITUDE:** -88.993763 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.399591 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 515.0 **LOGGED (FT.):** 1886.0 **LOG TYPE:** Electric Log
SOURCE: DORAN PAUL EST **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-300.0	CARBONDALE	SPRINGFIELD	COAL	-	815.0	
-430.0	CARBONDALE	COLCHESTER	COAL	-	945.0	
-1371.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1886.0	

MAPID: 08100721000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 33 **QUARTERS/FOOTAGES:** 990' N line, 1650' W line
QUADRANGLE: KELL **LONGITUDE:** -88.993763 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.399591 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 515.0 **LOGGED (FT.):** 859.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-172.0	MODESTO	PIASA	CALCAREOUS SHALE	10.0	687.0	
-182.0	MODESTO		DARK GRAY SHALE	10.0	697.0	
-192.0	CARBONDALE	DANVILLE	COAL	3.0	707.0	
-195.0	CARBONDALE		SHALE	13.0	710.0	
-208.0	CARBONDALE	LAWSON	SILTY SHALE	38.0	723.0	
-246.0	CARBONDALE	LAWSON	SANDSTONE	30.0	761.0	

MAPID: 08101397000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: KELL **LONGITUDE:** -88.979708 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.388631 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 529.0 **LOGGED (FT.):** 795.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-200.0	MODESTO	PIASA	CALCAREOUS SHALE	16.0	729.0
-216.0	MODESTO		DARK GRAY SHALE	8.0	745.0
-224.0	CARBONDALE	DANVILLE	COAL	4.0	753.0
-228.0	CARBONDALE	LAWSON	SILTY SHALE	6.0	757.0
-234.0	CARBONDALE	LAWSON	SANDSTONE	6.0	763.0
-240.0	CARBONDALE	LAWSON	SHALE	10.0	769.0
-250.0	CARBONDALE	BRERETON	LIMESTONE	4.0	779.0
-254.0	CARBONDALE	ANNA	BLACK SHALE	9.0	783.0
-263.0	CARBONDALE	HERRIN	COAL	3.0	792.0

MAPID: 08101010000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** 990' N line, 990' W line of NE SW
QUADRANGLE: KELL **LONGITUDE:** -88.953414 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.392772 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 552.0 **LOGGED (FT.):** 2195.0 **LOG TYPE:** Electric Log
SOURCE: RUCKER B L **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-353.0	CARBONDALE	SPRINGFIELD	COAL	-	905.0
-504.0	CARBONDALE	COLCHESTER	COAL	-	1056.0
-1643.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2195.0

MAPID: 08100147000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: KELL **LONGITUDE:** -88.929872 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.392852 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 512.0 **LOGGED (FT.):** 2579.0 **LOG TYPE:**
SOURCE: WALKER A J, PACE HEIRS 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
192.0	BOND	CARTHAGE	LIMESTONE	-	320.0
-245.0	CARBONDALE	HERRIN	COAL	-	757.0

CORRELATION
UNCERTAIN

MAPID: 08101431000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.865116 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.47556 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 526.0 **LOGGED (FT.):** 2827.0 **LOG TYPE:** Electric Log
SOURCE: E & G DRLG. CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-396.0	CARBONDALE	HERRIN	COAL	3.0	922.0	
-462.0	CARBONDALE	SPRINGFIELD	COAL	4.0	988.0	
-622.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1148.0	

MAPID: 08100309000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** NE NE NW
QUADRANGLE: KELL **LONGITUDE:** -88.895725 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.475699 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 605.0 **LOGGED (FT.):** 2629.0 **LOG TYPE:**
SOURCE: DEATON&BRS, HOWARD ETL 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
81.0	BOND	CARTHAGE	LIMESTONE	-	524.0	
-316.0	CARBONDALE	HERRIN	COAL	-	921.0	

MAPID: 08101188000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 5 QUARTERS/FOOTAGES: 280' S line, 375' E line

QUADRANGLE: KELL LONGITUDE: -88.886653 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.462347 DATE COLLECTED:

SURFACE ELEVATION (FT.): 590.0 LOGGED (FT.): 968.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-270.0	MODESTO	PIASA	LIMESTONE	4.0	860.0	
-274.0	MODESTO		SILTY SHALE	15.0	864.0	
-289.0	CARBONDALE	DANVILLE	COAL	1.5	879.0	
-290.5	CARBONDALE		SILTY SHALE	15.0	880.5	
-305.5	CARBONDALE	GALUM	LIMESTONE	3.0	895.5	
-308.5	CARBONDALE		SHALE	2.0	898.5	
-310.5	CARBONDALE	ALLENBY	COAL	1.5	900.5	
-312.0	CARBONDALE		GRAY SHALE	7.0	902.0	
-319.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	909.0	
-323.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	52.0	913.0	
-375.0	CARBONDALE	HERRIN	COAL	3.0	965.0	

MAPID: 08101195000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 5 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SE

QUADRANGLE: KELL LONGITUDE: -88.888927 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.462502 DATE COLLECTED:

SURFACE ELEVATION (FT.): 583.0 LOGGED (FT.): 2774.0 LOG TYPE: Electric Log

SOURCE: E & G DRLG. CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-325.0	CARBONDALE	HERRIN	COAL	5.0	908.0	
-367.0	CARBONDALE	BRIAR HILL	COAL	-	950.0	
-391.0	CARBONDALE	SPRINGFIELD	COAL	4.0	974.0	BLACK SHALE & LIMESTONE ROOF
-453.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1036.0	

MAPID: 08101370000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: KELL **LONGITUDE:** -88.921537 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.461199 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 592.0 **LOGGED (FT.):** 2538.0 **LOG TYPE:** Electric Log
SOURCE: WINN C R **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-285.0	CARBONDALE	HERRIN	COAL	3.0	877.0	
-322.0	CARBONDALE	BRIAR HILL	COAL	-	914.0	
-347.0	CARBONDALE	SPRINGFIELD	COAL	4.0	939.0	BLACK SHALE & LIMESTONE ROOF
-392.0	CARBONDALE	HOUCHIN CREEK	COAL	-	984.0	

MAPID: 08101370000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: KELL **LONGITUDE:** -88.921537 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.461199 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 592.0 **LOGGED (FT.):** 879.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-248.0	MODESTO	PIASA	LIMESTONE	5.0	840.0	
-253.0	CARBONDALE		GRAY SHALE	7.0	845.0	
-260.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	7.0	852.0	
-267.0	CARBONDALE		GRAY SHALE	9.0	859.0	
-276.0	CARBONDALE	BRERETON	LIMESTONE	4.0	868.0	
-280.0	CARBONDALE	ANNA	BLACK SHALE	1.0	872.0	
-284.0	CARBONDALE	HERRIN	COAL	3.0	876.0	

MAPID: 08101191000C VERSION: 1

PROJECT: CIRC 431

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

QUADRANGLE: KELL LONGITUDE: -88.891281 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.460696 DATE COLLECTED:

SURFACE ELEVATION (FT.): 584.0 LOGGED (FT.): 2628.0 LOG TYPE: Electric Log

SOURCE: E & G DRLG. CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-314.0	CARBONDALE	HERRIN	COAL	4.0	898.0	
-348.0	CARBONDALE	BRIAR HILL	COAL	-	932.0	
-380.0	CARBONDALE	SPRINGFIELD	COAL	3.0	964.0	BLACK SHALE & LIMESTONE ROOF
-428.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1012.0	

MAPID: 08101571000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 8 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: KELL LONGITUDE: -88.886527 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.460662 DATE COLLECTED:

SURFACE ELEVATION (FT.): 568.0 LOGGED (FT.): 889.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-277.0	MODESTO	PIASA	LIMESTONE	5.0	845.0	
-282.0	MODESTO		GRAY SHALE	9.0	850.0	
-291.0	CARBONDALE	DANVILLE	COAL	2.0	859.0	
-293.0	CARBONDALE		GRAY SHALE	2.0	861.0	
-295.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	10.0	863.0	
-305.0	CARBONDALE		GRAY SHALE	6.0	873.0	
-311.0	CARBONDALE	BRERETON	LIMESTONE	4.0	879.0	
-315.0	CARBONDALE	ANNA	BLACK SHALE	2.0	883.0	
-317.0	CARBONDALE	HERRIN	COAL	4.0	885.0	

MAPID: 08101185000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.868048 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.447517 DATE COLLECTED:

SURFACE ELEVATION (FT.): 585.0 LOGGED (FT.): 2862.0 LOG TYPE: Electric Log

SOURCE: E & G DRLG. CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-359.0	CARBONDALE	HERRIN	COAL	3.0	944.0	
-391.0	CARBONDALE	BRIAR HILL	COAL	-	976.0	
-428.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1013.0	
-475.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1060.0	

MAPID: 08101090000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW SE

QUADRANGLE: HARMONY LONGITUDE: -88.856369 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.451288 DATE COLLECTED:

SURFACE ELEVATION (FT.): 540.0 LOGGED (FT.): 2860.0 LOG TYPE: Electric Log

SOURCE: REDWINE NASH ETAL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-400.0	CARBONDALE	HERRIN	COAL	3.0	940.0	
-435.0	CARBONDALE	BRIAR HILL	COAL	-	975.0	
-468.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1008.0	BLACK SHALE & LIMESTONE ROOF
-524.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1064.0	

MAPID: 08101386000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 660' W line

QUADRANGLE: HARMONY LONGITUDE: -88.864572 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.447515 DATE COLLECTED:

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 906.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-302.0	MODESTO	PIASA	LIMESTONE	4.0	843.0	
-306.0	MODESTO		GRAY SHALE	20.0	847.0	
-326.0	CARBONDALE	DANVILLE	COAL	2.0	867.0	
-328.0	CARBONDALE		GRAY SHALE	9.0	869.0	
-337.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	878.0	
-341.0	CARBONDALE		GRAY SHALE	11.0	882.0	
-352.0	CARBONDALE	BRERETON	LIMESTONE	5.0	893.0	
-357.0	CARBONDALE	ANNA	BLACK SHALE	4.0	898.0	
-361.0	CARBONDALE	HERRIN	COAL	4.0	902.0	

MAPID: 08101371000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.831062 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.447969 DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0 LOGGED (FT.): 2859.0 LOG TYPE: Electric Log

SOURCE: WINMAR OIL CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-380.0	CARBONDALE	HERRIN	COAL	4.0	923.0	
-423.0	CARBONDALE	BRIAR HILL	COAL	-	966.0	
-452.0	CARBONDALE	SPRINGFIELD	COAL	3.0	995.0	BLACK SHALE & LIMESTONE ROOF
-505.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1048.0	

MAPID: 08101371000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.831062

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.447969

DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0

LOGGED (FT.): 927.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-325.0	MODESTO	PIASA	LIMESTONE	4.0	868.0	
-329.0	MODESTO		GRAY SHALE	9.0	872.0	
-338.0	CARBONDALE	DANVILLE	COAL	2.0	881.0	
-340.0	CARBONDALE	LAWSON	SILTY SHALE	30.0	883.0	
-370.0	CARBONDALE	BRERETON	LIMESTONE	5.0	913.0	
-375.0	CARBONDALE	ANNA	BLACK SHALE	4.0	918.0	
-379.0	CARBONDALE	HERRIN	COAL	5.0	922.0	

MAPID: 08101131000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 12 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.828514

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.460944

DATE COLLECTED:

SURFACE ELEVATION (FT.): 528.0

LOGGED (FT.): 884.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-292.0	MODESTO	PIASA	LIMESTONE	5.0	820.0	
-297.0	MODESTO		GRAY SHALE	10.0	825.0	
-307.0	CARBONDALE	DANVILLE	COAL	1.0	835.0	
-308.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	42.0	836.0	
-350.0	CARBONDALE	HERRIN	COAL	6.0	878.0	

MAPID: 08100538000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 13 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: HARMONY LONGITUDE: -88.812271

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.435076

DATE COLLECTED:

SURFACE ELEVATION (FT.): 517.0

LOGGED (FT.): 2868.0

LOG TYPE: Electric Log

SOURCE: TEXACO, INC.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-443.0	CARBONDALE	SPRINGFIELD	COAL	4.0	960.0	BLACK SHALE ROOF
-513.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1030.0	

MAPID: 08100538000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.812271 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.435076 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 2868.0 **LOG TYPE:**
SOURCE: TEXAS CO, RIGGS G M 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
66.0	BOND	CARTHAGE	LIMESTONE	- 451.0	

MAPID: 08100538000C **VERSION:** 3 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.812271 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.435076 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2868.0 **LOG TYPE:** Survey Sample Study
SOURCE: TEXACO, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-			NO RECORD	0.0 0.0	

MAPID: 08100584000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.812236 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.438778 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 523.0 **LOGGED (FT.):** 2921.0 **LOG TYPE:**
SOURCE: GULF REF, SHAFER J 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
74.0	BOND	CARTHAGE	LIMESTONE	- 449.0	

MAPID: 08100630000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.816996 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.43686 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 2900.0 **LOG TYPE:**
SOURCE: MAGNOLIA, BRKMN&PRCE 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
82.0	BOND	CARTHAGE	LIMESTONE	- 434.0	

MAPID: 08100631000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW NW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.819369 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.436827 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 2857.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-426.0	CARBONDALE	SPRINGFIELD	COAL	5.0	920.0	BLACK SHALE ROOF
-480.0	CARBONDALE	HOUCHIN CREEK	COAL	-	974.0	

MAPID: 08100631000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW NW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.819369 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.436827 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 2857.0 **LOG TYPE:**
SOURCE: MAGNOLIA, BRKMN&PRCE 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
78.0	BOND	CARTHAGE	LIMESTONE	-	414.0	

MAPID: 08100632000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE SE NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.812218 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.44063 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 537.0 **LOGGED (FT.):** 2890.0 **LOG TYPE:**
SOURCE: TEXAS CO, CLARK E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
69.0	BOND	CARTHAGE	LIMESTONE	-	468.0	

MAPID: 08100633000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.819409 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433089 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 2848.0 **LOG TYPE:**
SOURCE: BELL BROS, IND NTL BK 2C **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
76.0	BOND	CARTHAGE	LIMESTONE	- 442.0	

MAPID: 08100635000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.816957 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.440587 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 2832.0 **LOG TYPE:**
SOURCE: TEXAS CO, SHAFER I 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
80.0	BOND	CARTHAGE	LIMESTONE	- 460.0	

MAPID: 08100676000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW NE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.814623 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.436892 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 2850.0 **LOG TYPE:**
SOURCE: GULF REF, SHAFFER J 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
76.0	BOND	CARTHAGE	LIMESTONE	- 441.0	

MAPID: 08100636000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.845034 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433113 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 579.0 **LOGGED (FT.):** 2755.0 **LOG TYPE:**
SOURCE: TEXAS CO, MCKINY COM 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
122.0	BOND	CARTHAGE	LIMESTONE	- 457.0	

MAPID: 08100637000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.847334 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433054 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 603.0 **LOGGED (FT.):** 2873.0 **LOG TYPE:**
SOURCE: TEXAS CO, MCKINY COM 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
131.0	BOND	CARTHAGE	LIMESTONE	-	472.0	

MAPID: 08100638000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW NW SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.847308 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.436693 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 592.0 **LOGGED (FT.):** 2850.0 **LOG TYPE:**
SOURCE: MAGNOLIA, SNEED O 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
121.0	BOND	CARTHAGE	LIMESTONE	-	471.0	

MAPID: 08100639000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' S line, 1654' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.842675 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433177 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 563.0 **LOGGED (FT.):** 2835.0 **LOG TYPE:**
SOURCE: MAGNOLIA, SNEED O 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
113.0	BOND	CARTHAGE	LIMESTONE	-	450.0	

MAPID: 08100639000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 14 QUARTERS/FOOTAGES: 330' S line, 1654' W line

QUADRANGLE: HARMONY LONGITUDE: -88.842675

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.433177

DATE COLLECTED:

SURFACE ELEVATION (FT.): 563.0

LOGGED (FT.): 968.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-249.0	MODESTO	PIASA	LIMESTONE	4.0	812.0	
-253.0	MODESTO		SHALE & SANDSTONE	30.0	816.0	
-283.0	CARBONDALE	DANVILLE	COAL	2.0	846.0	
-285.0	CARBONDALE		SILTY SHALE	30.0	848.0	
-315.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	878.0	

MAPID: 08100675000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 14 QUARTERS/FOOTAGES: SW SE SE

QUADRANGLE: HARMONY LONGITUDE: -88.833533

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.433414

DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 588.0

LOGGED (FT.): 2820.0

LOG TYPE:

SOURCE: GULF REF, HUNT M E 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
118.0	BOND	CARTHAGE	LIMESTONE	-	470.0	

MAPID: 08100718000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 14 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: HARMONY LONGITUDE: -88.838058

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.440558

DATE COLLECTED:

SURFACE ELEVATION (FT.): 540.0

LOGGED (FT.): 2817.0

LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-406.0	CARBONDALE	SPRINGFIELD	COAL	4.0	946.0	CALCAREOUS SANDSTONE ROOF
-456.0	CARBONDALE	HOUCHIN CREEK	COAL	-	996.0	

MAPID: 08100640000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.849608 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.438481 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 605.0 **LOGGED (FT.):** 2892.0 **LOG TYPE:**
SOURCE: TEXAS CO, GAGE J 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
115.0	BOND	CARTHAGE	LIMESTONE	-	490.0	

MAPID: 08100641000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.849631 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.434839 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 595.0 **LOGGED (FT.):** 2862.0 **LOG TYPE:**
SOURCE: TEXAS CO, GREEN W 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
133.0	BOND	CARTHAGE	LIMESTONE	-	462.0	

MAPID: 08101006000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NW
QUADRANGLE: HARMONY **LONGITUDE:** -88.858853 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.442083 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 580.0 **LOGGED (FT.):** 2850.0 **LOG TYPE:** Electric Log
SOURCE: HIGGINS ETAL **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-363.0	CARBONDALE	HERRIN	COAL	3.0	943.0	
-398.0	CARBONDALE	BRIAR HILL	COAL	-	978.0	
-428.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1008.0	BLACK SHALE & LIMESTONE ROOF
-482.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1062.0	

MAPID: 08101041000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 15 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.849559 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.445761 DATE COLLECTED:

SURFACE ELEVATION (FT.): 592.0 LOGGED (FT.): 974.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-312.0	MODESTO		GRAY SHALE	10.0	904.0	
-322.0	CARBONDALE	DANVILLE	COAL	2.0	914.0	
-324.0	CARBONDALE		CALCAREOUS SHALE	27.0	916.0	
-351.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	943.0	
-361.0	CARBONDALE		GRAY SHALE	6.0	953.0	
-367.0	CARBONDALE	BRERETON	LIMESTONE	4.0	959.0	
-371.0	CARBONDALE	ANNA	BLACK SHALE	4.0	963.0	
-375.0	CARBONDALE	HERRIN	COAL	7.0	967.0	

MAPID: 08101373000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE

QUADRANGLE: KELL LONGITUDE: -88.875326 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.43298 DATE COLLECTED:

SURFACE ELEVATION (FT.): 561.0 LOGGED (FT.): 2767.0 LOG TYPE: Electric Log

SOURCE: CULLUM & LAWHEAD WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-348.0	CARBONDALE	HERRIN	COAL	2.0	909.0	
-386.0	CARBONDALE	BRIAR HILL	COAL	-	947.0	
-409.0	CARBONDALE	SPRINGFIELD	COAL	4.0	970.0	BLACK SHALE ROOF
-466.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1027.0	

MAPID: 08101987000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.868222 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.43298 DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0 LOGGED (FT.): 898.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-297.0	MODESTO	PIASA	LIMESTONE	3.0	840.0	
-300.0	MODESTO		GRAY SHALE	8.0	843.0	
-308.0	CARBONDALE	DANVILLE	COAL	1.0	851.0	
-309.0	CARBONDALE		CALCAREOUS SHALE	24.0	852.0	
-333.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	9.0	876.0	
-342.0	CARBONDALE		GRAY SHALE	6.5	885.0	
-348.5	CARBONDALE	BRERETON	LIMESTONE	3.5	891.5	
-352.0	CARBONDALE	HERRIN	COAL	3.5	895.0	

MAPID: 08101374000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 17 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: KELL LONGITUDE: -88.887063 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.432982 DATE COLLECTED:

SURFACE ELEVATION (FT.): 511.0 LOGGED (FT.): 2679.0 LOG TYPE: Electric Log

SOURCE: FLOYD & HENSON INC WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-303.0	CARBONDALE	HERRIN	COAL	-	814.0	
-337.0	CARBONDALE	BRIAR HILL	COAL	-	848.0	
-369.0	CARBONDALE	SPRINGFIELD	COAL	4.0	880.0	BLACK SHALE ROOF
-426.0	CARBONDALE	HOUCHIN CREEK	COAL	-	937.0	

MAPID: 08101374000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 17 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: KELL LONGITUDE: -88.887063 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.432982 DATE COLLECTED:

SURFACE ELEVATION (FT.): 511.0 LOGGED (FT.): 813.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-234.0	MODESTO	PIASA	LIMESTONE	9.0	745.0
-243.0	MODESTO		GRAY SHALE	21.0	754.0
-264.0	CARBONDALE	DANVILLE	COAL	2.0	775.0
-266.0	CARBONDALE		GRAY SHALE	8.0	777.0
-274.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	785.0
-284.0	CARBONDALE		GRAY SHALE	10.0	795.0
-294.0	CARBONDALE	BRERETON	LIMESTONE	4.0	805.0
-298.0	CARBONDALE	ANNA	BLACK SHALE	2.0	809.0
-300.0	CARBONDALE	HERRIN	COAL	2.0	811.0

MAPID: 08100588000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: KELL LONGITUDE: -88.906048 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.4183 DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 2628.0 LOG TYPE:

SOURCE: HEATH&ALSN, HURST H 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
175.0	BOND	CARTHAGE	LIMESTONE	-	377.0
-240.0	CARBONDALE	HERRIN	COAL	-	792.0

MAPID: 08100588000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: KELL LONGITUDE: -88.906048 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.4183 DATE COLLECTED:

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 978.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-206.0	MODESTO	PIASA	LIMESTONE	4.0	758.0	
-210.0	CARBONDALE		GRAY SHALE	9.0	762.0	
-219.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	771.0	
-228.0	CARBONDALE		GRAY SHALE	9.0	780.0	
-237.0	CARBONDALE	BRERETON	LIMESTONE	4.0	789.0	
-241.0	CARBONDALE	ANNA	BLACK SHALE	1.0	793.0	
-242.0	CARBONDALE	HERRIN	COAL	4.0	794.0	

MAPID: 08101375000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE SE

QUADRANGLE: KELL LONGITUDE: -88.908359 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.420183 DATE COLLECTED:

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 2607.0 LOG TYPE: Electric Log

SOURCE: HARVEY TEX OIL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-247.0	CARBONDALE	HERRIN	COAL	3.0	799.0	
-278.0	CARBONDALE	BRIAR HILL	COAL	-	830.0	
-307.0	CARBONDALE	SPRINGFIELD	COAL	4.0	859.0	BLACK SHALE & LIMESTONE ROOF
-354.0	CARBONDALE	HOUCHIN CREEK	COAL	-	906.0	

MAPID: 08101376000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 20 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE NE

QUADRANGLE: KELL LONGITUDE: -88.887167 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.427491 DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0 LOGGED (FT.): 2677.0 LOG TYPE: Electric Log

SOURCE: GLASS, THEO G. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-291.0	CARBONDALE	HERRIN	COAL	3.0	844.0	
-331.0	CARBONDALE	BRIAR HILL	COAL	-	884.0	
-353.0	CARBONDALE	SPRINGFIELD	COAL	4.0	906.0	BLACK SHALE & LIMESTONE ROOF
-411.0	CARBONDALE	HOUCHIN CREEK	COAL	-	964.0	

MAPID: 08101991000C **VERSION:** 1 **PROJECT:** ISGS
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 20 **QUARTERS/FOOTAGES:** 660' S line, 330' E line
QUADRANGLE: KELL **LONGITUDE:** -88.887318 **GEOLOGIST:** C TREWORGY
CONFIDENTIAL: N **LATITUDE:** 38.419218 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 554.0 **LOGGED (FT.):** 860.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: ELOG PICKS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-310.0	CARBONDALE	HERRIN	COAL	-	864.0	
-346.0	CARBONDALE	BRIAR HILL	COAL	-	900.0	
-370.0	CARBONDALE	SPRINGFIELD	COAL	-	924.0	

MAPID: 08101007000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.870746 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.423805 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 566.0 **LOGGED (FT.):** 2802.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-292.0	CARBONDALE	HERRIN	COAL	5.0	858.0	
-332.0	CARBONDALE	BRIAR HILL	COAL	-	898.0	
-357.0	CARBONDALE	SPRINGFIELD	COAL	4.0	923.0	BLACK SHALE & LIMESTONE ROOF
-414.0	CARBONDALE	HOUCHIN CREEK	COAL	-	980.0	

MAPID: 08101996000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 660' E line
QUADRANGLE: HARMONY **LONGITUDE:** -88.8694 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431158 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 577.0 **LOGGED (FT.):** 953.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-305.0	MODESTO	PIASA	LIMESTONE	6.0	882.0	
-311.0	MODESTO		GRAY SHALE	7.0	888.0	
-318.0	CARBONDALE	DANVILLE	COAL	3.0	895.0	
-371.0	CARBONDALE	HERRIN	COAL	5.0	948.0	

MAPID: 08100600000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** SE SE NW
QUADRANGLE: HARMONY **LONGITUDE:** -88.859025 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.425679 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 579.0 **LOGGED (FT.):** 2827.0 **LOG TYPE:**
SOURCE: FISHR&ARRW, WIMBLY COM 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
111.0	BOND	CARTHAGE	LIMESTONE	-	468.0	

MAPID: 08100642000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.84966 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.431198 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 598.0 **LOGGED (FT.):** 2865.0 **LOG TYPE:** Electric Log
SOURCE: TEXACO, INC. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-372.0	CARBONDALE	SPRINGFIELD	COAL	3.0	970.0	CALCAREOUS SANDSTONE ROOF
-424.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1022.0	

MAPID: 08100642000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.84966 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431198 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 598.0 **LOGGED (FT.):** 2865.0 **LOG TYPE:**
SOURCE: TEXAS CO, GREEN W 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
142.0	BOND	CARTHAGE	LIMESTONE	-	456.0	

MAPID: 08100674000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW NE NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.852007 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.429367 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 589.0 **LOGGED (FT.):** 2850.0 **LOG TYPE:**
SOURCE: TEXAS CO, GREEN W 3 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
139.0	BOND	CARTHAGE	LIMESTONE	-	450.0

MAPID: 08100708000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.849799 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.420263 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 610.0 **LOGGED (FT.):** 2861.0 **LOG TYPE:**
SOURCE: TEXAS CO, HARRIS W 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
127.0	BOND	CARTHAGE	LIMESTONE	-	483.0

MAPID: 08101219000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: HARMONY **LONGITUDE:** -88.849657 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431198 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 577.0 **LOGGED (FT.):** 971.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-251.0	MODESTO	PIASA	LIMESTONE	3.0	828.0
-254.0	CARBONDALE		SILTY SHALE	41.0	831.0
-295.0	CARBONDALE	LAWSON	SHALE	90.0	872.0
-385.0	CARBONDALE	BRERETON	LIMESTONE	3.0	962.0
-388.0	CARBONDALE	ANNA	BLACK SHALE	2.0	965.0
-390.0	CARBONDALE	HERRIN	COAL	4.0	967.0

MAPID: 08100643000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NW NW
QUADRANGLE: HARMONY **LONGITUDE:** -88.845051 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431288 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 602.0 **LOGGED (FT.):** 2861.0 **LOG TYPE:**
SOURCE: TEXAS CO, HANES D E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
139.0	BOND	CARTHAGE	LIMESTONE	-	463.0	

MAPID: 08100644000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.831272 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.424158 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 564.0 **LOGGED (FT.):** 2807.0 **LOG TYPE:**
SOURCE: DUNCAN W, SUMNER J 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
117.0	BOND	CARTHAGE	LIMESTONE	-	447.0	

MAPID: 08100645000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE SE SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.84054 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.42034 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 588.0 **LOGGED (FT.):** 2796.0 **LOG TYPE:**
SOURCE: DUNCAN W, WAITE WM 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
144.0	BOND	CARTHAGE	LIMESTONE	-	444.0	

MAPID: 08100646000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.840554 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.418496 **DATE COLLECTED:** 0 / 0 / 1945
SURFACE ELEVATION (FT.): 583.0 **LOGGED (FT.):** 2797.0 **LOG TYPE:**
SOURCE: DUNCAN W, WAITE 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
129.0	BOND	CARTHAGE	LIMESTONE	-	454.0	

MAPID: 08100673000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 23 QUARTERS/FOOTAGES: SW NE SW

QUADRANGLE: HARMONY LONGITUDE: -88.842836 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.422159 DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 587.0 LOGGED (FT.): 2823.0 LOG TYPE:

SOURCE: TEXAS CO, BAYER 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
137.0	BOND	CARTHAGE	LIMESTONE	-	450.0	

MAPID: 08101378000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 23 QUARTERS/FOOTAGES: 975' N line, 370' W line of NE

QUADRANGLE: HARMONY LONGITUDE: -88.838015 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.429699 DATE COLLECTED:

SURFACE ELEVATION (FT.): 563.0 LOGGED (FT.): 2866.0 LOG TYPE: Electric Log

SOURCE: GULF REFINING CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-378.0	CARBONDALE	SPRINGFIELD	COAL	4.0	941.0	BLACK SHALE & LIMESTONE ROOF
-439.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1002.0	

MAPID: 08102008000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 23 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.831289 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.418523 DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0 LOGGED (FT.): 926.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-243.0	MODESTO	PIASA	LIMESTONE	7.0	796.0	
-250.0	MODESTO		GRAY SHALE	15.0	803.0	
-265.0	CARBONDALE	DANVILLE	COAL	3.0	818.0	
-268.0	CARBONDALE		SHALE	15.0	821.0	
-283.0	CARBONDALE	LAWSON	SHALE	90.0	836.0	

MAPID: 08100540000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NE NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.812353 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.429461 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 532.0 **LOGGED (FT.):** 2880.0 **LOG TYPE:**
SOURCE: BELL BROS, IND NTL BK 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
76.0	BOND	CARTHAGE	LIMESTONE	-	456.0	

MAPID: 08100566000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE SW NE
QUADRANGLE: HARMONY **LONGITUDE:** -88.817145 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.425682 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 2882.0 **LOG TYPE:**
SOURCE: BELL BROS, IND NTL BK 1B **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
83.0	BOND	CARTHAGE	LIMESTONE	-	452.0	

MAPID: 08100567000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.817202 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.421955 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 2849.0 **LOG TYPE:**
SOURCE: BELL BROS, SLEDGE R F 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
83.0	BOND	CARTHAGE	LIMESTONE	-	413.0	
-352.0	CARBONDALE	HERRIN	COAL	-	848.0	

MAPID: 08100585000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.817202 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.421955 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 541.0 **LOGGED (FT.):** 2878.0 **LOG TYPE:**
SOURCE: BELL BROS, PARKER CON 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

MAPID: 08100672000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 24 QUARTERS/FOOTAGES: NE SE NW

QUADRANGLE: HARMONY LONGITUDE: -88.821841

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.427515

DATE COLLECTED: 0 / 0 / 1945

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 2880.0

LOG TYPE:

SOURCE: BELL BROS, IND NTL BK 2B

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
98.0	BOND	CARTHAGE	LIMESTONE	-	454.0	

MAPID: 08100954000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 24 QUARTERS/FOOTAGES: 660' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.828945

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.430141

DATE COLLECTED:

SURFACE ELEVATION (FT.): 557.0 LOGGED (FT.): 959.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-261.0	MODESTO	PIASA	LIMESTONE	7.0	818.0	
-268.0	MODESTO		SHALE	6.0	825.0	
-274.0	CARBONDALE	DANVILLE	COAL	3.0	831.0	
-277.0	CARBONDALE		SHALE	35.0	834.0	
-312.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	869.0	

MAPID: 08101121000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 24 QUARTERS/FOOTAGES: 990' S line, 330' E line of SW SE

QUADRANGLE: HARMONY LONGITUDE: -88.817217

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.420031

DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 2903.0

LOG TYPE: Electric Log

SOURCE: DUNNILL, JOHN F. OIL CO.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-350.0	CARBONDALE	HERRIN	COAL	3.0	886.0	
-390.0	CARBONDALE	BRIAR HILL	COAL	-	926.0	
-413.0	CARBONDALE	SPRINGFIELD	COAL	4.0	949.0	BLACK SHALE & LIMESTONE ROOF
-478.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1014.0	

MAPID: 08100647000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 25 QUARTERS/FOOTAGES: SE SW NE

QUADRANGLE: HARMONY LONGITUDE: -88.817321

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.410995

DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 576.0 LOGGED (FT.): 2950.0

LOG TYPE:

SOURCE: BELL BROS, MINOR A 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
83.0	BOND	CARTHAGE	LIMESTONE	-	493.0	
-354.0	CARBONDALE	HERRIN	COAL	-	930.0	

MAPID: 08101141000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 25 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.812589

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416271

DATE COLLECTED:

SURFACE ELEVATION (FT.): 591.0 LOGGED (FT.): 959.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-303.0	MODESTO	PIASA	LIMESTONE	4.0	894.0	
-307.0	MODESTO		SHALE & SANDSTONE	19.0	898.0	
-326.0	CARBONDALE	DANVILLE	COAL	2.0	917.0	
-328.0	CARBONDALE		GRAY SHALE	15.0	919.0	
-343.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	934.0	
-347.0	CARBONDALE		GRAY SHALE	13.0	938.0	
-360.0	CARBONDALE	BRERETON	LIMESTONE	4.0	951.0	
-364.0	CARBONDALE	ANNA	BLACK SHALE	2.0	955.0	
-366.0	CARBONDALE	HERRIN	COAL	2.0	957.0	

MAPID: 08101380000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 25 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW SE

QUADRANGLE: HARMONY LONGITUDE: -88.817351

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.4038

DATE COLLECTED:

SURFACE ELEVATION (FT.): 578.0 LOGGED (FT.): 2972.0

LOG TYPE: Electric Log

SOURCE: DERICKSON T BLAKE

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-355.0	CARBONDALE	HERRIN	COAL	2.0	933.0	
-386.0	CARBONDALE	BRIAR HILL	COAL	-	964.0	
-424.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1002.0	BLACK SHALE ROOF
-492.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1070.0	

MAPID: 08100499000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 26 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: HARMONY LONGITUDE: -88.831452 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.405631 DATE COLLECTED: 0 / 0 / 1943

SURFACE ELEVATION (FT.): 580.0 LOGGED (FT.): 2939.0 LOG TYPE:

SOURCE: REDWNE&CEN, BENST BRO 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
56.0	BOND	CARTHAGE	LIMESTONE	-	524.0	
-412.0	CARBONDALE	HERRIN	COAL	-	992.0	CORRELATION UNCERTAIN

MAPID: 08101074000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 26 QUARTERS/FOOTAGES: 330' N line, 330' E line of NW NE

QUADRANGLE: HARMONY LONGITUDE: -88.835939 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.416683 DATE COLLECTED:

SURFACE ELEVATION (FT.): 566.0 LOGGED (FT.): 3220.0 LOG TYPE: Electric Log

SOURCE: HERLEY, DAVID F. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-376.0	CARBONDALE	SPRINGFIELD	COAL	4.0	942.0	BLACK SHALE ROOF
-440.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1006.0	

MAPID: 08101120000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 26 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.831306 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416701 DATE COLLECTED:

SURFACE ELEVATION (FT.): 600.0 LOGGED (FT.): 1001.0 LOG TYPE: Electric Log

SOURCE: GOOD DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-272.0	MODESTO	PIASA	LIMESTONE	6.0	872.0	
-278.0	MODESTO		GRAY SHALE	21.0	878.0	
-299.0	CARBONDALE	DANVILLE	COAL	2.0	899.0	
-301.0	CARBONDALE		SHALE	10.0	901.0	
-311.0	CARBONDALE	LAWSON	SHALE	90.0	911.0	

MAPID: 08101381000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 27 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.85924 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.409162 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 546.0 **LOGGED (FT.):** 2838.0 **LOG TYPE:** Electric Log
SOURCE: DUNNILL, JOHN F. OIL CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-374.0	CARBONDALE	BRIAR HILL	COAL	-	920.0	
-403.0	CARBONDALE	SPRINGFIELD	COAL	4.0	949.0	BLACK SHALE & LIMESTONE ROOF
-467.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1013.0	

MAPID: 08102037000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 27 **QUARTERS/FOOTAGES:** 330' N line, 0' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.867277 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.416445 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 577.0 **LOGGED (FT.):** 981.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-271.0	MODESTO	PIASA	LIMESTONE	7.0	848.0	
-278.0	MODESTO		GRAY SHALE	16.0	855.0	
-294.0	CARBONDALE	DANVILLE	COAL	2.0	871.0	
-296.0	CARBONDALE		SHALE	18.0	873.0	
-314.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	891.0	

MAPID: 08101382000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NW
QUADRANGLE: KELL **LONGITUDE:** -88.877963 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.412796 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 2629.0 **LOG TYPE:** Electric Log
SOURCE: GULF REFINING CO-EPD **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-279.0	CARBONDALE	HERRIN	COAL	6.0	814.0	
-328.0	CARBONDALE	BRIAR HILL	COAL	-	863.0	
-348.0	CARBONDALE	SPRINGFIELD	COAL	4.0	883.0	BLACK SHALE & LIMESTONE ROOF
-405.0	CARBONDALE	HOUCHIN CREEK	COAL	-	940.0	

MAPID: 08101426000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 28 QUARTERS/FOOTAGES: 330' N line, 670' E line

QUADRANGLE: HARMONY LONGITUDE: -88.869628 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416453 DATE COLLECTED:

SURFACE ELEVATION (FT.): 552.0 LOGGED (FT.): 891.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-238.0	MODESTO	PIASA	LIMESTONE	4.0	790.0	
-242.0	MODESTO		GRAY SHALE	7.0	794.0	
-249.0	CARBONDALE	DANVILLE	COAL	2.5	801.0	
-251.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	88.0	803.5	

MAPID: 08101383000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 29 QUARTERS/FOOTAGES: 330' N line, 330' E line of SW SE

QUADRANGLE: KELL LONGITUDE: -88.892254 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.405487 DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 2742.0 LOG TYPE: Electric Log

SOURCE: REDWINE NASH ETAL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-260.0	CARBONDALE	HERRIN	COAL	4.0	796.0	
-310.0	CARBONDALE	BRIAR HILL	COAL	-	846.0	
-330.0	CARBONDALE	SPRINGFIELD	COAL	4.0	866.0	BLACK SHALE & LIMESTONE ROOF
-431.0	CARBONDALE	HOUCHIN CREEK	COAL	-	967.0	

MAPID: 08102666000C VERSION: 1

PROJECT: ISGS

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 29 QUARTERS/FOOTAGES: 330' N line, 990' E line

QUADRANGLE: KELL LONGITUDE: -88.889683 GEOLOGIST: C TREWORGY

CONFIDENTIAL: N LATITUDE: 38.41648 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 796.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: ELOG PICKS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-225.0	CARBONDALE	DANVILLE	COAL	-	745.0	
-253.0	CARBONDALE	HERRIN	COAL	-	773.0	
-324.0	CARBONDALE	SPRINGFIELD	COAL	-	844.0	

MAPID: 08101073000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE
QUADRANGLE: KELL **LONGITUDE:** -88.913066 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.416569 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 547.0 **LOGGED (FT.):** 2628.0 **LOG TYPE:** Electric Log
SOURCE: CULLUM & LAWHEAD **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-230.0	CARBONDALE	HERRIN	COAL	3.0	777.0	
-299.0	CARBONDALE	SPRINGFIELD	COAL	4.0	846.0	BLACK SHALE ROOF
-347.0	CARBONDALE	HOUCHIN CREEK	COAL	-	894.0	

MAPID: 08101527000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW
QUADRANGLE: KELL **LONGITUDE:** -88.878153 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.401778 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 551.0 **LOGGED (FT.):** 2738.0 **LOG TYPE:** Electric Log
SOURCE: MINOR, BURRELL G. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-369.0	CARBONDALE	SPRINGFIELD	COAL	4.0	920.0	BLACK SHALE & LIMESTONE ROOF
-419.0	CARBONDALE	HOUCHIN CREEK	COAL	-	970.0	

MAPID: 08101539000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 3E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: KELL **LONGITUDE:** -88.885286 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.40178 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 579.0 **LOGGED (FT.):** 929.5 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-227.0	MODESTO	PIASA	LIMESTONE	3.0	806.0	
-230.0	MODESTO		SILTY SHALE	15.0	809.0	
-245.0	CARBONDALE	DANVILLE	COAL	2.5	824.0	
-247.5	CARBONDALE		SHALE & SANDSTONE	35.0	826.5	
-282.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	861.5	
-287.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	63.0	866.5	

MAPID: 08101690000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 3E SECTION: 36 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE SE

QUADRANGLE: HARMONY LONGITUDE: -88.815166 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.392719 DATE COLLECTED:

SURFACE ELEVATION (FT.): 560.0 LOGGED (FT.): 3520.0 LOG TYPE: Electric Log

SOURCE: MCENDREE, EBER WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-394.0	CARBONDALE	HERRIN	COAL	3.0	954.0	
-460.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1020.0	BLACK SHALE ROOF
-529.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1089.0	

MAPID: 08100707000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: SHIELDS LONGITUDE: -88.735383 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.474423 DATE COLLECTED: 0 / 0 / 1948

SURFACE ELEVATION (FT.): 443.0 LOGGED (FT.): 2976.0 LOG TYPE:

SOURCE: GULF REF, SHARP W 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-23.0	BOND	CARTHAGE	LIMESTONE	-	466.0	
-433.0	CARBONDALE	HERRIN	COAL	-	876.0	

MAPID: 08100707000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: SHIELDS LONGITUDE: -88.735383 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.474423 DATE COLLECTED:

SURFACE ELEVATION (FT.): 433.0 LOGGED (FT.): 878.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-400.0	CARBONDALE	DANVILLE	COAL	2.0	833.0	
-402.0	CARBONDALE		GRAY SHALE	9.0	835.0	
-411.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	844.0	
-415.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	22.0	848.0	
-437.0	CARBONDALE	BRERETON	LIMESTONE	4.0	870.0	
-441.0	CARBONDALE	ANNA	BLACK SHALE	2.0	874.0	
-443.0	CARBONDALE	HERRIN	COAL	2.5	876.0	

MAPID: 08100707000C **VERSION:** 3 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 2 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.735383 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.474423 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 443.0 **LOGGED (FT.):** 2978.0 **LOG TYPE:** Electric Log
SOURCE: GULF REFINING CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-432.0	CARBONDALE	HERRIN	COAL	4.0	875.0	
-464.0	CARBONDALE	BRIAR HILL	COAL	-	907.0	
-497.0	CARBONDALE	SPRINGFIELD	COAL	3.0	940.0	BLACK SHALE ROOF
-567.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1010.0	

MAPID: 08100310000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.753889 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.474704 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 3033.0 **LOG TYPE:**
SOURCE: MAGNOLIA, PIERCE C W 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-29.0	BOND	CARTHAGE	LIMESTONE	-	536.0	
-458.0	CARBONDALE	HERRIN	COAL	-	965.0	

MAPID: 08100310000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.753889 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.474704 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 966.5 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-391.0	MODESTO	PIASA	LIMESTONE	5.0	898.0	
-396.0	MODESTO		SILTY SHALE	20.0	903.0	
-416.0	CARBONDALE	DANVILLE	COAL	2.0	923.0	
-418.0	CARBONDALE		GRAY SHALE	8.0	925.0	
-426.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	933.0	
-430.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	20.0	937.0	
-450.0	CARBONDALE	BRERETON	LIMESTONE	4.0	957.0	
-454.0	CARBONDALE	ANNA	BLACK SHALE	2.0	961.0	
-457.0	CARBONDALE	HERRIN	COAL	2.5	964.0	

MAPID: 08100310000C VERSION: 3

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 3 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.753889 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.474704 DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0 LOGGED (FT.): 3033.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-459.0	CARBONDALE	HERRIN	COAL	3.0	966.0	
-491.0	CARBONDALE	BRIAR HILL	COAL	-	998.0	
-525.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1032.0	BLACK SHALE ROOF
-587.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1094.0	

MAPID: 08100982000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.772778 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.474819 DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0 LOGGED (FT.): 2980.0 LOG TYPE: Electric Log

SOURCE: OLDFIELD OTIS R WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-412.0	CARBONDALE	HERRIN	COAL	3.0	965.0	
-455.0	CARBONDALE	BRIAR HILL	COAL	-	1008.0	
-487.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1040.0	BLACK SHALE ROOF
-550.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1103.0	

MAPID: 08100982000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.772778 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.474819 DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0 LOGGED (FT.): 963.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-335.0	MODESTO	PIASA	LIMESTONE	5.0	888.0	
-340.0	MODESTO		SHALE & SANDSTONE	25.0	893.0	
-365.0	CARBONDALE	DANVILLE	COAL	2.0	918.0	
-367.0	CARBONDALE		GRAY SHALE	12.0	920.0	
-379.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	932.0	
-383.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	18.0	936.0	
-401.0	CARBONDALE	BRERETON	LIMESTONE	4.0	954.0	
-405.0	CARBONDALE	ANNA	BLACK SHALE	2.0	958.0	
-407.0	CARBONDALE	HERRIN	COAL	3.0	960.0	

MAPID: 08101739000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 5 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.775268 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.46137 DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 3372.0 LOG TYPE: Electric Log

SOURCE: ESTATE OF N.A. BALDRIDGE WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-399.0	CARBONDALE	HERRIN	COAL	4.0	935.0	
-438.0	CARBONDALE	BRIAR HILL	COAL	-	974.0	
-471.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1007.0	BLACK SHALE & LIMESTONE ROOF
-544.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1080.0	

MAPID: 08101739000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 5 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.775268

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.46137

DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0

LOGGED (FT.): 936.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-339.0	MODESTO	PIASA	LIMESTONE	4.0	870.0
-343.0	MODESTO		GRAY SHALE	16.0	874.0
-359.0	CARBONDALE	DANVILLE	COAL	2.0	890.0
-361.0	CARBONDALE		GRAY SHALE	18.0	892.0
-379.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	910.0
-383.0	CARBONDALE		SILTY SHALE	18.0	914.0
-401.0	CARBONDALE	HERRIN	COAL	4.0	932.0

MAPID: 08102667000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 7 QUARTERS/FOOTAGES: 990' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.809744

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.458658

DATE COLLECTED:

SURFACE ELEVATION (FT.): 466.0

LOGGED (FT.): 897.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-302.0	MODESTO	PIASA	LIMESTONE	4.0	768.0
-306.0	MODESTO		SHALE & SANDSTONE	25.0	772.0
-331.0	CARBONDALE	DANVILLE	COAL	1.0	797.0
-332.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	99.0	798.0

MAPID: 08101068000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.772878 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.446772 DATE COLLECTED:

SURFACE ELEVATION (FT.): 485.0 LOGGED (FT.): 953.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-400.0	MODESTO	PIASA	LIMESTONE	4.0	885.0	
-404.0	MODESTO		GRAY SHALE	2.0	889.0	
-406.0	CARBONDALE	DANVILLE	COAL	1.0	891.0	
-407.0	CARBONDALE		SILTY SHALE	22.0	892.0	
-429.0	CARBONDALE	ALLENBY	COAL	0.5	914.0	
-429.5	CARBONDALE		SHALE & SANDSTONE	17.0	914.5	
-446.5	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	7.0	931.5	
-453.5	CARBONDALE		SILTY SHALE	9.0	938.5	
-462.5	CARBONDALE	BRERETON	LIMESTONE	2.0	947.5	
-464.5	CARBONDALE	ANNA	BLACK SHALE	1.0	949.5	
-465.5	CARBONDALE	HERRIN	COAL	3.0	950.5	

MAPID: 08101142000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE SW

QUADRANGLE: HARMONY LONGITUDE: -88.768225 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.450395 DATE COLLECTED:

SURFACE ELEVATION (FT.): 488.0 LOGGED (FT.): 2845.0 LOG TYPE: Electric Log

SOURCE: OSLAGER OIL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-410.0	CARBONDALE	HERRIN	COAL	4.0	898.0	
-452.0	CARBONDALE	BRIAR HILL	COAL	-	940.0	
-476.0	CARBONDALE	SPRINGFIELD	COAL	4.0	964.0	BLACK SHALE ROOF
-556.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1044.0	

MAPID: 08101768000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.737985 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.446556 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 2990.0 **LOG TYPE:** Electric Log
SOURCE: HERLEY, DAVID F. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-414.0	CARBONDALE	HERRIN	COAL	2.0	916.0	
-455.0	CARBONDALE	BRIAR HILL	COAL	-	957.0	
-483.0	CARBONDALE	SPRINGFIELD	COAL	3.0	985.0	BLACK SHALE ROOF
-558.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1060.0	

MAPID: 08101768000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.737985 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.446556 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 502.0 **LOGGED (FT.):** 999.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-358.0	MODESTO	PIASA	LIMESTONE	4.0	860.0	
-362.0	MODESTO		GRAY SHALE	11.0	864.0	
-373.0	CARBONDALE	DANVILLE	COAL	1.0	875.0	
-374.0	CARBONDALE	LAWSON	SILTY SHALE	56.0	876.0	
-430.0	CARBONDALE	ANNA	BLACK SHALE	3.0	932.0	
-414.0	CARBONDALE	HERRIN	COAL	2.0	916.0	

MAPID: 08101362000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.719215 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.459602 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 538.0 **LOGGED (FT.):** 3050.0 **LOG TYPE:** Electric Log
SOURCE: DEMIER, FRED **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-434.0	CARBONDALE	HERRIN	COAL	3.0	972.0	
-466.0	CARBONDALE	BRIAR HILL	COAL	-	1004.0	
-492.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1030.0	BLACK SHALE ROOF
-560.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1098.0	

MAPID: 08101362000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 11 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.719215 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.459602 DATE COLLECTED:

SURFACE ELEVATION (FT.): 538.0 LOGGED (FT.): 973.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-380.0	MODESTO	PIASA	LIMESTONE	3.0	918.0	
-383.0	MODESTO		SILTY SHALE	7.0	921.0	
-390.0	CARBONDALE	DANVILLE	COAL	1.0	928.0	
-391.0	CARBONDALE		SHALE & SANDSTONE	11.0	929.0	
-402.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	17.0	940.0	
-419.0	CARBONDALE		GRAY SHALE	13.0	957.0	
-432.0	CARBONDALE	HERRIN	COAL	3.5	970.0	

MAPID: 08100598000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 13 QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: SHIELDS LONGITUDE: -88.707536 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.433678 DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 3070.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-475.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1005.0	BLACK SHALE ROOF
-552.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1082.0	

MAPID: 08100598000C VERSION: 2

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 13 QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: SHIELDS LONGITUDE: -88.707536 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.433678 DATE COLLECTED: 0 / 0 / 1942

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 3070.0 LOG TYPE:

SOURCE: MAGNOLIA, BRANSON M 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
35.0	BOND	CARTHAGE	LIMESTONE	-	495.0	

MAPID: 08102498000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 13 **QUARTERS/FOOTAGES:** 330' N line, 430' E line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.7006 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.444693 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 521.0 **LOGGED (FT.):** 988.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-291.0	MODESTO	PIASA	LIMESTONE	4.0	812.0	
-295.0	MODESTO		GRAY SHALE	30.0	816.0	
-325.0	CARBONDALE	DANVILLE	COAL	2.0	846.0	
-327.0	CARBONDALE		SHALE & SANDSTONE	50.0	848.0	
-377.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	898.0	

MAPID: 08100431000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.731024 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.433746 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 2981.0 **LOG TYPE:** Electric Log
SOURCE: GULF REFINING CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-443.0	CARBONDALE	SPRINGFIELD	COAL	5.0	925.0	BLACK SHALE & LIMESTONE ROOF
-492.0	CARBONDALE	HOUCHIN CREEK	COAL	-	974.0	

MAPID: 08100431000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.731024 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433746 **DATE COLLECTED:** 0 / 0 / 1942
SURFACE ELEVATION (FT.): 482.0 **LOGGED (FT.):** 2981.0 **LOG TYPE:**
SOURCE: GULF REF, BRADFORD L 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
63.0	BOND	CARTHAGE	LIMESTONE	-	419.0	

MAPID: 08100431000C **VERSION:** 3 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** NW SE SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.731024 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.433746 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2981.0 **LOG TYPE:** Survey Sample Study
SOURCE: GULF REFINING CO. **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08100569000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.724073 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.431916 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 3002.0 **LOG TYPE:**
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-444.0	CARBONDALE	SPRINGFIELD	COAL	3.0	944.0	SANDSTONE & BLACK SHALE ROOF
-508.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1008.0	

MAPID: 08100569000C **VERSION:** 2 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.724073 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431916 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 2937.0 **LOG TYPE:**
SOURCE: MAGNOLIA, PIERCE C W 1B **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
68.0	BOND	CARTHAGE	LIMESTONE	-	432.0	

MAPID: 08100624000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.733357 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431906 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 2948.0 **LOG TYPE:**
SOURCE: GULF REF, WILSON A 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
67.0	BOND	CARTHAGE	LIMESTONE	-	426.0

MAPID: 08100671000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.735677 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431902 **DATE COLLECTED:** 0 / 0 / 1946
SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 2719.0 **LOG TYPE:**
SOURCE: GULF REF, WILSON A 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
61.0	BOND	CARTHAGE	LIMESTONE	-	403.0

MAPID: 08102042000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.73568 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.444732 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 488.0 **LOGGED (FT.):** 39.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-356.0	CARBONDALE	DANVILLE	COAL	1.0	844.0
-357.0	CARBONDALE		GRAY SHALE	7.0	845.0
-364.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	12.0	852.0
-376.0	CARBONDALE		SHALE	11.0	864.0
-387.0	CARBONDALE	BRERETON	LIMESTONE	3.0	875.0
-390.0	CARBONDALE	ANNA	BLACK SHALE	2.0	878.0
-392.0	CARBONDALE	HERRIN	COAL	3.0	880.0

MAPID: 08100529000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** NW SE NE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.740329 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.441077 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 508.0 **LOGGED (FT.):** 2980.0 **LOG TYPE:**
SOURCE: LARIO OG, PIRCE&HOLL 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-4.0	BOND	CARTHAGE	LIMESTONE	-	512.0	
-426.0	CARBONDALE	HERRIN	COAL	-	934.0	

MAPID: 08100670000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.738004 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.431901 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 486.0 **LOGGED (FT.):** 2942.0 **LOG TYPE:**
SOURCE: GULF REF, GASTON 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
56.0	BOND	CARTHAGE	LIMESTONE	-	430.0	

MAPID: 08101076000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.749648 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.437458 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 496.0 **LOGGED (FT.):** 2985.0 **LOG TYPE:** Electric Log
SOURCE: CULLUM & LAWHEAD **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-417.0	CARBONDALE	HERRIN	COAL	3.0	913.0	
-486.0	CARBONDALE	SPRINGFIELD	COAL	4.0	982.0	BLACK SHALE ROOF
-565.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1061.0	

MAPID: 08101116000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE NW

QUADRANGLE: HARMONY LONGITUDE: -88.76825 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.443118 DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 2848.0 LOG TYPE: Electric Log

SOURCE: DUNCAN, N. V. DRLG. CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-384.0	CARBONDALE	HERRIN	COAL	3.0	852.0	
-422.0	CARBONDALE	BRIAR HILL	COAL	-	890.0	
-449.0	CARBONDALE	SPRINGFIELD	COAL	3.0	917.0	BLACK SHALE ROOF
-525.0	CARBONDALE	HOUCHIN CREEK	COAL	-	993.0	

MAPID: 08101702000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.773043 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.43232 DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 842.0 LOG TYPE: Electric Log

SOURCE: FAIR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-246.0	MODESTO	PIASA	LIMESTONE	3.0	745.0	
-249.0	MODESTO		SHALE & SANDSTONE	15.0	748.0	
-264.0	CARBONDALE	DANVILLE	COAL	2.0	763.0	
-266.0	CARBONDALE	BRERETON	LIMESTONE	5.0	765.0	
-271.0	CARBONDALE	ANNA	BLACK SHALE	2.0	770.0	
-273.0	CARBONDALE	ENERGY	GRAY SHALE	68.0	772.0	
-341.0	CARBONDALE	HERRIN	COAL	2.0	840.0	

MAPID: 08100660000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 17 QUARTERS/FOOTAGES: SE NE NW

QUADRANGLE: HARMONY LONGITUDE: -88.78468 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.443398 DATE COLLECTED: 0 / 0 / 1946

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 2864.0 LOG TYPE:

SOURCE: ASHLND ORC, BRKMN HEIR 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
64.0	BOND	CARTHAGE	LIMESTONE	-	418.0	

MAPID: 08100706000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.784827 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.432521 **DATE COLLECTED:** 0 / 0 / 1948
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 2613.0 **LOG TYPE:**
SOURCE: NAT ASSOC, S & K COMM 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
76.0	BOND	CARTHAGE	LIMESTONE	-	382.0	

MAPID: 08101364000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.78721 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.432566 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 2804.0 **LOG TYPE:** Electric Log
SOURCE: NAT'L. ASSOC. PETRO. CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-417.0	CARBONDALE	SPRINGFIELD	COAL	4.0	877.0	BLACK SHALE ROOF
-495.0	CARBONDALE	HOUCHIN CREEK	COAL	-	955.0	

MAPID: 08102048000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** 405' S line, 330' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.791931 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.432852 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 848.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-306.0	MODESTO	PIASA	LIMESTONE	3.0	750.0	
-309.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	95.0	753.0	

MAPID: 08100127000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: HARMONY **LONGITUDE:** -88.794218 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.432697 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 2808.0 **LOG TYPE:**
SOURCE: MINERVA OC, WARREN 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
77.0	BOND	CARTHAGE	LIMESTONE	-	400.0	

MAPID: 08100625000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.809976 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.433185 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 2840.0 **LOG TYPE:**
SOURCE: GULF REF, SHAFER J H 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
66.0	BOND	CARTHAGE	LIMESTONE	-	424.0	

MAPID: 08101052000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: HARMONY **LONGITUDE:** -88.805344 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.442074 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 532.0 **LOGGED (FT.):** 2990.0 **LOG TYPE:** Electric Log
SOURCE: DUNNILL, JOHN F. OIL CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-424.0	CARBONDALE	SPRINGFIELD	COAL	4.0	956.0	BLACK SHALE & LIMESTONE ROOF
-500.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1032.0	

MAPID: 08101439000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 18 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.809945

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.433195

DATE COLLECTED:

SURFACE ELEVATION (FT.): 533.0

LOGGED (FT.): 968.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-292.0	MODESTO	PIASA	LIMESTONE	3.0	825.0	
-295.0	MODESTO		SHALE & SANDSTONE	24.0	828.0	
-319.0	CARBONDALE	DANVILLE	COAL	2.0	852.0	
-321.0	CARBONDALE		SHALE & SANDSTONE	24.0	854.0	
-345.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	878.0	

MAPID: 08100601000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 19 QUARTERS/FOOTAGES: NE SW NW

QUADRANGLE: HARMONY LONGITUDE: -88.807827

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.427559

DATE COLLECTED: 0 / 0 / 1943

SURFACE ELEVATION (FT.): 510.0

LOGGED (FT.): 2873.0

LOG TYPE:

SOURCE: SUPRIOR OC, IND BK ETL 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
42.0	BOND	CARTHAGE	LIMESTONE	-	468.0	

MAPID: 08101112000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.810247

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.41828

DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0

LOGGED (FT.): 2873.0

LOG TYPE: Electric Log

SOURCE: RAPPE, THOMAS C.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-405.0	CARBONDALE	BRIAR HILL	COAL	-	912.0	
-430.0	CARBONDALE	SPRINGFIELD	COAL	4.0	937.0	BLACK SHALE & LIMESTONE ROOF
-495.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1002.0	

MAPID: 08101112000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: HARMONY **LONGITUDE:** -88.810247 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.41828 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 507.0 **LOGGED (FT.):** 897.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-293.0	MODESTO	PIASA	LIMESTONE	3.0	800.0
-296.0	MODESTO		SILTY SHALE	14.0	803.0
-310.0	CARBONDALE	DANVILLE	COAL	1.0	817.0
-311.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	79.0	818.0

MAPID: 08100212000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** NE SE SW
QUADRANGLE: HARMONY **LONGITUDE:** -88.784999 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.419606 **DATE COLLECTED:** 0 / 0 / 1941
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 2886.0 **LOG TYPE:**
SOURCE: KINGWOODOC, SLEDGE B R 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
68.0	BOND	CARTHAGE	LIMESTONE	-	472.0

MAPID: 08100727000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: HARMONY **LONGITUDE:** -88.775509 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.417598 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 506.0 **LOGGED (FT.):** 907.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-244.0	MODESTO	PIASA	LIMESTONE	3.0	750.0
-247.0	MODESTO		GRAY SHALE	14.0	753.0
-261.0	CARBONDALE	DANVILLE	COAL	2.0	767.0
-263.0	CARBONDALE		SILTY SHALE	48.0	769.0
-311.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	817.0

MAPID: 08101365000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 20 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE NW

QUADRANGLE: HARMONY LONGITUDE: -88.787239 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.430744 DATE COLLECTED:

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 3241.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-420.0	CARBONDALE	SPRINGFIELD	COAL	5.0	880.0	BLACK SHALE ROOF
-498.0	CARBONDALE	HOUCHIN CREEK	COAL	-	958.0	

MAPID: 08101367000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE SE

QUADRANGLE: HARMONY LONGITUDE: -88.75917 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.419253 DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 2846.0 LOG TYPE: Electric Log

SOURCE: FOWLEY ANNA MYRLE WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-454.0	CARBONDALE	SPRINGFIELD	COAL	3.0	947.0	BLACK SHALE & LIMESTONE ROOF
-529.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1022.0	

MAPID: 08100669000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 22 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.737988 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.417304 DATE COLLECTED: 0 / 0 / 1944

SURFACE ELEVATION (FT.): 469.0 LOGGED (FT.): 2937.0 LOG TYPE:

SOURCE: GULF REF, PARKER 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
69.0	BOND	CARTHAGE	LIMESTONE	-	400.0	

MAPID: 08100669000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 22 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.737988

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.417304

DATE COLLECTED:

SURFACE ELEVATION (FT.): 469.0

LOGGED (FT.): 903.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-293.0	MODESTO	PIASA	LIMESTONE	5.0	762.0	
-298.0	MODESTO		GRAY SHALE	9.0	767.0	
-307.0	CARBONDALE	DANVILLE	COAL	2.0	776.0	
-309.0	CARBONDALE		SHALE & SANDSTONE	35.0	778.0	
-344.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	813.0	

MAPID: 08101134000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 22 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE NW

QUADRANGLE: SHIELDS LONGITUDE: -88.749683

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.430078

DATE COLLECTED:

SURFACE ELEVATION (FT.): 486.0

LOGGED (FT.): 2898.0

LOG TYPE: Electric Log

SOURCE: NAT'L. ASSOC. PETRO. CO.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-414.0	CARBONDALE	HERRIN	COAL	4.0	900.0	
-466.0	CARBONDALE	BRIAR HILL	COAL	-	952.0	
-496.0	CARBONDALE	SPRINGFIELD	COAL	5.0	982.0	BLACK SHALE & LIMESTONE ROOF
-559.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1045.0	

MAPID: 08100583000C VERSION: 1

PROJECT: CIRC 164

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 23 QUARTERS/FOOTAGES: SE NW SE

QUADRANGLE: SHIELDS LONGITUDE: -88.723968

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.420908

DATE COLLECTED: 0 / 0 / 1943

SURFACE ELEVATION (FT.): 492.0

LOGGED (FT.): 3005.0

LOG TYPE:

SOURCE: GULF REF, STAHLER E 1

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
72.0	BOND	CARTHAGE	LIMESTONE	-	420.0	

MAPID: 08100602000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.719323 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.422729 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 3016.0 **LOG TYPE:**
SOURCE: GULF REF, KNIGHT J H 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
43.0	BOND	CARTHAGE	LIMESTONE	- 456.0	

MAPID: 08100626000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.719429 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430079 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 3021.0 **LOG TYPE:**
SOURCE: GULF REF, BURKETT M 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
60.0	BOND	CARTHAGE	LIMESTONE	- 445.0	

MAPID: 08100627000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NW NE NW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.731011 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430077 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 2961.0 **LOG TYPE:**
SOURCE: GULF REF, DONOHO H E 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
78.0	BOND	CARTHAGE	LIMESTONE	- 411.0	

MAPID: 08100628000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.735644 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430074 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 2899.0 **LOG TYPE:**
SOURCE: GULF REF, MC NAIL D 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
63.0	BOND	CARTHAGE	LIMESTONE	- 437.0	

MAPID: 08100628000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: SHIELDS **LONGITUDE:** -88.735644 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430074 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 931.5 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-270.0	MODESTO	PIASA	LIMESTONE	4.0	770.0	
-274.0	MODESTO		GRAY SHALE	35.0	774.0	
-309.0	CARBONDALE	DANVILLE	COAL	2.5	809.0	
-311.5	CARBONDALE		SHALE & SANDSTONE	30.0	811.5	
-341.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	841.5	

MAPID: 08100668000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.735644 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430074 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 2922.0 **LOG TYPE:**
SOURCE: GULF REF, DONOHO H E 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
68.0	BOND	CARTHAGE	LIMESTONE	-	397.0	

MAPID: 08101369000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 23 **QUARTERS/FOOTAGES:** 330' N line, 441' E line of NW SW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.733701 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.422767 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 476.0 **LOGGED (FT.):** 2937.0 **LOG TYPE:** Electric Log
SOURCE: REZNIK JOE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-424.0	CARBONDALE	SPRINGFIELD	COAL	4.0	900.0	BLACK SHALE ROOF
-494.0	CARBONDALE	HOUCHIN CREEK	COAL	-	970.0	

MAPID: 08100568000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.717081 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.430069 **DATE COLLECTED:** 0 / 0 / 1944
SURFACE ELEVATION (FT.): 512.0 **LOGGED (FT.):** 3024.0 **LOG TYPE:**
SOURCE: MAGNOLIA, MILLS RR U 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
54.0	BOND	CARTHAGE	LIMESTONE	-	458.0	

MAPID: 08100629000C **VERSION:** 1 **PROJECT:** CIRC 164
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW SW NW
QUADRANGLE: SHIELDS **LONGITUDE:** -88.717026 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.426393 **DATE COLLECTED:** 0 / 0 / 1943
SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 2934.0 **LOG TYPE:**
SOURCE: GULF REF, MC NAIL D 2 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
49.0	BOND	CARTHAGE	LIMESTONE	-	456.0	

MAPID: 08101176000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 1S 4E **SECTION:** 24 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SE
QUADRANGLE: SHIELDS **LONGITUDE:** -88.700423 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.42073 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 504.0 **LOGGED (FT.):** 3082.0 **LOG TYPE:** Electric Log
SOURCE: STARR, J. CURTIS **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-467.0	CARBONDALE	HERRIN	COAL	3.0	971.0	
-507.0	CARBONDALE	BRIAR HILL	COAL	-	1011.0	
-530.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1034.0	BLACK SHALE & LIMESTONE ROOF
-606.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1110.0	

MAPID: 08102481000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 24 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.7004 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.429938 DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 985.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-320.0	MODESTO	PIASA	LIMESTONE	3.5	820.0	
-323.5	MODESTO		GRAY SHALE	38.0	823.5	
-361.5	CARBONDALE	DANVILLE	COAL	2.0	861.5	
-363.5	CARBONDALE		SHALE & SANDSTONE	32.0	863.5	
-395.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	895.5	

MAPID: 08101717000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 25 QUARTERS/FOOTAGES: 360' N line, 330' W line

QUADRANGLE: SHIELDS LONGITUDE: -88.716892 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.415288 DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 3051.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-508.0	CARBONDALE	HERRIN	COAL	-	990.0	
-552.0	CARBONDALE	BRIAR HILL	COAL	-	1034.0	
-581.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1063.0	BLACK SHALE & LIMESTONE ROOF
-662.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1144.0	

MAPID: 08101717000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 25 QUARTERS/FOOTAGES: 360' N line, 330' W line

QUADRANGLE: SHIELDS LONGITUDE: -88.716892 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.415288 DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 993.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-439.0	MODESTO	PIASA	LIMESTONE	3.0	921.0
-442.0	MODESTO		GRAY SHALE	7.0	924.0
-449.0	CARBONDALE	DANVILLE	COAL	1.0	931.0
-450.0	CARBONDALE		SHALE & SANDSTONE	25.0	932.0
-475.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	13.0	957.0
-488.0	CARBONDALE		SHALE & SANDSTONE	14.0	970.0
-502.0	CARBONDALE	BRERETON	LIMESTONE	4.0	984.0
-506.0	CARBONDALE	ANNA	BLACK SHALE	2.0	988.0
-508.0	CARBONDALE	HERRIN	COAL	3.0	990.0

MAPID: 08102493000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 27 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.737997 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.415479 DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0 LOGGED (FT.): 901.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-339.0	MODESTO	PIASA	LIMESTONE	3.0	777.0
-342.0	MODESTO		GRAY SHALE	11.0	780.0
-353.0	CARBONDALE	DANVILLE	COAL	3.0	791.0
-356.0	CARBONDALE		SILTY SHALE	17.0	794.0
-373.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	90.0	811.0

MAPID: 08101114000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 30 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.810268 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.416458 DATE COLLECTED:

SURFACE ELEVATION (FT.): 581.0 LOGGED (FT.): 2993.0 LOG TYPE: Electric Log

SOURCE: MADDIN, JAMES C. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-388.0	CARBONDALE	HERRIN	COAL	4.0	969.0	
-433.0	CARBONDALE	BRIAR HILL	COAL	-	1014.0	
-465.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1046.0	BLACK SHALE & LIMESTONE ROOF
-535.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1116.0	

MAPID: 08101114000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 30 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.810268 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.416458 DATE COLLECTED:

SURFACE ELEVATION (FT.): 581.0 LOGGED (FT.): 973.0 LOG TYPE: Electric Log

SOURCE: FAIR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-322.0	MODESTO	PIASA	LIMESTONE	4.0	903.0	
-326.0	MODESTO		GRAY SHALE	11.0	907.0	
-337.0	CARBONDALE	DANVILLE	COAL	1.0	918.0	
-338.0	CARBONDALE		SHALE & SANDSTONE	27.0	919.0	
-365.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	946.0	
-370.0	CARBONDALE		SHALE & SANDSTONE	18.0	951.0	
-388.0	CARBONDALE	HERRIN	COAL	4.0	969.0	

MAPID: 08102503000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 32 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE SE

QUADRANGLE: HARMONY LONGITUDE: -88.778142 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.392518 DATE COLLECTED:

SURFACE ELEVATION (FT.): 511.0 LOGGED (FT.): 3840.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-448.0	CARBONDALE	HERRIN	COAL	4.0	959.0	
-493.0	CARBONDALE	BRIAR HILL	COAL	-	1004.0	
-521.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1032.0	BLACK SHALE & LIMESTONE ROOF
-569.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1080.0	

MAPID: 08100725000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 33 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE NE

QUADRANGLE: HARMONY LONGITUDE: -88.75695 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.397585 DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 3062.0 LOG TYPE: Electric Log

SOURCE: RYAN OIL CO., ETAL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-448.0	CARBONDALE	HERRIN	COAL	3.0	963.0	
-495.0	CARBONDALE	BRIAR HILL	COAL	-	1010.0	
-516.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1031.0	BLACK SHALE ROOF
-583.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1098.0	

MAPID: 08102680000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 33 QUARTERS/FOOTAGES: 330' N line, 300' W line

QUADRANGLE: HARMONY LONGITUDE: -88.773423 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.401185 DATE COLLECTED:

SURFACE ELEVATION (FT.): 560.0 LOGGED (FT.): 956.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-320.0	MODESTO	PIASA	LIMESTONE	3.0	880.0	
-323.0	MODESTO		GRAY SHALE	5.0	883.0	
-328.0	CARBONDALE	DANVILLE	COAL	3.0	888.0	
-331.0	CARBONDALE		SHALE & SANDSTONE	27.0	891.0	
-358.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	918.0	
-361.0	CARBONDALE		SHALE & SANDSTONE	24.0	921.0	
-385.0	CARBONDALE	BRERETON	LIMESTONE	3.0	945.0	
-388.0	CARBONDALE	ANNA	BLACK SHALE	2.0	948.0	
-390.0	CARBONDALE	HERRIN	COAL	6.0	950.0	

MAPID: 08101722000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 1S 4E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 330' E line of NE NW

QUADRANGLE: SHIELDS LONGITUDE: -88.747561 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.399333 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 3019.0 LOG TYPE: Electric Log

SOURCE: BURKETT, M. D. OIL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-482.0	CARBONDALE	HERRIN	COAL	4.0	996.0	
-516.0	CARBONDALE	BRIAR HILL	COAL	-	1030.0	
-542.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1056.0	BLACK SHALE & LIMESTONE ROOF
-610.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1124.0	

MAPID: 08100661000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.051444 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.385992 DATE COLLECTED:

SURFACE ELEVATION (FT.): 525.0 LOGGED (FT.): 750.0 LOG TYPE: Electric Log

SOURCE: POOR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-183.0	MODESTO	PIASA	LIMESTONE	1.0	708.0	
-184.0	CARBONDALE		SHALE & SANDSTONE	23.0	709.0	
-207.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	5.0	732.0	
-212.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	6.0	737.0	
-219.0	CARBONDALE	HERRIN	COAL	6.0	744.0	

MAPID: 08100148000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 2 QUARTERS/FOOTAGES: SW SW NW

QUADRANGLE: WALNUT HILL LONGITUDE: -89.069973 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.381132 DATE COLLECTED:

SURFACE ELEVATION (FT.): 534.0 LOGGED (FT.): 1902.0 LOG TYPE: Electric Log

SOURCE: BUELL, J. GARFIELD WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-268.0	CARBONDALE	SPRINGFIELD	COAL	-	802.0	
-379.0	CARBONDALE	COLCHESTER	COAL	-	913.0	
-1368.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1902.0	

MAPID: 08124116000C VERSION: 1

PROJECT: EIA-DOE

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 3 QUARTERS/FOOTAGES:

QUADRANGLE: WALNUT HILL LONGITUDE: -89.080425

GEOLOGIST: E. PRUSSEN

CONFIDENTIAL: N LATITUDE: 38.379834

DATE COLLECTED: 11 / 9 / 1983

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 763.0

LOG TYPE: Other Core Study

SOURCE: EXXON 15-320

WELL TYPE: Coal Test

COMMENT: NO LOCATION GIVEN WITHIN SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-186.6	CARBONDALE	HERRIN	COAL	4.6	701.6	CLEAN COAL THICKNESS, SEE LOG

MAPID: 08100735000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 5 QUARTERS/FOOTAGES: 990' N line, 2310' W line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.119024

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.384272

DATE COLLECTED:

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 710.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-120.0	MODESTO	PIASA	LIMESTONE	4.0	643.0	
-124.0	CARBONDALE		SHALE & SANDSTONE	25.0	647.0	
-149.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	672.0	
-159.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	11.0	682.0	
-170.0	CARBONDALE	BRERETON	LIMESTONE	7.0	693.0	
-177.0	CARBONDALE	ANNA	BLACK SHALE	2.0	700.0	
-181.0	CARBONDALE	HERRIN	COAL	6.0	704.0	

MAPID: 08101264000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 5 QUARTERS/FOOTAGES: 330' S line, 345' W line of NW SE

QUADRANGLE: WALNUT HILL LONGITUDE: -89.116552

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.377583

DATE COLLECTED:

SURFACE ELEVATION (FT.): 516.0 LOGGED (FT.): 1752.0

LOG TYPE: Electric Log

SOURCE: TEXAS COMPANY, THE

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-172.0	CARBONDALE	SPRINGFIELD	COAL	-	688.0	
-311.0	CARBONDALE	COLCHESTER	COAL	-	827.0	
-1236.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1752.0	

MAPID: 08101127000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 6 QUARTERS/FOOTAGES: 2310' S line, 330' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.128298 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.379471 DATE COLLECTED:

SURFACE ELEVATION (FT.): 533.0 LOGGED (FT.): 1818.0 LOG TYPE: Electric Log

SOURCE: DUNCAN, N. V. DRLG. CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-201.0	CARBONDALE	SPRINGFIELD	COAL	-	734.0
-328.0	CARBONDALE	COLCHESTER	COAL	-	861.0
-1285.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1818.0

MAPID: 08101127000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 6 QUARTERS/FOOTAGES: 2310' S line, 330' E line

QUADRANGLE: IRVINGTON LONGITUDE: -89.128298 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.379471 DATE COLLECTED:

SURFACE ELEVATION (FT.): 533.0 LOGGED (FT.): 708.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-104.0	MODESTO	PIASA	LIMESTONE	10.0	637.0
-114.0	MODESTO		SHALE & SANDSTONE	14.0	647.0
-128.0	CARBONDALE	DANVILLE	COAL	1.0	661.0
-129.0	CARBONDALE		CLAYSTONE & SHALE	10.0	662.0
-139.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	7.0	672.0
-146.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	11.0	679.0
-157.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	11.0	690.0
-168.0	CARBONDALE	ANNA	BLACK SHALE	1.0	701.0
-170.0	CARBONDALE	HERRIN	COAL	5.0	703.0

MAPID: 08124043000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE SW
QUADRANGLE: ASHLEY **LONGITUDE:** -89.139767 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.374 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 532.0 **LOGGED (FT.):** 3591.0 **LOG TYPE:** Electric Log
SOURCE: ASHLAND EXPLORATION, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1207.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1739.0	
-2977.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3509.0	TOP OF NEW ALBANY
-2984.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3516.0	
-3059.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3591.0	BASE OF NEW ALBANY

MAPID: 08101267000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 7 **QUARTERS/FOOTAGES:** 2310' S line, 330' E line
QUADRANGLE: ASHLEY **LONGITUDE:** -89.12829 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.364982 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 1788.0 **LOG TYPE:** Electric Log
SOURCE: DUNCAN, WALTER **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-185.0	CARBONDALE	SPRINGFIELD	COAL	-	678.0	
-319.0	CARBONDALE	COLCHESTER	COAL	-	812.0	
-1295.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1788.0	

MAPID: 08101267000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 7 **QUARTERS/FOOTAGES:** 2310' S line, 330' E line
QUADRANGLE: ASHLEY **LONGITUDE:** -89.12829 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.364982 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 650.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-100.0	MODESTO	PIASA	LIMESTONE	1.0	593.0	
-101.0	CARBONDALE		CLAYSTONE & SHALE	23.0	594.0	
-124.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	617.0	
-132.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	8.0	625.0	
-140.0	CARBONDALE	BRERETON	LIMESTONE	9.0	633.0	
-149.0	CARBONDALE	ANNA	BLACK SHALE	2.0	642.0	
-152.0	CARBONDALE	HERRIN	COAL	5.0	645.0	

MAPID: 08100709000C **VERSION:** 1 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.118992 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.366722 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2255.0 **LOG TYPE:** Survey Sample Study
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08101670000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** 645' S line, 664' W line of SE NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.120158 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.367603 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 3594.0 **LOG TYPE:** Electric Log
SOURCE: TEXACO, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-150.0	CARBONDALE	SPRINGFIELD	COAL	-	668.0	
-297.0	CARBONDALE	COLCHESTER	COAL	-	815.0	
-1221.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1739.0	
-2996.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3514.0	TOP OF NEW ALBANY
-3001.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3519.0	
-3076.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3594.0	BASE OF NEW ALBANY

MAPID: 08102129000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** 2320' N line, 2260' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.119167 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.366695 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 515.0 **LOGGED (FT.):** 3587.0 **LOG TYPE:** Electric Log
SOURCE: TEXACO, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-170.0	CARBONDALE	SPRINGFIELD	COAL	-	685.0	
-300.0	CARBONDALE	COLCHESTER	COAL	-	815.0	
-1214.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1729.0	
-2993.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3508.0	TOP OF NEW ALBANY
-2996.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3511.0	
-3072.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3587.0	BASE OF NEW ALBANY

MAPID: 08102129000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 8 QUARTERS/FOOTAGES: 2320' N line, 2260' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.119167

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.366695

DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0

LOGGED (FT.): 653.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-81.0	MODESTO	PIASA	LIMESTONE	4.0	596.0
-85.0	CARBONDALE		CLAYSTONE & SHALE	20.0	600.0
-105.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	9.0	620.0
-114.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	8.0	629.0
-122.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	10.0	637.0
-132.0	CARBONDALE	HERRIN	COAL	6.0	647.0

MAPID: 081243C0001F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 8 QUARTERS/FOOTAGES: NW SW NW

QUADRANGLE: ASHLEY LONGITUDE: -89.125981

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.368592

DATE COLLECTED: 7 / 0 / 1949

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 26.0

LOG TYPE: Measured section

SOURCE: FLD NOTES-WILLIAMS

WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
480.0			UNCONSOLIDATED	10.0	0.0
-			ROCK	13.0	
-			COAL	1.0	MINED FOR FARM USE
-			ROCK	2.0	

MAPID: 08100149000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 9 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.107388

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.364761

DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0

LOGGED (FT.): 1770.0

LOG TYPE: Electric Log

SOURCE: TRANSWESTERN OIL CO

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-180.0	CARBONDALE	SPRINGFIELD	COAL	-	700.0
-311.0	CARBONDALE	COLCHESTER	COAL	-	831.0
-1250.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1770.0

MAPID: 08101458000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 10 QUARTERS/FOOTAGES: 2310' N line, 370' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.088448 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.366269 DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 1832.0 LOG TYPE: Electric Log

SOURCE: PEP DRILLING COMPANY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-233.0	CARBONDALE	SPRINGFIELD	COAL	-	748.0
-365.0	CARBONDALE	COLCHESTER	COAL	-	880.0
-1317.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1832.0

MAPID: 08101458000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 10 QUARTERS/FOOTAGES: 2310' N line, 370' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.088448 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.366269 DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 715.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-149.0	CARBONDALE		SILTY SHALE	20.0	664.0
-169.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	684.0
-179.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	10.0	694.0
-189.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	6.0	704.0
-195.0	CARBONDALE	HERRIN	COAL	5.0	710.0

MAPID: 08101270000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 11 QUARTERS/FOOTAGES: 330' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.065469 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.371969 DATE COLLECTED:

SURFACE ELEVATION (FT.): 543.0 LOGGED (FT.): 755.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-168.0	CARBONDALE	DANVILLE	COAL	1.0	711.0
-169.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	18.0	712.0
-187.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	17.0	730.0
-204.0	CARBONDALE	BRERETON	LIMESTONE	3.0	747.0
-207.0	CARBONDALE	ANNA	BLACK SHALE	1.0	750.0
-208.0	CARBONDALE	HERRIN	COAL	4.0	751.0

MAPID: 08100666000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 12 QUARTERS/FOOTAGES: 2310' S line, 330' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.035735 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.364205 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 1912.0 LOG TYPE: Electric Log

SOURCE: AETNA OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-284.0	CARBONDALE	SPRINGFIELD	COAL	-	804.0
-412.0	CARBONDALE	COLCHESTER	COAL	-	932.0
-1392.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1912.0

MAPID: 08100666000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 12 QUARTERS/FOOTAGES: 2310' S line, 330' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.035735 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.364205 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 750.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-184.0	MODESTO	PIASA	LIMESTONE	7.0	704.0
-191.0	CARBONDALE		CLAYSTONE & SHALE	10.0	711.0
-201.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	4.0	721.0
-205.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.0	725.0
-215.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	2.0	735.0
-217.0	CARBONDALE	ANNA	SHALE	5.0	737.0
-225.0	CARBONDALE	HERRIN	COAL	5.0	745.0

MAPID: 08100667000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 13 QUARTERS/FOOTAGES: 990' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.047161 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.355173 DATE COLLECTED:

SURFACE ELEVATION (FT.): 521.0 LOGGED (FT.): 751.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-189.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	11.0	710.0
-200.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	721.0
-209.0	CARBONDALE	BRERETON	LIMESTONE	10.0	730.0
-219.0	CARBONDALE	ANNA	SHALE	5.0	740.0
-224.0	CARBONDALE	HERRIN	COAL	6.0	745.0

MAPID: 08124118000C **VERSION:** 1 **PROJECT:** EIA-DOE
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 13 **QUARTERS/FOOTAGES:**
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.043848 **GEOLOGIST:** E. PRUSSEN
CONFIDENTIAL: N **LATITUDE:** 38.350657 **DATE COLLECTED:** 11 / 18 / 1983
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 680.0 **LOG TYPE:** Other Core Study
SOURCE: EXXON 15-323 **WELL TYPE:** Coal Test
COMMENT: NO LOCATION GIVEN WITHIN SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-148.2	CARBONDALE	HERRIN	COAL	1.1	668.2	

MAPID: 08100314000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 15 **QUARTERS/FOOTAGES:** 330' S line, 170' W line of NW SW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.089306 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.348203 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 513.0 **LOGGED (FT.):** 1822.0 **LOG TYPE:** Electric Log
SOURCE: LEWIS, WILL I. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-208.0	CARBONDALE	SPRINGFIELD	COAL	-	721.0	
-322.0	CARBONDALE	COLCHESTER	COAL	-	835.0	
-1309.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1822.0	

MAPID: 08101271000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 15 **QUARTERS/FOOTAGES:** 1659' S line, 747' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.087283 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.34822 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 514.0 **LOGGED (FT.):** 701.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-125.0	MODESTO	PIASA	LIMESTONE	6.0	639.0	
-131.0	CARBONDALE		SHALE & SANDSTONE	21.0	645.0	
-152.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	6.0	666.0	
-158.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	6.0	672.0	
-164.0	CARBONDALE	BRERETON	LIMESTONE	16.0	678.0	
-180.0	CARBONDALE	ANNA	BLACK SHALE	1.0	694.0	
-182.0	CARBONDALE	HERRIN	COAL	5.0	696.0	

MAPID: 08101273000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1650' N line, 990' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.105092 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.353862 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 1748.0 **LOG TYPE:** Electric Log
SOURCE: DAVISON W H **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-185.0	CARBONDALE	SPRINGFIELD	COAL	-	688.0
-310.0	CARBONDALE	COLCHESTER	COAL	-	813.0
-1245.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1748.0

MAPID: 08101273000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 16 **QUARTERS/FOOTAGES:** 1650' N line, 990' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.105092 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.353862 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 666.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-116.0	MODESTO	PIASA	LIMESTONE	4.0	619.0
-120.0	CARBONDALE	LAWSON	SILTY SHALE	25.0	623.0
-145.0	CARBONDALE	BRERETON	LIMESTONE	9.0	648.0
-154.0	CARBONDALE	ANNA	BLACK SHALE	3.0	657.0
-157.0	CARBONDALE	HERRIN	COAL	6.0	660.0

MAPID: 08100315000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 17 **QUARTERS/FOOTAGES:** 152' S line, 133' E line of NW SE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.113787 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.348094 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 1763.0 **LOG TYPE:** Electric Log
SOURCE: KINGWOOD OIL CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-166.0	CARBONDALE	SPRINGFIELD	COAL	-	684.0
-278.0	CARBONDALE	COLCHESTER	COAL	-	796.0
-1245.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1763.0

MAPID: 08100918000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 1650' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.114388

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.357593

DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0

LOGGED (FT.): 606.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-73.0	MODESTO	PIASA	LIMESTONE	8.0	541.0	
-81.0	CARBONDALE		SHALE & SANDSTONE	21.0	549.0	
-102.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	570.0	
-111.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	579.0	
-120.0	CARBONDALE	BRERETON	LIMESTONE	10.0	588.0	
-130.0	CARBONDALE	ANNA	BLACK SHALE	2.0	598.0	
-132.0	CARBONDALE	HERRIN	COAL	6.0	600.0	

MAPID: 08124397000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 18 QUARTERS/FOOTAGES: 330' N line, 330' E line of NW SE

QUADRANGLE: ASHLEY LONGITUDE: -89.132965

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.350492

DATE COLLECTED:

SURFACE ELEVATION (FT.): 512.0

LOGGED (FT.): 1900.0

LOG TYPE: Electric Log

SOURCE: SHAMROCK DRILLING CORP.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-220.0	CARBONDALE	SPRINGFIELD	COAL	-	732.0	
-343.0	CARBONDALE	COLCHESTER	COAL	-	855.0	
-1388.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1900.0	

MAPID: 08123385000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW NW

QUADRANGLE: ASHLEY LONGITUDE: -89.144443

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.341393

DATE COLLECTED:

SURFACE ELEVATION (FT.): 525.0

LOGGED (FT.): 3683.0

LOG TYPE: Electric Log

SOURCE: SHERMAN, ERNEST

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1361.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1886.0	
-3152.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3677.0	TOP OF NEW ALBANY
-3158.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3683.0	

MAPID: 08100734000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' N line, 1665' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.121459 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.34326 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 1807.0 **LOG TYPE:** Electric Log
SOURCE: DORAN PAUL EST **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-162.0	CARBONDALE	SPRINGFIELD	COAL	-	680.0
-277.0	CARBONDALE	COLCHESTER	COAL	-	795.0
-1289.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1807.0

MAPID: 08100734000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' N line, 1665' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.121459 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.34326 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 648.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-75.0	MODESTO	PIASA	LIMESTONE	7.0	593.0
-82.0	CARBONDALE		SHALE & SANDSTONE	18.0	600.0
-100.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	618.0
-106.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	8.0	624.0
-114.0	CARBONDALE	BRERETON	LIMESTONE	8.0	632.0
-122.0	CARBONDALE	ANNA	BLACK SHALE	3.0	640.0
-125.0	CARBONDALE	HERRIN	COAL	5.0	643.0

MAPID: 08101119000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** 2310' N line, 1650' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.102915 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.3375 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.0 **LOGGED (FT.):** 1732.0 **LOG TYPE:** Electric Log
SOURCE: LINDSAY, THEODORE R. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-168.0	CARBONDALE	SPRINGFIELD	COAL	-	625.0
-331.0	CARBONDALE	COLCHESTER	COAL	-	788.0
-1275.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1732.0

MAPID: 08101119000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 21 QUARTERS/FOOTAGES: 2310' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.102915

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.3375

DATE COLLECTED:

SURFACE ELEVATION (FT.): 457.0 LOGGED (FT.): 602.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-83.0	MODESTO	PIASA	LIMESTONE	8.0	540.0	
-91.0	CARBONDALE		SILTY SHALE	20.0	548.0	
-111.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	5.0	568.0	
-116.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	7.0	573.0	
-123.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	19.0	580.0	
-142.0	CARBONDALE	ANNA	BLACK SHALE	1.0	599.0	
-143.0	CARBONDALE	HERRIN	COAL	2.0	600.0	

MAPID: 08100174000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 22 QUARTERS/FOOTAGES: 991' S line, 330' E line of NW SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.08654

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.335465

DATE COLLECTED:

SURFACE ELEVATION (FT.): 472.0 LOGGED (FT.): 3663.0

LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-3106.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3578.0	TOP OF NEW ALBANY
-3108.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3580.0	
-3191.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3663.0	BASE OF NEW ALBANY

MAPID: 08101839000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 22 QUARTERS/FOOTAGES: 1650' N line, 330' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.088808

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.339082

DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 663.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-124.0	CARBONDALE	DANVILLE	COAL	1.0	614.0	
-125.0	CARBONDALE		SHALE	10.0	615.0	
-135.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	5.0	625.0	
-140.0	CARBONDALE	LAWSON	SHALE	28.0	630.0	
-168.0	CARBONDALE	HERRIN	COAL	5.0	658.0	

MAPID: 08124119000C VERSION: 1

PROJECT: EIA-DOE

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 23 QUARTERS/FOOTAGES:

QUADRANGLE: WOODLAWN LONGITUDE: -89.06236 GEOLOGIST: E. PRUSSEN

CONFIDENTIAL: N LATITUDE: 38.336243 DATE COLLECTED: 11 / 16 / 1983

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 697.0 LOG TYPE: Other Core Study

SOURCE: EXXON 15-322 WELL TYPE: Coal Test

COMMENT: NO LOCATION GIVEN WITHN SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-169.5	CARBONDALE	HERRIN	COAL	6.4	684.5	CLEAN COAL THICKNESS, SEE LOG

MAPID: 08100007000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 24 QUARTERS/FOOTAGES: 0' S line, 2640' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.044023 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.328765 DATE COLLECTED: 0 / 0 / 1910

SURFACE ELEVATION (FT.): 495.3 LOGGED (FT.): 1199.0 LOG TYPE:

SOURCE: BYRD SONS WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-190.7	CARBONDALE	HERRIN	COAL	6.8	686.0	
-211.7	CARBONDALE	SPRINGFIELD	COAL	3.7	707.0	

MAPID: 08100007000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 24 QUARTERS/FOOTAGES: 0' S line, 2640' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.044023 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.328765 DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 692.8 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-144.0	CARBONDALE		SILTY SHALE	16.0	639.0	
-160.0	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	655.0	UPPER BENCH
-161.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	1.0	656.0	SHALE PARTING
-162.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	657.0	LOWER BENCH
-170.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	8.0	665.0	
-178.0	CARBONDALE	BRERETON	LIMESTONE	2.5	673.0	
-180.5	CARBONDALE	ANNA	BLACK SHALE	4.5	675.5	
-185.0	CARBONDALE	ENERGY	SILTY SHALE	6.0	680.0	
-191.0	CARBONDALE	HERRIN	COAL	6.8	686.0	

MAPID: 08100733000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 24 QUARTERS/FOOTAGES: 330' N line, 330' E line of NE NE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.045135 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.335191 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 1882.0 LOG TYPE: Electric Log

SOURCE: AETNA OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-221.0	CARBONDALE	SPRINGFIELD	COAL	-	735.0
-340.0	CARBONDALE	COLCHESTER	COAL	-	854.0
-1368.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1882.0

MAPID: 08102138000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 25 QUARTERS/FOOTAGES: 970' S line, 2280' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.045285 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.317183 DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 590.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-56.0	CARBONDALE	DANVILLE	COAL	2.0	546.0
-58.0	CARBONDALE		SHALE	2.0	548.0
-60.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	8.0	550.0
-68.0	CARBONDALE	LAWSON	SHALE	6.0	558.0
-74.0	CARBONDALE	BRERETON	LIMESTONE	6.0	564.0
-80.0	CARBONDALE	ANNA	BLACK SHALE	6.0	570.0
-86.0	CARBONDALE	ENERGY	SILTY SHALE	8.0	576.0
-94.0	CARBONDALE	HERRIN	COAL	6.0	584.0

MAPID: 08100536000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 26 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.070434 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.315642 DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 618.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-87.0	MODESTO	PIASA	LIMESTONE & SHALE	4.0	580.0
-91.0	CARBONDALE		SHALE	8.0	584.0
-99.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	592.0
-103.0	CARBONDALE	LAWSON	SHALE	3.0	596.0
-106.0	CARBONDALE	BRERETON	LIMESTONE	4.0	599.0
-110.0	CARBONDALE	ANNA	BLACK SHALE	3.0	603.0
-113.0	CARBONDALE	ENERGY	SILTY SHALE	6.0	606.0
-119.0	CARBONDALE	HERRIN	COAL	6.0	612.0

MAPID: 08100421000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 27 QUARTERS/FOOTAGES: 330' N line, 2310' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.079681 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.328202 DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0 LOGGED (FT.): 1840.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-186.0	CARBONDALE	SPRINGFIELD	COAL	-	694.0
-305.0	CARBONDALE	COLCHESTER	COAL	-	813.0
-1332.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1840.0

MAPID: 08100421000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 27 QUARTERS/FOOTAGES: 330' N line, 2310' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.079681

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.328202

DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0

LOGGED (FT.): 664.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-93.0	MODESTO	PIASA	LIMESTONE & SHALE	3.0	601.0
-96.0	CARBONDALE		SHALE	2.0	604.0
-98.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SANDSTONE	7.0	606.0
-105.0	CARBONDALE	LAWSON	SHALE	7.0	613.0
-112.0	CARBONDALE	BRERETON	LIMESTONE	6.0	620.0
-118.0	CARBONDALE	ANNA	BLACK SHALE	6.0	626.0
-124.0	CARBONDALE	ENERGY	SILTY SHALE	25.0	632.0
-149.0	CARBONDALE	HERRIN	COAL	7.0	657.0

MAPID: 08102323000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 28 QUARTERS/FOOTAGES: SW NE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.103051

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.31937

DATE COLLECTED:

SURFACE ELEVATION (FT.): 479.0

LOGGED (FT.): 1822.0

LOG TYPE: Electric Log

SOURCE: MOORE ETAL

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-189.0	CARBONDALE	SPRINGFIELD	COAL	-	668.0
-314.0	CARBONDALE	COLCHESTER	COAL	-	793.0
-1343.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1822.0

MAPID: 08100896000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 29 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.117062

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.323191

DATE COLLECTED:

SURFACE ELEVATION (FT.): 513.0

LOGGED (FT.): 1842.0

LOG TYPE: Electric Log

SOURCE: NIAGARA OIL CORP

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-161.0	CARBONDALE	SPRINGFIELD	COAL	-	674.0
-285.0	CARBONDALE	COLCHESTER	COAL	-	798.0
-1329.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1842.0

MAPID: 08100896000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 29 QUARTERS/FOOTAGES: 2310' N line, 2310' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.117062 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.323191 DATE COLLECTED:

SURFACE ELEVATION (FT.): 513.0 LOGGED (FT.): 635.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-68.0	CARBONDALE		SHALE	20.0	581.0
-88.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	601.0
-91.0	CARBONDALE	LAWSON	SHALE	15.0	604.0
-106.0	CARBONDALE	BRERETON	LIMESTONE	8.0	619.0
-114.0	CARBONDALE	ANNA	BLACK SHALE	3.0	627.0
-117.0	CARBONDALE	HERRIN	COAL	5.0	630.0

MAPID: 08101659000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 30 QUARTERS/FOOTAGES: 955' N line, 990' E line

QUADRANGLE: ASHLEY LONGITUDE: -89.130842 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.32714 DATE COLLECTED:

SURFACE ELEVATION (FT.): 512.0 LOGGED (FT.): 1830.0 LOG TYPE: Electric Log

SOURCE: VAUGHN RAY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-138.0	CARBONDALE	SPRINGFIELD	COAL	-	650.0
-261.0	CARBONDALE	COLCHESTER	COAL	-	773.0
-1318.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1830.0

MAPID: 08101659000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 30 QUARTERS/FOOTAGES: 955' N line, 990' E line

QUADRANGLE: ASHLEY LONGITUDE: -89.130842

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.32714

DATE COLLECTED:

SURFACE ELEVATION (FT.): 512.0 LOGGED (FT.): 609.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-32.0	MODESTO	PIASA	LIMESTONE	9.0	544.0
-41.0	CARBONDALE	LAWSON	SHALE	12.0	553.0
-53.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	20.0	565.0
-73.0	CARBONDALE	ANNA	BLACK SHALE	5.0	585.0
-78.0	CARBONDALE	ENERGY	SHALE	15.0	590.0
-93.0	CARBONDALE	HERRIN	COAL	4.0	605.0

MAPID: 08101022000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 31 QUARTERS/FOOTAGES: 2310' N line, 330' W line

QUADRANGLE: ASHLEY LONGITUDE: -89.144907

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.308803

DATE COLLECTED:

SURFACE ELEVATION (FT.): 549.0 LOGGED (FT.): 1835.0

LOG TYPE: Electric Log

SOURCE: NAT'L. ASSOC. PETRO. CO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-251.0	CARBONDALE	COLCHESTER	COAL	-	800.0
-1286.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1835.0

MAPID: 08101022000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 31 QUARTERS/FOOTAGES: 2310' N line, 330' W line

QUADRANGLE: ASHLEY LONGITUDE: -89.144907

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.308803

DATE COLLECTED:

SURFACE ELEVATION (FT.): 549.0 LOGGED (FT.): 759.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
17.0	MODESTO	PIASA	LIMESTONE	8.0	532.0
9.0	CARBONDALE		SILTY SHALE	21.0	540.0
-12.0	CARBONDALE	LAWSON	SILTY SHALE	19.0	561.0
-31.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	80.0	580.0

MAPID: 081243C0002F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 32 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: ASHLEY **LONGITUDE:** -89.126621 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.301371 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 8.7 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-ROBINSON **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			ROCK	6.4	
-			COAL	0.3	
-			ROCK	2.0	

MAPID: 08100731000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 1650' E line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.096208 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.301177 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 1890.0 **LOG TYPE:** Electric Log
SOURCE: IN FARM BUR. COOP. ASSOC **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-173.0	CARBONDALE	SPRINGFIELD	COAL	-	676.0
-299.0	CARBONDALE	COLCHESTER	COAL	-	802.0
-1387.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1890.0

MAPID: 08100731000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 33 **QUARTERS/FOOTAGES:** 330' S line, 1650' E line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.096208 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.301177 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 503.0 **LOGGED (FT.):** 642.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-63.0	MODESTO	PIASA	LIMESTONE	4.0	566.0
-67.0	CARBONDALE		SILTY SHALE	12.0	570.0
-79.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	44.0	582.0
-123.0	CARBONDALE	LAWSON	SHALE	10.0	626.0
-133.0	CARBONDALE	HERRIN	COAL	6.0	636.0

MAPID: 08100323000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 34 **QUARTERS/FOOTAGES:** 990' N line, 330' E line of NE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.072779 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.312012 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 1811.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-156.0	CARBONDALE	SPRINGFIELD	COAL	-	645.0
-273.0	CARBONDALE	COLCHESTER	COAL	-	762.0
-1322.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1811.0

MAPID: 08100924000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 380' S line, 2310' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.063682 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.301191 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 0.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-	CARBONDALE	ENERGY	SILTY SHALE	40.0	
-	CARBONDALE	HERRIN	COAL	5.0	

MAPID: 08102153000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** 380' N line, 330' E line of SE SE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.054508 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.302683 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 3684.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		
				UNIT	OVERBURDEN COMMENT	
-95.0	CARBONDALE	SPRINGFIELD	COAL	-	570.0	
-207.0	CARBONDALE	COLCHESTER	COAL	-	682.0	
-1310.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1785.0	
-3118.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3593.0	TOP OF NEW ALBANY
-3133.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3608.0	
-3209.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3684.0	BASE OF NEW ALBANY

MAPID: 08102164000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE

QUADRANGLE: WOODLAWN LONGITUDE: -89.061413 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.30105 DATE COLLECTED:

SURFACE ELEVATION (FT.): 454.0 LOGGED (FT.): 3646.0 LOG TYPE: Electric Log

SOURCE: SELF, EDDIE M. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-66.0	CARBONDALE	SPRINGFIELD	COAL	-	520.0	
-178.0	CARBONDALE	COLCHESTER	COAL	-	632.0	
-1306.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1760.0	
-3107.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3561.0	TOP OF NEW ALBANY
-3116.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3570.0	
-3192.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3646.0	BASE OF NEW ALBANY

MAPID: 08101282000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 36 QUARTERS/FOOTAGES: 330' N line, 2310' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.045189 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.313593 DATE COLLECTED:

SURFACE ELEVATION (FT.): 477.0 LOGGED (FT.): 561.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-43.0	MODESTO	PIASA	LIMESTONE & SHALE	8.0	520.0	
-51.0	CARBONDALE		CLAYSTONE & SHALE	6.0	528.0	
-57.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	534.0	
-62.0	CARBONDALE	LAWSON	SILTY SHALE	18.0	539.0	
-80.0	CARBONDALE	HERRIN	COAL	4.0	557.0	

MAPID: 08101283000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 1E SECTION: 36 QUARTERS/FOOTAGES: 280' S line, 330' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.052207 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.300902 DATE COLLECTED:

SURFACE ELEVATION (FT.): 445.0 LOGGED (FT.): 3654.0 LOG TYPE: Electric Log

SOURCE: NATION OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-87.0	CARBONDALE	SPRINGFIELD	COAL	-	532.0	
-197.0	CARBONDALE	COLCHESTER	COAL	-	642.0	
-1303.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1748.0	
-3120.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3565.0	TOP OF NEW ALBANY
-3135.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3580.0	
-3209.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3654.0	BASE OF NEW ALBANY

MAPID: 08100703000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 1 QUARTERS/FOOTAGES: 990' N line, 1650' W line

QUADRANGLE: KELL LONGITUDE: -88.935171 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.38552 DATE COLLECTED:

SURFACE ELEVATION (FT.): 596.0 LOGGED (FT.): 878.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-239.0	MODESTO	PIASA	LIMESTONE	7.0	835.0	
-246.0	CARBONDALE		SHALE	10.0	842.0	
-256.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	7.0	852.0	
-263.0	CARBONDALE	LAWSON	SHALE	8.0	859.0	
-271.0	CARBONDALE	BRERETON	LIMESTONE	6.0	867.0	
-277.0	CARBONDALE	ANNA	SHALE	2.0	873.0	
-278.0	CARBONDALE	HERRIN	COAL	4.0	874.0	

MAPID: 08122975000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 2 QUARTERS/FOOTAGES: 520' S line, 2060' E line of SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.948616 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.374923 DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 4258.0 LOG TYPE: Electric Log

SOURCE: COLLINS BROTHERS OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-384.0	CARBONDALE	SPRINGFIELD	COAL	-	920.0	
-529.0	CARBONDALE	COLCHESTER	COAL	-	1065.0	
-1753.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2289.0	
-3607.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4143.0	TOP OF NEW ALBANY
-3632.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4168.0	
-3722.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4258.0	BASE OF NEW ALBANY

MAPID: 08101284000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 5 QUARTERS/FOOTAGES: 2310' S line, 2310' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.005243 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.38026 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 879.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-212.0	MODESTO	PIASA	LIMESTONE	6.0	714.0	
-218.0	MODESTO		SHALE	12.0	720.0	
-230.0	CARBONDALE	DANVILLE	COAL	1.0	732.0	
-231.0	CARBONDALE	LAWSON	SILTY SHALE	37.0	733.0	
-268.0	CARBONDALE	LAWSON	SANDSTONE	36.0	770.0	

MAPID: 08101285000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 6 QUARTERS/FOOTAGES: 2310' S line, 330' E line

QUADRANGLE: WALNUT HILL LONGITUDE: -89.017542 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.380367 DATE COLLECTED:

SURFACE ELEVATION (FT.): 488.0 LOGGED (FT.): 874.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-182.0	MODESTO	PIASA	LIMESTONE	8.0	670.0
-190.0	MODESTO		SHALE	8.0	678.0
-198.0	CARBONDALE	DANVILLE	COAL	2.0	686.0
-200.0	CARBONDALE	LAWSON	SILTY SHALE	57.0	688.0
-257.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	4.0	745.0
-261.0	CARBONDALE	LAWSON	SHALE	10.0	749.0
-271.0	CARBONDALE	LAWSON	SANDSTONE	22.0	759.0

MAPID: 08102175000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 7 QUARTERS/FOOTAGES: 940' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.028861 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.371231 DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 1898.0 LOG TYPE: Electric Log

SOURCE: KAUFMAN, E.H. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-284.0	CARBONDALE	SPRINGFIELD	COAL	-	778.0
-409.0	CARBONDALE	COLCHESTER	COAL	-	903.0
-1404.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1898.0

MAPID: 08102175000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 7 QUARTERS/FOOTAGES: 940' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.028861 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.371231 DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 0.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-	CARBONDALE		SILTY SHALE	25.0	
-	CARBONDALE	LAWSON	SILTY SHALE	40.0	
-	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	50.0	

MAPID: 08100662000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 8 QUARTERS/FOOTAGES: 1650' N line, 1650' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.010638

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.369386

DATE COLLECTED:

SURFACE ELEVATION (FT.): 485.0

LOGGED (FT.): 863.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-167.0	MODESTO	PIASA	LIMESTONE & SHALE	5.0	652.0
-172.0	MODESTO		SHALE	12.0	657.0
-184.0	CARBONDALE	DANVILLE	COAL	2.0	669.0
-186.0	CARBONDALE	LAWSON	SILTY SHALE	20.0	671.0
-206.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	23.0	691.0
-229.0	CARBONDALE	LAWSON	ARGILLACEOUS SANDSTONE	53.0	714.0

MAPID: 08123151000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 8 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.008031

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.36194

DATE COLLECTED:

SURFACE ELEVATION (FT.): 479.0

LOGGED (FT.): 1905.0

LOG TYPE: Electric Log

SOURCE: EVANS, CHARLES T.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-256.0	CARBONDALE	SPRINGFIELD	COAL	-	735.0
-381.0	CARBONDALE	COLCHESTER	COAL	-	860.0
-1426.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1905.0

MAPID: 08101766000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 10 QUARTERS/FOOTAGES: 1650' N line, 1650' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.973106

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.369196

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0

LOGGED (FT.): 2181.0

LOG TYPE: Electric Log

SOURCE: DAVOUST R C CO

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-388.0	CARBONDALE	SPRINGFIELD	COAL	-	890.0
-535.0	CARBONDALE	COLCHESTER	COAL	-	1037.0
-1679.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2181.0

MAPID: 08101766000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 10 QUARTERS/FOOTAGES: 1650' N line, 1650' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.973106

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.369196

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0

LOGGED (FT.): 820.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-273.0	MODESTO	PIASA	LIMESTONE	8.0	775.0
-281.0	MODESTO		SHALE	6.0	783.0
-287.0	CARBONDALE	DANVILLE	COAL	1.0	789.0
-288.0	CARBONDALE		SILTY SHALE	12.0	790.0
-300.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	2.0	802.0
-302.0	CARBONDALE	LAWSON	SHALE	4.0	804.0
-306.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	4.0	808.0
-310.0	CARBONDALE	ANNA	SHALE	5.0	812.0
-315.0	CARBONDALE	HERRIN	COAL	3.0	817.0

MAPID: 08100370000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 11 QUARTERS/FOOTAGES: NE SW SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.947427

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.361403

DATE COLLECTED: 0 / 0 / 1939

SURFACE ELEVATION (FT.): 522.0

LOGGED (FT.): 2738.0

LOG TYPE:

SOURCE: PAPOOSE OIL CO

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-	CARBONDALE	SPRINGFIELD	UNCLASSIFIED	-	

MAPID: 08123909000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 11 QUARTERS/FOOTAGES: 1900' S line, 340' E line of SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.942744

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.363868

DATE COLLECTED: 4 / 0 / 1941

SURFACE ELEVATION (FT.): 510.0

LOGGED (FT.): 80.0

LOG TYPE: Drillers Log

SOURCE: ELLIS AND HINKLE

WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
510.0			UNCONSOLIDATED	15.0	0.0
495.0			ROCK	53.0	15.0
442.0			COAL	1.0	68.0
441.0			ROCK	11.0	69.0

MAPID: 08123910000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 1300' S line, 2640' E line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.950826 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.362192 **DATE COLLECTED:** 4 / 0 / 1941
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 103.0 **LOG TYPE:** Drillers Log
SOURCE: ELLIS AND HINKLE **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.0			UNCONSOLIDATED	19.0	0.0	
471.0			ROCK	57.0	19.0	
414.0			COAL	2.0	76.0	
412.0			ROCK	25.0	78.0	

MAPID: 08101286000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 1650' N line, 1650' E line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.929745 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.368791 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 2350.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-431.0	CARBONDALE	SPRINGFIELD	COAL	-	966.0	
-573.0	CARBONDALE	COLCHESTER	COAL	-	1108.0	
-1815.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2350.0	

MAPID: 08101286000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** 1650' N line, 1650' E line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.929745 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.368791 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 535.0 **LOGGED (FT.):** 1014.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-288.0	MODESTO	PIASA	LIMESTONE	7.0	823.0	
-295.0	MODESTO		SHALE	14.0	830.0	
-309.0	CARBONDALE	DANVILLE	COAL	2.0	844.0	
-311.0	CARBONDALE	LAWSON	SILTY SHALE	60.0	846.0	
-371.0	CARBONDALE	LAWSON	SANDSTONE	24.0	906.0	

MAPID: 081242C0009F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** NE SW SE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.929874 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.346925 **DATE COLLECTED:** 0 / 0 / 1931
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 4.6 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-EKBLAW **WELL TYPE:** Outcrop
COMMENT: COAL STRIPPED NEARBY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.0			UNCONSOLIDATED	-	0.0	
-			COAL		1.3	
-			ROCK		3.3	

MAPID: 081242C0010F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** NW SE NE SE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.926044 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.349344 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FLD NOTES-MURRAY **WELL TYPE:** Strip Mine
COMMENT: APPROX 1 ACRE OF COAL STRIPPED IN 20'S

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			COAL		-	

MAPID: 081242C0011F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** NE NW NW NW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.958578 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.358124 **DATE COLLECTED:** 8 / 0 / 1949
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 21.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WILLIAMS **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK		20.0	
-			COAL		1.0	

MAPID: 08101287000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 18 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE

QUADRANGLE: WOODLAWN LONGITUDE: -89.02441 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.350907 DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 1894.0 LOG TYPE: Electric Log

SOURCE: ENGLE, GEORGE S. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-271.0	CARBONDALE	SPRINGFIELD	COAL	-	770.0	
-385.0	CARBONDALE	COLCHESTER	COAL	-	884.0	
-1395.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1894.0	

MAPID: 08102176000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 18 QUARTERS/FOOTAGES: 1650' N line, 990' W line

QUADRANGLE: WOODLAWN LONGITUDE: -89.031194 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.354555 DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 704.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-165.0	CARBONDALE		SILTY SHALE	22.0	660.0	
-187.0	CARBONDALE	LAWSON	SHALE	5.0	682.0	
-192.0	CARBONDALE	BRERETON	LIMESTONE	8.0	687.0	
-200.0	CARBONDALE	ANNA	SHALE	4.0	695.0	
-204.0	CARBONDALE	HERRIN	COAL	5.0	699.0	

MAPID: 08101289000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 1650' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.022152 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.343529 DATE COLLECTED:

SURFACE ELEVATION (FT.): 503.0 LOGGED (FT.): 3818.0 LOG TYPE: Electric Log

SOURCE: PEP DRILLING COMPANY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-258.0	CARBONDALE	SPRINGFIELD	COAL	-	761.0	
-372.0	CARBONDALE	COLCHESTER	COAL	-	875.0	
-1378.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1881.0	
-3204.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3707.0	TOP OF NEW ALBANY
-3227.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3730.0	
-3315.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3818.0	BASE OF NEW ALBANY

MAPID: 08101289000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 1650' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.022152

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.343529

DATE COLLECTED:

SURFACE ELEVATION (FT.): 503.0

LOGGED (FT.): 704.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-157.0	CARBONDALE	DANVILLE	COAL	1.0	660.0	
-158.0	CARBONDALE		SILTY SHALE	17.0	661.0	
-175.0	CARBONDALE	LAWSON	SHALE	9.0	678.0	
-184.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	7.0	687.0	
-191.0	CARBONDALE	ANNA	SHALE	6.0	694.0	
-197.0	CARBONDALE	HERRIN	COAL	4.0	700.0	

MAPID: 08124146000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 20 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.005761

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.33782

DATE COLLECTED:

SURFACE ELEVATION (FT.): 454.0

LOGGED (FT.): 4129.0

LOG TYPE: Electric Log

SOURCE: BEAVER OIL CO., INC.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1693.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2147.0	
-3572.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4026.0	TOP OF NEW ALBANY
-3585.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4039.0	
-3675.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4129.0	BASE OF NEW ALBANY

MAPID: 08101290000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 21 QUARTERS/FOOTAGES: 660' S line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.980455

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.3314

DATE COLLECTED:

SURFACE ELEVATION (FT.): 453.0

LOGGED (FT.): 2313.0

LOG TYPE: Electric Log

SOURCE: RUTLEDGE RICHARD M

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-393.0	CARBONDALE	SPRINGFIELD	COAL	-	846.0	
-555.0	CARBONDALE	COLCHESTER	COAL	-	1008.0	
-1860.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2313.0	

MAPID: 08101290000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 21 QUARTERS/FOOTAGES: 660' S line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.980455

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.3314

DATE COLLECTED:

SURFACE ELEVATION (FT.): 457.0

LOGGED (FT.): 780.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-265.0	MODESTO	PIASA	LIMESTONE	8.0	722.0	
-273.0	MODESTO		CLAYSTONE & SHALE	10.0	730.0	
-283.0	CARBONDALE		SILTY SHALE	18.0	740.0	
-301.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	2.0	758.0	
-303.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	10.0	760.0	
-313.0	CARBONDALE	LAWSON	DARK GRAY SHALE	4.0	770.0	
-317.0	CARBONDALE	HERRIN	COAL	6.0	774.0	

MAPID: 08101210000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 22 QUARTERS/FOOTAGES: 1680' S line, 1650' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.966454

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.333959

DATE COLLECTED:

SURFACE ELEVATION (FT.): 510.0

LOGGED (FT.): 2342.0

LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-402.0	CARBONDALE	SPRINGFIELD	COAL	-	912.0	
-562.0	CARBONDALE	COLCHESTER	COAL	-	1072.0	
-1832.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2342.0	

MAPID: 08101210000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 22 QUARTERS/FOOTAGES: 1680' S line, 1650' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.966454

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.333959

DATE COLLECTED:

SURFACE ELEVATION (FT.): 510.0

LOGGED (FT.): 856.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-271.0	MODESTO	PIASA	LIMESTONE	8.0	781.0
-279.0	MODESTO		CLAYSTONE & SHALE	10.0	789.0
-289.0	CARBONDALE		SHALE & SANDSTONE	20.0	799.0
-309.0	CARBONDALE	ALLENBY	COAL	0.5	819.0
-309.5	CARBONDALE		CLAYSTONE & SHALE	7.0	819.5
-316.5	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	2.5	826.5
-319.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	10.0	829.0
-329.0	CARBONDALE	LAWSON	CLAYSTONE & SHALE	9.0	839.0
-338.0	CARBONDALE	BRERETON	LIMESTONE	2.0	848.0
-340.0	CARBONDALE	ANNA	BLACK SHALE	1.0	850.0
-341.0	CARBONDALE	HERRIN	COAL	5.0	851.0

MAPID: 08101292000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 23 QUARTERS/FOOTAGES: 1650' N line, 2260' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.949849

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.339198

DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0

LOGGED (FT.): 826.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-272.0	MODESTO	PIASA	LIMESTONE & SHALE	4.0	771.0
-276.0	MODESTO		CLAYSTONE & SHALE	8.0	775.0
-284.0	CARBONDALE		SHALE & SANDSTONE	21.0	783.0
-305.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	3.0	804.0
-308.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	8.0	807.0
-316.0	CARBONDALE	LAWSON	DARK GRAY SHALE	4.0	815.0
-320.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	3.0	819.0
-323.0	CARBONDALE	HERRIN	COAL	4.0	822.0

MAPID: 08100746000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** 990' N line, 990' E line of NW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.936668 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.341186 **DATE COLLECTED:** 12 / 0 / 1943
SURFACE ELEVATION (FT.): 550.0 **LOGGED (FT.):** 2894.0 **LOG TYPE:** Drillers Log
SOURCE: E. A. OBERING **WELL TYPE:** Oil and Gas Test
COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.0			UNCONSOLIDATED	40.0	0.0	
510.0			ROCK	550.0	40.0	
-40.0			SANDSTONE/SHALE	140.0	590.0	
-180.0			COAL	5.0	730.0	
-185.0			ROCK	2159.0	735.0	

MAPID: 08101443000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** 2310' N line, 330' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.940788 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.337391 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 836.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-264.0	MODESTO	PIASA	LIMESTONE & SHALE	3.0	784.0	
-267.0	MODESTO		CLAYSTONE & SHALE	10.0	787.0	
-277.0	CARBONDALE		SHALE & SANDSTONE	20.0	797.0	
-297.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	3.0	817.0	
-300.0	CARBONDALE	LAWSON	SHALE	9.0	820.0	
-309.0	CARBONDALE	LAWSON	DARK GRAY SHALE	3.0	829.0	
-312.0	CARBONDALE	HERRIN	COAL	4.0	832.0	

MAPID: 08100745000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 1650' S line, 2351' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.952415 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.319123 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 2372.0 **LOG TYPE:** Electric Log
SOURCE: BAYER, KENNETH M. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-362.0	CARBONDALE	SPRINGFIELD	COAL	-	862.0	
-519.0	CARBONDALE	COLCHESTER	COAL	-	1019.0	
-1872.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2372.0	

MAPID: 08100745000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 26 QUARTERS/FOOTAGES: 1650' S line, 2351' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.952415

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.319123

DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0

LOGGED (FT.): 794.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-242.0	MODESTO	PIASA	LIMESTONE	8.0	742.0
-250.0	MODESTO		CLAYSTONE & SHALE	9.0	750.0
-259.0	CARBONDALE	DANVILLE	COAL	2.0	759.0
-261.0	CARBONDALE		SHALE	14.0	761.0
-275.0	CARBONDALE	LAWSON	SILTY SHALE	10.0	775.0
-285.0	CARBONDALE	LAWSON	DARK GRAY SHALE	5.0	785.0
-290.0	CARBONDALE	HERRIN	COAL	4.0	790.0

MAPID: 08100372000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 27 QUARTERS/FOOTAGES: 2310' N line, 2310' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.971183

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.323009

DATE COLLECTED:

SURFACE ELEVATION (FT.): 473.0

LOGGED (FT.): 773.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-246.0	MODESTO	PIASA	LIMESTONE	6.0	719.0
-252.0	MODESTO		CLAYSTONE & SHALE	10.0	725.0
-262.0	CARBONDALE		SHALE & SANDSTONE	15.0	735.0
-277.0	CARBONDALE	LAWSON	CALCAREOUS SHALE	12.0	750.0
-289.0	CARBONDALE	LAWSON	DARK GRAY SHALE	8.0	762.0
-297.0	CARBONDALE	HERRIN	COAL	3.0	770.0

MAPID: 08100744000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** 120' N line, 330' W line of SW NW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.99644 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.325516 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 2262.0 **LOG TYPE:** Electric Log
SOURCE: RUWALDT, E. J. DRILLING **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-341.0	CARBONDALE	SPRINGFIELD	COAL	-	786.0
-502.0	CARBONDALE	COLCHESTER	COAL	-	947.0
-1817.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2262.0

MAPID: 08100009000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.003488 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.319407 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 444.1 **LOGGED (FT.):** 700.0 **LOG TYPE:**
SOURCE: PAYNE 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-190.9	CARBONDALE	HERRIN	COAL	6.0	635.0

MAPID: 08101295000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** 990' S line, 1650' E line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.02207 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.317561 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 499.0 **LOGGED (FT.):** 669.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-127.0	MODESTO	PIASA	LIMESTONE	4.0	626.0
-131.0	MODESTO		CLAYSTONE & SHALE	7.0	630.0
-138.0	CARBONDALE		SHALE & SANDSTONE	10.0	637.0
-148.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	8.0	647.0
-156.0	CARBONDALE	LAWSON	SHALE	5.0	655.0
-161.0	CARBONDALE	HERRIN	COAL	9.0	660.0

MAPID: 08101296000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 30 **QUARTERS/FOOTAGES:** 356' S line, 853' E line of NW NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.033171 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.326819 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 1824.0 **LOG TYPE:** Electric Log
SOURCE: BASS, WILLIAM H. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-168.0	CARBONDALE	SPRINGFIELD	COAL	-	660.0
-283.0	CARBONDALE	COLCHESTER	COAL	-	775.0
-1332.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1824.0

MAPID: 08100076000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** 2500' N line, 1400' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.011392 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.30792 **DATE COLLECTED:** 0 / 0 / 1934
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 1940.0 **LOG TYPE:**
SOURCE: SHILOH OIL **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-212.0	CARBONDALE	HERRIN	COAL	6.0	670.0

MAPID: 08100076000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 2E **SECTION:** 32 **QUARTERS/FOOTAGES:** 2500' N line, 1400' W line
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.011392 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.30792 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 674.0 **LOG TYPE:** Drillers Log
SOURCE: **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-164.0	MODESTO	PIASA	LIMESTONE AND SANDSTONE	6.0	622.0
-170.0	MODESTO		SILTY SHALE	8.0	628.0
-178.0	CARBONDALE	DANVILLE	BLACK SHALE	4.0	636.0
-182.0	CARBONDALE		SILTY SHALE	5.0	640.0
-187.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	645.0
-198.0	CARBONDALE	LAWSON	SILTY SHALE	5.0	656.0
-203.0	CARBONDALE	BRERETON	LIMESTONE & SHALE	4.0	661.0
-211.0	CARBONDALE	HERRIN	BONE COAL	5.0	669.0

MAPID: 08100743000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 34 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.968804 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.306483 DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0 LOGGED (FT.): 2347.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-387.0	CARBONDALE	SPRINGFIELD	COAL	-	852.0
-550.0	CARBONDALE	COLCHESTER	COAL	-	1015.0
-1882.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2347.0

MAPID: 08100743000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 34 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.968804 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.306483 DATE COLLECTED: 5 / 0 / 1944

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 2839.0 LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
460.0			UNCONSOLIDATED	92.0	0.0
368.0			ROCK	628.0	92.0
-260.0			CALCAREOUS SHALE	25.0	720.0
-285.0			COAL	5.0	745.0
-290.0			ROCK	175.0	750.0
-465.0			COAL	5.0	925.0
-470.0			ROCK	1909.0	930.0

MAPID: 08101455000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 990' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.964196

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.301026

DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0

LOGGED (FT.): 780.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-260.0	MODESTO	PIASA	LIMESTONE	8.0	728.0
-268.0	MODESTO		CLAYSTONE & SHALE	8.0	736.0
-276.0	CARBONDALE		SHALE & SANDSTONE	12.0	744.0
-288.0	CARBONDALE	BANKSTON FORK	LIMESTONE & SHALE	10.0	756.0
-298.0	CARBONDALE	LAWSON	SHALE	6.0	766.0
-305.0	CARBONDALE	HERRIN	COAL	7.0	773.0

MAPID: 08100958000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 35 QUARTERS/FOOTAGES: 1650' S line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.959547

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.304673

DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0

LOGGED (FT.): 782.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-266.0	MODESTO	PIASA	LIMESTONE	9.0	731.0
-275.0	MODESTO		CLAYSTONE & SHALE	8.0	740.0
-283.0	CARBONDALE		SILTY SHALE	12.0	748.0
-295.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	10.0	760.0
-305.0	CARBONDALE	LAWSON	SHALE	5.0	770.0
-310.0	CARBONDALE	HERRIN	COAL	7.0	775.0

MAPID: 08101297000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 35 QUARTERS/FOOTAGES: 990' N line, 990' E line of SW
 QUADRANGLE: MT. VERNON LONGITUDE: -88.954916 GEOLOGIST: BARGH,M
 CONFIDENTIAL: N LATITUDE: 38.304577 DATE COLLECTED: 5 / 0 / 1953
 SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 2611.0 LOG TYPE: Drillers Log
 SOURCE: WALLER J. MCGLASSON WELL TYPE: Oil and Gas Test
 COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.0			UNCONSOLIDATED	127.0	0.0	
363.0			ROCK	703.0	127.0	
-340.0			SHALE	30.0	830.0	
-370.0			COAL	4.0	860.0	
-374.0			ROCK	1742.0	864.0	

MAPID: 08124308000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 2S 2E SECTION: 35 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW
 QUADRANGLE: MT. VERNON LONGITUDE: -88.959537 GEOLOGIST: J JOHNSON
 CONFIDENTIAL: N LATITUDE: 38.306448 DATE COLLECTED:
 SURFACE ELEVATION (FT.): 474.0 LOGGED (FT.): 2346.0 LOG TYPE: Electric Log
 SOURCE: BREHM, DWIGHT RESOURCES WELL TYPE: Oil and Gas Test
 COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-388.0	CARBONDALE	SPRINGFIELD	COAL	-	862.0	
-544.0	CARBONDALE	COLCHESTER	COAL	-	1018.0	
-1872.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2346.0	

MAPID: 08101298000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 1 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW SE
 QUADRANGLE: OPDYKE LONGITUDE: -88.817519 GEOLOGIST: HOPKINS
 CONFIDENTIAL: N LATITUDE: 38.374084 DATE COLLECTED:
 SURFACE ELEVATION (FT.): 543.0 LOGGED (FT.): 2981.0 LOG TYPE: Electric Log
 SOURCE: SKELLY OIL CO WELL TYPE: Producer-Oil
 COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-405.0	CARBONDALE	HERRIN	COAL	2.0	948.0	
-447.0	CARBONDALE	BRIAR HILL	COAL	-	990.0	
-479.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1022.0	BLACK SHALE & LIMESTONE ROOF
-529.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1072.0	

MAPID: 08101706000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 380' E line

QUADRANGLE: HARMONY LONGITUDE: -88.813006 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.387212 DATE COLLECTED:

SURFACE ELEVATION (FT.): 550.0 LOGGED (FT.): 968.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-357.0	MODESTO	PIASA	LIMESTONE	4.0	907.0	
-361.0	MODESTO		SHALE & SANDSTONE	12.0	911.0	
-373.0	CARBONDALE	DANVILLE	COAL	2.0	923.0	
-375.0	CARBONDALE		SHALE & SANDSTONE	12.0	925.0	
-387.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	937.0	
-392.0	CARBONDALE	ENERGY	GRAY SHALE	4.0	942.0	
-396.0	CARBONDALE	ENERGY	SANDSTONE	5.0	946.0	
-401.0	CARBONDALE	ENERGY	GRAY SHALE	12.0	951.0	
-413.0	CARBONDALE	HERRIN	COAL	5.0	963.0	

MAPID: 08101014000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 2 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW NE

QUADRANGLE: HARMONY LONGITUDE: -88.836318 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.381521 DATE COLLECTED:

SURFACE ELEVATION (FT.): 504.0 LOGGED (FT.): 3003.0 LOG TYPE: Electric Log

SOURCE: NIAGARA OIL CORP WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-400.0	CARBONDALE	HERRIN	COAL	6.0	904.0	
-453.0	CARBONDALE	BRIAR HILL	COAL	-	957.0	
-480.0	CARBONDALE	SPRINGFIELD	COAL	7.0	984.0	BLACK SHALE & LIMESTONE ROOF
-530.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1034.0	

MAPID: 08101015000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 2 QUARTERS/FOOTAGES: 333' S line, 990' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.845754 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.374178 DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 896.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-338.0	MODESTO	PIASA	LIMESTONE	6.0	833.0	
-344.0	MODESTO		GRAY SHALE	11.0	839.0	
-355.0	CARBONDALE	DANVILLE	COAL	2.0	850.0	
-357.0	CARBONDALE		GRAY SHALE	3.0	852.0	
-360.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	855.0	
-370.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	14.0	865.0	
-384.0	CARBONDALE	ENERGY	GRAY SHALE	11.0	879.0	
-395.0	CARBONDALE	HERRIN	COAL	6.0	890.0	

MAPID: 08100742000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 3 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.850383 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.374213 DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0 LOGGED (FT.): 2926.0 LOG TYPE: Electric Log

SOURCE: DICKERSON ETAL WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-377.0	CARBONDALE	HERRIN	COAL	5.0	930.0	
-424.0	CARBONDALE	BRIAR HILL	COAL	-	977.0	
-453.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1006.0	BLACK SHALE & LIMESTONE ROOF
-514.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1067.0	

MAPID: 08100742000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 3 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.850383

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.374213

DATE COLLECTED:

SURFACE ELEVATION (FT.): 553.0

LOGGED (FT.): 933.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-333.0	MODESTO		GRAY SHALE	10.0	886.0
-343.0	CARBONDALE	DANVILLE	COAL	3.0	896.0
-346.0	CARBONDALE		SHALE & SANDSTONE	15.0	899.0
-361.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	914.0
-368.0	CARBONDALE	ENERGY	GRAY SHALE	6.0	921.0
-374.0	CARBONDALE	HERRIN	COAL	6.0	927.0

MAPID: 08100814000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.913624

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.367081

DATE COLLECTED: 9 / 0 / 1948

SURFACE ELEVATION (FT.): 523.0

LOGGED (FT.): 2802.0

LOG TYPE: Drillers Log

SOURCE: N. REDWINE

WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
523.0			UNCONSOLIDATED	53.0	0.0
470.0			SHALE	38.0	53.0
432.0			COAL	4.0	91.0
428.0			SANDSTONE/SHALE	730.0	95.0
-302.0			SANDSTONE	1977.0	825.0

MAPID: 08100814000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.913624

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.367081

DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0

LOGGED (FT.): 936.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-310.0	MODESTO	PIASA	LIMESTONE	7.0	830.0	
-317.0	MODESTO		GRAY SHALE	14.0	837.0	
-331.0	CARBONDALE	DANVILLE	COAL	3.0	851.0	
-334.0	CARBONDALE		SHALE & SANDSTONE	17.0	854.0	
-351.0	CARBONDALE	LAWSON	SANDSTONE	65.0	871.0	

MAPID: 08100814000C VERSION: 3

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.913624

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.367081

DATE COLLECTED:

SURFACE ELEVATION (FT.): 523.0

LOGGED (FT.): 2802.0

LOG TYPE: Electric Log

SOURCE: REDWINE NASH ETAL

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-451.0	CARBONDALE	SPRINGFIELD	COAL	6.0	974.0	BLACK SHALE & LIMESTONE ROOF
-505.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1028.0	

MAPID: 08123911000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 7 QUARTERS/FOOTAGES: 125' S line, 100' W line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.923939

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.366456

DATE COLLECTED: 0 / 0 / 1940

SURFACE ELEVATION (FT.): 540.0

LOGGED (FT.): 45.0

LOG TYPE: Drillers Log

SOURCE: HEIDINGER AND ELLIS

WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
540.0			UNCONSOLIDATED	5.0	0.0	
535.0			ROCK	25.0	5.0	
510.0			COAL	1.0	30.0	
509.0			ROCK	14.0	31.0	

MAPID: 081242C0003F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** SW SE SW NE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.911815 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.366633 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 1.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-MURRAY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			COAL	1.0		

MAPID: 081242C0002F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** SE SW SW SW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.92254 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.359437 **DATE COLLECTED:** 7 / 16 / 1949
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 1.3 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WILLIAMS **WELL TYPE:** Outcrop
COMMENT: OTHER NOTES ON THIS OUTCROP.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	-		
-			COAL/CLAYSTONE	-		COAL AND CLAY INTERBEDDED
-			COAL	1.3		
-			UNDERCLAY	-		

MAPID: 081242C0001F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** SE SE SW NE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.91063 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.36664 **DATE COLLECTED:** 0 / 0 / 1935
SURFACE ELEVATION (FT.): 540.0 **LOGGED (FT.):** 8.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WELLER **WELL TYPE:** Roadcut
COMMENT: COMPOSITE SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			COAL	-		BLOSSOM
-			CLAYSTONE	1.0		
-			SANDSTONE	7.0		SHALEY

MAPID: 08101299000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.850385 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.372391 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 2981.0 LOG TYPE: Electric Log

SOURCE: HED OIL CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	HERRIN	COAL	3.0	921.0	
-	CARBONDALE	BRIAR HILL	COAL	-	967.0	
-	CARBONDALE	SPRINGFIELD	COAL	5.0	992.0	BLACK SHALE & LIMESTONE ROOF
-	CARBONDALE	HOUCHIN CREEK	COAL	-	1060.0	

MAPID: 08101299000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.850385 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.372391 DATE COLLECTED:

SURFACE ELEVATION (FT.): 540.0 LOGGED (FT.): 926.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-323.0	MODESTO	PIASA	LIMESTONE	6.0	863.0	
-329.0	MODESTO		GRAY SHALE	14.0	869.0	
-343.0	CARBONDALE	DANVILLE	COAL	3.0	883.0	
-346.0	CARBONDALE		SHALE & SANDSTONE	15.0	886.0	
-361.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	901.0	UPPER BENCH
-364.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	2.0	904.0	SHALE PARTING
-366.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	906.0	LOWER BENCH
-371.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	911.0	
-380.0	CARBONDALE	HERRIN	COAL	6.0	920.0	

MAPID: 08100573000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 355' N line, 990' W line of NE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.836391 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.372189 **DATE COLLECTED:** 8 / 25 / 1944
SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 2974.0 **LOG TYPE:** Drillers Log
SOURCE: KINGWOOD OIL C **WELL TYPE:** Oil and Gas Test
COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
530.0			UNCONSOLIDATED	75.0	0.0	
455.0			SHALE	935.0	75.0	
-480.0			SANDSTONE	38.0	1010.0	
-518.0			COAL	6.0	1048.0	
-524.0			SHALE	34.0	1054.0	
-558.0			COAL WITH SHALE	52.0	1088.0	COAL AND SS LAMINATED. NON COMMERCIAL
-610.0			ROCK	154.0	1140.0	
-764.0			COAL	2.0	1294.0	
-766.0			ROCK	1678.0	1296.0	

MAPID: 08101300000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.831688 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.359484 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 2905.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-393.0	CARBONDALE	HERRIN	COAL	-	870.0	
-443.0	CARBONDALE	BRIAR HILL	COAL	-	920.0	
-469.0	CARBONDALE	SPRINGFIELD	COAL	4.0	946.0	BLACK SHALE & LIMESTONE ROOF
-538.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1015.0	

MAPID: 08101300000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.831688 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.359484 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 876.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-348.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	45.0	825.0	
-393.0	CARBONDALE	HERRIN	COAL	6.0	870.0	

MAPID: 08101302000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 12 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.812911 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.359471 DATE COLLECTED:

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 2876.0 LOG TYPE: Electric Log

SOURCE: MCKAIN, WM. H. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-389.0	CARBONDALE	HERRIN	COAL	4.0	930.0	
-437.0	CARBONDALE	BRIAR HILL	COAL	-	978.0	
-465.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1006.0	BLACK SHALE & LIMESTONE ROOF
-515.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1056.0	

MAPID: 08101302000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 12 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.812911 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.359471 DATE COLLECTED:

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 933.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-323.0	MODESTO	PIASA	LIMESTONE	5.0	864.0	
-328.0	CARBONDALE		GRAY SHALE	6.0	869.0	
-334.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	15.0	875.0	
-349.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	26.0	890.0	
-375.0	CARBONDALE		GRAY SHALE	7.0	916.0	
-382.0	CARBONDALE	BRERETON	LIMESTONE	4.0	923.0	
-386.0	CARBONDALE	ANNA	BLACK SHALE	2.0	927.0	
-388.0	CARBONDALE	HERRIN	COAL	4.0	929.0	

MAPID: 08101304000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 13 QUARTERS/FOOTAGES: 330' N line, 330' E line of NW NE

QUADRANGLE: OPDYKE LONGITUDE: -88.817624 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.357654 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 2980.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	HERRIN	COAL	4.0	930.0	
-	CARBONDALE	BRIAR HILL	COAL	-	978.0	
-	CARBONDALE	SPRINGFIELD	COAL	4.0	1019.0	BLACK SHALE & LIMESTONE ROOF
-	CARBONDALE	HOUCHIN CREEK	COAL	-	1064.0	

MAPID: 08100215000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.831705 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.357662 DATE COLLECTED:

SURFACE ELEVATION (FT.): 501.0 LOGGED (FT.): 2943.0 LOG TYPE: Electric Log

SOURCE: MID-SUN OIL CORP WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-429.0	CARBONDALE	BRIAR HILL	COAL	-	930.0	
-452.0	CARBONDALE	SPRINGFIELD	COAL	5.0	953.0	BLACK SHALE & LIMESTONE ROOF
-523.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1024.0	

MAPID: 08100215000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.831705 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.357662 DATE COLLECTED:

SURFACE ELEVATION (FT.): 501.0 LOGGED (FT.): 882.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-339.0	MODESTO		GRAY SHALE	7.0	840.0	
-346.0	CARBONDALE	DANVILLE	COAL	2.0	847.0	
-348.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	29.0	849.0	
-377.0	CARBONDALE	HERRIN	COAL	4.0	878.0	

MAPID: 08100603000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' N line, 360' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.885411 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.357961 DATE COLLECTED: 3 / 0 / 1944

SURFACE ELEVATION (FT.): 556.0 LOGGED (FT.): 2921.0 LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
556.0			UNCONSOLIDATED	93.0	0.0	
463.0			ROCK	592.0	93.0	
-129.0			COAL	2.0	685.0	
-131.0			ROCK	518.0	687.0	
-649.0			COAL WITH SHALE	55.0	1205.0	COAL AND SHALE MIXED
-704.0			ROCK	1661.0	1260.0	

MAPID: 08100603000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' N line, 360' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.885411 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.357961 DATE COLLECTED:

SURFACE ELEVATION (FT.): 556.0 LOGGED (FT.): 878.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-274.0	MODESTO	PIASA	LIMESTONE	11.0	830.0	
-285.0	MODESTO		GRAY SHALE	10.0	841.0	
-295.0	CARBONDALE	DANVILLE	COAL	4.0	851.0	
-299.0	CARBONDALE		GRAY SHALE	7.0	855.0	
-306.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	862.0	
-313.0	CARBONDALE		GRAY SHALE	5.0	869.0	
-318.0	CARBONDALE	HERRIN	COAL	4.0	874.0	

MAPID: 08100603000C **VERSION:** 3 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' N line, 360' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.885411 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.357961 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 556.0 **LOGGED (FT.):** 2921.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-362.0	CARBONDALE	BRIAR HILL	COAL	-	918.0	
-387.0	CARBONDALE	SPRINGFIELD	COAL	6.0	943.0	BLACK SHALE & LIMESTONE ROOF
-455.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1011.0	

MAPID: 08101016000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NW NE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.913738 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.356245 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 2726.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-414.0	CARBONDALE	SPRINGFIELD	COAL	4.0	889.0	BLACK SHALE ROOF
-479.0	CARBONDALE	HOUCHIN CREEK	COAL	-	954.0	

MAPID: 08101030000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.906735 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.345365 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 893.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-272.0	MODESTO	PIASA	LIMESTONE	6.0	782.0	
-278.0	CARBONDALE		SHALE & SANDSTONE	52.0	788.0	
-330.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	53.0	840.0	

MAPID: 08100544000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.923317 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.343652 DATE COLLECTED:

SURFACE ELEVATION (FT.): 462.0 LOGGED (FT.): 2780.0 LOG TYPE: Electric Log

SOURCE: CAMERON OIL CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-318.0	CARBONDALE	HERRIN	COAL	6.0	780.0	
-391.0	CARBONDALE	SPRINGFIELD	COAL	5.0	853.0	BLACK SHALE ROOF
-462.0	CARBONDALE	HOUCHIN CREEK	COAL	-	924.0	

MAPID: 08100544000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.923317 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.343652 DATE COLLECTED:

SURFACE ELEVATION (FT.): 462.0 LOGGED (FT.): 786.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-268.0	MODESTO	PIASA	LIMESTONE	7.0	730.0	
-275.0	MODESTO		GRAY SHALE	6.0	737.0	
-281.0	CARBONDALE	DANVILLE	COAL	3.0	743.0	
-284.0	CARBONDALE		SHALE & SANDSTONE	13.0	746.0	
-297.0	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	759.0	
-309.0	CARBONDALE	ENERGY	GRAY SHALE	7.0	771.0	
-318.0	CARBONDALE	HERRIN	COAL	6.0	780.0	

MAPID: 08123906000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: 5' S line, 95' E line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.915402 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.337088 DATE COLLECTED: 2 / 0 / 1941

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 62.0 LOG TYPE: Drillers Log

SOURCE: ELLIS AND HINKLE WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
480.0			UNCONSOLIDATED	16.0	0.0
464.0			SHALE	11.0	16.0
453.0			COAL	1.0	27.0
452.0			ROCK	30.5	28.0
421.5			COAL	0.5	58.5
421.0			ROCK	3.0	59.0

MAPID: 08123907000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: 200' S line, 1300' E line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.919625 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.337637 DATE COLLECTED: 0 / 0 / 1941

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 88.0 LOG TYPE: Drillers Log

SOURCE: ELLIS AND HINKLE WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
500.0			UNCONSOLIDATED	15.0	0.0
485.0			ROCK	36.0	15.0
449.0			COAL	2.0	51.0
447.0			ROCK	35.0	53.0

MAPID: 081242C0007F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: SW NE NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.918586

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.341739

DATE COLLECTED: 7 / 0 / 1949

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 8.8

LOG TYPE: Measured section

SOURCE: FLD NOTES-WILLIAMS

WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCONSOLIDATED	-	0.0	
-			ROCK	6.7		
-			COAL/CLAYSTONE	0.2		COAL AND CLAY INTERBEDDED
-			CLAYSTONE	0.2		
-			COAL	1.3		
-			UNDERCLAY	0.5		

MAPID: 081242C0006F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: SW NE NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.918586

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.341739

DATE COLLECTED: 0 / 0 / 1931

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 21.4

LOG TYPE: Measured section

SOURCE: FLD NOTES-EKBLAW

WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCONSOLIDATED	10.0	0.0	
-			ROCK	9.1		
-			COAL	1.5		SHALEY IN UPPER .16'
-			CLAYSTONE	0.8		

MAPID: 081242C0005F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 19 QUARTERS/FOOTAGES: SE NW NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.920948

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.341751

DATE COLLECTED: 8 / 28 / 1931

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 6.3

LOG TYPE: Measured section

SOURCE: FLD NOTES-EKBLAW

WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	-	0.0	
-			ROCK	1.3		
-			COAL	1.1		
-			ROCK	4.0		

MAPID: 08101506000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.885807 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.330198 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2916.0 **LOG TYPE:** Electric Log
SOURCE: LEWIS, WILL I. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	HERRIN	COAL	6.0	854.0	
-	CARBONDALE	BRIAR HILL	COAL	-	909.0	
-	CARBONDALE	SPRINGFIELD	COAL	5.0	924.0	BLACK SHALE ROOF
-	CARBONDALE	HOUCHIN CREEK	COAL	-	994.0	

MAPID: 08101506000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.885807 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.330198 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 860.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-307.0	MODESTO	PIASA	LIMESTONE	6.0	816.0	
-313.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	822.0	
-319.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	27.0	828.0	
-346.0	CARBONDALE	ENERGY	GRAY SHALE	5.0	855.0	
-346.0	CARBONDALE	HERRIN	COAL	5.0	855.0	

MAPID: 08100737000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.850797 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.329796 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 505.0 **LOGGED (FT.):** 2967.0 **LOG TYPE:** Electric Log
SOURCE: FRYER & SIMPSON DRLG **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-385.0	CARBONDALE	HERRIN	COAL	4.0	890.0	
-425.0	CARBONDALE	BRIAR HILL	COAL	-	930.0	
-449.0	CARBONDALE	SPRINGFIELD	COAL	5.0	954.0	BLACK SHALE & LIMESTONE ROOF
-515.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1020.0	

MAPID: 08100737000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 22 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.850797 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.329796 DATE COLLECTED:

SURFACE ELEVATION (FT.): 505.0 LOGGED (FT.): 880.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-325.0	MODESTO	PIASA	LIMESTONE	5.0	830.0	
-330.0	MODESTO		GRAY SHALE	10.0	835.0	
-340.0	CARBONDALE	DANVILLE	COAL	2.0	845.0	
-342.0	CARBONDALE		SHALE & SANDSTONE	11.0	847.0	
-353.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	858.0	
-359.0	CARBONDALE		GRAY SHALE	7.0	864.0	
-366.0	CARBONDALE	BRERETON	LIMESTONE	3.0	871.0	
-369.0	CARBONDALE	ANNA	BLACK SHALE	2.0	874.0	
-371.0	CARBONDALE	HERRIN	COAL	4.0	876.0	

MAPID: 081242D0001F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 22 QUARTERS/FOOTAGES: NE SE SE NE

QUADRANGLE: OPDYKE LONGITUDE: -88.850095 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.337657 DATE COLLECTED: 0 / 0 / 1931

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 16.9 LOG TYPE: Measured section

SOURCE: FLD NOTES-EKBLAW WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			UNCONSOLIDATED	-	0.0	
-			ROCK	15.5		
-			COAL	1.3		.66' SEEN

MAPID: 08101305000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 24 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.813264 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.329708 DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 3119.0 LOG TYPE: Electric Log

SOURCE: HALBERT RALPH C WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-443.0	CARBONDALE	HERRIN	COAL	5.0	974.0	
-493.0	CARBONDALE	BRIAR HILL	COAL	-	1024.0	
-521.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1052.0	BLACK SHALE & LIMESTONE ROOF
-599.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1130.0	

MAPID: 08101305000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 24 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.813264 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.329708 DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 979.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-369.0	MODESTO	PIASA	LIMESTONE	5.0	900.0	
-374.0	MODESTO		GRAY SHALE	20.0	905.0	
-394.0	CARBONDALE	DANVILLE	COAL	2.0	925.0	
-396.0	CARBONDALE		SHALE & SANDSTONE	21.0	927.0	
-417.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	948.0	
-427.0	CARBONDALE		GRAY SHALE	10.0	958.0	
-437.0	CARBONDALE	BRERETON	LIMESTONE	4.0	968.0	
-441.0	CARBONDALE	ANNA	BLACK SHALE	2.0	972.0	
-443.0	CARBONDALE	HERRIN	COAL	5.0	974.0	

MAPID: 08102797000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 25 QUARTERS/FOOTAGES: SW NW NE

QUADRANGLE: OPDYKE LONGITUDE: -88.820386 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.326007 DATE COLLECTED:

SURFACE ELEVATION (FT.): 534.0 LOGGED (FT.): 968.1 LOG TYPE: Survey Core Study

SOURCE: CONSOLIDATION C.C. IN-7 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-406.0	CARBONDALE	ENERGY	SILTY SHALE	2.0	940.0	
-408.0	CARBONDALE	ENERGY	SILTSTONE	6.5	942.0	
-414.5	CARBONDALE	ENERGY	SILTY SHALE	11.1	948.5	
-425.6	CARBONDALE	ENERGY	CLAYSTONE	1.4	959.6	
-427.0	CARBONDALE	ENERGY	GRAY SHALE	2.0	961.0	
-429.0	CARBONDALE	HERRIN	COAL	5.1	963.0	

MAPID: 08100433000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 26 QUARTERS/FOOTAGES: 336' S line, 665' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.833422 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.314918 DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 3061.0 LOG TYPE: Electric Log

SOURCE: LONGHORN OIL CORP WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-425.0	CARBONDALE	HERRIN	COAL	3.0	920.0	
-478.0	CARBONDALE	BRIAR HILL	COAL	-	973.0	
-503.0	CARBONDALE	SPRINGFIELD	COAL	4.0	998.0	BLACK SHALE & LIMESTONE ROOF
-578.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1073.0	

MAPID: 08100433000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 26 QUARTERS/FOOTAGES: 336' S line, 665' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.833422 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.314918 DATE COLLECTED:

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 922.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-361.0	MODESTO	PIASA	LIMESTONE	6.0	856.0	
-367.0	MODESTO		GRAY SHALE	10.0	862.0	
-377.0	CARBONDALE	DANVILLE	COAL	2.0	872.0	
-379.0	CARBONDALE		GRAY SHALE	18.0	874.0	
-397.0	CARBONDALE	BANKSTON FORK	SHALE & SANDSTONE	19.0	892.0	
-416.0	CARBONDALE	ENERGY	GRAY SHALE	7.0	911.0	
-423.0	CARBONDALE	HERRIN	COAL	4.0	918.0	

MAPID: 08100992000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 28 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.869614 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.315144 DATE COLLECTED:

SURFACE ELEVATION (FT.): 463.0 LOGGED (FT.): 2882.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-367.0	CARBONDALE	HERRIN	COAL	4.0	830.0	
-417.0	CARBONDALE	BRIAR HILL	COAL	-	880.0	
-446.0	CARBONDALE	SPRINGFIELD	COAL	5.0	909.0	BLACK SHALE ROOF
-520.0	CARBONDALE	HOUCHIN CREEK	COAL	-	983.0	

MAPID: 08100992000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 28 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.869614

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.315144

DATE COLLECTED:

SURFACE ELEVATION (FT.): 463.0

LOGGED (FT.): 832.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-317.0	MODESTO	PIASA	LIMESTONE	6.0	780.0
-323.0	MODESTO		GRAY SHALE	7.0	786.0
-330.0	CARBONDALE	DANVILLE	COAL	3.0	793.0
-333.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	26.0	796.0
-359.0	CARBONDALE	ENERGY	GRAY SHALE	6.0	822.0
-365.0	CARBONDALE	HERRIN	COAL	4.0	828.0

MAPID: 08123908000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 29 QUARTERS/FOOTAGES:

QUADRANGLE: MT. VERNON LONGITUDE: -88.896419

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.321993

DATE COLLECTED: 12 / 0 / 1940

SURFACE ELEVATION (FT.):

LOGGED (FT.): 201.0

LOG TYPE: Drillers Log

SOURCE: HEIDINGER AND ELLIS

WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			UNCONSOLIDATED	18.0	0.0
-			ROCK	34.0	18.0
-			COAL	1.0	52.0
-			ROCK	148.0	53.0

MAPID: 08101306000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' S line, 730' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.908602

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.300674

DATE COLLECTED:

SURFACE ELEVATION (FT.): 475.0

LOGGED (FT.): 826.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-296.0	MODESTO	PIASA	LIMESTONE	4.0	771.0	
-300.0	MODESTO		GRAY SHALE	6.0	775.0	
-306.0	CARBONDALE	DANVILLE	COAL	2.0	781.0	
-308.0	CARBONDALE		SHALE & SANDSTONE	9.0	783.0	
-317.0	CARBONDALE	BANKSTON FORK	SHALE & SANDSTONE	10.0	792.0	
-327.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	802.0	
-347.0	CARBONDALE	HERRIN	COAL	4.0	822.0	

MAPID: 08101307000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 330' E line of SW SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.911817

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.30257

DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0

LOGGED (FT.): 3008.0

LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-346.0	CARBONDALE	HERRIN	COAL	6.0	824.0	
-398.0	CARBONDALE	BRIAR HILL	COAL	-	876.0	
-428.0	CARBONDALE	SPRINGFIELD	COAL	4.0	906.0	BLACK SHALE & LIMESTONE ROOF
-500.0	CARBONDALE	HOUCHIN CREEK	COAL	-	978.0	

MAPID: 08100075200M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 32 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.89299

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.309836

DATE COLLECTED: 0 / 0 / 1912

SURFACE ELEVATION (FT.): 463.0

LOGGED (FT.): 865.0

LOG TYPE: Measured section

SOURCE: MINE NOTES-MT VERNON C C

WELL TYPE: Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
463.0			UNKNOWN	855.3	0.0	
-392.3			SHALE	3.0	855.3	
-	CARBONDALE	HERRIN	COAL	4.7		SULFUR PTGS .01',.04',.08'
-	CARBONDALE		UNDERCLAY	2.0		

MAPID: 08100075201M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 32 QUARTERS/FOOTAGES:

QUADRANGLE: MT. VERNON LONGITUDE: -88.896549

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.307085

DATE COLLECTED: 0 / 0 / 1906

SURFACE ELEVATION (FT.): LOGGED (FT.): 870.0

LOG TYPE: Measured section

SOURCE: MINE NOTES-JEFFERSON COUNTY C C

WELL TYPE: Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNKNOWN	854.3	0.0	
-			SHALE	8.0	854.3	
-	CARBONDALE	HERRIN	COAL	4.8		BLUE SH BAND .08' AVERAGE
-			UNDERCLAY	3.0		

MAPID: 08100080000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 32 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.89299

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.309836

DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 851.3

LOG TYPE: Survey Core Study

SOURCE: MT VERNON C C

WELL TYPE: Coal Test

COMMENT: DRILL HOLE AT SHAFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
468.0			UNCONSOLIDATED	2.0	0.0	
466.0			UNKNOWN	489.0	2.0	
-23.0			ROCK	24.5	491.0	
-47.5			COAL	0.2	515.5	SHALEY COAL
-47.7			ROCK	107.3	515.7	
-155.0			COAL	0.5	623.0	
-155.5			ROCK	8.5	623.5	
-164.0			COAL	0.2	632.0	
-164.2			ROCK	5.8	632.2	
-170.0			COAL	0.2	638.0	
-170.2			ROCK	167.1	638.2	
-337.3			COAL	0.8	805.3	
-338.0			ROCK	15.0	806.0	
-353.0			LIMESTONE	18.0	821.0	
-371.0			BLACK SHALE	5.8	839.0	
-376.8			SHALE	1.0	844.8	BITUMINOUS
-377.8	CARBONDALE	HERRIN	COAL	5.5	845.8	MINED
-383.3	CARBONDALE		UNDERCLAY	-	851.3	

MAPID: 08100080000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 32 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.89299 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.309836 DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 856.5 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-329.0	MODESTO	PIASA	LIMESTONE	9.0	797.0	
-338.0	MODESTO		GRAY SHALE	8.3	806.0	
-346.3	CARBONDALE	DANVILLE	COAL	0.8	814.3	
-347.0	CARBONDALE		SHALE & SANDSTONE	15.0	815.0	
-362.0	CARBONDALE	BANKSTON FORK	LIMESTONE	18.0	830.0	
-380.0	CARBONDALE	ENERGY	GRAY SHALE	7.8	848.0	
-383.0	CARBONDALE	HERRIN	COAL	5.5	851.0	

MAPID: 08100080000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 32 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.89299 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.309836 DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 865.0 LOG TYPE: Measured section

SOURCE: MT VERNON C C WELL TYPE: Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-392.0	CARBONDALE	HERRIN	COAL	4.7	860.0	

MAPID: 08100080000C VERSION: 4

PROJECT: NCRDS87

COUNTY: JEFFERSON

TWP/RNG: 2S 3E

SECTION: 32

QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: MT. VERNON

LONGITUDE: -88.89299

GEOLOGIST: WEIBEL

CONFIDENTIAL: N

LATITUDE: 38.309836

DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0

LOGGED (FT.): 851.3

LOG TYPE: Drillers Log

SOURCE: MT. VERNON COAL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
468.0			UNKNOWN	447.5	0.0	
20.5	BOND		SHALE	57.5	447.5	
-37.0	BOND		BLACK SHALE	3.5	505.0	
-40.5	BOND		GRAY SHALE	2.5	508.5	
-43.0	BOND		BLACK SHALE	4.0	511.0	
-47.0	BOND		BONE COAL	0.7	515.0	
-47.7	BOND		SHALE	7.3	515.7	
-55.0	BOND	CARTHAGE	LIMESTONE	1.0	523.0	UNCERTAIN CORRELATION
-56.0	MODESTO		SANDSTONE	6.0	524.0	UNCERTAIN CORRELATION
-62.0	MODESTO		SHALE & SANDSTONE	12.0	530.0	
-74.0	MODESTO		SHALE	67.0	542.0	
-141.0	MODESTO		LIMESTONE	3.0	609.0	
-144.0	MODESTO		SHALE & SANDSTONE	9.0	612.0	
-153.0	MODESTO		SHALE	2.0	621.0	
-155.0	MODESTO		COAL	0.5	623.0	
-155.5	MODESTO		GRAY SHALE	8.5	623.5	
-164.0	MODESTO		COAL	0.2	632.0	
-164.2	MODESTO		GRAY SHALE	5.8	632.2	
-170.0	MODESTO		COAL	0.2	638.0	
-170.2	MODESTO		SHALE & SANDSTONE	33.1	638.2	
-203.3	MODESTO		SHALE	73.8	671.3	
-277.0	MODESTO		DARK SHALE	5.0	745.0	
-282.0	MODESTO		SHALE	31.0	750.0	
-313.0	MODESTO		BLACK SHALE	2.0	781.0	
-315.0	MODESTO		SHALE	5.0	783.0	
-320.0	MODESTO	PIASA	LIMESTONE	9.0	788.0	
-329.0	MODESTO		GRAY SHALE	8.3	797.0	
-337.3	CARBONDALE	DANVILLE	COAL	0.8	805.3	
-338.0	CARBONDALE		GRAY SHALE	4.0	806.0	
-342.0	CARBONDALE		SHALE & SANDSTONE	11.0	810.0	
-353.0	CARBONDALE		LIMESTONE	18.0	821.0	
-371.0	CARBONDALE		DARK SHALE	5.8	839.0	
-376.8	CARBONDALE	ANNA	BLACK SHALE	1.0	844.8	
-377.8	CARBONDALE	HERRIN	COAL	5.5	845.8	

MAPID: 08101308000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.867269 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.313303 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2912.0 **LOG TYPE:** Electric Log
SOURCE: SCHULLER WM A **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	HERRIN	COAL	4.0	848.0	
-	CARBONDALE	SPRINGFIELD	COAL	5.0	924.0	BLACK SHALE ROOF
-	CARBONDALE	HOUCHIN CREEK	COAL	-	994.0	

MAPID: 08101308000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.867269 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.313303 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 852.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-345.0	MODESTO	PIASA	LIMESTONE	6.0	790.0	
-351.0	MODESTO		GRAY SHALE	10.0	796.0	
-361.0	CARBONDALE	DANVILLE	COAL	3.0	806.0	
-364.0	CARBONDALE		SHALE & SANDSTONE	14.0	809.0	
-378.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	15.0	823.0	
-393.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	838.0	
-402.0	CARBONDALE	HERRIN	COAL	5.0	847.0	

MAPID: 08101106000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.832291 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.300179 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 3022.0 **LOG TYPE:** Electric Log
SOURCE: SEIGLER, WILLIAM F. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-	CARBONDALE	HERRIN	COAL	4.0	884.0	
-	CARBONDALE	BRIAR HILL	COAL	-	932.0	
-	CARBONDALE	SPRINGFIELD	COAL	5.0	958.0	BLACK SHALE ROOF
-	CARBONDALE	HOUCHIN CREEK	COAL	-	1035.0	

MAPID: 08101106000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.832291 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.300179 DATE COLLECTED:

SURFACE ELEVATION (FT.): 466.0 LOGGED (FT.): 876.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-356.0	MODESTO	PIASA	LIMESTONE	6.0	822.0
-362.0	MODESTO		GRAY SHALE	8.0	828.0
-370.0	CARBONDALE	DANVILLE	COAL	3.0	836.0
-373.0	CARBONDALE		SHALE & SANDSTONE	19.0	839.0
-392.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	858.0
-402.0	CARBONDALE		GRAY SHALE	8.0	868.0
-410.0	CARBONDALE	BRERETON	LIMESTONE	4.0	876.0
-414.0	CARBONDALE	ANNA	BLACK SHALE	2.0	880.0
-406.0	CARBONDALE	HERRIN	COAL	4.0	872.0

MAPID: 081242D0003F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 3E SECTION: 35 QUARTERS/FOOTAGES: SE

QUADRANGLE: OPDYKE LONGITUDE: -88.835727 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.302968 DATE COLLECTED: 0 / 0 / 1936

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 27.9 LOG TYPE: Measured section

SOURCE: FLD NOTES-ROBINSON WELL TYPE: Outcrop

COMMENT: COMPOSITE SECTION ALONG CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
480.0			ROCK	10.4	0.0
-			COAL	0.4	
-			ROCK	6.9	
-			COAL	0.3	
-			ROCK	9.9	

MAPID: 081242D0002F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE SE SE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.832277 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.302029 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 6.8 **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			UNCONSOLIDATED	-	0.0	DRIFT
-			COAL	0.5		BLOSSOM
-			ROCK	6.3		

MAPID: 081242D0004F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW SW SE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.820594 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.301955 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 8.5 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: TRAVERSE DOWN RAVINE. OTHER NOTES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		
				UNIT	OVERBURDEN	COMMENT
-			ROCK	5.8		
-			UNKNOWN	-		
-			COAL	0.8		
-			SHALE	0.8		
-			COAL	0.0		
-			UNDERCLAY	1.0		

MAPID: 081242D0005F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 2S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** NW NE SE SW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.823518 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.302434 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 9.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WELLER **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		
				UNIT	OVERBURDEN	COMMENT
480.0			UNCONSOLIDATED	-	0.0	
-			ROCK	7.7		
-			COAL	0.3		
-			UNDERCLAY	1.0		

MAPID: 08100657000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 1 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.701279 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.372711 DATE COLLECTED:

SURFACE ELEVATION (FT.): 452.0 LOGGED (FT.): 3127.0 LOG TYPE: Electric Log

SOURCE: INLAND OIL CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-499.0	CARBONDALE	HERRIN	COAL	4.0	951.0	
-536.0	CARBONDALE	BRIAR HILL	COAL	-	988.0	
-569.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1021.0	BLACK SHALE ROOF
-635.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1087.0	

MAPID: 08100657000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 1 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.701279 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.372711 DATE COLLECTED:

SURFACE ELEVATION (FT.): 452.0 LOGGED (FT.): 954.0 LOG TYPE: Electric Log

SOURCE: POOR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-412.0	MODESTO	PIASA	LIMESTONE	5.0	864.0	
-417.0	MODESTO		GRAY SHALE	25.0	869.0	
-442.0	CARBONDALE	DANVILLE	COAL	2.0	894.0	
-444.0	CARBONDALE		SHALE & SANDSTONE	17.0	896.0	
-461.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	913.0	
-465.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	33.0	917.0	
-498.0	CARBONDALE	HERRIN	COAL	4.0	950.0	

MAPID: 08100977000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.720585 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.386501 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 3095.0 LOG TYPE: Electric Log

SOURCE: SANDEL VICTOR A WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-524.0	CARBONDALE	HERRIN	COAL	3.0	980.0	
-561.0	CARBONDALE	BRIAR HILL	COAL	-	1017.0	
-597.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1053.0	BLACK SHALE ROOF
-656.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1112.0	

MAPID: 08100977000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SHIELDS LONGITUDE: -88.720585 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.386501 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 977.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-439.0	MODESTO	PIASA	LIMESTONE	6.0	895.0	
-445.0	MODESTO		GRAY SHALE	20.0	901.0	
-465.0	CARBONDALE	DANVILLE	COAL	4.0	921.0	
-469.0	CARBONDALE		GRAY SHALE	12.0	925.0	
-481.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	9.0	937.0	
-490.0	CARBONDALE		SHALE & SANDSTONE	22.0	946.0	
-512.0	CARBONDALE	BRERETON	LIMESTONE	3.0	968.0	
-515.0	CARBONDALE	ANNA	BLACK SHALE	2.0	971.0	
-517.0	CARBONDALE	HERRIN	COAL	4.0	973.0	

MAPID: 08100545000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 3 QUARTERS/FOOTAGES: 330' S line, 660' W line of SE NE

QUADRANGLE: SHIELDS LONGITUDE: -88.740271 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.381149 DATE COLLECTED:

SURFACE ELEVATION (FT.): 492.0 LOGGED (FT.): 3058.0 LOG TYPE: Electric Log

SOURCE: OTTENAD R C WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-505.0	CARBONDALE	HERRIN	COAL	3.0	997.0	
-542.0	CARBONDALE	BRIAR HILL	COAL	-	1034.0	
-578.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1070.0	BLACK SHALE ROOF
-638.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1130.0	

MAPID: 0810155000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 3 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.755094 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.386872 DATE COLLECTED:

SURFACE ELEVATION (FT.): 481.0 LOGGED (FT.): 976.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-441.0	MODESTO	PIASA	LIMESTONE	5.0	922.0	
-446.0	MODESTO		SHALE & SANDSTONE	6.0	927.0	
-452.0	CARBONDALE	DANVILLE	COAL	2.0	933.0	
-454.0	CARBONDALE		SHALE & SANDSTONE	10.0	935.0	
-464.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	945.0	
-470.0	CARBONDALE		SHALE & SANDSTONE	14.0	951.0	
-484.0	CARBONDALE	BRERETON	LIMESTONE	4.5	965.0	
-488.5	CARBONDALE	ANNA	BLACK SHALE	2.0	969.5	
-491.0	CARBONDALE	HERRIN	COAL	4.0	972.0	

MAPID: 08101309000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 4 QUARTERS/FOOTAGES: 330' S line, 330' E line of NE

QUADRANGLE: HARMONY LONGITUDE: -88.757358 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.381271 DATE COLLECTED:

SURFACE ELEVATION (FT.): 492.0 LOGGED (FT.): 3054.0 LOG TYPE: Electric Log

SOURCE: LINDSAY, THEODORE R. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-469.0	CARBONDALE	HERRIN	COAL	4.0	961.0	
-512.0	CARBONDALE	BRIAR HILL	COAL	-	1004.0	
-541.0	CARBONDALE	SPRINGFIELD	COAL	1.0	1033.0	BLACK SHALE & LIMESTONE ROOF
-608.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1100.0	

MAPID: 08101481000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.773713 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.38714 DATE COLLECTED:

SURFACE ELEVATION (FT.): 503.0 LOGGED (FT.): 989.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-429.0	MODESTO	PIASA	LIMESTONE	5.0	932.0	
-434.0	MODESTO		SHALE & SANDSTONE	8.0	937.0	
-442.0	CARBONDALE	DANVILLE	COAL	2.0	945.0	
-444.0	CARBONDALE		GRAY SHALE	7.0	947.0	
-451.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	954.0	UPPER BENCH
-456.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	4.0	959.0	SHALE PARTING
-460.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	963.0	LOWER BENCH
-465.0	CARBONDALE		SHALE & SANDSTONE	11.0	968.0	
-476.0	CARBONDALE	BRERETON	LIMESTONE	4.0	979.0	
-480.0	CARBONDALE	ANNA	BLACK SHALE	2.0	983.0	
-482.0	CARBONDALE	HERRIN	COAL	4.0	985.0	

MAPID: 08101311000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 5 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.792169 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.387271 DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 2970.0 LOG TYPE: Electric Log

SOURCE: DORAN THOMAS S WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-440.0	CARBONDALE	HERRIN	COAL	4.0	930.0	
-483.0	CARBONDALE	BRIAR HILL	COAL	-	973.0	
-507.0	CARBONDALE	SPRINGFIELD	COAL	4.0	997.0	BLACK SHALE & LIMESTONE ROOF
-575.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1065.0	

MAPID: 08101311000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 5 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: HARMONY LONGITUDE: -88.792169 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.387271 DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 934.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-388.0	MODESTO	PIASA	LIMESTONE	4.0	878.0	
-392.0	MODESTO		SHALE & SANDSTONE	10.0	882.0	
-402.0	CARBONDALE	DANVILLE	COAL	3.0	892.0	
-405.0	CARBONDALE	ALLENBY	COAL	1.0	895.0	
-406.0	CARBONDALE		GRAY SHALE	7.0	896.0	
-413.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	903.0	UPPER BENCH
-419.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	3.0	909.0	SHALE PARTING
-422.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	912.0	LOWER BENCH
-425.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	15.0	915.0	
-440.0	CARBONDALE	HERRIN	COAL	4.0	930.0	

MAPID: 08101497000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 6 QUARTERS/FOOTAGES: 990' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.794412 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.375444 DATE COLLECTED:

SURFACE ELEVATION (FT.): 521.0 LOGGED (FT.): 2867.0 LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-410.0	CARBONDALE	HERRIN	COAL	3.0	931.0	
-446.0	CARBONDALE	BRIAR HILL	COAL	-	967.0	
-551.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1072.0	

MAPID: 08101497000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 6 QUARTERS/FOOTAGES: 990' S line, 330' E line

QUADRANGLE: HARMONY LONGITUDE: -88.794412 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.375444 DATE COLLECTED:

SURFACE ELEVATION (FT.): 521.0 LOGGED (FT.): 934.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-341.0	MODESTO	PIASA	LIMESTONE	4.0	862.0	
-345.0	MODESTO		GRAY SHALE	10.0	866.0	
-355.0	CARBONDALE	DANVILLE	COAL	2.0	876.0	
-357.0	CARBONDALE		SHALE & SANDSTONE	16.0	878.0	
-373.0	CARBONDALE	ALLENBY	COAL	1.0	894.0	
-374.0	CARBONDALE		GRAY SHALE	8.0	895.0	
-382.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	903.0	
-387.0	CARBONDALE	LAWSON	SILTY SHALE	22.0	908.0	
-409.0	CARBONDALE	HERRIN	COAL	4.0	930.0	

MAPID: 08101312000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW SW

QUADRANGLE: OPDYKE LONGITUDE: -88.810582 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.361014 DATE COLLECTED:

SURFACE ELEVATION (FT.): 550.0 LOGGED (FT.): 2974.0 LOG TYPE: Electric Log

SOURCE: RUSSELL RICHARD L WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-406.0	CARBONDALE	HERRIN	COAL	4.0	956.0	
-455.0	CARBONDALE	BRIAR HILL	COAL	-	1005.0	
-487.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1037.0	BLACK SHALE ROOF
-534.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1084.0	

MAPID: 08101499000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 990' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.808183 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.371946 DATE COLLECTED:

SURFACE ELEVATION (FT.): 516.0 LOGGED (FT.): 888.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-312.0	MODESTO	PIASA	LIMESTONE	5.0	828.0
-317.0	MODESTO		GRAY SHALE	11.0	833.0
-328.0	CARBONDALE	DANVILLE	COAL	2.0	844.0
-330.0	CARBONDALE	ALLENBY	COAL	1.0	846.0
-331.0	CARBONDALE		GRAY SHALE	3.0	847.0
-334.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	850.0
-338.0	CARBONDALE	LAWSON	SILTY SHALE	17.0	854.0
-355.0	CARBONDALE	BRERETON	LIMESTONE	3.0	871.0
-358.0	CARBONDALE	ANNA	BLACK SHALE	2.0	874.0
-369.0	CARBONDALE	HERRIN	COAL	3.0	885.0

MAPID: 08123015000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 7 QUARTERS/FOOTAGES: 200' N line, 300' W line of SW

QUADRANGLE: OPDYKE LONGITUDE: -88.810656 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.365026 DATE COLLECTED: 2 / 17 / 1976

SURFACE ELEVATION (FT.): 550.0 LOGGED (FT.): 205.0 LOG TYPE: Drillers Log

SOURCE: WILSON, DRILLER WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
550.0			UNCONSOLIDATED	14.0	0.0
536.0			ROCK	121.0	14.0
415.0			COAL	1.0	135.0
414.0			ROCK	69.0	136.0

MAPID: 08100656000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 8 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.775862 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.358929 DATE COLLECTED:

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 3025.0 LOG TYPE: Electric Log

SOURCE: NATION BEN H WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-480.0	CARBONDALE	HERRIN	COAL	5.0	1003.0	
-527.0	CARBONDALE	BRIAR HILL	COAL	-	1050.0	
-557.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1080.0	BLACK SHALE & LIMESTONE ROOF
-617.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1140.0	

MAPID: 08100656000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 8 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.775862 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.358929 DATE COLLECTED:

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 1006.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-400.0	MODESTO	PIASA	LIMESTONE	7.0	923.0	
-407.0	MODESTO		GRAY SHALE	13.0	930.0	
-420.0	CARBONDALE	DANVILLE	COAL	3.0	943.0	
-423.0	CARBONDALE		SHALE & SANDSTONE	25.0	946.0	
-448.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	9.0	971.0	
-457.0	CARBONDALE	LAWSON	SILTY SHALE	17.0	980.0	
-474.0	CARBONDALE	BRERETON	LIMESTONE	2.0	997.0	
-476.0	CARBONDALE	ANNA	BLACK SHALE	1.0	999.0	
-477.0	CARBONDALE	HERRIN	COAL	6.0	1000.0	

MAPID: 08101313000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.773548 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.358928 DATE COLLECTED:

SURFACE ELEVATION (FT.): 463.0 LOGGED (FT.): 2976.0 LOG TYPE: Electric Log

SOURCE: ROBINSON & PUCKETT, INC. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-473.0	CARBONDALE	HERRIN	COAL	4.0	936.0	
-517.0	CARBONDALE	BRIAR HILL	COAL	-	980.0	
-541.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1004.0	BLACK SHALE & LIMESTONE ROOF
-613.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1076.0	

MAPID: 08101313000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.773548 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.358928 DATE COLLECTED:

SURFACE ELEVATION (FT.): 463.0 LOGGED (FT.): 937.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-397.0	MODESTO	PIASA	LIMESTONE	5.0	860.0	
-402.0	MODESTO		GRAY SHALE	17.0	865.0	
-419.0	CARBONDALE	DANVILLE	COAL	2.0	882.0	
-421.0	CARBONDALE		SHALE & SANDSTONE	19.0	884.0	
-440.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	903.0	
-445.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	19.0	908.0	
-464.0	CARBONDALE	BRERETON	LIMESTONE	4.0	927.0	
-468.0	CARBONDALE	ANNA	BLACK SHALE	2.0	931.0	
-470.0	CARBONDALE	HERRIN	COAL	4.0	933.0	

MAPID: 08101314000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.739297 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.358973 DATE COLLECTED:

SURFACE ELEVATION (FT.): 466.0 LOGGED (FT.): 3055.0 LOG TYPE: Electric Log

SOURCE: LINDSAY, THEODORE R. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-496.0	CARBONDALE	HERRIN	COAL	4.0	962.0	
-538.0	CARBONDALE	BRIAR HILL	COAL	-	1004.0	
-581.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1047.0	BLACK SHALE & LIMESTONE ROOF
-626.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1092.0	

MAPID: 08101314000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.739297 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.358973 DATE COLLECTED:

SURFACE ELEVATION (FT.): 466.0 LOGGED (FT.): 966.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-416.0	MODESTO	PIASA	LIMESTONE	3.0	882.0	
-419.0	CARBONDALE		SHALE & SANDSTONE	45.0	885.0	
-464.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	930.0	
-471.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	20.0	937.0	
-491.0	CARBONDALE	BRERETON	LIMESTONE	3.0	957.0	
-494.0	CARBONDALE	ANNA	BLACK SHALE	2.0	960.0	
-496.0	CARBONDALE	HERRIN	COAL	4.0	962.0	

MAPID: 08101055000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 11 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.737062 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.371931 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 3074.0 LOG TYPE: Electric Log

SOURCE: TEXACO, INC. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-519.0	CARBONDALE	HERRIN	COAL	5.0	975.0	
-556.0	CARBONDALE	BRIAR HILL	COAL	-	1012.0	
-592.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1048.0	BLACK SHALE & LIMESTONE ROOF
-654.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1110.0	

MAPID: 08101055000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 11 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.737062 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.371931 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 970.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-436.0	MODESTO	PIASA	LIMESTONE	5.0	892.0
-441.0	MODESTO		GRAY SHALE	17.0	897.0
-458.0	CARBONDALE	DANVILLE	COAL	4.0	914.0
-462.0	CARBONDALE		SHALE & SANDSTONE	15.0	918.0
-477.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	933.0
-482.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	21.0	938.0
-503.0	CARBONDALE	BRERETON	LIMESTONE	4.0	959.0
-507.0	CARBONDALE	ANNA	BLACK SHALE	2.0	963.0
-509.0	CARBONDALE	HERRIN	COAL	5.0	965.0

MAPID: 08100973000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 12 QUARTERS/FOOTAGES: 464' S line, 330' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.71795 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.359059 DATE COLLECTED:

SURFACE ELEVATION (FT.): 464.0 LOGGED (FT.): 980.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-431.0	MODESTO	PIASA	LIMESTONE	5.0	895.0
-436.0	MODESTO		GRAY SHALE	25.0	900.0
-461.0	CARBONDALE	DANVILLE	COAL	2.0	925.0
-463.0	CARBONDALE		GRAY SHALE	15.0	927.0
-478.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	942.0
-489.0	CARBONDALE	BRERETON	LIMESTONE	4.0	953.0
-493.0	CARBONDALE	ANNA	BLACK SHALE	2.0	957.0
-495.0	CARBONDALE	ENERGY	GRAY SHALE	15.0	959.0
-511.0	CARBONDALE	HERRIN	COAL	5.0	975.0

MAPID: 08101051000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 12 QUARTERS/FOOTAGES: 330' N line, 330' E line of NW NE

QUADRANGLE: BLUFORD LONGITUDE: -88.70615 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.371121 DATE COLLECTED:

SURFACE ELEVATION (FT.): 428.0 LOGGED (FT.): 3102.0 LOG TYPE: Electric Log

SOURCE: PITTS & BASSFORD WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-516.0	CARBONDALE	HERRIN	COAL	5.0	944.0	
-555.0	CARBONDALE	BRIAR HILL	COAL	-	983.0	
-591.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1019.0	BLACK SHALE & LIMESTONE ROOF
-656.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1084.0	

MAPID: 08101315000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 13 QUARTERS/FOOTAGES: 660' N line, 660' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.702457 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.355756 DATE COLLECTED:

SURFACE ELEVATION (FT.): 488.0 LOGGED (FT.): 3089.0 LOG TYPE: Electric Log

SOURCE: CENTRAL PIPELINE CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-499.0	CARBONDALE	HERRIN	COAL	4.0	987.0	
-526.0	CARBONDALE	BRIAR HILL	COAL	-	1014.0	
-573.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1061.0	BLACK SHALE & LIMESTONE ROOF
-650.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1138.0	

MAPID: 08101081000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW

QUADRANGLE: BLUFORD LONGITUDE: -88.737072 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.349659 DATE COLLECTED:

SURFACE ELEVATION (FT.): 453.0 LOGGED (FT.): 3050.0 LOG TYPE: Electric Log

SOURCE: EASTERN PETROLEUM CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-517.0	CARBONDALE	HERRIN	COAL	3.0	970.0	
-561.0	CARBONDALE	BRIAR HILL	COAL	-	1014.0	
-606.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1059.0	BLACK SHALE & LIMESTONE ROOF
-659.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1112.0	

MAPID: 08101513000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.720231

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.356899

DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0

LOGGED (FT.): 996.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-447.0	MODESTO	PIASA	LIMESTONE	6.0	915.0	
-453.0	MODESTO		GRAY SHALE	19.0	921.0	
-472.0	CARBONDALE	DANVILLE	COAL	2.0	940.0	
-474.0	CARBONDALE		SHALE & SANDSTONE	13.0	942.0	
-487.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	955.0	
-493.0	CARBONDALE	BRERETON	LIMESTONE	3.0	961.0	
-496.0	CARBONDALE	ANNA	BLACK SHALE	2.0	964.0	
-498.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	25.0	966.0	
-523.0	CARBONDALE	HERRIN	COAL	5.0	991.0	

MAPID: 08101063000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 15 QUARTERS/FOOTAGES: 330' N line, 330' E line of NE SE

QUADRANGLE: BLUFORD LONGITUDE: -88.739386

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.349691

DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0

LOGGED (FT.): 2903.0

LOG TYPE: Electric Log

SOURCE: FARRAR DRILLING CO

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-517.0	CARBONDALE	HERRIN	COAL	3.0	982.0	
-565.0	CARBONDALE	BRIAR HILL	COAL	-	1030.0	
-605.0	CARBONDALE	SPRINGFIELD	COAL	2.0	1070.0	BLACK SHALE & LIMESTONE ROOF
-655.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1120.0	

MAPID: 08101088000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 15 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.739303 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.357151 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 1016.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-452.0	MODESTO	PIASA	LIMESTONE	3.0	935.0	
-455.0	CARBONDALE		SILTY SHALE	42.0	938.0	
-497.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	980.0	
-503.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	10.0	986.0	
-513.0	CARBONDALE	BRERETON	LIMESTONE	5.0	996.0	
-518.0	CARBONDALE	ANNA	BLACK SHALE	1.0	1001.0	
-519.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	1002.0	
-529.0	CARBONDALE	HERRIN	COAL	4.0	1012.0	

MAPID: 08100916000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.757333 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.344198 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 3107.0 LOG TYPE: Electric Log

SOURCE: BAYER, KENNETH M. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-512.0	CARBONDALE	HERRIN	COAL	3.0	1014.0	
-550.0	CARBONDALE	BRIAR HILL	COAL	-	1052.0	
-582.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1084.0	BLACK SHALE & LIMESTONE ROOF
-554.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1056.0	

MAPID: 08100916000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.757333

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.344198

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0

LOGGED (FT.): 1015.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-433.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	5.0	935.0	
-438.0	MODESTO		GRAY SHALE	21.0	940.0	
-459.0	CARBONDALE	DANVILLE	COAL	4.0	961.0	
-463.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	43.0	965.0	
-506.0	CARBONDALE	ANNA	BLACK SHALE	2.0	1008.0	
-508.0	CARBONDALE	HERRIN	COAL	5.0	1010.0	

MAPID: 08101146000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.792128

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.357139

DATE COLLECTED:

SURFACE ELEVATION (FT.): 470.0

LOGGED (FT.): 2934.0

LOG TYPE: Electric Log

SOURCE: BURNS, MIKE

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-473.0	CARBONDALE	HERRIN	COAL	3.0	943.0	
-516.0	CARBONDALE	BRIAR HILL	COAL	-	986.0	
-543.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1013.0	BLACK SHALE & LIMESTONE ROOF
-612.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1082.0	

MAPID: 08101146000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.792128

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.357139

DATE COLLECTED:

SURFACE ELEVATION (FT.): 467.0

LOGGED (FT.): 943.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-363.0	MODESTO	PIASA	LIMESTONE	5.0	830.0
-368.0	CARBONDALE		SHALE & SANDSTONE	45.0	835.0
-413.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	880.0
-419.0	CARBONDALE	BRERETON	LIMESTONE	4.0	886.0
-423.0	CARBONDALE	ANNA	BLACK SHALE	2.0	890.0
-425.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	892.0
-472.0	CARBONDALE	HERRIN	COAL	4.0	939.0

MAPID: 08100572000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 20 QUARTERS/FOOTAGES: 558' S line, 558' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.791508

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.33014

DATE COLLECTED:

SURFACE ELEVATION (FT.): 581.0

LOGGED (FT.): 1079.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-419.0	MODESTO	PIASA	LIMESTONE	5.0	1000.0
-424.0	MODESTO		GRAY SHALE	8.0	1005.0
-432.0	CARBONDALE	DANVILLE	COAL	3.0	1013.0
-435.0	CARBONDALE		SHALE & SANDSTONE	25.0	1016.0
-460.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	15.0	1041.0
-475.0	CARBONDALE	BRERETON	LIMESTONE	5.0	1056.0
-480.0	CARBONDALE	ANNA	BLACK SHALE	2.0	1061.0
-482.0	CARBONDALE	ENERGY	GRAY SHALE	11.0	1063.0
-493.0	CARBONDALE	HERRIN	COAL	5.0	1074.0

MAPID: 08101117000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 20 **QUARTERS/FOOTAGES:** 270' N line, 270' W line of SW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.792503 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.335223 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 571.0 **LOGGED (FT.):** 3115.0 **LOG TYPE:** Electric Log
SOURCE: EASTERN PETROLEUM CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-473.0	CARBONDALE	HERRIN	COAL	4.0	1044.0	
-553.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1124.0	BLACK SHALE & LIMESTONE ROOF
-617.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1188.0	

MAPID: 08100190000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 21 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.763178 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.341425 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 515.0 **LOGGED (FT.):** 3096.0 **LOG TYPE:** Electric Log
SOURCE: YINGLING & HAYS **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-502.0	CARBONDALE	HERRIN	COAL	3.0	1017.0	
-570.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1085.0	BLACK SHALE ROOF
-649.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1164.0	

MAPID: 08101613000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' S line, 380' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.755077 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.329256 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 491.0 **LOGGED (FT.):** 1110.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-434.0	MODESTO	PIASA	LIMESTONE	5.0	925.0	
-439.0	MODESTO		GRAY SHALE	22.0	930.0	
-461.0	CARBONDALE	DANVILLE	COAL	3.0	952.0	
-464.0	CARBONDALE		SILTY SHALE	11.0	955.0	
-475.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	966.0	
-480.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	24.0	971.0	
-504.0	CARBONDALE	BRERETON	LIMESTONE	5.0	995.0	
-509.0	CARBONDALE	ANNA	BLACK SHALE	1.0	1000.0	
-510.0	CARBONDALE	HERRIN	COAL	4.0	1001.0	

MAPID: 08102464000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 22 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE NE

QUADRANGLE: BLUFORD LONGITUDE: -88.74163 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.340344 DATE COLLECTED:

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 3043.0 LOG TYPE: Electric Log

SOURCE: EASTERN PETROLEUM CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-498.0	CARBONDALE	HERRIN	COAL	3.0	965.0	
-547.0	CARBONDALE	BRIAR HILL	COAL	-	1014.0	
-587.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1054.0	BLACK SHALE & LIMESTONE ROOF
-657.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1124.0	

MAPID: 08101318000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 23 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.73719 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.329105 DATE COLLECTED:

SURFACE ELEVATION (FT.): 497.0 LOGGED (FT.): 3140.0 LOG TYPE: Electric Log

SOURCE: SIPOHA ROBERT J WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-526.0	CARBONDALE	HERRIN	COAL	4.0	1023.0	
-576.0	CARBONDALE	BRIAR HILL	COAL	-	1073.0	
-611.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1108.0	BLACK SHALE & LIMESTONE ROOF
-677.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1174.0	

MAPID: 08101318000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 23 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.73719 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.329105 DATE COLLECTED:

SURFACE ELEVATION (FT.): 497.0 LOGGED (FT.): 1025.0 LOG TYPE: Electric Log

SOURCE: GOOD DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-438.0	MODESTO	PIASA	LIMESTONE	5.0	935.0	
-443.0	MODESTO		SHALE & SANDSTONE	40.0	940.0	
-483.0	CARBONDALE	DANVILLE	COAL	4.0	980.0	
-487.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	30.0	984.0	
-517.0	CARBONDALE	BRERETON	LIMESTONE	5.0	1014.0	
-522.0	CARBONDALE	ANNA	BLACK SHALE	2.0	1019.0	
-524.0	CARBONDALE	HERRIN	COAL	4.0	1021.0	

MAPID: 08100578000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 24 QUARTERS/FOOTAGES: 660' N line, 660' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.702493 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.340941 DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 3156.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-490.0	CARBONDALE	HERRIN	COAL	2.0	989.0	
-531.0	CARBONDALE	BRIAR HILL	COAL	-	1030.0	
-566.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1065.0	BLACK SHALE & LIMESTONE ROOF
-647.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1146.0	

MAPID: 08102213000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 24 QUARTERS/FOOTAGES: 510' N line, 660' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.716901 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.341175 DATE COLLECTED:

SURFACE ELEVATION (FT.): 501.0 LOGGED (FT.): 1004.0 LOG TYPE: Electric Log

SOURCE: POOR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-428.0	MODESTO		GRAY SHALE	20.0	929.0	
-448.0	CARBONDALE	DANVILLE	COAL	3.0	949.0	
-451.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	43.0	952.0	
-494.0	CARBONDALE	BRERETON	LIMESTONE	5.0	995.0	
-499.0	CARBONDALE	HERRIN	COAL	4.0	1000.0	

MAPID: 08100216000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 25 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.701889 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.314297 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 3250.0 LOG TYPE: Electric Log

SOURCE: BELL BROTHERS WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-479.0	CARBONDALE	HERRIN	COAL	4.0	993.0	
-526.0	CARBONDALE	BRIAR HILL	COAL	-	1040.0	
-553.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1067.0	BLACK SHALE & LIMESTONE ROOF
-633.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1147.0	

MAPID: 08100216000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 25 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.701889 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.314297 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 997.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-417.0	MODESTO		GRAY SHALE	2.0	931.0	
-419.0	CARBONDALE	DANVILLE	COAL	3.0	933.0	
-422.0	CARBONDALE		SHALE & SANDSTONE	20.0	936.0	
-442.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	956.0	
-448.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	26.0	962.0	
-474.0	CARBONDALE	BRERETON	LIMESTONE	2.0	988.0	
-476.0	CARBONDALE	ANNA	BLACK SHALE	2.0	990.0	
-478.0	CARBONDALE	HERRIN	COAL	5.0	992.0	

MAPID: 08100755000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 26 QUARTERS/FOOTAGES: 990' S line, 490' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.736909 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.316009 DATE COLLECTED:

SURFACE ELEVATION (FT.): 516.0 LOGGED (FT.): 3185.0 LOG TYPE: Electric Log

SOURCE: SIMPSON, C. J. DRLG. CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-513.0	CARBONDALE	HERRIN	COAL	5.0	1029.0	
-554.0	CARBONDALE	BRIAR HILL	COAL	-	1070.0	
-601.0	CARBONDALE	SPRINGFIELD	COAL	7.0	1117.0	BLACK SHALE & LIMESTONE ROOF
-667.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1183.0	

MAPID: 08100755000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 26 QUARTERS/FOOTAGES: 990' S line, 490' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.736909 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.316009 DATE COLLECTED:

SURFACE ELEVATION (FT.): 516.0 LOGGED (FT.): 1035.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-434.0	MODESTO	PIASA	LIMESTONE AND SANDSTONE	7.0	950.0	
-441.0	MODESTO		GRAY SHALE	20.0	957.0	
-461.0	CARBONDALE	DANVILLE	COAL	2.0	977.0	
-463.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	48.0	979.0	
-511.0	CARBONDALE	ANNA	BLACK SHALE	3.0	1027.0	
-514.0	CARBONDALE	HERRIN	COAL	5.0	1030.0	

MAPID: 08101319000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 27 QUARTERS/FOOTAGES: 660' S line, 330' W line of SW

QUADRANGLE: OPDYKE LONGITUDE: -88.755453 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.315374 DATE COLLECTED:

SURFACE ELEVATION (FT.): 521.0 LOGGED (FT.): 3123.0 LOG TYPE: Electric Log

SOURCE: BOLIN, D. H. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-485.0	CARBONDALE	HERRIN	COAL	2.0	1006.0	
-528.0	CARBONDALE	BRIAR HILL	COAL	-	1049.0	
-563.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1084.0	BLACK SHALE & LIMESTONE ROOF
-639.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1160.0	

MAPID: 08101781000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 28 QUARTERS/FOOTAGES: 934' S line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.773949 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.316287 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 3139.0 LOG TYPE: Electric Log

SOURCE: HOSKINS, CLAY V. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-524.0	CARBONDALE	HERRIN	COAL	3.0	1044.0	
-570.0	CARBONDALE	BRIAR HILL	COAL	-	1090.0	
-609.0	CARBONDALE	SPRINGFIELD	COAL	2.0	1129.0	BLACK SHALE & LIMESTONE ROOF
-670.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1190.0	

MAPID: 08101781000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 28 **QUARTERS/FOOTAGES:** 934' S line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.773949 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.316287 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 517.0 **LOGGED (FT.):** 1044.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-438.0	MODESTO	PIASA	LIMESTONE	3.0	955.0	
-441.0	CARBONDALE	LAWSON	SILTY SHALE	76.0	958.0	
-517.0	CARBONDALE	BRERETON	LIMESTONE	4.0	1034.0	
-521.0	CARBONDALE	ANNA	BLACK SHALE	2.0	1038.0	
-523.0	CARBONDALE	HERRIN	COAL	4.0	1040.0	

MAPID: 08101320000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.794624 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.32771 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 3138.0 **LOG TYPE:** Electric Log
SOURCE: LINDSAY, THEODORE R. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-459.0	CARBONDALE	HERRIN	COAL	4.0	983.0	
-505.0	CARBONDALE	BRIAR HILL	COAL	-	1029.0	
-541.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1065.0	BLACK SHALE & LIMESTONE ROOF
-620.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1144.0	

MAPID: 08101320000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.794624 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.32771 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 986.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-381.0	MODESTO	PIASA	LIMESTONE	3.0	905.0	
-384.0	MODESTO		SHALE & SANDSTONE	31.0	908.0	
-415.0	CARBONDALE	DANVILLE	COAL	2.0	939.0	
-417.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	41.0	941.0	
-458.0	CARBONDALE	HERRIN	COAL	4.0	982.0	

MAPID: 08101159000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 32 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.776562 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.299837 DATE COLLECTED:

SURFACE ELEVATION (FT.): 532.0 LOGGED (FT.): 3155.0 LOG TYPE: Electric Log

SOURCE: LINDSAY, THEODORE R. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-448.0	CARBONDALE	HERRIN	COAL	5.0	980.0	
-493.0	CARBONDALE	BRIAR HILL	COAL	-	1025.0	
-524.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1056.0	BLACK SHALE & LIMESTONE ROOF
-605.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1137.0	

MAPID: 08101159000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 32 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.776562 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.299837 DATE COLLECTED:

SURFACE ELEVATION (FT.): 532.0 LOGGED (FT.): 981.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-368.0	MODESTO	PIASA	LIMESTONE	5.0	900.0	
-373.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	72.0	905.0	
-445.0	CARBONDALE	HERRIN	COAL	4.0	977.0	

MAPID: 08100533000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 33 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.757794 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.312666 DATE COLLECTED:

SURFACE ELEVATION (FT.): 589.0 LOGGED (FT.): 1092.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-421.0	MODESTO	PIASA	LIMESTONE	5.0	1010.0	
-426.0	MODESTO		SHALE & SANDSTONE	37.0	1015.0	
-463.0	CARBONDALE	DANVILLE	COAL	3.0	1052.0	
-466.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	28.0	1055.0	
-494.0	CARBONDALE	BRERETON	LIMESTONE	3.0	1083.0	
-497.0	CARBONDALE	ANNA	BLACK SHALE	2.0	1086.0	
-499.0	CARBONDALE	HERRIN	COAL	4.0	1088.0	

MAPID: 08100753000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 33 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW SE

QUADRANGLE: OPDYKE LONGITUDE: -88.762486 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.299768 DATE COLLECTED:

SURFACE ELEVATION (FT.): 510.0 LOGGED (FT.): 3092.0 LOG TYPE: Electric Log

SOURCE: DEKALB AGR. ASSOC., INC. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-452.0	CARBONDALE	HERRIN	COAL	4.0	962.0	
-494.0	CARBONDALE	BRIAR HILL	COAL	-	1004.0	
-527.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1037.0	BLACK SHALE ROOF
-608.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1118.0	

MAPID: 08123616000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 33 QUARTERS/FOOTAGES: 550' N line, 118' E line of NW

QUADRANGLE: OPDYKE LONGITUDE: -88.766307 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.312127 DATE COLLECTED: 2 / 29 / 1980

SURFACE ELEVATION (FT.): 590.0 LOGGED (FT.): 42.0 LOG TYPE: Drillers Log

SOURCE: KOHNEN, DRILLER WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
590.0			UNCONSOLIDATED	14.0	0.0	
576.0			ROCK	22.0	14.0	
554.0			COAL	2.0	36.0	
552.0			ROCK	4.0	38.0	

MAPID: 08100095000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 34 QUARTERS/FOOTAGES: 330' N line, 660' W line of SE NE

QUADRANGLE: BLUFORD LONGITUDE: -88.740767 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.308759 DATE COLLECTED:

SURFACE ELEVATION (FT.): 505.0 LOGGED (FT.): 3206.0 LOG TYPE: Electric Log

SOURCE: OHIO OIL CO., THE WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-473.0	CARBONDALE	HERRIN	COAL	6.0	978.0	
-521.0	CARBONDALE	BRIAR HILL	COAL	-	1026.0	
-570.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1075.0	BLACK SHALE & LIMESTONE ROOF
-619.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1124.0	

MAPID: 08100095000C **VERSION:** 2 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' N line, 660' W line of SE NE
QUADRANGLE: BLUFORD **LONGITUDE:** -88.740767 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.308759 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 3206.0 **LOG TYPE:** Survey Sample Study
SOURCE: OHIO OIL CO., THE **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08101321000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.755483 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.299731 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 3079.0 **LOG TYPE:** Electric Log
SOURCE: BREHM, C. E. DRLG.&PROD. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-456.0	CARBONDALE	HERRIN	COAL	5.0	980.0	
-512.0	CARBONDALE	BRIAR HILL	COAL	-	1036.0	
-553.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1077.0	BLACK SHALE & LIMESTONE ROOF
-616.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1140.0	

MAPID: 08101321000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 2S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.755483 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.299731 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 984.5 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-380.0	MODESTO	PIASA	LIMESTONE	5.0	904.0	
-385.0	MODESTO		SHALE & SANDSTONE	14.5	909.0	
-399.5	CARBONDALE	DANVILLE	COAL	2.0	923.5	
-401.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	47.0	925.5	
-448.5	CARBONDALE	BRERETON	LIMESTONE	4.5	972.5	
-453.0	CARBONDALE	ANNA	BLACK SHALE	3.0	977.0	
-456.0	CARBONDALE	HERRIN	COAL	4.5	980.0	

MAPID: 08101322000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 660' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.735994 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.299625 DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0 LOGGED (FT.): 3075.0 LOG TYPE: Electric Log

SOURCE: SLAGTER ARTHUR J WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-465.0	CARBONDALE	HERRIN	COAL	4.0	972.0	
-515.0	CARBONDALE	BRIAR HILL	COAL	-	1022.0	
-550.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1057.0	BLACK SHALE & LIMESTONE ROOF
-616.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1123.0	

MAPID: 08101322000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 660' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.735994 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.299625 DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0 LOGGED (FT.): 973.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-401.0	MODESTO	PIASA	LIMESTONE	4.0	908.0	
-405.0	MODESTO		SILTY SHALE	9.0	912.0	
-414.0	CARBONDALE	DANVILLE	COAL	4.0	921.0	
-418.0	CARBONDALE		GRAY SHALE	8.0	925.0	
-426.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	933.0	
-430.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	29.0	937.0	
-459.0	CARBONDALE	BRERETON	LIMESTONE	3.0	966.0	
-462.0	CARBONDALE	ANNA	BLACK SHALE	1.0	969.0	
-463.0	CARBONDALE	HERRIN	COAL	3.0	970.0	

MAPID: 08100424000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 36 QUARTERS/FOOTAGES: 330' N line, 660' E line of SE

QUADRANGLE: BLUFORD LONGITUDE: -88.703253 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.305119 DATE COLLECTED:

SURFACE ELEVATION (FT.): 455.0 LOGGED (FT.): 3052.0 LOG TYPE: Electric Log

SOURCE: LARIO OIL & GAS CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-479.0	CARBONDALE	HERRIN	COAL	5.0	934.0	
-517.0	CARBONDALE	BRIAR HILL	COAL	-	972.0	
-563.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1018.0	BLACK SHALE ROOF
-639.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1094.0	

MAPID: 08100424000C VERSION: 2

PROJECT: CONTROL

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 36 QUARTERS/FOOTAGES: 330' N line, 660' E line of SE

QUADRANGLE: BLUFORD LONGITUDE: -88.703253 GEOLOGIST: HINES

CONFIDENTIAL: N LATITUDE: 38.305119 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 3052.0 LOG TYPE: Survey Sample Study

SOURCE: LARIO OIL & GAS CO WELL TYPE: Oil and Gas Test

COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08100432000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 36 QUARTERS/FOOTAGES: 950' S line, 680' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.71718 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.30128 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 966.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-368.0	MODESTO	PIASA	LIMESTONE	5.0	870.0	
-373.0	MODESTO		SHALE & SANDSTONE	23.0	875.0	
-396.0	CARBONDALE	DANVILLE	COAL	4.0	898.0	
-400.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	50.0	902.0	
-450.0	CARBONDALE	BRERETON	LIMESTONE	5.0	952.0	
-455.0	CARBONDALE	ANNA	BLACK SHALE	2.0	957.0	
-460.0	CARBONDALE	HERRIN	COAL	4.0	962.0	

MAPID: 08100525000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 2S 4E SECTION: 36 QUARTERS/FOOTAGES: 660' N line, 660' W line of NE

QUADRANGLE: BLUFORD LONGITUDE: -88.707814 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.311514 DATE COLLECTED:

SURFACE ELEVATION (FT.): 492.0 LOGGED (FT.): 3084.0 LOG TYPE: Electric Log

SOURCE: GULF REFINING CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-375.0	CARBONDALE	DANVILLE	COAL	-	867.0	
-380.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	872.0	
-401.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	893.0	
-422.0	CARBONDALE	ANVIL ROCK	SILTSTONE & SHALE	12.0	914.0	
-448.0	CARBONDALE	HERRIN	COAL	5.0	940.0	
-473.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	8.0	965.0	
-498.0	CARBONDALE	BRIAR HILL	COAL	-	990.0	
-526.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1018.0	BLACK SHALE & LIMESTONE ROOF
-608.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1100.0	

MAPID: 08102224000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 990' W line of SW NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.054727 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.295685 DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0 LOGGED (FT.): 3632.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-61.0	CARBONDALE	SPRINGFIELD	COAL	-	499.0	
-172.0	CARBONDALE	COLCHESTER	COAL	-	610.0	
-1303.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1741.0	
-3109.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3547.0	TOP OF NEW ALBANY
-3119.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3557.0	
-3194.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3632.0	BASE OF NEW ALBANY

MAPID: 08102225000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.044019

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.29921

DATE COLLECTED:

SURFACE ELEVATION (FT.): 471.0 LOGGED (FT.): 3781.0

LOG TYPE: Electric Log

SOURCE: GEORGE & WRATHER OIL

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-116.0	CARBONDALE	SPRINGFIELD	COAL	-	587.0	
-234.0	CARBONDALE	COLCHESTER	COAL	-	705.0	
-1401.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1872.0	
-3223.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3694.0	TOP OF NEW ALBANY
-3237.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3708.0	
-3310.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3781.0	BASE OF NEW ALBANY

MAPID: 08102237000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 1 QUARTERS/FOOTAGES: SW NE NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.05324

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.297477

DATE COLLECTED:

SURFACE ELEVATION (FT.): 471.0 LOGGED (FT.): 504.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
19.0	MODESTO	PIASA	LIMESTONE	3.0	452.0	
16.0	MODESTO		SHALE & SANDSTONE	7.0	455.0	
9.0	CARBONDALE	DANVILLE	COAL	0.8	462.0	
8.2	CARBONDALE	ENERGY	SILTY SHALE	37.0	462.8	
-29.0	CARBONDALE	HERRIN	COAL	4.0	500.0	

MAPID: 08102244000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 2 QUARTERS/FOOTAGES: 380' N line, 350' E line of NW NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.064 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.299097 DATE COLLECTED:

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 3658.0 LOG TYPE: Electric Log

SOURCE: MCBRIDE, W. C., INC. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-58.0	CARBONDALE	SPRINGFIELD	COAL	-	507.0	
-172.0	CARBONDALE	COLCHESTER	COAL	-	621.0	
-1301.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1750.0	
-3122.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3571.0	TOP OF NEW ALBANY
-3129.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3578.0	
-3209.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3658.0	BASE OF NEW ALBANY

MAPID: 08102249000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 2 QUARTERS/FOOTAGES: NE SE NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.059347 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.295772 DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0 LOGGED (FT.): 457.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
38.0	MODESTO	PIASA	LIMESTONE	3.0	400.0	
35.0	MODESTO		SHALE	4.0	403.0	
31.0	CARBONDALE	DANVILLE	COAL	1.0	407.0	
30.0	CARBONDALE	ENERGY	SILTY SHALE	45.0	408.0	
-15.0	CARBONDALE	HERRIN	COAL	4.0	453.0	

MAPID: 08102251000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 2 QUARTERS/FOOTAGES: 870' N line, 330' E line of NE NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.059345 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.297738 DATE COLLECTED:

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 3637.0 LOG TYPE: Electric Log

SOURCE: MCBRIDE, W. C. INC. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-51.0	CARBONDALE	SPRINGFIELD	COAL	-	491.0	
-164.0	CARBONDALE	COLCHESTER	COAL	-	604.0	
-1295.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1735.0	
-3112.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3552.0	TOP OF NEW ALBANY
-3119.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3559.0	
-3197.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3637.0	BASE OF NEW ALBANY

MAPID: 08100767000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 5 QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.124443 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.2878 DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 1795.0 LOG TYPE: Electric Log

SOURCE: MACDONELL CO. OF LIMA WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-44.0	CARBONDALE	SPRINGFIELD	COAL	-	544.0	
-173.0	CARBONDALE	COLCHESTER	COAL	-	673.0	
-1295.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1795.0	

MAPID: 08100767000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 5 QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.124443 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.2878 DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 489.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
78.0	MODESTO	PIASA	LIMESTONE	2.0	422.0	
76.0	CARBONDALE	ENERGY	SANDSTONE	65.0	424.0	

MAPID: 08100766000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE SW SE
QUADRANGLE: ASHLEY **LONGITUDE:** -89.138341 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.289449 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 533.0 **LOGGED (FT.):** 572.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
97.0	MODESTO	PIASA	LIMESTONE	6.0	436.0
91.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	65.0	442.0
26.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	65.0	507.0

MAPID: 081243C0003F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 6 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: ASHLEY **LONGITUDE:** -89.133325 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.299601 **DATE COLLECTED:** 0 / 0 / 1931
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 14.7 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-EKBLAW **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
500.0			ROCK	3.3	0.0
-			UNKNOWN	-	
-			COAL	0.6	
-			ROCK	0.8	
-			UNKNOWN	2.0	
-			ROCK	8.0	

MAPID: 08100972000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 7 **QUARTERS/FOOTAGES:** NW NE SE
QUADRANGLE: ASHLEY **LONGITUDE:** -89.136166 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.278346 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 527.0 **LOGGED (FT.):** 1765.0 **LOG TYPE:** Electric Log
SOURCE: JET OIL CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-6.0	CARBONDALE	SPRINGFIELD	COAL	-	533.0
-138.0	CARBONDALE	COLCHESTER	COAL	-	665.0
-1238.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1765.0

MAPID: 08100972000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 7 QUARTERS/FOOTAGES: NW NE SE

QUADRANGLE: ASHLEY LONGITUDE: -89.136166 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.278346 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 521.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
125.0	MODESTO	PIASA	LIMESTONE	4.0	395.0	
121.0	MODESTO		SILTY SHALE	6.0	399.0	
115.0	CARBONDALE	DANVILLE	COAL	1.0	405.0	
114.0	CARBONDALE	ENERGY	SILTY SHALE	60.0	406.0	
54.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	55.0	466.0	

MAPID: 081243C0004F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 7 QUARTERS/FOOTAGES: NE

QUADRANGLE: ASHLEY LONGITUDE: -89.137263 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.282985 DATE COLLECTED: 8 / 21 / 1931

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 29.8 LOG TYPE: Measured section

SOURCE: FLD NOTES-WELLER WELL TYPE: Outcrop

COMMENT: OTHER NOTES ON THIS OUTCROP

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	7.2		
-			COAL	1.1		
-			ROCK	21.5		

MAPID: 08100399000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 8 QUARTERS/FOOTAGES: NE SE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.124595 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.274949 DATE COLLECTED:

SURFACE ELEVATION (FT.): 520.0 LOGGED (FT.): 3706.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-30.0	CARBONDALE	SPRINGFIELD	COAL	-	550.0	
-150.0	CARBONDALE	COLCHESTER	COAL	-	670.0	
-1240.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1760.0	
-3111.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3631.0	TOP OF NEW ALBANY
-3118.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3638.0	
-3186.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3706.0	BASE OF NEW ALBANY

MAPID: 081243C0007F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW NW NW
QUADRANGLE: ASHLEY **LONGITUDE:** -89.131465 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.283914 **DATE COLLECTED:** 0 / 0 / 1949
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 10.8 **LOG TYPE:**
SOURCE: FLD NOTES **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.0			ROCK	10.0	0.0	ESTIMATED THICKNESS
-			COAL	0.8		

MAPID: 081243C0006F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE NW SW
QUADRANGLE: ASHLEY **LONGITUDE:** -89.129233 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.276582 **DATE COLLECTED:** 8 / 21 / 1931
SURFACE ELEVATION (FT.): 510.0 **LOGGED (FT.):** 44.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-EKBLAW **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	10.5		
-			COAL	0.7		
-			ROCK	33.0		

MAPID: 081243C0005F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 8 **QUARTERS/FOOTAGES:** NW SW NW
QUADRANGLE: ASHLEY **LONGITUDE:** -89.131489 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.282056 **DATE COLLECTED:** 8 / 21 / 1931
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 11.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-EKBLAW **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.0			UNCONSOLIDATED	2.0	0.0	
-			ROCK	9.2		
-			COAL	1.1		
-			ROCK	1.5		

MAPID: 08100400000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.087527 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.284066 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 479.0 **LOGGED (FT.):** 1861.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-95.0	CARBONDALE	SPRINGFIELD	COAL	-	574.0
-229.0	CARBONDALE	COLCHESTER	COAL	-	708.0
-1382.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1861.0

MAPID: 08100400000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** SE NE NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.087527 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.284066 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 479.0 **LOGGED (FT.):** 529.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
26.0	MODESTO	PIASA	LIMESTONE	4.0	453.0
22.0	MODESTO		SILTY SHALE	7.0	457.0
15.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	65.0	464.0

MAPID: 08100765000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 12 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.052665 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.27969 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 435.0 **LOGGED (FT.):** 1968.0 **LOG TYPE:** Electric Log
SOURCE: PURE OIL CO., THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-197.0	CARBONDALE	SPRINGFIELD	COAL	-	632.0
-343.0	CARBONDALE	COLCHESTER	COAL	-	778.0
-1533.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1968.0

MAPID: 08100765000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 12 QUARTERS/FOOTAGES: SW SE NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.052665

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.27969

DATE COLLECTED:

SURFACE ELEVATION (FT.): 435.0 LOGGED (FT.): 595.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-97.0	MODESTO	PIASA	LIMESTONE	3.0	532.0
-100.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	55.0	535.0
-155.0	CARBONDALE	HERRIN	COAL	5.0	590.0

MAPID: 08102864000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 13 QUARTERS/FOOTAGES: NW NW NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.057298

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.27076

DATE COLLECTED:

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 660.1

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-7A-72

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-137.0	MODESTO	PIASA	LIMESTONE	3.3	587.0
-140.3	MODESTO		SILTY SHALE	6.6	590.3
-146.9	CARBONDALE	DANVILLE	COAL	5.8	596.9
-152.7	CARBONDALE		CLAYSTONE & SHALE	15.8	602.7
-168.5	CARBONDALE	BANKSTON FORK	LIMESTONE	3.8	618.5
-172.3	CARBONDALE		CALCAREOUS SHALE	1.5	622.3
-173.8	CARBONDALE	BRERETON	LIMESTONE	7.7	623.8
-181.5	CARBONDALE	ANNA	BLACK SHALE	2.0	631.5
-183.5	CARBONDALE	ENERGY	SILTY SHALE	27.8	633.5
-204.0	CARBONDALE	HERRIN	COAL	6.1	654.0

MAPID: 08102750000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 14 QUARTERS/FOOTAGES: SW SW NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.075902

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.265325

DATE COLLECTED:

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 525.0

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-08-71

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-65.7	CARBONDALE	ANNA	BLACK SHALE	3.3	515.7
-69.0	CARBONDALE	HERRIN	COAL	6.0	519.0

MAPID: 08124070000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.075955 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.259889 DATE COLLECTED:

SURFACE ELEVATION (FT.): 470.0 LOGGED (FT.): 1994.0 LOG TYPE: Electric Log

SOURCE: BREHM, DWIGHT RESOURCES WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-128.0	CARBONDALE	SPRINGFIELD	COAL	-	598.0
-242.0	CARBONDALE	COLCHESTER	COAL	-	712.0
-1524.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1994.0

MAPID: 08100764000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 15 QUARTERS/FOOTAGES: NW NW SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.085323 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.263736 DATE COLLECTED:

SURFACE ELEVATION (FT.): 479.0 LOGGED (FT.): 1882.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-56.0	CARBONDALE	SPRINGFIELD	COAL	-	535.0
-189.0	CARBONDALE	COLCHESTER	COAL	-	668.0
-1403.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1882.0

MAPID: 08100764000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 15 QUARTERS/FOOTAGES: NW NW SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.085323 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.263736 DATE COLLECTED:

SURFACE ELEVATION (FT.): 479.0 LOGGED (FT.): 510.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
24.0	MODESTO	PIASA	LIMESTONE	5.0	455.0
19.0	MODESTO		GRAY SHALE	9.0	460.0
10.0	CARBONDALE	DANVILLE	COAL	2.0	469.0
8.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	30.0	471.0
-22.0	CARBONDALE	ANNA	BLACK SHALE	3.0	501.0
-25.0	CARBONDALE	HERRIN	COAL	6.0	504.0

MAPID: 08100402000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 16 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WOODLAWN LONGITUDE: -89.103922 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.264152 DATE COLLECTED:

SURFACE ELEVATION (FT.): 492.0 LOGGED (FT.): 1849.0 LOG TYPE: Electric Log

SOURCE: EASON OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-49.0	CARBONDALE	SPRINGFIELD	COAL	-	541.0
-175.0	CARBONDALE	COLCHESTER	COAL	-	667.0
-1357.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1849.0

MAPID: 08100402000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 16 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WOODLAWN LONGITUDE: -89.103922 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.264152 DATE COLLECTED:

SURFACE ELEVATION (FT.): 492.0 LOGGED (FT.): 514.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
30.0	MODESTO	PIASA	LIMESTONE	4.0	462.0
26.0	MODESTO		GRAY SHALE	14.0	466.0
12.0	CARBONDALE	DANVILLE	COAL	2.0	480.0
10.0	CARBONDALE		GRAY SHALE	5.0	482.0
5.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	487.0
0.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	15.0	492.0
-15.0	CARBONDALE	ANNA	BLACK SHALE	2.0	507.0
-17.0	CARBONDALE	HERRIN	COAL	5.0	509.0

MAPID: 08102651000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 17 QUARTERS/FOOTAGES: SW SE SE

QUADRANGLE: WOODLAWN LONGITUDE: -89.11787 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.258572 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 522.9 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-03-69 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
163.1	MODESTO		SILTY SHALE	94.5	350.9	
68.6	CARBONDALE	DANVILLE	COAL	0.8	445.4	
67.8	CARBONDALE		SILTY SHALE	13.2	446.2	
54.6	CARBONDALE	BANKSTON FORK	LIMESTONE	12.8	459.4	UPPER BENCH
41.8	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	4.2	472.2	SHALE PARTING
37.6	CARBONDALE	BANKSTON FORK	LIMESTONE	4.8	476.4	LOWER BENCH
32.8	CARBONDALE		SHALE & SANDSTONE	11.2	481.2	
21.6	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	8.5	492.4	
13.1	CARBONDALE	ANNA	BLACK SHALE	3.1	500.9	
10.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	18.9	504.0	

MAPID: 08123091000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW NW

QUADRANGLE: ASHLEY LONGITUDE: -89.131733 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.267267 DATE COLLECTED:

SURFACE ELEVATION (FT.): 539.0 LOGGED (FT.): 3710.0 LOG TYPE: Electric Log

SOURCE: EGO OIL COMPANY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1235.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1774.0	
-3104.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3643.0	TOP OF NEW ALBANY
-3108.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3647.0	
-3171.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3710.0	BASE OF NEW ALBANY

MAPID: 08101021000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 18 QUARTERS/FOOTAGES: SW NW SE

QUADRANGLE: ASHLEY LONGITUDE: -89.141103

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.261792

DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0

LOGGED (FT.): 488.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
175.0	MODESTO	PIASA	LIMESTONE	3.0	355.0	
172.0	MODESTO		SILTY SHALE	8.0	358.0	
164.0	CARBONDALE	DANVILLE	COAL	2.0	366.0	
162.0	CARBONDALE	ENERGY	SILTY SHALE	60.0	368.0	
102.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	60.0	428.0	

MAPID: 08101167000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 18 QUARTERS/FOOTAGES: 330' N line, 990' E line of SE NE

QUADRANGLE: ASHLEY LONGITUDE: -89.136356

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.267246

DATE COLLECTED:

SURFACE ELEVATION (FT.): 532.0

LOGGED (FT.): 3700.0

LOG TYPE: Electric Log

SOURCE: DUNNILL, JOHN F.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-142.0	CARBONDALE	COLCHESTER	COAL	-	674.0	
-1230.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1762.0	
-3103.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3635.0	TOP OF NEW ALBANY
-3105.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3637.0	
-3168.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3700.0	BASE OF NEW ALBANY

MAPID: 08124707000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' E line of NE SW

QUADRANGLE: TAMAROA LONGITUDE: -89.141245

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.248888

DATE COLLECTED:

SURFACE ELEVATION (FT.): 504.0

LOGGED (FT.): 1726.0

LOG TYPE: Electric Log

SOURCE: WOOD ENERGY, INC.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-184.0	CARBONDALE	SPRINGFIELD	COAL	-	688.0	
-292.0	CARBONDALE	COLCHESTER	COAL	-	796.0	
-1222.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1726.0	

MAPID: 08102653000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 20 QUARTERS/FOOTAGES: SW SW SW

QUADRANGLE: TAMAROA LONGITUDE: -89.132112

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.243324

DATE COLLECTED:

SURFACE ELEVATION (FT.): 503.0 LOGGED (FT.): 491.5

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-04-69

WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
48.0	MODESTO	PIASA	LIMESTONE	5.0	455.0	
43.0	CARBONDALE		ROCK	2.3	460.0	
40.7	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	462.3	
36.2	CARBONDALE		CLAYSTONE & SHALE	7.3	466.8	
28.8	CARBONDALE	BRERETON	LIMESTONE	4.8	474.2	
24.1	CARBONDALE	ENERGY	SILTY SHALE	9.2	478.9	
15.0	CARBONDALE	HERRIN	COAL	3.5	488.0	

MAPID: 08102254000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.09709

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.252977

DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 1918.0

LOG TYPE: Electric Log

SOURCE: EVERHART J WILLIAM

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-57.0	CARBONDALE	SPRINGFIELD	COAL	-	550.0	
-191.0	CARBONDALE	COLCHESTER	COAL	-	684.0	
-1425.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1918.0	

MAPID: 08102647000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 21 QUARTERS/FOOTAGES: SW SW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.113406

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.243784

DATE COLLECTED: 3 / 28 / 1969

SURFACE ELEVATION (FT.): 511.0 LOGGED (FT.): 22.0

LOG TYPE: Drillers Log

SOURCE: C. KOHNEN, DRILLER

WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
511.0			UNCONSOLIDATED	16.0	0.0	
495.0			ROCK	1.0	16.0	
494.0			COAL	2.0	17.0	
492.0			ROCK	3.0	19.0	

MAPID: 08102691000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 21 QUARTERS/FOOTAGES: SW SE SE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.097778

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.243275

DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 506.9

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-14-69

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
13.2	CARBONDALE	BRERETON	LIMESTONE	8.3	486.8
5.0	CARBONDALE	ANNA	BLACK SHALE	4.0	495.0
1.0	CARBONDALE	HERRIN	COAL	7.9	499.0

MAPID: 08102452000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 22 QUARTERS/FOOTAGES: NW NE NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.090029

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.256528

DATE COLLECTED:

SURFACE ELEVATION (FT.): 481.0 LOGGED (FT.): 501.6

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-7-65

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
47.0	MODESTO	PIASA	LIMESTONE	6.0	434.0
41.0	MODESTO		SHALE	4.0	440.0
37.0	CARBONDALE	DANVILLE	COAL	1.0	444.0
36.0	CARBONDALE		CLAYSTONE & SHALE	4.0	445.0
32.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	449.0
28.0	CARBONDALE		SHALE & SANDSTONE	29.0	453.0
-1.0	CARBONDALE	BRERETON	LIMESTONE	10.1	482.0
-11.1	CARBONDALE	ANNA	BLACK SHALE	2.8	492.1
-14.0	CARBONDALE	HERRIN	COAL	6.6	495.0

MAPID: 08102457000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 23 QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.059639

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.248892

DATE COLLECTED:

SURFACE ELEVATION (FT.): 410.0 LOGGED (FT.): 701.4

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-9-65

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-227.0	CARBONDALE	DANVILLE	COAL	0.3	637.0	
-227.3	CARBONDALE	LAWSON	ROCK	43.0	637.3	
-270.3	CARBONDALE		SILTSTONE	1.3	680.3	
-271.7	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	11.7	681.7	
-283.3	CARBONDALE	ANNA	BLACK SHALE	2.7	693.3	
-286.0	CARBONDALE	HERRIN	COAL	5.4	696.0	

MAPID: 08100762000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.050527

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.256118

DATE COLLECTED:

SURFACE ELEVATION (FT.): 447.0 LOGGED (FT.): 2170.0

LOG TYPE: Electric Log

SOURCE: NATIONAL ASSOC. PETROLEUM CO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-254.0	CARBONDALE	SPRINGFIELD	COAL	-	701.0	
-415.0	CARBONDALE	COLCHESTER	COAL	-	862.0	
-1723.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2170.0	

MAPID: 08100762000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: WOODLAWN LONGITUDE: -89.050527

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.256118

DATE COLLECTED:

SURFACE ELEVATION (FT.): 447.0

LOGGED (FT.): 658.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-158.0	MODESTO	PIASA	LIMESTONE	5.0	605.0
-163.0	MODESTO		SILTY SHALE	7.0	610.0
-170.0	CARBONDALE	DANVILLE	COAL	2.0	617.0
-172.0	CARBONDALE		GRAY SHALE	5.0	619.0
-177.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	624.0
-187.0	CARBONDALE		GRAY SHALE	6.0	634.0
-193.0	CARBONDALE	BRERETON	LIMESTONE	9.0	640.0
-202.0	CARBONDALE	ANNA	BLACK SHALE	3.5	649.0
-206.0	CARBONDALE	HERRIN	COAL	5.0	653.0

MAPID: 08100001000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 3S 1E

SECTION: 25

QUARTERS/FOOTAGES: NE NE NE SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.049982

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.234769

DATE COLLECTED:

SURFACE ELEVATION (FT.): 471.0

LOGGED (FT.): 736.8

LOG TYPE: Drillers Log

SOURCE: H. E. WILLSON, AUTHORITY

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
471.0			UNCONSOLIDATED	26.0	0.0	
445.0			ROCK	101.5	26.0	
343.5			COAL	0.8	127.5	
342.7			ROCK	51.2	128.3	
291.5			COAL	0.7	179.5	
290.8			ROCK	145.1	180.2	
145.7			COAL	0.7	325.3	
145.0			ROCK	6.4	326.0	
138.6			COAL	0.1	332.4	
138.5			ROCK	11.0	332.5	
127.5			COAL	0.5	343.5	
127.0			ROCK	148.8	344.0	
-21.8			COAL	0.8	492.8	
-22.5			ROCK	207.0	493.5	
-229.5			LIMESTONE	4.0	700.5	
-233.5			BLACK SHALE	5.0	704.5	
-238.5			SHALE	19.2	709.5	
-257.7	CARBONDALE	HERRIN	COAL	7.5	728.7	BLUE BAND .16'
-265.2	CARBONDALE		UNDERCLAY	0.7	736.2	

MAPID: 08100001000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 25 QUARTERS/FOOTAGES: NE NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.049982 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.234769 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 744.3 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-186.0	MODESTO	PIASA	LIMESTONE	6.0	669.0
-192.0	CARBONDALE		DARK GRAY SHALE	14.0	675.0
-206.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	689.0
-217.0	CARBONDALE		DARK GRAY SHALE	4.5	700.0
-221.5	CARBONDALE	BRERETON	LIMESTONE W/ SHALE	9.5	704.5
-231.0	CARBONDALE	ANNA	BLACK SHALE	5.0	714.0
-236.0	CARBONDALE	ENERGY	DARK GRAY SHALE	19.0	719.0
-255.0	CARBONDALE	HERRIN	COAL	6.3	738.0

MAPID: 08100001000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 25 QUARTERS/FOOTAGES: NE NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.049982 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.234769 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.6 LOGGED (FT.): 737.0 LOG TYPE:

SOURCE: WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-245.4	CARBONDALE	HERRIN	COAL	7.5	729.0

MAPID: 08100018000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 25 QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.055127 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.241575 DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0 LOGGED (FT.): 730.0 LOG TYPE:

SOURCE: BG MUDDYCS 3 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-245.0	CARBONDALE	HERRIN	COAL	7.0	723.0

MAPID: 08100018000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 3S 1E

SECTION: 25

QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.055127

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.241575

DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0

LOGGED (FT.): 730.0

LOG TYPE: Drillers Log

SOURCE: BIG MUDDY COAL SYNDICATE

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
478.0			UNCONSOLIDATED	12.0	0.0	
466.0			ROCK	125.5	12.0	
340.5			COAL	1.0	137.5	
339.5			ROCK	43.5	138.5	
296.0			COAL	0.7	182.0	
295.3			ROCK	305.3	182.7	
-10.0			COAL	0.5	488.0	
-10.5			ROCK	185.5	488.5	
-196.0			COAL	1.5	674.0	
-197.5			ROCK	22.5	675.5	
-220.0			SHALE	2.0	698.0	
-222.0			LIMESTONE	8.0	700.0	
-230.0			BLACK SHALE	3.0	708.0	
-233.0			SHALE	12.0	711.0	
-245.0	CARBONDALE	HERRIN	COAL	7.0	723.0	

MAPID: 08100217000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 3S 1E

SECTION: 26

QUARTERS/FOOTAGES: NE SW SW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.065745

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.2298

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0

LOGGED (FT.): 2413.0

LOG TYPE: Electric Log

SOURCE: CARTER OIL COMPANY

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-308.0	CARBONDALE	SPRINGFIELD	COAL	-	810.0	
-481.0	CARBONDALE	COLCHESTER	COAL	-	983.0	
-1911.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2413.0	

MAPID: 08100217000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 26 QUARTERS/FOOTAGES: NE SW SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.065745

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.2298

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 774.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-201.0	MODESTO	PIASA	LIMESTONE	7.0	703.0
-208.0	MODESTO		GRAY SHALE	4.0	710.0
-212.0	CARBONDALE	DANVILLE	COAL	1.0	714.0
-213.0	CARBONDALE		GRAY SHALE	10.0	715.0
-223.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	725.0
-228.0	CARBONDALE		SILTY SHALE	15.0	730.0
-243.0	CARBONDALE	BRERETON	LIMESTONE	6.0	745.0
-249.0	CARBONDALE	ANNA	BLACK SHALE	3.0	751.0
-252.0	CARBONDALE	ENERGY	COAL	12.0	754.0
-264.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	8.0	766.0

MAPID: 08100010000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 27 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE LONGITUDE: -89.08666

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.235384

DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.2 LOGGED (FT.): 683.0

LOG TYPE:

SOURCE: NO COMPANY 3

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-192.8	CARBONDALE	HERRIN	COAL	6.3	676.0

MAPID: 08100010000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 27 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.08666

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.235384

DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0

LOGGED (FT.): 683.0

LOG TYPE: Drillers Log

SOURCE: H. E. WILLSON, AUTHORITY

WELL TYPE: Coal Test

COMMENT: CENTER OF SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
483.0			UNCONSOLIDATED	10.0	0.0	
473.0			ROCK	74.0	10.0	
399.0			COAL	0.5	84.0	
398.5			ROCK	180.5	84.5	
218.0			COAL	0.5	265.0	
217.5			ROCK	27.5	265.5	
190.0			COAL	0.8	293.0	
189.2			ROCK	145.2	293.8	
44.0			COAL	0.5	439.0	
43.5			ROCK	181.5	439.5	
-138.0			COAL	1.5	621.0	
-139.5			ROCK	17.5	622.5	
-157.0			SHALE	13.0	640.0	
-170.0			LIMESTONE	2.0	653.0	
-172.0			SHALE	3.0	655.0	
-175.0			LIMESTONE	11.0	658.0	
-186.0			BLACK SHALE	5.8	669.0	
-191.8			COAL	0.3	674.8	
-192.1			BLACK SHALE	1.0	675.1	
-193.1	CARBONDALE	HERRIN	COAL	6.6	676.1	"SHALY COAL" IN UPPER .25'; BB .16'
-199.7	CARBONDALE		UNDERCLAY	0.3	682.7	

MAPID: 08102692000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 27 QUARTERS/FOOTAGES: SE SE SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.087347 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.228529 DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 754.4 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-13-69 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-198.0	MODESTO	PIASA	LIMESTONE	2.0	688.0
-200.0	CARBONDALE		GRAY SHALE	17.3	690.0
-217.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	707.3
-223.3	CARBONDALE		CALCAREOUS SHALE	15.3	713.3
-238.7	CARBONDALE	BRERETON	LIMESTONE	8.8	728.7
-247.5	CARBONDALE	ANNA	BLACK SHALE	3.0	737.5
-250.5	CARBONDALE	ENERGY	GRAY SHALE	5.7	740.5
-256.0	CARBONDALE	HERRIN	COAL	8.4	746.0

MAPID: 08100019000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 28 QUARTERS/FOOTAGES: SE SE SW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.110734 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.228467 DATE COLLECTED: 9 / 0 / 1919

SURFACE ELEVATION (FT.): 507.0 LOGGED (FT.): 534.0 LOG TYPE: Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
507.0			UNCONSOLIDATED	15.0	0.0
492.0			ROCK	132.0	15.0
360.0			COAL	1.0	147.0
359.0			ROCK	30.0	148.0
329.0			COAL	0.5	178.0
328.5			ROCK	276.5	178.5
52.0			COAL	1.0	455.0
51.0			ROCK	39.0	456.0
12.0			LIMESTONE	14.0	495.0
-2.0			BLACK SHALE	6.7	509.0
-8.7	CARBONDALE	HERRIN	COAL	7.0	515.7
-15.7	CARBONDALE		ROCK	11.3	522.7

MAPID: 08102458000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 28 QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.097212 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.241893 DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 486.2 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-10-65 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
66.0	MODESTO	PIASA	LIMESTONE	5.0	428.0	
61.0	CARBONDALE		MOTTLED SHALE	7.0	433.0	
54.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	440.0	
50.0	CARBONDALE		SILTY SHALE	17.0	444.0	
33.0	CARBONDALE	BRERETON	LIMESTONE	11.4	461.0	
21.6	CARBONDALE	ANNA	BLACK SHALE	7.0	472.4	
15.0	CARBONDALE	HERRIN	COAL	7.2	479.0	

MAPID: 08123746000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 28 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.113564 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.234506 DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0 LOGGED (FT.): 3887.0 LOG TYPE: Electric Log

SOURCE: FULK, PERRY WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1405.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1920.0	
-3296.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	3811.0	TOP OF NEW ALBANY
-3307.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	3822.0	
-3372.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	3887.0	BASE OF NEW ALBANY

MAPID: 08100098000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 29 QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: TAMAROA LONGITUDE: -89.125289 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.228686 DATE COLLECTED:

SURFACE ELEVATION (FT.): 505.0 LOGGED (FT.): 1906.0 LOG TYPE: Electric Log

SOURCE: SKELLY OIL CO WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-45.0	CARBONDALE	SPRINGFIELD	COAL	-	550.0	
-190.0	CARBONDALE	COLCHESTER	COAL	-	695.0	
-1401.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1906.0	

MAPID: 08124715000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE NW
QUADRANGLE: TAMAROA **LONGITUDE:** -89.142529 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.23781 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 511.0 **LOGGED (FT.):** 1745.0 **LOG TYPE:** Electric Log
SOURCE: WOOD ENERGY, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-98.0	CARBONDALE	SPRINGFIELD	COAL	-	609.0	
-234.0	CARBONDALE	COLCHESTER	COAL	-	745.0	
-1234.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1745.0	

MAPID: 08124716000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 30 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE NW
QUADRANGLE: TAMAROA **LONGITUDE:** -89.141328 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.241476 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 495.0 **LOGGED (FT.):** 1733.0 **LOG TYPE:** Electric Log
SOURCE: WOOD ENERGY, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-143.0	CARBONDALE	SPRINGFIELD	COAL	-	638.0	
-277.0	CARBONDALE	COLCHESTER	COAL	-	772.0	
-1238.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	1733.0	

MAPID: 08100086000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 1320' N line, 2640' E line
QUADRANGLE: TAMAROA **LONGITUDE:** -89.142784 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.224071 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 475.0 **LOGGED (FT.):** 656.0 **LOG TYPE:**
SOURCE: NO COMPANY 6 **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-11.0	CARBONDALE	HERRIN	COAL	7.7	486.0	

MAPID: 08100086000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 31 QUARTERS/FOOTAGES: 1320' N line, 2640' E line

QUADRANGLE: TAMAROA

LONGITUDE: -89.142784

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.224071

DATE COLLECTED:

SURFACE ELEVATION (FT.): 475.0

LOGGED (FT.): 502.1

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
58.7	CARBONDALE	DANVILLE	COAL	1.0	416.3	
57.7	CARBONDALE	ANNA	BLACK SHALE	1.7	417.3	
56.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	70.0	419.0	
-14.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	13.1	489.0	

MAPID: 08100020000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 32 QUARTERS/FOOTAGES: SW NW SW NE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.123647

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.222718

DATE COLLECTED: 8 / 0 / 1919

SURFACE ELEVATION (FT.): 483.0

LOGGED (FT.): 524.0

LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
483.0			UNCONSOLIDATED	37.0	0.0	
446.0			ROCK	76.0	37.0	
370.0			COAL	1.0	113.0	
369.0			ROCK	154.7	114.0	
214.3			COAL	0.3	268.7	
214.0			ROCK	141.0	269.0	
73.0			SHALE	24.0	410.0	WITH COAL PARTINGS
49.0			ROCK	33.0	434.0	
16.0			SHALE	27.7	467.0	
-11.7	CARBONDALE	HERRIN	COAL	8.0	494.7	
-19.7	CARBONDALE		UNDERCLAY	1.3	502.7	
-21.0	CARBONDALE		ROCK	20.0	504.0	

MAPID: 08102655000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 32 QUARTERS/FOOTAGES: NW NW SW

QUADRANGLE: TAMAROA LONGITUDE: -89.132477 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.219281 DATE COLLECTED:

SURFACE ELEVATION (FT.): 452.0 LOGGED (FT.): 464.1 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-06-69 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
68.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	71.0	384.0
-3.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	9.1	455.0

MAPID: 08102255000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 33 QUARTERS/FOOTAGES: SW SW SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.10503 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.213821 DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 747.3 LOG TYPE: Drillers Log

SOURCE: NO COMPANY WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
530.0			UNCONSOLIDATED	34.0	0.0
496.0			ROCK	84.3	34.0
411.7			COAL	0.7	118.3
411.0			ROCK	52.0	119.0
359.0			COAL	0.5	171.0
358.5			ROCK	151.5	171.5
207.0			COAL	1.5	323.0
205.5			ROCK	22.5	324.5
183.0			COAL	0.9	347.0
182.1			ROCK	139.9	347.9
42.2			COAL	0.3	487.8
42.0			ROCK	171.3	488.0
-129.3			COAL	0.7	659.3
-130.0			ROCK	19.8	660.0
-149.8			COAL	1.8	679.8
-151.7			ROCK	30.3	681.7
-182.0			LIMESTONE	15.5	712.0
-197.5			BLACK SHALE	2.5	727.5
-200.0			LIMESTONE	0.5	730.0
-200.5			BLACK SHALE	10.6	730.5
-211.1	CARBONDALE	HERRIN	COAL	5.0	741.1
-216.1	CARBONDALE		SHALE	1.3	746.1

MAPID: 08100875000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 34 QUARTERS/FOOTAGES: 20' S line, 2590' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.087011 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.21354 DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0 LOGGED (FT.): 918.0 LOG TYPE: Electric Log

SOURCE: SOHIO PRODUCING WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-271.0	CARBONDALE	SPRINGFIELD	COAL	-	778.0
-411.0	CARBONDALE	COLCHESTER	COAL	-	918.0

MAPID: 08100012000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 35 QUARTERS/FOOTAGES: 300' S line, 300' W line of NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.06702 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.221561 DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.5 LOGGED (FT.): 771.0 LOG TYPE:

SOURCE: NASON CC 2 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-267.5	CARBONDALE	HERRIN	COAL	8.6	761.0

MAPID: 08100012000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 35 QUARTERS/FOOTAGES: 300' S line, 300' W line of NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.06702 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.221561 DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 770.5 LOG TYPE: Drillers Log

SOURCE: NASON CC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
494.0			UNCONSOLIDATED	14.0	0.0	
480.0			ROCK	129.2	14.0	
350.8			COAL	0.7	143.2	
350.2			ROCK	51.7	143.8	
298.5			COAL	0.5	195.5	
298.0			ROCK	136.5	196.0	
161.5			COAL	0.7	332.5	
160.8			ROCK	12.3	333.2	
148.5			COAL	0.2	345.5	
148.3			ROCK	159.4	345.7	
-11.1			COAL	0.4	505.1	
-11.5			ROCK	197.0	505.5	
-208.5			COAL	0.7	702.5	SHALEY
-209.2			ROCK	28.3	703.2	
-237.5			LIMESTONE	4.5	731.5	
-242.0			SHALE	25.3	736.0	
-267.3	CARBONDALE	HERRIN	COAL	8.6	761.3	BLUE SH BAND .08'
-275.8	CARBONDALE		UNDERCLAY	0.7	769.8	

MAPID: 081254A0001F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 1E SECTION: 35 QUARTERS/FOOTAGES: SE NE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.059878 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.218008 DATE COLLECTED: 8 / 30 / 1931

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 18.2 LOG TYPE: Measured section

SOURCE: FLD NOTES-EKBLAW WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	1.8		
-			COAL	0.3		
-			ROCK	16.2		

MAPID: 081254A0002F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE SW SE SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.06162 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.214837 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 14.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: OTHER NOTES ON THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK		4.5	
-			COAL		0.3	
-			ROCK		10.0	

MAPID: 08100021000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 3S 1E **SECTION:** 36 **QUARTERS/FOOTAGES:** SE NE SW
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.0505 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.218038 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 456.6 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: BG MUDDYCS 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-244.4	CARBONDALE	HERRIN	COAL	6.0	701.0	

MAPID: 08101245000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.939778 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.292368 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 2392.0 **LOG TYPE:** Electric Log
SOURCE: MURVIN & STEBER DRLG **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-408.0	CARBONDALE	SPRINGFIELD	COAL	-	897.0	
-571.0	CARBONDALE	COLCHESTER	COAL	-	1060.0	
-1903.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2392.0	

MAPID: 08101245000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 1 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.939778

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.292368

DATE COLLECTED:

SURFACE ELEVATION (FT.): 489.0

LOGGED (FT.): 836.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-254.0	CARBONDALE	LAWSON	SILTY SHALE	64.0	743.0	
-318.0	CARBONDALE	BRERETON	LIMESTONE W/ SHALE	12.0	807.0	
-330.0	CARBONDALE	ANNA	SHALE	6.0	819.0	
-336.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	11.0	825.0	

MAPID: 08102261000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 2 QUARTERS/FOOTAGES: SW SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.955883

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.294491

DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0

LOGGED (FT.): 780.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-252.0	MODESTO	PIASA	LIMESTONE	5.0	735.0	
-257.0	MODESTO		GRAY SHALE	9.0	740.0	
-266.0	CARBONDALE	DANVILLE	COAL	2.0	749.0	
-268.0	CARBONDALE		GRAY SHALE	4.0	751.0	
-272.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	12.0	755.0	
-284.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	767.0	
-293.0	CARBONDALE	HERRIN	COAL	4.0	776.0	

MAPID: 08101250000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 3 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.967657

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.287392

DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0

LOGGED (FT.): 2302.0

LOG TYPE: Electric Log

SOURCE: HUSMANN W H

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-340.0	CARBONDALE	SPRINGFIELD	COAL	-	796.0	
-501.0	CARBONDALE	COLCHESTER	COAL	-	957.0	
-1846.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2302.0	

MAPID: 08100014000C VERSION: 1

PROJECT: NCRDS87

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 8 QUARTERS/FOOTAGES: SW SW NE

QUADRANGLE: WOODLAWN LONGITUDE: -89.012845 GEOLOGIST: WEIBEL

CONFIDENTIAL: N LATITUDE: 38.28039 DATE COLLECTED: 2 / 0 / 1923

SURFACE ELEVATION (FT.): 426.9 LOGGED (FT.): 685.0 LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
426.9			UNCONSOLIDATED	22.0	0.0
404.9	BOND		UNCLASSIFIED	31.0	22.0
373.9	BOND		SHALE	50.0	53.0
323.9	BOND		COAL	1.5	103.0
322.4	BOND		SHALE	35.5	104.5
286.9	BOND		COAL	0.7	140.0
286.2	BOND		SHALE	41.8	140.7
244.4	BOND		COAL	0.3	182.5
244.1	BOND		UNDERCLAY	0.3	182.8
243.9	BOND		SHALE	53.0	183.0
190.9	BOND	CARTHAGE	LIMESTONE	8.5	236.0
182.4	MODESTO		BLACK SHALE	2.0	244.5
180.4	MODESTO		SHALE	30.5	246.5
149.9	MODESTO		COAL	0.5	277.0
149.4	MODESTO		SHALE	342.0	277.5
-192.6	MODESTO		COAL	0.5	619.5
-193.1	MODESTO		SHALE	6.0	620.0
-199.1	MODESTO	PIASA	LIMESTONE	5.0	626.0
-204.1	MODESTO		SHALE	6.0	631.0
-210.1	CARBONDALE	DANVILLE	COAL	1.0	637.0
-211.1	CARBONDALE		SHALE	12.0	638.0
-223.1	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	650.0
-233.1	CARBONDALE		SHALE	2.0	660.0
-235.1	CARBONDALE	BRERETON	LIMESTONE	2.6	662.0
-237.7	CARBONDALE	ANNA	BLACK SHALE	1.4	664.6
-239.1	CARBONDALE		SHALE	12.3	666.0
-251.4	CARBONDALE	HERRIN	COAL	5.5	678.3
-256.9	CARBONDALE		SHALE	1.2	683.8

MAPID: 08100014000C **VERSION:** 2 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** SW SW NE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.012845 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.28039 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 426.9 **LOGGED (FT.):** 685.0 **LOG TYPE:**
SOURCE: INLAND STEEL 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-251.1	CARBONDALE	HERRIN	COAL	5.5	678.0	

MAPID: 08102776000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** SE SE SW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.015217 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.273097 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 689.1 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-09-71 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-244.8	CARBONDALE	ENERGY	SILTY SHALE	3.2	680.8	
-248.0	CARBONDALE	HERRIN	COAL	5.1	684.0	

MAPID: 08124355000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE NE
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.008112 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.284072 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.0 **LOGGED (FT.):** 2262.0 **LOG TYPE:** Electric Log
SOURCE: VAN FOSSAN OIL CORP. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-332.0	CARBONDALE	SPRINGFIELD	COAL	-	765.0	
-482.0	CARBONDALE	COLCHESTER	COAL	-	915.0	
-1829.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2262.0	

MAPID: 08102527000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 9 QUARTERS/FOOTAGES: SE SE NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.986906

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.280462

DATE COLLECTED:

SURFACE ELEVATION (FT.): 432.0 LOGGED (FT.): 692.3

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-6-67

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-250.5	CARBONDALE	ENERGY	GRAY SHALE	3.5	682.5	
-254.0	CARBONDALE	HERRIN	COAL	6.3	686.0	

MAPID: 08100204000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.967681

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.28557

DATE COLLECTED:

SURFACE ELEVATION (FT.): 461.0 LOGGED (FT.): 4324.0

LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-329.0	CARBONDALE	SPRINGFIELD	COAL	-	790.0	
-492.0	CARBONDALE	COLCHESTER	COAL	-	953.0	
-1847.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2308.0	
-3743.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4204.0	TOP OF NEW ALBANY
-3751.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4212.0	
-3863.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4324.0	BASE OF NEW ALBANY

MAPID: 08100204000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' E line
 QUADRANGLE: MT. VERNON LONGITUDE: -88.967681 GEOLOGIST: BARGH,M
 CONFIDENTIAL: N LATITUDE: 38.28557 DATE COLLECTED: 4 / 0 / 1940
 SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 4578.0 LOG TYPE: Drillers Log
 SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test
 COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
450.0			UNCONSOLIDATED	40.0	0.0
410.0			SHALE	650.0	40.0
-240.0			SHALE	10.0	690.0
-250.0			LIMESTONE	21.0	700.0
-271.0			COAL	5.0	721.0
-276.0			SHALE	139.0	726.0
-415.0			LIMESTONE	4.0	865.0
-419.0			COAL	4.0	869.0
-423.0			SHALE	83.0	873.0
-506.0			COAL	4.0	956.0
-510.0			CALCAREOUS SHALE	129.0	960.0
-639.0			LIMESTONE W/ SHALE	118.0	1089.0
-757.0			COAL	2.0	1207.0
-759.0			ROCK	3369.0	1209.0

MAPID: 08102286000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 10 QUARTERS/FOOTAGES: NE NW SE
 QUADRANGLE: MT. VERNON LONGITUDE: -88.972578 GEOLOGIST:
 CONFIDENTIAL: N LATITUDE: 38.278418 DATE COLLECTED:
 SURFACE ELEVATION (FT.): 437.0 LOGGED (FT.): 689.0 LOG TYPE: Electric Log
 SOURCE: WELL TYPE: Oil and Gas Test
 COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-193.0	MODESTO	PIASA	LIMESTONE	7.0	630.0
-200.0	MODESTO		GRAY SHALE	12.0	637.0
-212.0	CARBONDALE	DANVILLE	COAL	3.0	649.0
-215.0	CARBONDALE		GRAY SHALE	10.0	652.0
-225.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	662.0
-233.0	CARBONDALE		SILTY SHALE	10.0	670.0
-243.0	CARBONDALE	BRERETON	LIMESTONE	3.0	680.0
-246.0	CARBONDALE	ANNA	BLACK SHALE	2.0	683.0
-248.0	CARBONDALE	HERRIN	COAL	4.0	685.0

MAPID: 08102292000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.965414 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.280113 DATE COLLECTED: 6 / 0 / 1953

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 2550.0 LOG TYPE: Drillers Log

SOURCE: E. A. OBERING CO WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
449.0			UNCONSOLIDATED	100.0	0.0	
349.0			SHALE	105.0	100.0	
244.0			CALCAREOUS SHALE	456.0	205.0	
-212.0			COAL	5.0	661.0	
-217.0			ROCK	1884.0	666.0	

MAPID: 08102292000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.965414 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.280113 DATE COLLECTED:

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 698.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-201.0	MODESTO	PIASA	LIMESTONE	7.0	650.0	
-208.0	MODESTO		GRAY SHALE	6.0	657.0	
-214.0	CARBONDALE	DANVILLE	COAL	3.0	663.0	
-217.0	CARBONDALE		GRAY SHALE	8.0	666.0	
-225.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	674.0	
-234.0	CARBONDALE		GRAY SHALE	9.0	683.0	
-243.0	CARBONDALE	BRERETON	LIMESTONE	2.0	692.0	
-245.0	CARBONDALE	ANNA	SHALE	1.0	694.0	
-246.0	CARBONDALE	HERRIN	COAL	3.0	695.0	

MAPID: 08102292000C VERSION: 3

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.965414 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.280113 DATE COLLECTED:

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 2290.0 LOG TYPE: Electric Log

SOURCE: OBERING ERNEST A WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-316.0	CARBONDALE	SPRINGFIELD	COAL	-	765.0
-487.0	CARBONDALE	COLCHESTER	COAL	-	936.0
-1841.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2290.0

MAPID: 08101255000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 12 QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.930652 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.284899 DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0 LOGGED (FT.): 822.5 LOG TYPE: Electric Log

SOURCE: POOR DESCRIPTION WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-292.0	MODESTO	PIASA	LIMESTONE	5.0	770.0
-297.0	MODESTO		GRAY SHALE	9.0	775.0
-306.0	CARBONDALE	DANVILLE	COAL	1.0	784.0
-307.0	CARBONDALE		GRAY SHALE	10.0	785.0
-317.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	795.0
-328.0	CARBONDALE		SILTY SHALE	6.0	806.0
-334.0	CARBONDALE	BRERETON	LIMESTONE	5.0	812.0
-339.0	CARBONDALE	ANNA	BLACK SHALE	2.0	817.0
-341.0	CARBONDALE	HERRIN	COAL	3.5	819.0

MAPID: 08101418000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 13 QUARTERS/FOOTAGES: SE SW SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.944577 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.258162 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 2432.0 LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-380.0	CARBONDALE	SPRINGFIELD	COAL	-	882.0
-529.0	CARBONDALE	COLCHESTER	COAL	-	1031.0
-1930.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2432.0

MAPID: 08101418000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 13 QUARTERS/FOOTAGES: SE SW SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.944577 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.258162 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 813.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-227.0	MODESTO		GRAY SHALE	30.0	729.0
-257.0	CARBONDALE	DANVILLE	COAL	2.0	759.0
-259.0	CARBONDALE		GRAY SHALE	20.0	761.0
-279.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	781.0
-286.0	CARBONDALE		GRAY SHALE	13.0	788.0
-299.0	CARBONDALE	BRERETON	LIMESTONE	8.0	801.0
-307.0	CARBONDALE	ANNA	BLACK SHALE	1.0	809.0
-308.0	CARBONDALE	HERRIN	COAL	3.0	810.0

MAPID: 08100897000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 14 QUARTERS/FOOTAGES: SW NE SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.951516 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.261862 DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 2393.0 LOG TYPE: Electric Log

SOURCE: OBERING ERNEST A WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-379.0	CARBONDALE	SPRINGFIELD	COAL	-	872.0
-538.0	CARBONDALE	COLCHESTER	COAL	-	1031.0
-1900.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2393.0

MAPID: 08100897000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 14 QUARTERS/FOOTAGES: SW NE SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.951516

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.261862

DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0

LOGGED (FT.): 807.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-257.0	MODESTO	PIASA	LIMESTONE	5.0	747.0	
-262.0	MODESTO		GRAY SHALE	7.0	752.0	
-269.0	CARBONDALE	DANVILLE	COAL	2.0	759.0	
-271.0	CARBONDALE		GRAY SHALE	13.0	761.0	
-284.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	774.0	
-294.0	CARBONDALE		GRAY SHALE	19.0	784.0	
-313.0	CARBONDALE	HERRIN	COAL	4.0	803.0	

MAPID: 08102772000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 15 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.972599

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.269354

DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0

LOGGED (FT.): 2302.0

LOG TYPE: Electric Log

SOURCE: HERLEY, DAVID F.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1846.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2302.0	

MAPID: 08102777000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 15 QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.982236

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.27133

DATE COLLECTED:

SURFACE ELEVATION (FT.): 432.0 LOGGED (FT.): 739.0

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-10-71

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-249.0	MODESTO	PIASA	LIMESTONE	11.0	681.0
-260.0	MODESTO		DARK GRAY SHALE	6.0	692.0
-266.0	CARBONDALE	DANVILLE	COAL	0.3	698.0
-266.3	CARBONDALE		SHALE & SILTSTONE	5.1	698.3
-271.3	CARBONDALE	ALLENBY	COAL	0.3	703.3
-271.6	CARBONDALE		CLAYSTONE	4.4	703.6
-276.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	9.5	708.0
-285.5	CARBONDALE		SHALE & SANDSTONE	5.5	717.5
-291.0	CARBONDALE	BRERETON	LIMESTONE W/ SHALE	7.2	723.0
-298.2	CARBONDALE	ANNA	BLACK SHALE	1.8	730.2
-301.0	CARBONDALE	HERRIN	COAL	6.0	733.0

MAPID: 08102657000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 17 QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: WOODLAWN LONGITUDE: -89.015302

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.258449

DATE COLLECTED:

SURFACE ELEVATION (FT.): 442.0 LOGGED (FT.): 702.4

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED FC-07-69

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-206.0	MODESTO	PIASA	LIMESTONE	7.8	648.0
-213.8	MODESTO		SILTY SHALE	6.3	655.8
-220.0	CARBONDALE	DANVILLE	COAL	0.7	662.0
-220.7	CARBONDALE		SILTY SHALE	9.6	662.7
-230.3	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	672.3
-233.3	CARBONDALE	ENERGY	GRAY SHALE	21.8	675.3
-255.0	CARBONDALE	HERRIN	COAL	5.4	697.0

MAPID: 08101045000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.033987 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.261927 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 2172.0 **LOG TYPE:** Electric Log
SOURCE: MCBRIDE, W. C., INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-296.0	CARBONDALE	SPRINGFIELD	COAL	-	721.0
-457.0	CARBONDALE	COLCHESTER	COAL	-	882.0
-1747.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2172.0

MAPID: 08102886000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 18 **QUARTERS/FOOTAGES:** NW NE NW
QUADRANGLE: WOODLAWN **LONGITUDE:** -89.036249 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.271097 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 673.6 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-06-72 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-194.8	CARBONDALE	BANKSTON FORK	LIMESTONE/SILTSTONE	15.5	635.8
-210.3	CARBONDALE	ENERGY	SHALE & SILTSTONE	4.2	651.3
-214.5	CARBONDALE	ENERGY	SANDSTONE	12.5	655.5
-227.0	CARBONDALE	HERRIN	COAL	5.6	668.0

MAPID: 08102509000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 19 **QUARTERS/FOOTAGES:** 1320' S line, 1650' W line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.03449 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.246582 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 425.0 **LOGGED (FT.):** 661.3 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-12-65 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-216.9	CARBONDALE	ANNA	BLACK SHALE	0.2	641.9
-217.1	CARBONDALE	ENERGY	DARK GRAY SHALE	1.6	642.1
-218.7	CARBONDALE	ENERGY	GRAY SHALE	12.3	643.7
-231.0	CARBONDALE	HERRIN	COAL	5.3	656.0

MAPID: 08123826000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 19 QUARTERS/FOOTAGES: 330' N line, 330' E line of SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.029473 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.245606 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 4137.0 LOG TYPE: Electric Log

SOURCE: BLACK HAWK RESOURCES CORP. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1762.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2187.0	
-3636.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4061.0	TOP OF NEW ALBANY
-3643.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4068.0	
-3712.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4137.0	BASE OF NEW ALBANY

MAPID: 081254A0003F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 19 QUARTERS/FOOTAGES: NE NW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.038688 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.249238 DATE COLLECTED: 8 / 23 / 1931

SURFACE ELEVATION (FT.): 420.0 LOGGED (FT.): 13.2 LOG TYPE: Measured section

SOURCE: FLD NOTES-WELLER WELL TYPE: Outcrop

COMMENT: OTHER NOTES ON THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
420.0			UNKNOWN	5.0	0.0	
-			ROCK	4.2		
-			COAL	0.2		SHALE PTG .06'
-			ROCK	3.8		

MAPID: 08102468000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 20 QUARTERS/FOOTAGES: 2640' N line, 1650' E line

QUADRANGLE: WOODLAWN LONGITUDE: -89.01046 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.250292 DATE COLLECTED:

SURFACE ELEVATION (FT.): 434.0 LOGGED (FT.): 707.5 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-14-65 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-213.0	MODESTO	PIASA	LIMESTONE	9.0	647.0
-222.0	MODESTO		DARK GRAY SHALE	10.0	656.0
-232.0	CARBONDALE	DANVILLE	COAL	2.0	666.0
-234.0	CARBONDALE		CLAYSTONE	4.0	668.0
-238.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	672.0
-242.5	CARBONDALE		SILTY SHALE	5.5	676.5
-248.0	CARBONDALE	BRERETON	LIMESTONE	5.0	682.0
-253.0	CARBONDALE	ANNA	BLACK SHALE	4.3	687.0
-257.3	CARBONDALE	ENERGY	SILTY SHALE	7.5	691.3
-267.0	CARBONDALE	HERRIN	COAL	6.5	701.0

MAPID: 08101779000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 21 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.994151 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.251387 DATE COLLECTED:

SURFACE ELEVATION (FT.): 424.0 LOGGED (FT.): 2307.0 LOG TYPE: Electric Log

SOURCE: GALLAGHER, VICTOR R. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-346.0	CARBONDALE	SPRINGFIELD	COAL	-	770.0
-501.0	CARBONDALE	COLCHESTER	COAL	-	925.0
-1883.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2307.0

MAPID: 08102795000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 21 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: INA LONGITUDE: -88.987237 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.246031 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 731.3 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-02-72 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-218.3	CARBONDALE	DANVILLE	COAL	0.5	643.3
-218.8	CARBONDALE		SHALE & SANDSTONE	54.0	643.8
-272.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	697.8
-279.8	CARBONDALE		GRAY SHALE	9.4	704.8
-289.3	CARBONDALE	BRERETON	LIMESTONE	3.0	714.3
-292.3	CARBONDALE	ANNA	BLACK SHALE	1.3	717.3
-293.6	CARBONDALE	ENERGY	GRAY SHALE	7.4	718.6
-301.0	CARBONDALE	HERRIN	COAL	5.3	726.0

MAPID: 08100159000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 22 QUARTERS/FOOTAGES: NW SE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.973458 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.251705 DATE COLLECTED: 0 / 0 / 1938

SURFACE ELEVATION (FT.): 439.0 LOGGED (FT.): 2800.0 LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM CO. WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
439.0			UNCONSOLIDATED	40.0	0.0
399.0			SHALE	620.0	40.0
-221.0			COAL	3.0	660.0
-224.0			SHALE	57.0	663.0
-281.0			LIMESTONE	30.0	720.0
-311.0			COAL	6.0	750.0
-317.0			ROCK	219.0	756.0
-536.0			SANDSTONE/LIMESTONE	251.0	975.0 WITH SHALE
-787.0			COAL	4.0	1226.0
-791.0			ROCK	1570.0	1230.0

MAPID: 08100159000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 22 QUARTERS/FOOTAGES: NW SE SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.973458

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.251705

DATE COLLECTED:

SURFACE ELEVATION (FT.): 439.0

LOGGED (FT.): 748.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-230.0	CARBONDALE		SILTY SHALE	50.0	669.0
-280.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	719.0
-285.0	CARBONDALE		GRAY SHALE	9.0	724.0
-294.0	CARBONDALE	BRERETON	LIMESTONE	11.0	733.0
-305.0	CARBONDALE	ANNA	BLACK SHALE	1.0	744.0
-306.0	CARBONDALE	HERRIN	COAL	3.0	745.0

MAPID: 08100193000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 22 QUARTERS/FOOTAGES: 330' N line, 990' E line of SE

QUADRANGLE: INA LONGITUDE: -88.970478

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.249392

DATE COLLECTED: 10 / 12 / 1982

SURFACE ELEVATION (FT.): 450.0

LOGGED (FT.): 2766.0

LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
450.0			UNCONSOLIDATED	581.0	0.0
-131.0			SHALE	124.0	581.0
-255.0			COAL	3.0	705.0
-258.0			ROCK	2061.0	708.0

MAPID: 08122987000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 22 QUARTERS/FOOTAGES: 330' N line, 330' E line of SW

QUADRANGLE: INA LONGITUDE: -88.977654

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.24951

DATE COLLECTED:

SURFACE ELEVATION (FT.): 448.0

LOGGED (FT.): 2337.0

LOG TYPE: Electric Log

SOURCE: JUNIPER PETROLEUM CORP.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-360.0	CARBONDALE	SPRINGFIELD	COAL	-	808.0
-517.0	CARBONDALE	COLCHESTER	COAL	-	965.0
-1889.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2337.0

MAPID: 08101744000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 23 QUARTERS/FOOTAGES: NE NW SE

QUADRANGLE: INA LONGITUDE: -88.954056 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.249335 DATE COLLECTED:

SURFACE ELEVATION (FT.): 484.0 LOGGED (FT.): 781.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-241.0	MODESTO	PIASA	LIMESTONE	4.0	725.0	
-245.0	MODESTO		GRAY SHALE	6.0	729.0	
-251.0	CARBONDALE	DANVILLE	COAL	1.0	735.0	
-252.0	CARBONDALE		SHALE & SANDSTONE	10.0	736.0	
-262.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	746.0	
-269.0	CARBONDALE	ENERGY	GRAY SHALE	22.0	753.0	
-291.0	CARBONDALE	HERRIN	COAL	6.0	775.0	

MAPID: 08101259000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 24 QUARTERS/FOOTAGES: SE SW NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.944667 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.251046 DATE COLLECTED:

SURFACE ELEVATION (FT.): 481.0 LOGGED (FT.): 770.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-239.0	MODESTO	PIASA	LIMESTONE	5.0	720.0	
-244.0	MODESTO		GRAY SHALE	7.0	725.0	
-251.0	CARBONDALE	DANVILLE	COAL	2.0	732.0	
-253.0	CARBONDALE		GRAY SHALE	10.0	734.0	
-263.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	744.0	
-270.0	CARBONDALE		GRAY SHALE	11.0	751.0	
-281.0	CARBONDALE	BRERETON	CALCAREOUS SHALE	3.0	762.0	
-284.0	CARBONDALE	ANNA	BLACK SHALE	1.0	765.0	
-285.0	CARBONDALE	HERRIN	COAL	4.0	766.0	

MAPID: 08101260000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: INA **LONGITUDE:** -88.943001 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.229431 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 2457.0 **LOG TYPE:** Electric Log
SOURCE: SEIGLER, WILLIAM F. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-376.0	CARBONDALE	SPRINGFIELD	COAL	-	839.0
-550.0	CARBONDALE	COLCHESTER	COAL	-	1013.0
-1994.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2457.0

MAPID: 08101260000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 25 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: INA **LONGITUDE:** -88.943001 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.229431 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 774.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-237.0	MODESTO	PIASA	LIMESTONE	3.0	700.0
-240.0	MODESTO		GRAY SHALE	10.0	703.0
-250.0	CARBONDALE	DANVILLE	COAL	1.0	713.0
-251.0	CARBONDALE		GRAY SHALE	8.0	714.0
-259.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	8.0	722.0
-267.0	CARBONDALE	ENERGY	SILTY SHALE	40.0	730.0
-307.0	CARBONDALE	HERRIN	COAL	4.0	770.0

MAPID: 08100015000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.95691 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.234967 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 469.5 **LOGGED (FT.):** 779.0 **LOG TYPE:**
SOURCE: INLAND STEEL 4 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-302.5	CARBONDALE	HERRIN	COAL	5.5	772.0

MAPID: 08100015000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 26

QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: INA

LONGITUDE: -88.95691

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.234967

DATE COLLECTED: 2 / 0 / 1923

SURFACE ELEVATION (FT.): 470.0

LOGGED (FT.): 779.1

LOG TYPE: Survey Core Study

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
470.0			UNCONSOLIDATED	26.0	0.0	
444.0			ROCK	51.5	26.0	
392.5			COAL	1.6	77.5	
391.0			ROCK	48.5	79.0	
342.5			COAL	0.5	127.5	
342.0			ROCK	104.0	128.0	
238.0			COAL	0.6	232.0	
237.4			ROCK	126.4	232.6	
111.0			COAL	1.0	359.0	
110.0			ROCK	177.3	360.0	
-67.3			COAL	0.8	537.3	
-68.0			ROCK	160.6	538.0	
-228.6			COAL	1.1	698.6	
-229.7			ROCK	26.3	699.7	
-256.0			COAL	1.7	726.0	
-257.7			ROCK	13.5	727.7	
-271.2			SHALE	31.1	741.2	
-302.3	CARBONDALE	HERRIN	COAL	5.5	772.3	CL.PTG .10'
-307.7			CLAYSTONE	1.4	777.7	

MAPID: 08100760000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 26

QUARTERS/FOOTAGES: 330' S line, 330' E line of NW SW

QUADRANGLE: INA

LONGITUDE: -88.964014

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.233189

DATE COLLECTED:

SURFACE ELEVATION (FT.): 463.0

LOGGED (FT.): 2388.0

LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-357.0	CARBONDALE	SPRINGFIELD	COAL	-	820.0	
-513.0	CARBONDALE	COLCHESTER	COAL	-	976.0	
-1925.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2388.0	

MAPID: 08102888000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 26 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: INA LONGITUDE: -88.966387 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.233184 DATE COLLECTED:

SURFACE ELEVATION (FT.): 470.0 LOGGED (FT.): 742.9 LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED 03-12-72 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-216.0	MODESTO	PIASA	LIMESTONE	4.8	686.0
-220.8	CARBONDALE		SILTY SHALE	10.1	690.8
-230.9	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	700.9
-235.4	CARBONDALE		ROCK	13.7	705.4
-249.1	CARBONDALE	BRERETON	LIMESTONE	4.9	719.1
-254.0	CARBONDALE	ENERGY	DARK GRAY SHALE	4.0	724.0
-267.0	CARBONDALE	HERRIN	COAL	5.9	737.0

MAPID: 08102796000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 27 QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: INA LONGITUDE: -88.982625 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.242374 DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0 LOGGED (FT.): 751.8 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-03-72 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-205.0	MODESTO	PIASA	CARBONACEOUS SHALE	2.0	643.0
-207.0	MODESTO		SANDSTONE	23.5	645.0
-230.5	CARBONDALE	DANVILLE	COAL	1.5	668.5
-232.0	CARBONDALE		SHALE & SANDSTONE	49.5	670.0
-281.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	719.5
-288.5	CARBONDALE		GRAY SHALE	6.0	726.5
-294.5	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	6.9	732.5
-301.4	CARBONDALE	ANNA	BLACK SHALE	2.5	739.4
-303.9	CARBONDALE	ENERGY	GRAY SHALE	4.5	741.9
-308.0	CARBONDALE	HERRIN	COAL	5.8	746.0

MAPID: 08124643000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 27 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE SW
QUADRANGLE: INA **LONGITUDE:** -88.978171 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.231424 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 444.0 **LOGGED (FT.):** 2344.0 **LOG TYPE:** Electric Log
SOURCE: WILBANKS EXPLOR. INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-371.0	CARBONDALE	SPRINGFIELD	COAL	-	815.0
-546.0	CARBONDALE	COLCHESTER	COAL	-	990.0
-1900.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2344.0

MAPID: 08102889000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 28 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: INA **LONGITUDE:** -88.98749 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.235096 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 734.5 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-10-72 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-239.0	MODESTO	PIASA	LIMESTONE	5.5	670.0
-244.5	MODESTO		DARK GRAY SHALE	4.5	675.5
-249.0	CARBONDALE	DANVILLE	COAL	2.3	680.0
-251.3	CARBONDALE		CLAYSTONE & SHALE	9.1	682.3
-260.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.5	691.3
-266.8	CARBONDALE		SHALE & SANDSTONE	10.7	697.8
-277.5	CARBONDALE	BRERETON	LIMESTONE	2.2	708.5
-279.7	CARBONDALE	ENERGY	GRAY SHALE	19.3	710.7
-299.0	CARBONDALE	HERRIN	COAL	4.5	730.0

MAPID: 08101752000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 29 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.00602 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.236671 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 423.0 **LOGGED (FT.):** 2302.0 **LOG TYPE:** Electric Log
SOURCE: NOVAK, ELMER M. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-327.0	CARBONDALE	SPRINGFIELD	COAL	-	750.0
-492.0	CARBONDALE	COLCHESTER	COAL	-	915.0
-1879.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2302.0

MAPID: 0810289000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 29 QUARTERS/FOOTAGES: NW NE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.00831 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.242144 DATE COLLECTED:

SURFACE ELEVATION (FT.): 431.0 LOGGED (FT.): 716.4 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-09-72 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-226.0	MODESTO	PIASA	LIMESTONE	2.7	657.0
-228.7	MODESTO		SILTY SHALE	7.9	659.7
-236.6	CARBONDALE	DANVILLE	COAL	1.3	667.6
-237.9	CARBONDALE		CLAYSTONE & SHALE	11.6	668.9
-249.4	CARBONDALE	BANKSTON FORK	LIMESTONE	2.9	680.4
-252.4	CARBONDALE		ROCK	11.8	683.4
-264.2	CARBONDALE	BRERETON	LIMESTONE/UNDERCLAY	11.3	695.2
-275.5	CARBONDALE	ENERGY	GRAY SHALE	5.9	706.5
-281.0	CARBONDALE	HERRIN	COAL	4.4	712.0

MAPID: 08100016000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 30 QUARTERS/FOOTAGES: 990' S line, 330' W line of NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.039024 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.238365 DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 455.3 LOGGED (FT.): 702.0 LOG TYPE:

SOURCE: BG MUDDYCS 4 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-238.7	CARBONDALE	HERRIN	COAL	-	694.0

MAPID: 08100016000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 30 QUARTERS/FOOTAGES: 990' S line, 330' W line of NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.039024 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.238365 DATE COLLECTED:

SURFACE ELEVATION (FT.): 455.0 LOGGED (FT.): 702.0 LOG TYPE: Survey Core Study

SOURCE: BIG MUDDY C C WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
455.0			UNCONSOLIDATED	13.0	0.0	
442.0			ROCK	22.0	13.0	
420.0			COAL	0.5	35.0	
419.5			ROCK	78.0	35.5	
341.5			COAL	1.0	113.5	
340.5			ROCK	7.5	114.5	
333.0			COAL WITH SHALE	0.5	122.0	COAL AND SHALE MIXED
332.5			ROCK	40.0	122.5	
292.5			COAL	0.8	162.5	
291.4			ROCK	100.4	163.6	
191.0			COAL	0.5	264.0	
190.5			ROCK	47.5	264.5	
143.0			COAL	0.5	312.0	
142.5			ROCK	5.5	312.5	
137.0			COAL	0.8	318.0	
136.2			ROCK	146.2	318.8	
-10.0			COAL	1.0	465.0	
-11.0			ROCK	163.5	466.0	
-174.5			COAL	0.5	629.5	
-175.0			ROCK	30.5	630.0	
-205.5			LIMESTONE	33.0	660.5	
-238.5	CARBONDALE	HERRIN	COAL	6.3	693.5	
-244.8	CARBONDALE		ROCK	2.3	699.8	

MAPID: 08101262000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 30 QUARTERS/FOOTAGES: SE NW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.029544 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.240165 DATE COLLECTED:

SURFACE ELEVATION (FT.): 422.0 LOGGED (FT.): 676.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-189.0	MODESTO	PIASA	LIMESTONE	6.0	611.0
-195.0	MODESTO		GRAY SHALE	9.0	617.0
-204.0	CARBONDALE	DANVILLE	COAL	2.0	626.0
-206.0	CARBONDALE		GRAY SHALE	7.0	628.0
-213.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	9.0	635.0
-222.0	CARBONDALE		GRAY SHALE	5.0	644.0
-227.0	CARBONDALE	BRERETON	LIMESTONE	3.0	649.0
-230.0	CARBONDALE	ANNA	BLACK SHALE	2.0	652.0
-232.0	CARBONDALE	ENERGY	GRAY SHALE	18.0	654.0
-250.0	CARBONDALE	HERRIN	COAL	4.0	672.0

MAPID: 08122929000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 30 QUARTERS/FOOTAGES: 2310' S line, 1650' E line of SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.029642 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.234718 DATE COLLECTED:

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 2220.0 LOG TYPE: Electric Log

SOURCE: DULL JOE A SLEDGE GE WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-298.0	CARBONDALE	SPRINGFIELD	COAL	-	738.0
-448.0	CARBONDALE	COLCHESTER	COAL	-	888.0
-1780.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2220.0

MAPID: 08102528000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 31 QUARTERS/FOOTAGES: SW SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.036693 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.214549 DATE COLLECTED:

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 734.2 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-1-67 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-136.9	CARBONDALE		SHALE	99.0	576.9
-235.9	CARBONDALE	BANKSTON FORK	LIMESTONE	0.5	675.9
-236.4	CARBONDALE	ENERGY	SHALE & SILTSTONE	51.6	676.4
-288.0	CARBONDALE	HERRIN	COAL	6.2	728.0

MAPID: 08124805000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 400' E line of SE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.025389 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.223796 DATE COLLECTED:

SURFACE ELEVATION (FT.): 432.0 LOGGED (FT.): 2280.0 LOG TYPE: Electric Log

SOURCE: BYARS & ELLISON WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-292.0	CARBONDALE	SPRINGFIELD	COAL	-	724.0
-453.0	CARBONDALE	COLCHESTER	COAL	-	885.0
-1848.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2280.0

MAPID: 08100017000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 32 QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.020436 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.227472 DATE COLLECTED:

SURFACE ELEVATION (FT.): 415.5 LOGGED (FT.): 0.0 LOG TYPE:

SOURCE: BG MUDDYCS 1 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-264.5	CARBONDALE	HERRIN	COAL	3.6	680.0

MAPID: 08100452000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 32 QUARTERS/FOOTAGES: 330' S line, 990' W line of NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.020522 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.222003 DATE COLLECTED: 12 / 0 / 1942

SURFACE ELEVATION (FT.): 429.0 LOGGED (FT.): 2766.0 LOG TYPE: Drillers Log

SOURCE: JEFFERSON OIL & GAS WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
429.0			UNCONSOLIDATED	72.0	0.0	
357.0			SHALE	200.0	72.0	
157.0			COAL	9.0	272.0	SOFT
148.0			ROCK	587.0	281.0	
-439.0			SHALE	58.0	868.0	
-497.0			COAL	4.0	926.0	
-501.0			ROCK	1836.0	930.0	

MAPID: 08102522000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 32 QUARTERS/FOOTAGES: SW SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013449 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.214801 DATE COLLECTED:

SURFACE ELEVATION (FT.): 420.0 LOGGED (FT.): 693.5 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-2-67 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-172.9	CARBONDALE		SHALE & SILTSTONE	42.0	592.9	
-214.9	CARBONDALE	BANKSTON FORK	LIMESTONE	0.9	634.9	
-215.8	CARBONDALE	ENERGY	SANDSTONE	28.8	635.8	
-244.6	CARBONDALE	ENERGY	SHALE & SILTSTONE	20.5	664.6	
-265.1	CARBONDALE	ENERGY	GRAY SHALE	1.9	685.1	
-267.0	CARBONDALE	HERRIN	COAL	6.5	687.0	

MAPID: 08123747000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 32 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.018135 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.218382 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 4220.0 LOG TYPE: Electric Log

SOURCE: BLACK HAWK RES. CORP. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1840.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2265.0	
-3695.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4120.0	TOP OF NEW ALBANY
-3705.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4130.0	
-3795.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4220.0	BASE OF NEW ALBANY

MAPID: 08102554000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 33 QUARTERS/FOOTAGES: SW NE NE

QUADRANGLE: INA LONGITUDE: -88.989974 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.225933 DATE COLLECTED:

SURFACE ELEVATION (FT.): 434.0 LOGGED (FT.): 700.3 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-4-65 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-199.0	MODESTO	PIASA	LIMESTONE	5.0	633.0	
-204.0	MODESTO		SHALE	6.0	638.0	
-210.0	CARBONDALE	DANVILLE	COAL	2.3	644.0	
-212.3	CARBONDALE		CLAYSTONE & SHALE	9.0	646.3	
-221.3	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	655.3	
-225.3	CARBONDALE		SILTY SHALE	9.0	659.3	
-234.3	CARBONDALE	BRERETON	LIMESTONE	2.0	668.3	
-236.3	CARBONDALE	ENERGY	SILTY SHALE	24.5	670.3	
-261.0	CARBONDALE	HERRIN	COAL	5.3	695.0	

MAPID: 08102303000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 34 QUARTERS/FOOTAGES: SW NE SE

QUADRANGLE: INA LONGITUDE: -88.971192 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.218717 DATE COLLECTED:

SURFACE ELEVATION (FT.): 470.0 LOGGED (FT.): 760.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-212.0	MODESTO	PIASA	LIMESTONE	6.0	682.0
-218.0	MODESTO		GRAY SHALE	8.0	688.0
-226.0	CARBONDALE	DANVILLE	COAL	2.0	696.0
-228.0	CARBONDALE		GRAY SHALE	5.0	698.0
-233.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	703.0
-238.0	CARBONDALE	ENERGY	GRAY SHALE	45.0	708.0
-283.0	CARBONDALE	HERRIN	COAL	7.0	753.0

MAPID: 08124696000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: NE SE NW NW

QUADRANGLE: INA

LONGITUDE: -88.982372

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.226438

DATE COLLECTED: 8 / 20 / 1971

SURFACE ELEVATION (FT.): 437.4

LOGGED (FT.): 754.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 6-6-71

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
437.4	PLEISTOCENE		CLAY	15.0	0.0
422.4	PLEISTOCENE		CLAY	7.0	15.0
415.4	PLEISTOCENE		SAND	6.0	22.0
409.4	PLEISTOCENE		CLAY	10.0	28.0
399.4	MATTOON		SHALE	2.0	38.0
397.4	MATTOON		SANDY SHALE	5.0	40.0
392.4	MATTOON		GRAY SHALE	43.0	45.0
349.4	BOND	MILLERSVILLE	LIMESTONE	2.0	88.0
347.4	BOND		COAL	1.0	90.0
346.4	BOND		CALCAREOUS SHALE	27.0	91.0
319.4	BOND		SANDY SHALE	10.0	118.0
309.4	BOND		GRAY SHALE	27.0	128.0
282.4	BOND		COAL	1.0	155.0
281.4	BOND		GRAY SHALE	36.0	156.0
245.4	BOND		COAL	2.0	192.0
243.4	BOND		UNDERCLAY	0.5	194.0
242.9	BOND		SANDY SHALE	17.5	194.5
225.4	BOND		GRAY SHALE	56.0	212.0
169.4	BOND		COAL	1.0	268.0
168.4	BOND		SANDY SHALE	21.0	269.0
147.4	BOND	CARTHAGE	LIMESTONE	8.0	290.0
139.4	MODESTO		BLACK SHALE & COAL	6.0	298.0
133.4	MODESTO		GRAY SHALE	32.0	304.0
101.4	MODESTO		LIMESTONE	9.0	336.0
92.4	MODESTO		GRAY SHALE	15.0	345.0
77.4	MODESTO		DARK SHALE & LIMESTONE	25.0	360.0
52.4	MODESTO		GRAY SHALE	45.0	385.0
7.4	MODESTO		SANDY SHALE	80.0	430.0
-72.6	MODESTO	CHAPEL	COAL	1.0	510.0
-73.6	MODESTO		GRAY SHALE	0.5	511.0
-74.1	MODESTO		COAL	0.5	511.5
-74.6	MODESTO		SANDY SHALE	24.0	512.0
-98.6	MODESTO		SHALE WITH LIMESTONE	8.0	536.0
-106.6	MODESTO		LIMESTONE	14.0	544.0
-120.6	MODESTO		GRAY SHALE	12.0	558.0
-132.6	MODESTO		SANDY SHALE	38.0	570.0
-170.6	MODESTO		SANDSTONE	17.0	608.0
-187.6	MODESTO		SANDY SHALE	27.0	625.0

-214.6	MODESTO		LIMESTONE	7.0	652.0	
-221.6	MODESTO		BLACK SHALE & COAL	2.0	659.0	
-223.6	MODESTO		SANDY SHALE	5.0	661.0	
-228.6	MODESTO		LIMESTONE	8.0	666.0	
-236.6	MODESTO		SANDY SHALE	7.0	674.0	
-243.6	MODESTO	PIASA	LIMESTONE	4.0	681.0	
-247.6	CARBONDALE	DANVILLE	COAL	1.0	685.0	
-248.6	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	686.0	
-253.6	CARBONDALE		GRAY SHALE	3.0	691.0	
-256.6	CARBONDALE		BLACK SHALE	1.0	694.0	
-257.6	CARBONDALE	JAMESTOWN	COAL	2.0	695.0	
-259.6	CARBONDALE		DARK SHALE	4.0	697.0	
-263.6	CARBONDALE	BRERETON	LIMESTONE	19.0	701.0	
-282.6	CARBONDALE	ENERGY	GRAY SHALE	20.0	720.0	
-302.6	CARBONDALE	ENERGY	GRAY SHALE	5.5	740.0	START CORE 740-
-308.1	CARBONDALE	HERRIN	COAL	4.5	745.5	754
-312.6	CARBONDALE		UNDERCLAY	4.0	750.0	

MAPID: 08124968000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: SE NE NW SE

QUADRANGLE: INA

LONGITUDE: -88.972959

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.220078

DATE COLLECTED: 7 / 30 / 1971

SURFACE ELEVATION (FT.): 446.7

LOGGED (FT.): 753.5

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 6-5-71

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
446.7	PLEISTOCENE		CLAY	28.0	0.0	
418.7	PLEISTOCENE		SAND	8.0	28.0	
410.7	MATTOON		CALCAREOUS SHALE	24.0	36.0	
386.7	MATTOON		COAL	1.0	60.0	
385.7	MATTOON		SANDY SHALE	97.0	61.0	
288.7	BOND		BLACK SHALE	2.0	158.0	
286.7	BOND		GRAY SHALE	8.0	160.0	
278.7	BOND		SANDY SHALE	28.0	168.0	
250.7	BOND		DARK SHALE	3.0	196.0	
247.7	BOND		COAL	2.0	199.0	
245.7	BOND		UNDERCLAY	1.0	201.0	
244.7	BOND		SANDY SHALE	6.0	202.0	
238.7	BOND		SANDSTONE	23.0	208.0	
215.7	BOND		BLACK SHALE	2.0	231.0	
213.7	BOND		COAL	1.0	233.0	
212.7	BOND		CALCAREOUS SHALE	11.0	234.0	
201.7	BOND		GRAY SHALE	50.0	245.0	
151.7	BOND	CARTHAGE	LIMESTONE	8.0	295.0	
143.7	MODESTO		BLACK SHALE	2.0	303.0	
141.7	MODESTO	NEW HAVEN	COAL	1.0	305.0	
140.7	MODESTO		GRAY SHALE	31.0	306.0	
109.7	MODESTO		COAL	1.0	337.0	
108.7	MODESTO		UNDERCLAY	0.5	338.0	
108.2	MODESTO		GRAY SHALE	2.5	338.5	
105.7	MODESTO		SANDSTONE	1.0	341.0	
104.7	MODESTO		LIMESTONE	10.0	342.0	
94.7	MODESTO		GRAY SHALE	32.0	352.0	
62.7	MODESTO		LIMESTONE	2.0	384.0	
60.7	MODESTO		DARK SHALE	5.0	386.0	WITH THIN COAL STREAK
55.7	MODESTO		GRAY SHALE	4.0	391.0	
51.7	MODESTO		LIMESTONE	14.0	395.0	
37.7	MODESTO		GRAY SHALE	22.0	409.0	
15.7	MODESTO		LIMESTONE	4.0	431.0	
11.7	MODESTO		GRAY SHALE	13.0	435.0	
-1.3	MODESTO		SANDY SHALE	39.0	448.0	
-40.3	MODESTO		SANDSTONE	17.0	487.0	
-57.3	MODESTO		BLACK SHALE	2.0	504.0	
-59.3	MODESTO		SANDSTONE	14.0	506.0	
-73.3	MODESTO		GRAY SHALE	12.0	520.0	

-85.3	MODESTO		SANDY SHALE	22.0	532.0	
-107.3	MODESTO		GRAY SHALE	6.0	554.0	
-113.3	MODESTO		SANDSTONE	60.0	560.0	
-173.3	MODESTO		SANDY SHALE	17.0	620.0	
-190.3	MODESTO		SANDSTONE	4.0	637.0	
-194.3	MODESTO		SHALE WITH LIMESTONE	25.0	641.0	
-219.3	MODESTO	PIASA	LIMESTONE	2.0	666.0	
-221.3	CARBONDALE	DANVILLE	COAL	1.5	668.0	
-222.8	CARBONDALE		SHALE WITH LIMESTONE	13.5	669.5	
-236.3	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	683.0	
-238.3	CARBONDALE		COAL	1.0	685.0	
-239.3	CARBONDALE	CONANT	LIMESTONE	2.0	686.0	
-241.3	CARBONDALE	JAMESTOWN	COAL	3.0	688.0	
-244.3	CARBONDALE	BRERETON	LIMESTONE	13.0	691.0	
-257.3	CARBONDALE		COAL	1.5	704.0	
-258.8	CARBONDALE	ENERGY	SANDY SHALE	2.5	705.5	
-261.3	CARBONDALE	ENERGY	GRAY SHALE	38.0	708.0	START CORE 735- 753.5
-299.3	CARBONDALE	ENERGY	SHALE	1.0	746.0	
-300.3	CARBONDALE	HERRIN	COAL	5.0	747.0	
-305.3	CARBONDALE		UNDERCLAY	1.5	752.0	

MAPID: 08124970000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: INA

LONGITUDE: -88.973559

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.224164

DATE COLLECTED: 6 / 23 / 1989

SURFACE ELEVATION (FT.): 442.1

LOGGED (FT.): 754.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 6-9-89

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
442.1	PLEISTOCENE		CLAY	50.0	0.0
392.1	MATTOON		GRAY SHALE	15.0	50.0
377.1	MATTOON		GRAY SHALE	9.0	65.0
368.1	MATTOON		LIMESTONE	1.0	74.0
367.1	MATTOON		GRAY SHALE	10.0	75.0
357.1	MATTOON		COAL	1.0	85.0
356.1	MATTOON		GRAY SHALE	6.0	86.0
350.1	MATTOON		COAL	1.0	92.0
349.1	MATTOON		GRAY SHALE	2.0	93.0
347.1	MATTOON		GRAY SHALE	20.0	95.0
327.1	MATTOON		DARK GRAY SHALE	34.0	115.0
293.1	MATTOON		COAL	1.0	149.0
292.1	BOND	MILLERSVILLE	LIMESTONE	2.0	150.0
290.1	BOND		GRAY SHALE	6.0	152.0
284.1	BOND		GRAY SHALE	17.0	158.0
267.1	BOND		GRAY SHALE	25.0	175.0
242.1	BOND		LIMESTONE	1.0	200.0
241.1	BOND		GRAY SHALE	9.0	201.0
232.1	BOND		GRAY SHALE	19.0	210.0
213.1	BOND		COAL	1.0	229.0
212.1	BOND		GRAY SHALE	12.0	230.0
200.1	BOND		LIMESTONE	2.0	242.0
198.1	BOND		GRAY SHALE	6.0	244.0
192.1	BOND		GRAY SHALE	40.0	250.0
152.1	BOND	CARTHAGE	LIMESTONE	6.0	290.0
146.1	MODESTO		BLACK SHALE	1.0	296.0
145.1	MODESTO		DARK GRAY SHALE	23.0	297.0
122.1	MODESTO		UNKNOWN	11.0	320.0
111.1	MODESTO		GRAY SHALE	7.0	331.0
104.1	MODESTO		LIMESTONE	4.0	338.0
100.1	MODESTO		GRAY SHALE	5.0	342.0
95.1	MODESTO		DARK GRAY SHALE	3.0	347.0
92.1	MODESTO		LIMESTONE	1.0	350.0
91.1	MODESTO		GRAY SHALE	11.0	351.0
80.1	MODESTO		BLACK SHALE	3.0	362.0
77.1	MODESTO		GRAY SHALE	10.0	365.0
67.1	MODESTO		GRAY SHALE	45.0	375.0
22.1	MODESTO		GRAY SHALE	15.0	420.0
7.1	MODESTO		LIMESTONE	1.0	435.0

6.1	MODESTO		GRAY SHALE	69.0	436.0	
-62.9	MODESTO	POND CREEK	COAL	1.0	505.0	
-63.9	MODESTO		DARK GRAY SHALE	7.0	506.0	
-70.9	MODESTO		GRAY SHALE	7.0	513.0	
-77.9	MODESTO		GRAY SHALE	115.0	520.0	
-192.9	MODESTO		GRAY SHALE	20.0	635.0	
-212.9	MODESTO		GRAY SHALE	15.0	655.0	
-227.9	MODESTO		GRAY SHALE	5.0	670.0	
-232.9	MODESTO	PIASA	LIMESTONE	4.0	675.0	
-236.9	MODESTO		GRAY SHALE	6.0	679.0	
-242.9	MODESTO		GRAY SHALE	5.0	685.0	
-247.9	MODESTO		GRAY SHALE	2.0	690.0	
-249.9	CARBONDALE	DANVILLE	COAL	1.0	692.0	
-250.9	CARBONDALE		GRAY SHALE	3.0	693.0	
-253.9	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	696.0	
-256.9	CARBONDALE		CALCAREOUS SHALE	1.0	699.0	
-257.9	CARBONDALE	CONANT	LIMESTONE	2.0	700.0	UNCERTAIN CORRELATION
-259.9	CARBONDALE		SHALY LIMESTONE	7.0	702.0	
-266.9	CARBONDALE		GRAY SHALE	1.0	709.0	
-267.9	CARBONDALE	BRERETON	LIMESTONE	1.0	710.0	
-268.9	CARBONDALE	ENERGY	GRAY SHALE	7.0	711.0	
-275.9	CARBONDALE	ENERGY	DARK GRAY SHALE	1.0	718.0	
-276.9	CARBONDALE	ENERGY	GRAY SHALE	5.0	719.0	
-281.9	CARBONDALE	ENERGY	SILTY SHALE	10.7	724.0	START CORE 724- 754
-292.6	CARBONDALE	ENERGY	GRAY SHALE	4.3	734.7	
-296.9	CARBONDALE	ENERGY	GRAY SHALE	2.0	739.0	
-298.9	CARBONDALE	HERRIN	COAL	5.9	741.0	
-304.8	CARBONDALE		UNDERCLAY	1.3	746.9	
-306.1	CARBONDALE		SILTSTONE	5.8	748.2	

MAPID: 08124973000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: SE SE NW SW

QUADRANGLE: INA

LONGITUDE: -88.982383

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.218255

DATE COLLECTED: 6 / 2 / 1989

SURFACE ELEVATION (FT.): 439.5

LOGGED (FT.): 741.3

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
439.5	PLEISTOCENE		CLAY	50.0	0.0
389.5	MATTOON		GRAY SHALE	10.0	50.0
379.5	MATTOON		DARK GRAY SHALE	5.0	60.0
374.5	MATTOON		SANDY SHALE	23.0	65.0
351.5	MATTOON		DARK GRAY SHALE	37.0	88.0
314.5	MATTOON		COAL	1.0	125.0
313.5	MATTOON		GRAY SHALE	24.0	126.0
289.5	MATTOON		GRAY SHALE	11.0	150.0
278.5	BOND	MILLERSVILLE	LIMESTONE	1.5	161.0
277.0	BOND		GRAY SHALE	7.5	162.5
269.5	BOND		BLACK SHALE	2.0	170.0
267.5	BOND		GRAY SHALE	4.0	172.0
263.5	BOND		SANDSTONE	4.0	176.0
259.5	BOND		GRAY SHALE	20.0	180.0
239.5	BOND		DARK GRAY SHALE	10.0	200.0
229.5	BOND		GRAY SHALE	5.0	210.0
224.5	BOND		LIMESTONE	2.0	215.0
222.5	BOND		GRAY SHALE	8.0	217.0
214.5	BOND		GRAY SHALE	46.0	225.0
168.5	BOND	CARTHAGE	LIMESTONE	5.0	271.0
163.5	MODESTO		BLACK SHALE	2.0	276.0
161.5	MODESTO		GRAY SHALE	17.0	278.0
144.5	MODESTO		DARK GRAY SHALE	14.0	295.0
130.5	MODESTO	WOMAC	COAL	1.0	309.0
129.5	MODESTO		GRAY SHALE	10.0	310.0
119.5	MODESTO		LIMESTONE	3.5	320.0
116.0	MODESTO		GRAY SHALE	9.5	323.5
106.5	MODESTO		GRAY SHALE	31.5	333.0
75.0	MODESTO		BLACK SHALE	1.0	364.5
74.0	MODESTO		GRAY SHALE	9.5	365.5
64.5	MODESTO		GRAY SHALE	10.0	375.0
54.5	MODESTO		GRAY SHALE	93.0	385.0
-38.5	MODESTO	CHAPEL	COAL	1.0	478.0
-39.5	MODESTO		GRAY SHALE	5.0	479.0
-44.5	MODESTO		GRAY SHALE	36.0	484.0
-80.5	MODESTO		GRAY SHALE	20.0	520.0
-100.5	MODESTO		GRAY SHALE	100.0	540.0
-200.5	MODESTO		GRAY SHALE	8.0	640.0
-208.5	MODESTO		BLACK SHALE	5.0	648.0

-213.5	MODESTO		GRAY SHALE	4.5	653.0	
-218.0	MODESTO	PIASA	LIMESTONE	3.5	657.5	
-221.5	MODESTO		GRAY SHALE	15.0	661.0	
-236.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	676.0	
-238.5	CARBONDALE		GRAY SHALE	7.5	678.0	
-246.0	CARBONDALE	BRERETON	LIMESTONE	0.5	685.5	
-246.5	CARBONDALE	ENERGY	GRAY SHALE	4.0	686.0	
-250.5	CARBONDALE	ENERGY	GRAY SHALE	13.0	690.0	
-263.5	CARBONDALE	ENERGY	SILTY SHALE	1.0	703.0	CORE START 703-741.3
-264.5	CARBONDALE	ENERGY	SILTY SHALE	6.0	704.0	
-270.5	CARBONDALE	ENERGY	GRAY SHALE	6.3	710.0	
-276.8	CARBONDALE	ENERGY	UNKNOWN	0.5	716.3	CORE LOSS SHALEY
-277.3	CARBONDALE	ENERGY	GRAY SHALE	8.5	716.8	
-285.8	CARBONDALE	HERRIN	COAL	6.0	725.3	
-291.8	CARBONDALE		UNDERCLAY	2.6	731.3	
-294.4	CARBONDALE		SANDSTONE	7.4	733.9	GRAY

MAPID: 08124974000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: SW SE NE NW

QUADRANGLE: INA

LONGITUDE: -88.978848

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.225527

DATE COLLECTED: 6 / 6 / 1989

SURFACE ELEVATION (FT.): 441.9

LOGGED (FT.): 766.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
441.9	PLEISTOCENE		CLAY	25.0	0.0
416.9	MATTOON		GRAY SHALE	65.0	25.0
351.9	MATTOON		GRAY SHALE	5.0	90.0
346.9	MATTOON		GRAY SHALE	35.0	95.0
311.9	MATTOON		GRAY SHALE	27.0	130.0
284.9	MATTOON		COAL	2.0	157.0
282.9	MATTOON		GRAY SHALE	21.0	159.0
261.9	MATTOON		GRAY SHALE	6.0	180.0
255.9	BOND	MILLERSVILLE	LIMESTONE	1.0	186.0
254.9	BOND		GRAY SHALE	8.0	187.0
246.9	BOND		COAL	1.0	195.0
245.9	BOND		GRAY SHALE	29.0	196.0
216.9	BOND		GRAY SHALE	10.0	225.0
206.9	BOND		GRAY SHALE	5.0	235.0
201.9	BOND		LIMESTONE	1.0	240.0
200.9	BOND		GRAY SHALE	39.0	241.0
161.9	BOND		GRAY SHALE	15.0	280.0
146.9	BOND	CARTHAGE	LIMESTONE	6.0	295.0
140.9	MODESTO		BLACK SHALE	2.0	301.0
138.9	MODESTO		GRAY SHALE	12.0	303.0
126.9	MODESTO		GRAY SHALE	26.0	315.0
100.9	MODESTO	WOMAC	COAL	1.0	341.0
99.9	MODESTO		LIMESTONE	4.0	342.0
95.9	MODESTO		GRAY SHALE	14.0	346.0
81.9	MODESTO		GRAY SHALE	20.0	360.0
61.9	MODESTO		GRAY SHALE	10.0	380.0
51.9	MODESTO		GRAY SHALE	10.0	390.0
41.9	MODESTO		GRAY SHALE	220.0	400.0
-178.1	MODESTO		GRAY SHALE	20.0	620.0
-198.1	MODESTO		GRAY SHALE	47.0	640.0
-245.1	MODESTO	PIASA	LIMESTONE	3.0	687.0
-248.1	MODESTO		GRAY SHALE	5.0	690.0
-253.1	CARBONDALE	DANVILLE	COAL	2.0	695.0
-255.1	CARBONDALE		GRAY SHALE	12.0	697.0
-267.1	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	709.0
-270.1	CARBONDALE	BANKSTON FORK	GRAY SHALE	1.0	712.0
-271.1	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	713.0
-273.1	CARBONDALE		CALCAREOUS SHALE	5.0	715.0
-278.1	CARBONDALE		GRAY SHALE	4.0	720.0

-282.1	CARBONDALE	BRERETON	LIMESTONE	1.0	724.0	
-283.1	CARBONDALE	ENERGY	GRAY SHALE	10.0	725.0	
-293.1	CARBONDALE	ENERGY	BLACK SHALE	1.0	735.0	
-294.1	CARBONDALE	ENERGY	GRAY SHALE	1.0	736.0	
-295.1	CARBONDALE	ENERGY	SILTY SHALE	9.7	737.0	START CORE 737- 766
-304.8	CARBONDALE	ENERGY	DARK GRAY SHALE	0.2	746.7	
-305.0	CARBONDALE	HERRIN	COAL	6.1	746.9	
-311.1	CARBONDALE		UNDERCLAY	2.0	753.0	
-313.1	CARBONDALE		SANDSTONE	2.4	755.0	ARGILLACEOUS
-315.5	CARBONDALE		SILTY SHALE	8.6	757.4	

MAPID: 08124975000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 34

QUARTERS/FOOTAGES: SE NW NE SW

QUADRANGLE: INA

LONGITUDE: -88.847566

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.253741

DATE COLLECTED: 5 / 30 / 1989

SURFACE ELEVATION (FT.): 442.9

LOGGED (FT.): 742.3

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
442.9	PLEISTOCENE		CLAY	52.0	0.0	
390.9	MATTOON		GRAY SHALE	82.0	52.0	
308.9	BOND	MILLERSVILLE	LIMESTONE	1.0	134.0	
307.9	BOND		BLACK SHALE	1.0	135.0	
306.9	BOND		LIMESTONE	1.0	136.0	
305.9	BOND		BLACK SHALE	1.0	137.0	
304.9	BOND		GRAY SHALE	22.0	138.0	
282.9	BOND		DARK GRAY SHALE	25.0	160.0	
257.9	BOND		GRAY SHALE	40.0	185.0	
217.9	BOND		LIMESTONE	5.0	225.0	
212.9	BOND		SANDY SHALE	35.0	230.0	
177.9	BOND		DARK GRAY SHALE	13.0	265.0	
164.9	BOND	CARTHAGE	LIMESTONE	5.0	278.0	
159.9	MODESTO		BLACK SHALE	2.0	283.0	
157.9	MODESTO		GRAY SHALE	30.0	285.0	
127.9	MODESTO		DARK GRAY SHALE	5.0	315.0	
122.9	MODESTO		GRAY SHALE	5.0	320.0	
117.9	MODESTO		LIMESTONE	5.0	325.0	
112.9	MODESTO		GRAY SHALE	40.0	330.0	
72.9	MODESTO		GRAY SHALE	8.0	370.0	
64.9	MODESTO		GRAY SHALE	22.0	378.0	
42.9	MODESTO		LIMESTONE	1.0	400.0	
41.9	MODESTO		GRAY SHALE	239.0	401.0	
-197.1	MODESTO		GRAY SHALE	5.0	640.0	
-202.1	MODESTO	DEGRAFF	COAL	1.0	645.0	
-203.1	MODESTO		GRAY SHALE	13.0	646.0	
-216.1	MODESTO	PIASA	LIMESTONE	5.5	659.0	
-221.6	MODESTO		GRAY SHALE	5.5	664.5	
-227.1	MODESTO		BLACK SHALE	1.0	670.0	
-228.1	MODESTO		GRAY SHALE	1.0	671.0	
-229.1	CARBONDALE	DANVILLE	COAL	1.0	672.0	
-230.1	CARBONDALE		DARK GRAY SHALE	9.0	673.0	
-239.1	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	682.0	
-242.1	CARBONDALE		DARK GRAY SHALE	7.5	685.0	
-249.6	CARBONDALE	BRERETON	LIMESTONE	2.0	692.5	
-251.6	CARBONDALE	ENERGY	DARK GRAY SHALE	16.5	694.5	
-268.1	CARBONDALE	ENERGY	SILTY SHALE	7.9	711.0	START CORE 711-742.2
-276.0	CARBONDALE	ENERGY	UNKNOWN	0.2	718.9	CORE LOSS SHALEY
-276.2	CARBONDALE	ENERGY	SILTY SHALE	8.1	719.1	

-284.3	CARBONDALE	ENERGY	GRAY SHALE	0.5	727.2
-284.8	CARBONDALE	HERRIN	COAL	5.9	727.7
-290.7	CARBONDALE		UNDERCLAY	1.1	733.6
-291.8	CARBONDALE		SANDSTONE/LIMESTONE	7.5	734.7

MAPID: 08102755000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** NW SW NE
QUADRANGLE: INA **LONGITUDE:** -88.95709 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.22409 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 472.0 **LOGGED (FT.):** 772.5 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-03-71 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-224.0	MODESTO	PIASA	LIMESTONE	9.0	696.0
-233.0	MODESTO		SANDSTONE	15.0	705.0
-248.0	CARBONDALE	DANVILLE	CARBONACEOUS SHALE	2.0	720.0
-250.0	CARBONDALE		SANDSTONE	3.0	722.0
-253.0	CARBONDALE	BANKSTON FORK	LIMESTONE	20.0	725.0
-273.0	CARBONDALE	ENERGY	GRAY SHALE	21.8	745.0
-295.0	CARBONDALE	HERRIN	COAL	5.5	767.0

MAPID: 08124422000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 35

QUARTERS/FOOTAGES: NE SE NE SE

QUADRANGLE: INA

LONGITUDE: -88.949332

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.219018

DATE COLLECTED: 10 / 15 / 1985

SURFACE ELEVATION (FT.): 442.6

LOGGED (FT.): 760.6

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 6-8-85

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
442.6	PLEISTOCENE		SOIL	6.0	0.0	
436.6	MATTOON		SANDY SHALE	50.0	6.0	
386.6			GRAY SHALE	35.0	56.0	
351.6	BOND		BLACK SHALE	1.0	91.0	
350.6	BOND		GRAY SHALE	3.0	92.0	
347.6	BOND		SANDSTONE	15.0	95.0	
332.6	BOND		SANDY SHALE	69.0	110.0	
263.6	BOND		SANDSTONE	32.0	179.0	
231.6	BOND		SANDY SHALE	42.0	211.0	
189.6	BOND		DARK GRAY SHALE	32.5	253.0	
157.1	BOND	CARTHAGE	LIMESTONE	8.5	285.5	
148.6	MODESTO		BLACK SHALE	2.0	294.0	
146.6	MODESTO		GRAY SHALE	3.0	296.0	
143.6	MODESTO		SANDSTONE	24.0	299.0	
119.6	MODESTO		COAL	2.0	323.0	
117.6	MODESTO		SANDSTONE	17.0	325.0	
100.6	MODESTO		LIMESTONE	2.0	342.0	
98.6	MODESTO		SANDSTONE	11.0	344.0	
87.6	MODESTO		DARK GRAY SHALE	31.0	355.0	
56.6	MODESTO		BLACK SHALE	1.0	386.0	
55.6	MODESTO		GRAY SHALE	2.0	387.0	
53.6	MODESTO		SHALY SANDSTONE	115.0	389.0	
-61.4	MODESTO		BLACK SHALE	3.0	504.0	
-64.4	MODESTO		COAL	1.0	507.0	
-65.4	MODESTO		UNDERCLAY	3.0	508.0	
-68.4	MODESTO		SHALY SANDSTONE	131.0	511.0	
-199.4	MODESTO		GRAY SHALE	15.0	642.0	
-214.4	MODESTO		GRAY SHALE	21.0	657.0	
-235.4	MODESTO		BLACK SHALE	3.0	678.0	
-238.4	MODESTO		GRAY SHALE	1.0	681.0	
-239.4	CARBONDALE	DANVILLE	COAL	0.5	682.0	
-239.9	CARBONDALE		GRAY SHALE	2.5	682.5	
-242.4	CARBONDALE		SANDSTONE	30.0	685.0	START CORE 715 760.6
-272.4	CARBONDALE		SANDSTONE	4.3	715.0	
-276.7	CARBONDALE		GRAY SHALE	1.0	719.3	
-277.7	CARBONDALE		SANDSTONE	0.8	720.3	
-278.5	CARBONDALE		SANDY SHALE	6.8	721.1	
-285.3	CARBONDALE		SANDSTONE	6.6	727.9	

-291.9	CARBONDALE		SANDSTONE & CONGLOMERATE	2.3	734.5
-294.2	CARBONDALE		SANDSTONE	5.9	736.8
-300.1	CARBONDALE		SHALY SANDSTONE	7.9	742.7
-308.0	CARBONDALE		GRAY SHALE	0.8	750.6
-308.8	CARBONDALE	HERRIN	COAL	5.5	751.4
-314.3	CARBONDALE		UNDERCLAY	1.7	756.9
-316.0	CARBONDALE		SANDSTONE	2.0	758.6

MAPID: 08124971000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 35 QUARTERS/FOOTAGES: 675' S line, 275' W line of NE SW

QUADRANGLE: INA LONGITUDE: -88.961971 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.219624 DATE COLLECTED: 7 / 18 / 1985

SURFACE ELEVATION (FT.): 465.3 LOGGED (FT.): 764.0 LOG TYPE:

SOURCE: FREEMAN UNITED COAL MINING CO 6-1-85 WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
465.3	PLEISTOCENE		SOIL	3.0	0.0
462.3	PLEISTOCENE		GLACIAL DRIFT	35.0	3.0
427.3	MATTOON		COAL	0.5	38.0
426.8	MATTOON		UNDERCLAY	0.5	38.5
426.3	MATTOON		GRAY SHALE	4.0	39.0
422.3	MATTOON		SANDSTONE	0.5	43.0
421.8	MATTOON		SANDY SHALE	11.5	43.5
410.3	MATTOON		BLACK SHALE	2.0	55.0
408.3	MATTOON		SANDY SHALE	51.0	57.0
357.3	MATTOON		BLACK SHALE	2.0	108.0
355.3	MATTOON		COAL	1.5	110.0
353.8	MATTOON		UNDERCLAY	1.5	111.5
352.3			GRAY SHALE	99.0	113.0
253.3	BOND		SHALY SANDSTONE	23.0	212.0
230.3	BOND		GRAY SHALE	27.0	235.0
203.3	BOND		SHALY SANDSTONE	42.5	262.0
160.8	BOND	CARTHAGE	LIMESTONE	5.8	304.5
155.0	MODESTO		GRAY SHALE	1.7	310.3
153.3	MODESTO		BLACK SHALE	2.0	312.0
151.3	MODESTO		SANDY SHALE	25.0	314.0
126.3	MODESTO	NEW HAVEN	COAL	1.0	339.0
125.3	MODESTO		UNDERCLAY	1.0	340.0
124.3	MODESTO		SANDY SHALE	12.0	341.0
112.3	MODESTO		SANDSTONE	4.0	353.0
108.3	MODESTO		SHALY SANDSTONE	44.0	357.0
64.3	MODESTO		SANDY SHALE	1.9	401.0
62.4	MODESTO		SHALE	120.1	402.9
-57.7	MODESTO		BLACK SHALE	1.0	523.0
-58.7	MODESTO	CHAPEL	COAL	1.0	524.0
-59.7	MODESTO		UNDERCLAY	0.5	525.0
-60.2	MODESTO		SHALE	165.5	525.5
-225.7	MODESTO	DEGRAFF	COAL	0.7	691.0
-226.4	MODESTO		UNDERCLAY	1.3	691.7
-227.7	MODESTO		SHALE	10.0	693.0
-237.7	MODESTO	PIASA	LIMESTONE	5.4	703.0
-243.1	MODESTO		SHALE	6.6	708.4
-249.7	MODESTO		BLACK SHALE	1.6	715.0
-251.3	CARBONDALE	DANVILLE	COAL	2.3	716.6
-253.6	CARBONDALE		UNDERCLAY	0.6	718.9

-254.2	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	719.5	
-257.7	CARBONDALE		SHALE	1.0	723.0	
-258.7	CARBONDALE	BRERETON	LIMESTONE	7.0	724.0	
-265.7	CARBONDALE	ENERGY	SHALE	19.0	731.0	
-284.7	CARBONDALE	ENERGY	SHALE	11.0	750.0	START CORE
-295.7	CARBONDALE	HERRIN	COAL	3.0	761.0	BROKEN

MAPID: 08124972000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 3S 2E

SECTION: 35

QUARTERS/FOOTAGES: NW NE SE SE

QUADRANGLE: INA

LONGITUDE: -88.950476

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.217204

DATE COLLECTED:

SURFACE ELEVATION (FT.): 446.8

LOGGED (FT.): 765.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO 6-2-90

WELL TYPE: Coal Test

COMMENT: PERMIT 42; ORIENT #6

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
446.8	PLEISTOCENE		GLACIAL DRIFT	25.0	0.0
421.8	MATTOON		GRAY SHALE	60.0	25.0
361.8	BOND	MILLERSVILLE	LIMESTONE	2.0	85.0
359.8	BOND		BLACK SHALE	3.0	87.0
356.8	BOND		COAL	0.5	90.0
356.3	BOND		DARK GRAY SHALE	42.5	90.5
313.8	BOND		BLACK SHALE	2.0	133.0
311.8	BOND		COAL	1.0	135.0
310.8	BOND		GRAY SHALE	47.0	136.0
263.8	BOND		SANDSTONE	43.0	183.0
220.8	BOND		GRAY SHALE	39.0	226.0
181.8	BOND		GRAY SHALE	26.0	265.0
155.8	BOND	CARTHAGE	LIMESTONE	6.5	291.0
149.3	MODESTO		BLACK SHALE	2.5	297.5
146.8	MODESTO		GRAY SHALE	36.0	300.0
110.8	MODESTO		ARGILLACEOUS SANDSTONE	14.0	336.0
96.8	MODESTO		GRAY SHALE	42.0	350.0
54.8	MODESTO		BLACK SHALE	2.0	392.0
52.8	MODESTO	WOMAC	COAL	1.0	394.0
51.8	MODESTO		ARGILLACEOUS SANDSTONE	42.0	395.0
9.8	MODESTO		SILTSTONE	58.0	437.0
-48.2	MODESTO		GRAY SHALE	11.0	495.0
-59.2	MODESTO		LIMESTONE	1.0	506.0
-60.2	MODESTO		BLACK SHALE	3.0	507.0
-63.2	MODESTO	CHAPEL	COAL	1.0	510.0
-64.2	MODESTO		GRAY SHALE	37.0	511.0
-101.2	MODESTO		SILTSTONE	102.0	548.0
-203.2	MODESTO		GRAY SHALE	8.0	650.0
-211.2	MODESTO		DARK GRAY SHALE	18.0	658.0
-229.2	MODESTO		BLACK SHALE	4.0	676.0
-233.2	MODESTO		CLAYSTONE	2.0	680.0
-235.2	CARBONDALE	ENERGY	SILTY SHALE	71.0	682.0
-306.2	CARBONDALE	HERRIN	COAL	5.7	753.0
-311.9	CARBONDALE		UNDERCLAY	2.3	758.7
-314.2	CARBONDALE		SANDSTONE	4.0	761.0

MAPID: 08124072000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 3S 2E SECTION: 36 QUARTERS/FOOTAGES: 330' S line, 660' W line of NW

QUADRANGLE: INA LONGITUDE: -88.946504 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.22219 DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0 LOGGED (FT.): 4494.0 LOG TYPE: Electric Log

SOURCE: BREHM, DWIGHT RESOURCES WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-379.0	CARBONDALE	SPRINGFIELD	COAL	-	820.0	
-556.0	CARBONDALE	COLCHESTER	COAL	-	997.0	
-1995.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2436.0	
-3948.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4389.0	TOP OF NEW ALBANY
-3953.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4394.0	
-4053.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4494.0	BASE OF NEW ALBANY

MAPID: 08100779000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.830472 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.298349 DATE COLLECTED:

SURFACE ELEVATION (FT.): 504.0 LOGGED (FT.): 3097.0 LOG TYPE: Electric Log

SOURCE: BELL, WM. ESTATE WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-401.0	CARBONDALE	HERRIN	COAL	4.0	905.0	
-451.0	CARBONDALE	BRIAR HILL	COAL	-	955.0	
-477.0	CARBONDALE	SPRINGFIELD	COAL	4.0	981.0	BLACK SHALE ROOF
-506.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1010.0	

MAPID: 08100779000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.830472 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.298349 DATE COLLECTED:

SURFACE ELEVATION (FT.): 504.0 LOGGED (FT.): 905.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-342.0	MODESTO	PIASA	LIMESTONE	4.0	846.0	
-346.0	MODESTO		SHALE	6.0	850.0	
-352.0	CARBONDALE	DANVILLE	COAL	4.0	856.0	
-356.0	CARBONDALE		SHALE & SANDSTONE	17.0	860.0	
-373.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	877.0	
-378.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	21.0	882.0	
-394.0	CARBONDALE	HERRIN	COAL	7.0	898.0	

MAPID: 081242D0006F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 1 QUARTERS/FOOTAGES: NE NE

QUADRANGLE: OPDYKE LONGITUDE: -88.815863 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.297681 DATE COLLECTED: 0 / 0 / 1949

SURFACE ELEVATION (FT.): 510.0 LOGGED (FT.): 4.1 LOG TYPE: Measured section

SOURCE: FLD NOTES-WILLIAMS WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	2.0		
-			COAL	0.3		
-			ROCK	1.8		

MAPID: 08100424700M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 2 QUARTERS/FOOTAGES: NW NE SE

QUADRANGLE: OPDYKE LONGITUDE: -88.835235 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.293623 DATE COLLECTED: 0 / 0 / 1932

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 1.3 LOG TYPE:

SOURCE: FLD NOTES-WANLESS LYNCH'S COAL BANK WELL TYPE: Strip Mine

COMMENT: "A NUMBER OF SMALL STRIPPETS"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			COAL	1.3		AVERAGE THICKNESS. REPORTED.

MAPID: 081242D0007F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 2 **QUARTERS/FOOTAGES:** SE NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.843478 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.296351 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 10.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			UNCONSOLIDATED	-	0.0	
-			COAL	1.0		1.5' REPORTED. SOFT, WEATHERED
-			ROCK	9.0		

MAPID: 08101423000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 380' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.867941 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.298338 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 2987.0 **LOG TYPE:** Electric Log
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-410.0	CARBONDALE	HERRIN	COAL	4.0	873.0	
-460.0	CARBONDALE	BRIAR HILL	COAL	-	923.0	
-482.0	CARBONDALE	SPRINGFIELD	COAL	5.0	945.0	BLACK SHALE ROOF
-559.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1022.0	

MAPID: 08101423000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 380' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.867941 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.298338 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 876.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-352.0	MODESTO	PIASA	LIMESTONE	5.0	815.0	
-357.0	CARBONDALE		SHALE & SANDSTONE	32.0	820.0	
-389.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	852.0	
-397.0	CARBONDALE	ENERGY	GRAY SHALE	13.0	860.0	
-410.0	CARBONDALE	HERRIN	COAL	3.0	873.0	

MAPID: 08100557000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 990' W line of SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.884636 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.292456 DATE COLLECTED: 1 / 25 / 1944

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 2950.0 LOG TYPE: Drillers Log

SOURCE: KEWANEE OIL CO. WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
440.0			UNCONSOLIDATED	66.0	0.0	
374.0			ROCK	739.0	66.0	
-365.0			SANDSTONE	25.0	805.0	
-390.0			COAL	7.0	830.0	
-397.0			SHALE	5.0	837.0	SANDY
-402.0			ROCK	2108.0	842.0	

MAPID: 08100557000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 990' W line of SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.884636 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.292456 DATE COLLECTED:

SURFACE ELEVATION (FT.): 444.0 LOGGED (FT.): 835.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-331.0	MODESTO	PIASA	LIMESTONE	7.0	775.0	
-338.0	MODESTO		GRAY SHALE	18.0	782.0	
-356.0	CARBONDALE	DANVILLE	COAL	4.0	800.0	
-360.0	CARBONDALE		GRAY SHALE	13.0	804.0	
-373.0	CARBONDALE	BANKSTON FORK	SHALE & SANDSTONE	10.0	817.0	
-383.0	CARBONDALE	ANNA	BLACK SHALE	3.0	827.0	
-386.0	CARBONDALE	HERRIN	COAL	5.0	830.0	

MAPID: 08100557000C VERSION: 3

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 4 QUARTERS/FOOTAGES: 330' N line, 990' W line of SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.884636 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.292456 DATE COLLECTED:

SURFACE ELEVATION (FT.): 444.0 LOGGED (FT.): 2950.0 LOG TYPE: Electric Log

SOURCE: KEWANEE OIL & GAS WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-386.0	CARBONDALE	HERRIN	COAL	5.0	830.0	
-464.0	CARBONDALE	SPRINGFIELD	COAL	4.0	908.0	BLACK SHALE ROOF
-536.0	CARBONDALE	HOUCHIN CREEK	COAL	-	980.0	

MAPID: 08100881000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 6 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.928386 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.29894 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 830.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-295.0	MODESTO	PIASA	LIMESTONE	7.0	778.0	
-302.0	MODESTO		SHALE	10.0	785.0	
-312.0	CARBONDALE	DANVILLE	COAL	2.0	795.0	
-314.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	23.0	797.0	
-337.0	CARBONDALE	BRERETON	LIMESTONE	6.0	820.0	
-343.0	CARBONDALE	ANNA	BLACK SHALE	1.0	826.0	
-344.0	CARBONDALE	HERRIN	COAL	3.0	827.0	

MAPID: 08101358000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 6 QUARTERS/FOOTAGES: 50' S line, 2534' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.92066 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.287414 DATE COLLECTED:

SURFACE ELEVATION (FT.): 462.0 LOGGED (FT.): 2814.0 LOG TYPE: Electric Log

SOURCE: PRUETT T M WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-353.0	CARBONDALE	HERRIN	COAL	4.0	815.0	
-399.0	CARBONDALE	BRIAR HILL	COAL	-	861.0	
-424.0	CARBONDALE	SPRINGFIELD	COAL	4.0	886.0	BLACK SHALE & LIMESTONE ROOF
-502.0	CARBONDALE	HOUCHIN CREEK	COAL	-	964.0	

MAPID: 081242C0008F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 6 **QUARTERS/FOOTAGES:** NW
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.923885 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.296662 **DATE COLLECTED:** 0 / 0 / 1928
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 4.8 **LOG TYPE:**
SOURCE: FLD NOTES-WELLER **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	-	0.0	
-			ROCK	3.0		SHALE WITH PYRITIZED FOSSILS
-			COAL	1.8		

MAPID: 08100552000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.908258 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.286851 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 460.0 **LOGGED (FT.):** 814.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-297.0	MODESTO	PIASA	LIMESTONE	7.0	757.0	
-304.0	MODESTO		GRAY SHALE	10.0	764.0	
-314.0	CARBONDALE	DANVILLE	COAL	5.0	774.0	
-319.0	CARBONDALE		SHALE	10.0	779.0	
-329.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	789.0	
-337.0	CARBONDALE		GRAY SHALE	5.0	797.0	
-342.0	CARBONDALE	BRERETON	LIMESTONE	5.0	802.0	
-347.0	CARBONDALE	ANNA	BLACK SHALE	3.0	807.0	
-350.0	CARBONDALE	HERRIN	COAL	4.0	810.0	

MAPID: 08100571000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' N line, 990' W line of SE
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.914933 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.279232 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 2870.0 **LOG TYPE:** Electric Log
SOURCE: MAGNOLIA PETROLEUM **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-364.0	CARBONDALE	HERRIN	COAL	3.0	828.0	
-434.0	CARBONDALE	SPRINGFIELD	COAL	5.0	898.0	BLACK SHALE & LIMESTONE ROOF
-510.0	CARBONDALE	HOUCHIN CREEK	COAL	-	974.0	

MAPID: 08100571000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 990' W line of SE

QUADRANGLE: MT. VERNON LONGITUDE: -88.914933 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.279232 DATE COLLECTED: 12 / 0 / 1943

SURFACE ELEVATION (FT.): 464.0 LOGGED (FT.): 2870.0 LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
464.0			UNCONSOLIDATED	30.0	0.0
434.0			ROCK	333.0	30.0
101.0			SHALE	238.0	363.0
-137.0			COAL	4.0	601.0
-141.0			SHALE	44.0	605.0
-185.0			ROCK	2221.0	649.0

MAPID: 08100542000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 8 QUARTERS/FOOTAGES: 330' S line, 330' W line of SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.90613 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.273945 DATE COLLECTED: 10 / 0 / 1943

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 2680.0 LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
440.0			UNCONSOLIDATED	70.0	0.0
370.0			SHALE	33.0	70.0
337.0			COAL	3.0	103.0
334.0			SHALE	229.0	106.0
105.0			ROCK	370.0	335.0
-265.0			CALCAREOUS SHALE	40.0	705.0
-305.0			COAL	5.0	745.0
-310.0			SHALE	35.0	750.0
-345.0			ROCK	2520.0	785.0

MAPID: 08101323000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 8 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.901345

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.277498

DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0

LOGGED (FT.): 2686.0

LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L.

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-375.0	CARBONDALE	HERRIN	COAL	4.0	816.0	
-423.0	CARBONDALE	BRIAR HILL	COAL	-	864.0	
-447.0	CARBONDALE	SPRINGFIELD	COAL	5.0	888.0	BLACK SHALE & LIMESTONE ROOF
-525.0	CARBONDALE	HOUCHIN CREEK	COAL	-	966.0	

MAPID: 08102309000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 8 QUARTERS/FOOTAGES: 990' S line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.906105

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.275767

DATE COLLECTED:

SURFACE ELEVATION (FT.): 437.0

LOGGED (FT.): 816.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-313.0	MODESTO	PIASA	LIMESTONE	5.0	750.0	
-318.0	MODESTO		GRAY SHALE	6.0	755.0	
-324.0	CARBONDALE	DANVILLE	COAL	2.0	761.0	
-326.0	CARBONDALE		SHALE & SANDSTONE	15.0	763.0	
-341.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	778.0	UPPER BENCH
-345.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	4.0	782.0	SHALE PARTING
-349.0	CARBONDALE	BANKSTON FORK	LIMESTONE	2.0	786.0	LOWER BENCH
-351.0	CARBONDALE	ENERGY	GRAY SHALE	14.0	788.0	
-375.0	CARBONDALE	HERRIN	COAL	4.0	812.0	

MAPID: 08102541000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 8 QUARTERS/FOOTAGES: 20' S line, 645' E line of SW

QUADRANGLE: MT. VERNON LONGITUDE: -88.900101 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.272939 DATE COLLECTED: 0 / 0 / 1940

SURFACE ELEVATION (FT.): 426.0 LOGGED (FT.): 800.0 LOG TYPE: Drillers Log

SOURCE: PHILLIPS PET-COAL DIVISION WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
426.0			UNCONSOLIDATED	50.0	0.0	
376.0			SHALE	715.0	50.0	
-339.0			LIMESTONE	16.5	765.0	
-355.5			SHALE	4.5	781.5	
-360.0			LIMESTONE	5.0	786.0	
-365.0			COAL WITH SHALE	2.0	791.0	COAL AND SHALE MIXED
-367.0			COAL	5.0	793.0	
-372.0			SHALE	2.0	798.0	

MAPID: 08100596000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 9 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW

QUADRANGLE: MT. VERNON LONGITUDE: -88.87985 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.280871 DATE COLLECTED:

SURFACE ELEVATION (FT.): 433.0 LOGGED (FT.): 2973.0 LOG TYPE: Electric Log

SOURCE: LEWIS, WILL I. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-387.0	CARBONDALE	HERRIN	COAL	4.0	820.0	
-437.0	CARBONDALE	BRIAR HILL	COAL	-	870.0	
-464.0	CARBONDALE	SPRINGFIELD	COAL	4.0	897.0	BLACK SHALE & LIMESTONE ROOF
-539.0	CARBONDALE	HOUCHIN CREEK	COAL	-	972.0	

MAPID: 08100448000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.868079 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.273645 DATE COLLECTED:

SURFACE ELEVATION (FT.): 454.0 LOGGED (FT.): 4856.0 LOG TYPE: Electric Log

SOURCE: TEXACO, INC. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-402.0	CARBONDALE	HERRIN	COAL	3.0	856.0	
-453.0	CARBONDALE	BRIAR HILL	COAL	-	907.0	
-476.0	CARBONDALE	SPRINGFIELD	COAL	3.0	930.0	BLACK SHALE ROOF
-556.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1010.0	

MAPID: 08100448000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 10 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.868079 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.273645 DATE COLLECTED:

SURFACE ELEVATION (FT.): 454.0 LOGGED (FT.): 857.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-331.0	MODESTO	PIASA	LIMESTONE	5.0	785.0	
-336.0	MODESTO		GRAY SHALE	15.0	790.0	
-351.0	CARBONDALE	DANVILLE	COAL	3.0	805.0	
-354.0	CARBONDALE		SHALE & SANDSTONE	19.0	808.0	
-373.0	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	827.0	
-385.0	CARBONDALE	BRERETON	LIMESTONE	5.0	839.0	
-390.0	CARBONDALE	ANNA	BLACK SHALE	2.0	844.0	
-392.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	846.0	
-401.0	CARBONDALE	HERRIN	COAL	2.0	855.0	

MAPID: 08101324000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.84951 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.286327 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 3085.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-393.0	CARBONDALE	HERRIN	COAL	4.0	893.0	
-440.0	CARBONDALE	BRIAR HILL	COAL	-	940.0	
-467.0	CARBONDALE	SPRINGFIELD	COAL	5.0	967.0	BLACK SHALE ROOF
-553.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1053.0	

MAPID: 08101325000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.84951 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.286327 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 857.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-306.0	MODESTO	PIASA	LIMESTONE	6.0	800.0	
-312.0	MODESTO		GRAY SHALE	6.0	806.0	
-318.0	CARBONDALE	DANVILLE	COAL	2.0	812.0	
-320.0	CARBONDALE		SHALE & SANDSTONE	19.0	814.0	
-339.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	833.0	
-349.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	843.0	
-359.0	CARBONDALE	HERRIN	COAL	4.0	853.0	

MAPID: 08100777000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 12 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.830648 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.286344 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 530.0 **LOGGED (FT.):** 3071.0 **LOG TYPE:** Electric Log
SOURCE: CANTERBURY, J. V. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-361.0	CARBONDALE	HERRIN	COAL	3.0	891.0	
-412.0	CARBONDALE	BRIAR HILL	COAL	-	942.0	
-442.0	CARBONDALE	SPRINGFIELD	COAL	5.0	972.0	BLACK SHALE & LIMESTONE ROOF
-523.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1053.0	

MAPID: 08100777000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 12 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.830648 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.286344 DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 894.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-300.0	MODESTO	PIASA	LIMESTONE	5.0	830.0	
-305.0	MODESTO		GRAY SHALE	8.0	835.0	
-313.0	CARBONDALE	DANVILLE	COAL	2.0	843.0	
-315.0	CARBONDALE		SHALE & SANDSTONE	14.0	845.0	
-329.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	859.0	
-337.0	CARBONDALE		GRAY SHALE	15.0	867.0	
-352.0	CARBONDALE	BRERETON	LIMESTONE	5.0	882.0	
-357.0	CARBONDALE	ANNA	BLACK SHALE	3.0	887.0	
-360.0	CARBONDALE	HERRIN	COAL	4.0	890.0	

MAPID: 081242D0009F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 13 QUARTERS/FOOTAGES: NW NE SE SE

QUADRANGLE: OPDYKE LONGITUDE: -88.815804 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.26139 DATE COLLECTED: 0 / 0 / 1935

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 5.7 LOG TYPE: Measured section

SOURCE: FLD NOTES-WELLER WELL TYPE: Outcrop

COMMENT: OTHER NOTES AVAILABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	3.9		
-			COAL	1.3		CANNEL UPPER .75', CL PTG .2
-			ROCK	0.5		

MAPID: 081242D0010F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SE SE SE SE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.814713 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.258653 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 9.6 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-MURRAY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.0			UNCONSOLIDATED	2.0	0.0	
-			ROCK	6.0		
-			COAL	0.5		CL PTG .16'
-			ROCK	1.2		

MAPID: 081242D0008F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.826625 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.266398 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 11.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	3.5		
-			SHALE	1.0		CANNEL COAL
-			COAL	0.3		
-			ROCK	7.0		

MAPID: 08101082000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 14 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.833386 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.271768 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 493.0 **LOGGED (FT.):** 3101.0 **LOG TYPE:** Electric Log
SOURCE: OHIO OIL CO., THE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-357.0	CARBONDALE	HERRIN	COAL	4.0	850.0	
-433.0	CARBONDALE	SPRINGFIELD	COAL	4.0	926.0	BLACK SHALE & LIMESTONE ROOF
-514.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1007.0	

MAPID: 08101082000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 14 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.833386 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.271768 DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 954.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-290.0	MODESTO	PIASA	LIMESTONE	6.0	783.0	
-296.0	MODESTO		GRAY SHALE	7.0	789.0	
-303.0	CARBONDALE	DANVILLE	COAL	2.0	796.0	
-305.0	CARBONDALE		SHALE & SANDSTONE	23.0	798.0	
-328.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	821.0	
-338.0	CARBONDALE		GRAY SHALE	13.0	831.0	
-351.0	CARBONDALE	BRERETON	LIMESTONE	4.0	844.0	
-355.0	CARBONDALE	ANNA	BLACK SHALE	2.0	848.0	
-357.0	CARBONDALE	HERRIN	COAL	4.0	850.0	

MAPID: 08101326000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 15 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.851959 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.271678 DATE COLLECTED:

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 3012.0 LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-357.0	CARBONDALE	HERRIN	COAL	4.0	806.0	
-408.0	CARBONDALE	BRIAR HILL	COAL	-	857.0	
-436.0	CARBONDALE	SPRINGFIELD	COAL	4.0	885.0	BLACK SHALE & LIMESTONE ROOF
-517.0	CARBONDALE	HOUCHIN CREEK	COAL	-	966.0	

MAPID: 08101326000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 15 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.851959 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.271678 DATE COLLECTED:

SURFACE ELEVATION (FT.): 449.0 LOGGED (FT.): 809.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-291.0	MODESTO	PIASA	LIMESTONE	7.0	740.0	
-298.0	CARBONDALE		SHALE & SANDSTONE	25.0	747.0	
-323.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	772.0	
-334.0	CARBONDALE		GRAY SHALE	12.0	783.0	
-346.0	CARBONDALE	BRERETON	LIMESTONE	6.0	795.0	
-352.0	CARBONDALE	ANNA	BLACK SHALE	2.0	801.0	
-355.0	CARBONDALE	HERRIN	COAL	5.0	804.0	

MAPID: 08102543000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 15 QUARTERS/FOOTAGES: 1280' N line, 1300' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.855379 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.269086 DATE COLLECTED: 0 / 0 / 1940

SURFACE ELEVATION (FT.): 475.0 LOGGED (FT.): 802.0 LOG TYPE: Drillers Log

SOURCE: PHILLIPS PETROLEUM CO. WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
475.0			UNCONSOLIDATED	15.0	0.0	
460.0			ROCK	771.0	15.0	
-311.0			COAL	2.0	786.0	
-313.0			ROCK	14.0	788.0	

MAPID: 08101327000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.87043 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.271825 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 2965.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-340.0	CARBONDALE	HERRIN	COAL	4.0	823.0	
-399.0	CARBONDALE	BRIAR HILL	COAL	-	882.0	
-424.0	CARBONDALE	SPRINGFIELD	COAL	4.0	907.0	BLACK SHALE & LIMESTONE ROOF
-503.0	CARBONDALE	HOUCHIN CREEK	COAL	-	986.0	

MAPID: 08101327000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 16 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.87043 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.271825 DATE COLLECTED:

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 832.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-289.0	MODESTO	PIASA	LIMESTONE	3.0	772.0	
-292.0	MODESTO		GRAY SHALE	7.0	775.0	
-299.0	CARBONDALE	DANVILLE	COAL	3.0	782.0	
-302.0	CARBONDALE		SHALE & SANDSTONE	20.0	785.0	
-322.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	805.0	
-332.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	815.0	
-341.0	CARBONDALE	HERRIN	COAL	8.0	824.0	

MAPID: 08100776000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.889556 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.27171 DATE COLLECTED:

SURFACE ELEVATION (FT.): 426.0 LOGGED (FT.): 2883.0 LOG TYPE: Electric Log

SOURCE: GULF REFINING CO. WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-364.0	CARBONDALE	HERRIN	COAL	4.0	790.0	
-408.0	CARBONDALE	BRIAR HILL	COAL	-	834.0	
-437.0	CARBONDALE	SPRINGFIELD	COAL	4.0	863.0	BLACK SHALE & LIMESTONE ROOF
-514.0	CARBONDALE	HOUCHIN CREEK	COAL	-	940.0	

MAPID: 08100776000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 17 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: MT. VERNON LONGITUDE: -88.889556

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.27171

DATE COLLECTED:

SURFACE ELEVATION (FT.): 426.0 LOGGED (FT.): 793.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-307.0	MODESTO	PIASA	LIMESTONE	6.0	733.0
-313.0	MODESTO		GRAY SHALE	7.0	739.0
-320.0	CARBONDALE	DANVILLE	COAL	3.0	746.0
-323.0	CARBONDALE		SHALE & SANDSTONE	14.0	749.0
-337.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	12.0	763.0
-349.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	775.0
-359.0	CARBONDALE	HERRIN	COAL	8.0	785.0

MAPID: 08100532000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 18 QUARTERS/FOOTAGES: 990' N line, 990' E line of NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.910777

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.270205

DATE COLLECTED: 7 / 0 / 1943

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 2691.0

LOG TYPE: Drillers Log

SOURCE: MAGNOLIA PETROLEUM

WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
451.0			UNCONSOLIDATED	74.0	0.0
377.0			ROCK	710.0	74.0
-333.0			LIMESTONE W/ SHALE	26.0	784.0
-359.0			COAL	6.0	810.0
-365.0			SHALE	20.0	816.0
-385.0			ROCK	1855.0	836.0

MAPID: 08100535000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 18 QUARTERS/FOOTAGES: 990' S line, 990' W line of NE
 QUADRANGLE: MT. VERNON LONGITUDE: -88.915034 GEOLOGIST: BARGH,M
 CONFIDENTIAL: N LATITUDE: 38.268184 DATE COLLECTED: 8 / 7 / 1943
 SURFACE ELEVATION (FT.): 433.0 LOGGED (FT.): 2863.0 LOG TYPE: Drillers Log
 SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test
 COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
433.0			UNCONSOLIDATED	81.0	0.0	
352.0			ROCK	864.0	81.0	
-512.0			SANDSTONE/SHALE	25.0	945.0	
-537.0			COAL	4.0	970.0	
-541.0			SHALE	255.0	974.0	
-796.0			ROCK	1634.0	1229.0	

MAPID: 08100554000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 18 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE
 QUADRANGLE: MT. VERNON LONGITUDE: -88.908487 GEOLOGIST: HOPKINS
 CONFIDENTIAL: N LATITUDE: 38.264702 DATE COLLECTED:
 SURFACE ELEVATION (FT.): 424.0 LOGGED (FT.): 2685.0 LOG TYPE: Electric Log
 SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil
 COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-334.0	CARBONDALE	HERRIN	COAL	6.0	758.0	
-389.0	CARBONDALE	BRIAR HILL	COAL	-	813.0	
-416.0	CARBONDALE	SPRINGFIELD	COAL	5.0	840.0	BLACK SHALE ROOF
-496.0	CARBONDALE	HOUCHIN CREEK	COAL	-	920.0	

MAPID: 08100554000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 18 QUARTERS/FOOTAGES: 330' N line, 330' E line of SE
 QUADRANGLE: MT. VERNON LONGITUDE: -88.908487 GEOLOGIST: BARGH,M
 CONFIDENTIAL: N LATITUDE: 38.264702 DATE COLLECTED: 11 / 0 / 1943
 SURFACE ELEVATION (FT.): 424.0 LOGGED (FT.): 2685.0 LOG TYPE: Drillers Log
 SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Oil and Gas Test
 COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
424.0			UNCONSOLIDATED	62.0	0.0	
362.0			SHALE	128.0	62.0	
234.0			COAL	3.0	190.0	
231.0			SHALE	95.0	193.0	
136.0			ROCK	2397.0	288.0	

MAPID: 08100775000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW

QUADRANGLE: INA LONGITUDE: -88.919624 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.244136 DATE COLLECTED:

SURFACE ELEVATION (FT.): 442.0 LOGGED (FT.): 2925.0 LOG TYPE: Electric Log

SOURCE: KINGWOOD OIL CO WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-332.0	CARBONDALE	HERRIN	COAL	5.0	774.0	
-377.0	CARBONDALE	BRIAR HILL	COAL	-	819.0	
-406.0	CARBONDALE	SPRINGFIELD	COAL	4.0	848.0	BLACK SHALE ROOF
-483.0	CARBONDALE	HOUCHIN CREEK	COAL	-	925.0	

MAPID: 08100775000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 19 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW

QUADRANGLE: INA LONGITUDE: -88.919624 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.244136 DATE COLLECTED: 5 / 0 / 1944

SURFACE ELEVATION (FT.): 420.0 LOGGED (FT.): 2923.5 LOG TYPE: Drillers Log

SOURCE: KINGWOOD OIL CO WELL TYPE: Oil and Gas Test

COMMENT: OIL TEST DRILLERS LOG: THICKNESS BAD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
420.0			UNCONSOLIDATED	30.0	0.0	
390.0			ROCK	335.0	30.0	
55.0			COAL	2.0	365.0	THICKNESS IMPRECISE
53.0			ROCK	371.0	367.0	
-318.0			COAL	2.0	738.0	THICKNESS IMPRECISE
-320.0			SHALE	27.0	740.0	
-347.0	CARBONDALE	HERRIN	COAL	5.0	767.0	THICKNESS IMPRECISE
-352.0	CARBONDALE		ROCK	124.0	772.0	
-476.0			COAL	2.0	896.0	THICKNESS IMPRECISE
-478.0			ROCK	2025.5	898.0	

MAPID: 08102798000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 19 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: INA LONGITUDE: -88.92827 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.247727 DATE COLLECTED:

SURFACE ELEVATION (FT.): 447.0 LOGGED (FT.): 760.3 LOG TYPE: Survey Core Study

SOURCE: CONSOLIDATION C.C. IN-3 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-275.8	CARBONDALE		CLAYSTONE	1.7	722.8	
-277.5	CARBONDALE	BANKSTON FORK	LIMESTONE	13.8	724.5	
-291.3	CARBONDALE	ENERGY	GRAY SHALE	16.7	738.3	
-308.0	CARBONDALE	HERRIN	COAL	5.3	755.0	

MAPID: 08100774000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 20 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.906198 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.257306 DATE COLLECTED:

SURFACE ELEVATION (FT.): 421.0 LOGGED (FT.): 2892.0 LOG TYPE: Electric Log

SOURCE: LYNCH C A WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-339.0	CARBONDALE	HERRIN	COAL	4.0	760.0	
-383.0	CARBONDALE	BRIAR HILL	COAL	-	804.0	
-410.0	CARBONDALE	SPRINGFIELD	COAL	4.0	831.0	BLACK SHALE ROOF
-487.0	CARBONDALE	HOUCHIN CREEK	COAL	-	908.0	

MAPID: 08100774000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 20 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: MT. VERNON LONGITUDE: -88.906198 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.257306 DATE COLLECTED:

SURFACE ELEVATION (FT.): 421.0 LOGGED (FT.): 765.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-276.0	MODESTO	PIASA	LIMESTONE	5.0	697.0	
-281.0	MODESTO		GRAY SHALE	6.0	702.0	
-287.0	CARBONDALE	DANVILLE	COAL	2.0	708.0	
-289.0	CARBONDALE		SHALE & SANDSTONE	21.0	710.0	
-310.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	731.0	
-320.0	CARBONDALE	ENERGY	GRAY SHALE	19.0	741.0	
-339.0	CARBONDALE	HERRIN	COAL	5.0	760.0	

MAPID: 08100374000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE
QUADRANGLE: INA **LONGITUDE:** -88.877988 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.244827 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 494.0 **LOGGED (FT.):** 2762.0 **LOG TYPE:** Electric Log
SOURCE: LEWIS PRODUCTION CO. **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-320.0	CARBONDALE	HERRIN	COAL	5.0	814.0	
-368.0	CARBONDALE	BRIAR HILL	COAL	-	862.0	
-395.0	CARBONDALE	SPRINGFIELD	COAL	4.0	889.0	BLACK SHALE & LIMESTONE ROOF
-472.0	CARBONDALE	HOUCHIN CREEK	COAL	-	966.0	

MAPID: 08100374000C **VERSION:** 2 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE
QUADRANGLE: INA **LONGITUDE:** -88.877988 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.244827 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 2762.0 **LOG TYPE:** Survey Sample Study
SOURCE: LEWIS PRODUCTION CO. **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08100959000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: MT. VERNON **LONGITUDE:** -88.887453 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.257271 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 455.0 **LOGGED (FT.):** 795.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-275.0	MODESTO	PIASA	LIMESTONE	6.0	730.0	
-281.0	CARBONDALE		SILTY SHALE	25.0	736.0	
-306.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	761.0	
-317.0	CARBONDALE	ENERGY	GRAY SHALE	13.0	772.0	
-335.0	CARBONDALE	HERRIN	COAL	5.0	790.0	

MAPID: 08101328000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 21 QUARTERS/FOOTAGES: 330' S line, 330' E line of NE NE

QUADRANGLE: OPDYKE LONGITUDE: -88.870883 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.255467 DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0 LOGGED (FT.): 2925.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-339.0	CARBONDALE	HERRIN	COAL	5.0	780.0	
-391.0	CARBONDALE	BRIAR HILL	COAL	-	832.0	
-416.0	CARBONDALE	SPRINGFIELD	COAL	5.0	857.0	BLACK SHALE & LIMESTONE ROOF
-496.0	CARBONDALE	HOUCHIN CREEK	COAL	-	937.0	

MAPID: 08101329000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW NE

QUADRANGLE: MT. VERNON LONGITUDE: -88.878002 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.253656 DATE COLLECTED:

SURFACE ELEVATION (FT.): 431.0 LOGGED (FT.): 2792.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-349.0	CARBONDALE	HERRIN	COAL	-	780.0	
-399.0	CARBONDALE	BRIAR HILL	COAL	-	830.0	
-425.0	CARBONDALE	SPRINGFIELD	COAL	4.0	856.0	BLACK SHALE & LIMESTONE ROOF
-503.0	CARBONDALE	HOUCHIN CREEK	COAL	-	934.0	

MAPID: 08101330000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 22 QUARTERS/FOOTAGES: 990' S line, 330' W line of SW NW

QUADRANGLE: OPDYKE LONGITUDE: -88.868576 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.253776 DATE COLLECTED:

SURFACE ELEVATION (FT.): 436.0 LOGGED (FT.): 2930.0 LOG TYPE: Electric Log

SOURCE: MAGNOLIA PETROLEUM WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-336.0	CARBONDALE	HERRIN	COAL	4.0	772.0	
-388.0	CARBONDALE	BRIAR HILL	COAL	-	824.0	
-414.0	CARBONDALE	SPRINGFIELD	COAL	4.0	850.0	BLACK SHALE & LIMESTONE ROOF
-496.0	CARBONDALE	HOUCHIN CREEK	COAL	-	932.0	

MAPID: 08102326000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 22 QUARTERS/FOOTAGES: 400' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.868569 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.256973 DATE COLLECTED:

SURFACE ELEVATION (FT.): 477.0 LOGGED (FT.): 813.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-267.0	MODESTO	PIASA	LIMESTONE	5.0	744.0	
-272.0	MODESTO		SHALE & SANDSTONE	16.0	749.0	
-288.0	CARBONDALE	DANVILLE	COAL	3.0	765.0	
-291.0	CARBONDALE		SHALE & SANDSTONE	17.0	768.0	
-308.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	12.0	785.0	
-320.0	CARBONDALE	ENERGY	GRAY SHALE	10.0	797.0	
-330.0	CARBONDALE	HERRIN	COAL	6.0	807.0	

MAPID: 08101333000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 23 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE

QUADRANGLE: OPDYKE LONGITUDE: -88.840621 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.257399 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 2953.0 LOG TYPE: Electric Log

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

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-334.0	CARBONDALE	HERRIN	COAL	5.0	790.0	
-387.0	CARBONDALE	BRIAR HILL	COAL	-	843.0	
-411.0	CARBONDALE	SPRINGFIELD	COAL	5.0	867.0	BLACK SHALE ROOF
-494.0	CARBONDALE	HOUCHIN CREEK	COAL	-	950.0	

MAPID: 08101333000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 23 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE

QUADRANGLE: OPDYKE LONGITUDE: -88.840621

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.257399

DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0

LOGGED (FT.): 795.5

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-270.0	MODESTO	PIASA	LIMESTONE	5.0	726.0	
-275.0	MODESTO		SILTY SHALE	11.0	731.0	
-286.0	CARBONDALE	DANVILLE	COAL	2.0	742.0	
-288.0	CARBONDALE		SILTY SHALE	22.0	744.0	
-310.0	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	766.0	
-322.0	CARBONDALE	ENERGY	GRAY SHALE	12.0	778.0	
-334.0	CARBONDALE	HERRIN	COAL	5.5	790.0	

MAPID: 08101334000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 27 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.864141

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.232018

DATE COLLECTED:

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 2747.0

LOG TYPE: Electric Log

SOURCE: SPIRES H V

WELL TYPE: Producer-Oil

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-306.0	CARBONDALE	HERRIN	COAL	3.0	786.0	
-352.0	CARBONDALE	BRIAR HILL	COAL	-	832.0	
-380.0	CARBONDALE	SPRINGFIELD	COAL	4.0	860.0	BLACK SHALE ROOF
-460.0	CARBONDALE	HOUCHIN CREEK	COAL	-	940.0	

MAPID: 08102340000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 27 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.868836

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.230214

DATE COLLECTED:

SURFACE ELEVATION (FT.): 507.0

LOGGED (FT.): 820.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-243.0	MODESTO	PIASA	LIMESTONE	5.0	750.0
-248.0	MODESTO		GRAY SHALE	8.0	755.0
-256.0	CARBONDALE	DANVILLE	COAL	3.0	763.0
-259.0	CARBONDALE		SHALE & SANDSTONE	21.0	766.0
-280.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	9.0	787.0
-289.0	CARBONDALE	BRERETON	LIMESTONE	6.0	796.0
-295.0	CARBONDALE	ANNA	BLACK SHALE	2.0	802.0
-297.0	CARBONDALE	ENERGY	GRAY SHALE	12.0	804.0
-309.0	CARBONDALE	HERRIN	COAL	4.0	816.0

MAPID: 08100167000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 28 QUARTERS/FOOTAGES: SW NW SE

QUADRANGLE: INA

LONGITUDE: -88.878112

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.233798

DATE COLLECTED: 0 / 0 / 1942

SURFACE ELEVATION (FT.): 492.0

LOGGED (FT.): 2754.0

LOG TYPE:

SOURCE: LEWIS PRODUCTION CO.

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-318.0	CARBONDALE	HERRIN	COAL	6.0	810.0
-394.0	CARBONDALE	SPRINGFIELD	COAL	4.0	886.0

MAPID: 08100491000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' S line, 990' E line of NE
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.873336 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.237532 **DATE COLLECTED:** 5 / 0 / 1943
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 2757.0 **LOG TYPE:** Drillers Log
SOURCE: LEWIS PRODUCTION CO. **WELL TYPE:** Oil and Gas Test
COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
470.0			UNCONSOLIDATED	35.0	0.0	
435.0			ROCK	687.0	35.0	
-252.0			SHALE	69.0	722.0	
-321.0			COAL	4.0	791.0	
-325.0			ROCK	1962.0	795.0	

MAPID: 08100934000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NE
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.870932 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.243099 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 478.0 **LOGGED (FT.):** 2757.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Producer-Oil
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-320.0	CARBONDALE	HERRIN	COAL	3.0	798.0	
-370.0	CARBONDALE	BRIAR HILL	COAL	-	848.0	
-392.0	CARBONDALE	SPRINGFIELD	COAL	4.0	870.0	BLACK SHALE ROOF
-472.0	CARBONDALE	HOUCHIN CREEK	COAL	-	950.0	

MAPID: 08102369000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 3E **SECTION:** 28 **QUARTERS/FOOTAGES:** NW
QUADRANGLE: INA **LONGITUDE:** -88.883878 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.240157 **DATE COLLECTED:** 0 / 0 / 1931
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 160.0 **LOG TYPE:** Drillers Log
SOURCE: KEENE, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.0			UNCONSOLIDATED	15.0	0.0	
475.0			LIMESTONE	35.0	15.0	
440.0			SANDSTONE	35.0	50.0	
405.0			SHALE	15.0	85.0	
390.0			COAL	3.0	100.0	
387.0			ROCK	57.0	103.0	

MAPID: 08102370000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 28 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.870932 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.243099 DATE COLLECTED:

SURFACE ELEVATION (FT.): 474.0 LOGGED (FT.): 797.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-256.0	MODESTO	PIASA	LIMESTONE	5.0	730.0	
-261.0	MODESTO		GRAY SHALE	11.0	735.0	
-272.0	CARBONDALE	DANVILLE	COAL	3.0	746.0	
-275.0	CARBONDALE		SHALE & SANDSTONE	13.0	749.0	
-288.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	11.0	762.0	
-299.0	CARBONDALE	ENERGY	GRAY SHALE	19.0	773.0	
-318.0	CARBONDALE	HERRIN	COAL	5.0	792.0	

MAPID: 08100534000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 29 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: INA LONGITUDE: -88.896813 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.237158 DATE COLLECTED: 6 / 0 / 1943

SURFACE ELEVATION (FT.): 457.0 LOGGED (FT.): 2909.0 LOG TYPE: Drillers Log

SOURCE: LEWIS PRODUCTION CO. WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
457.0			UNCONSOLIDATED	125.0	0.0	
332.0			ROCK	196.0	125.0	
136.0			SHALE	449.0	321.0	
-313.0			COAL	5.0	770.0	
-318.0			SHALE	395.0	775.0	SANDY
-713.0			ROCK	1739.0	1170.0	

MAPID: 08101163000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 29 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.889687 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.242841 DATE COLLECTED:

SURFACE ELEVATION (FT.): 472.0 LOGGED (FT.): 2756.0 LOG TYPE:

SOURCE: YINGLING SAMUEL C WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-318.0	CARBONDALE	HERRIN	COAL	5.0	790.0	
-367.0	CARBONDALE	BRIAR HILL	COAL	-	839.0	
-393.0	CARBONDALE	SPRINGFIELD	COAL	5.0	865.0	BLACK SHALE & LIMESTONE ROOF
-471.0	CARBONDALE	HOUCHIN CREEK	COAL	-	943.0	

MAPID: 08101336000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 29 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.889825 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.229935 DATE COLLECTED:

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 767.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-257.0	MODESTO		SANDSTONE	20.0	708.0	
-277.0	CARBONDALE	DANVILLE	COAL	3.0	728.0	
-280.0	CARBONDALE		GRAY SHALE	5.0	731.0	
-285.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	736.0	UPPER BENCH
-290.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	3.0	741.0	SHALE PARTING
-293.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	744.0	LOWER BENCH
-297.0	CARBONDALE	ENERGY	GRAY SHALE	14.0	748.0	
-311.0	CARBONDALE	HERRIN	COAL	5.0	762.0	

MAPID: 08100769000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.908628 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.227736 DATE COLLECTED:

SURFACE ELEVATION (FT.): 413.0 LOGGED (FT.): 2945.0 LOG TYPE:

SOURCE: CHERRY, KIDD & BARRON WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-317.0	CARBONDALE	HERRIN	COAL	4.0	730.0	
-363.0	CARBONDALE	BRIAR HILL	COAL	-	776.0	
-387.0	CARBONDALE	SPRINGFIELD	COAL	4.0	800.0	BLACK SHALE ROOF
-471.0	CARBONDALE	HOUCHIN CREEK	COAL	-	884.0	

MAPID: 08100769000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.908628 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.227736 DATE COLLECTED:

SURFACE ELEVATION (FT.): 413.0 LOGGED (FT.): 732.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-257.0	MODESTO	PIASA	LIMESTONE	4.0	670.0	
-261.0	MODESTO		GRAY SHALE	8.0	674.0	
-269.0	CARBONDALE	DANVILLE	COAL	2.0	682.0	
-271.0	CARBONDALE		SILTY SHALE	8.0	684.0	
-279.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	692.0	
-285.0	CARBONDALE	ENERGY	SILTY SHALE	29.0	698.0	
-314.0	CARBONDALE	HERRIN	COAL	5.0	727.0	

MAPID: 08100496000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 33 QUARTERS/FOOTAGES: 300' N line, 330' E line of SW

QUADRANGLE: INA LONGITUDE: -88.880544 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.22094 DATE COLLECTED: 4 / 0 / 1943

SURFACE ELEVATION (FT.): 464.0 LOGGED (FT.): 2977.0 LOG TYPE: Drillers Log

SOURCE: SKELLY OIL CO WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
464.0			UNCONSOLIDATED	116.0	0.0	
348.0			ROCK	600.0	116.0	
-252.0			SANDSTONE	57.0	716.0	
-309.0			COAL	6.0	773.0	
-315.0			ROCK	2199.0	779.0	

MAPID: 08101337000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 33 QUARTERS/FOOTAGES: 660' N line, 330' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.871185 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.227474 DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 2980.0 LOG TYPE:

SOURCE: HERNDON DRLG. CO. WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-303.0	CARBONDALE	HERRIN	COAL	5.0	785.0	
-354.0	CARBONDALE	BRIAR HILL	COAL	-	836.0	
-371.0	CARBONDALE	SPRINGFIELD	COAL	5.0	853.0	BLACK SHALE ROOF
-450.0	CARBONDALE	HOUCHIN CREEK	COAL	-	932.0	

MAPID: 08101337000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 33 QUARTERS/FOOTAGES: 660' N line, 330' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.871185

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.227474

DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0

LOGGED (FT.): 799.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-240.0	MODESTO	PIASA	LIMESTONE	5.0	722.0
-245.0	MODESTO		GRAY SHALE	8.0	727.0
-253.0	CARBONDALE	DANVILLE	COAL	4.0	735.0
-257.0	CARBONDALE		SHALE & SANDSTONE	11.0	739.0
-268.0	CARBONDALE	BANKSTON FORK	LIMESTONE	9.0	750.0
-277.0	CARBONDALE	ENERGY	SILTY SHALE	25.0	759.0
-312.0	CARBONDALE	HERRIN	COAL	5.0	794.0

MAPID: 08100477000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 34 QUARTERS/FOOTAGES: 990' S line, 330' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.852585

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.217164

DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0

LOGGED (FT.): 737.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-229.0	MODESTO	PIASA	LIMESTONE	6.0	670.0
-235.0	MODESTO		GRAY SHALE	19.0	676.0
-254.0	CARBONDALE	DANVILLE	COAL	4.0	695.0
-258.0	CARBONDALE		SHALE	5.0	699.0
-263.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	704.0
-270.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	711.0
-287.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	9.0	728.0

MAPID: 08100539000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 34 QUARTERS/FOOTAGES: 330' N line, 990' W line of SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.866646 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.220994 DATE COLLECTED: 10 / 0 / 1943

SURFACE ELEVATION (FT.): 455.0 LOGGED (FT.): 2826.0 LOG TYPE: Drillers Log

SOURCE: KEYSTONE OIL CO WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
455.0			UNCONSOLIDATED	5.0	0.0	
450.0			ROCK	725.0	5.0	
-275.0			SHALE	66.0	730.0	
-341.0	CARBONDALE	HERRIN	COAL	8.0	796.0	
-349.0			ROCK	2022.0	804.0	

MAPID: 08101339000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 330' E line of SW SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.866654 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.215439 DATE COLLECTED:

SURFACE ELEVATION (FT.): 434.0 LOGGED (FT.): 2719.0 LOG TYPE:

SOURCE: STRICKLAND, FRANK L. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-305.0	CARBONDALE	HERRIN	COAL	4.0	739.0	
-360.0	CARBONDALE	BRIAR HILL	COAL	-	794.0	
-376.0	CARBONDALE	SPRINGFIELD	COAL	5.0	810.0	BLACK SHALE ROOF
-460.0	CARBONDALE	HOUCHIN CREEK	COAL	-	894.0	

MAPID: 08102389000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.861892 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.222776 DATE COLLECTED: 7 / 0 / 1944

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 2739.0 LOG TYPE: Drillers Log

SOURCE: NASH REDWINE WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
451.0			UNCONSOLIDATED	20.0	0.0	
431.0			ROCK	270.0	20.0	
161.0			SHALE	145.0	290.0	
16.0			COAL	5.0	435.0	
11.0			ROCK	2299.0	440.0	

MAPID: 08101340000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 3E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW NE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.838657 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.226242 DATE COLLECTED:

SURFACE ELEVATION (FT.): 504.0 LOGGED (FT.): 2987.0 LOG TYPE:

SOURCE: GENTLES, ALBERT WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-346.0	CARBONDALE	HERRIN	COAL	3.0	850.0	
-422.0	CARBONDALE	SPRINGFIELD	COAL	4.0	926.0	BLACK SHALE & LIMESTONE ROOF
-510.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1014.0	

MAPID: 08100289000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 1 QUARTERS/FOOTAGES: 595' S line, 672' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.718531 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.287984 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 954.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-368.0	MODESTO	PIASA	CALCAREOUS SHALE	6.0	870.0	
-374.0	MODESTO		GRAY SHALE	10.0	876.0	
-384.0	CARBONDALE	DANVILLE	COAL	6.0	886.0	
-390.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	42.0	892.0	
-432.0	CARBONDALE		GRAY SHALE	7.0	934.0	
-439.0	CARBONDALE	BRERETON	LIMESTONE	6.0	941.0	
-445.0	CARBONDALE	ANNA	BLACK SHALE	2.5	947.0	
-448.0	CARBONDALE	HERRIN	COAL	4.0	950.0	

MAPID: 08100546000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 1 QUARTERS/FOOTAGES: 330' N line, 660' W line of SW SW

QUADRANGLE: BLUFORD LONGITUDE: -88.718561 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.289078 DATE COLLECTED:

SURFACE ELEVATION (FT.): 528.0 LOGGED (FT.): 3215.0 LOG TYPE:

SOURCE: LARIO OIL & GAS WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-466.0	CARBONDALE	HERRIN	COAL	3.0	994.0	
-509.0	CARBONDALE	BRIAR HILL	COAL	-	1037.0	
-549.0	CARBONDALE	SPRINGFIELD	COAL	6.0	1077.0	BLACK SHALE & LIMESTONE ROOF
-617.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1145.0	

MAPID: 08101341000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' S line, 660' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.723203 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.28734 DATE COLLECTED:

SURFACE ELEVATION (FT.): 538.0 LOGGED (FT.): 3113.0 LOG TYPE:

SOURCE: LEWIS, WILL I. WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-458.0	CARBONDALE	HERRIN	COAL	4.0	996.0	
-504.0	CARBONDALE	BRIAR HILL	COAL	-	1042.0	
-538.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1076.0	BLACK SHALE & LIMESTONE ROOF
-614.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1152.0	

MAPID: 08101341000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 2 QUARTERS/FOOTAGES: 330' S line, 660' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.723203 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.28734 DATE COLLECTED:

SURFACE ELEVATION (FT.): 538.0 LOGGED (FT.): 1000.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-372.0	MODESTO	PIASA	CALCAREOUS SHALE	6.0	910.0	
-378.0	MODESTO		GRAY SHALE	10.0	916.0	
-388.0	CARBONDALE	DANVILLE	COAL	8.0	926.0	
-396.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	50.0	934.0	
-446.0	CARBONDALE		GRAY SHALE	6.0	984.0	
-452.0	CARBONDALE	BRERETON	LIMESTONE	4.0	990.0	
-456.0	CARBONDALE	ANNA	BLACK SHALE	2.0	994.0	
-458.0	CARBONDALE	HERRIN	COAL	4.0	996.0	

MAPID: 08100957000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 3 QUARTERS/FOOTAGES: SW NW SE

QUADRANGLE: BLUFORD LONGITUDE: -88.747852

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.291374

DATE COLLECTED:

SURFACE ELEVATION (FT.): 489.0 LOGGED (FT.): 936.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-361.0	MODESTO	PIASA	CALCAREOUS SHALE	6.0	850.0
-367.0	MODESTO		SHALE & SANDSTONE	18.0	856.0
-385.0	CARBONDALE	DANVILLE	COAL	6.0	874.0
-391.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	43.0	880.0
-434.0	CARBONDALE		GRAY SHALE	3.0	923.0
-437.0	CARBONDALE	BRERETON	LIMESTONE	4.0	926.0
-441.0	CARBONDALE	ANNA	BLACK SHALE	2.0	930.0
-443.0	CARBONDALE	HERRIN	COAL	4.0	932.0

MAPID: 08101166000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 3 QUARTERS/FOOTAGES: 330' S line, 330' W line of NW

QUADRANGLE: OPDYKE LONGITUDE: -88.757044

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.293808

DATE COLLECTED: 8 / 0 / 1958

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 3065.0

LOG TYPE: Drillers Log

SOURCE: GULF OIL CORPORATION

WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
493.0			UNCONSOLIDATED	10.0	0.0
483.0			SANDSTONE	121.0	10.0
362.0			COAL	3.0	131.0
359.0			ROCK	441.0	134.0
-82.0			SHALE	115.0	575.0
-197.0			COAL	5.0	690.0
-202.0			SHALE	340.0	695.0
-542.0			COAL	5.0	1035.0
-547.0			ROCK	2025.0	1040.0

MAPID: 08101343000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE NE
QUADRANGLE: BLUFORD **LONGITUDE:** -88.743129 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.297839 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 539.0 **LOGGED (FT.):** 3112.0 **LOG TYPE:**
SOURCE: LEWIS, WILL I. **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-455.0	CARBONDALE	HERRIN	COAL	4.0	994.0	
-499.0	CARBONDALE	BRIAR HILL	COAL	-	1038.0	
-534.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1073.0	BLACK SHALE & LIMESTONE ROOF
-617.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1156.0	

MAPID: 08100786000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of SE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.766286 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.293318 **DATE COLLECTED:** 9 / 0 / 1948
SURFACE ELEVATION (FT.): 489.0 **LOGGED (FT.):** 2929.0 **LOG TYPE:** Drillers Log
SOURCE: GULF REFINING CO. **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
489.0			UNCONSOLIDATED	40.0	0.0	
449.0			SHALE	408.0	40.0	
41.0			COAL	4.0	448.0	
37.0			ROCK	2477.0	452.0	

MAPID: 08101344000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.759477 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.287871 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 483.0 **LOGGED (FT.):** 3068.0 **LOG TYPE:**
SOURCE: GULF REFINING CO. **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-416.0	CARBONDALE	HERRIN	COAL	4.0	899.0	
-457.0	CARBONDALE	BRIAR HILL	COAL	-	940.0	
-495.0	CARBONDALE	SPRINGFIELD	COAL	5.0	978.0	BLACK SHALE & LIMESTONE ROOF
-577.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1060.0	

MAPID: 08102411000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 4 QUARTERS/FOOTAGES: NE NW SE

QUADRANGLE: OPDYKE LONGITUDE: -88.763978

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.293325

DATE COLLECTED:

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 922.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-343.0	MODESTO	PIASA	LIMESTONE	7.0	836.0	
-350.0	MODESTO		GRAY SHALE	12.0	843.0	
-362.0	CARBONDALE	DANVILLE	COAL	6.0	855.0	
-368.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	45.0	861.0	
-413.0	CARBONDALE		GRAY SHALE	5.0	906.0	
-418.0	CARBONDALE	BRERETON	LIMESTONE	4.0	911.0	
-422.0	CARBONDALE	ANNA	BLACK SHALE	2.0	915.0	
-425.0	CARBONDALE	HERRIN	COAL	4.0	918.0	

MAPID: 081242D0012F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 4 QUARTERS/FOOTAGES: SW

QUADRANGLE: OPDYKE LONGITUDE: -88.772115

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.289917

DATE COLLECTED: 0 / 0 / 1932

SURFACE ELEVATION (FT.): 510.0 LOGGED (FT.): 16.8

LOG TYPE:

SOURCE: FLD NOTES-MCCABE

WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.0			UNKNOWN	15.0	0.0	
-			COAL	1.8		AVERAGE THICKNESS

MAPID: 081242D0013F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 4 QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: OPDYKE LONGITUDE: -88.764083

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.287859

DATE COLLECTED: 0 / 0 / 1967

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 0.0

LOG TYPE:

SOURCE: FLD NOTES-MURRAY

WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	0.0	0.0	

MAPID: 081242D0011F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 4 **QUARTERS/FOOTAGES:** SW SW NE NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.771396 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.298314 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 35.4 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: COMPOSITE SECTION UP RAVINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	31.2		
-	MODESTO	WOMAC	COAL	2.3		
-			ROCK	2.0		

MAPID: 08101206000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NE SE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.777858 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.291466 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 3100.0 **LOG TYPE:**
SOURCE: FARRAR DRILLING CO **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-443.0	CARBONDALE	HERRIN	COAL	4.0	963.0	
-490.0	CARBONDALE	BRIAR HILL	COAL	-	1010.0	
-520.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1040.0	BLACK SHALE & LIMESTONE ROOF
-647.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1167.0	

MAPID: 08101347000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 7 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: OPDYKE **LONGITUDE:** -88.796564 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.27301 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 536.0 **LOGGED (FT.):** 3081.0 **LOG TYPE:**
SOURCE: THORPE ROBERT E **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-408.0	CARBONDALE	HERRIN	COAL	2.0	944.0	
-450.0	CARBONDALE	BRIAR HILL	COAL	-	986.0	
-486.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1022.0	BLACK SHALE & LIMESTONE ROOF
-570.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1106.0	

MAPID: 08101347000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 7 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.796564 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.27301 DATE COLLECTED:

SURFACE ELEVATION (FT.): 536.0 LOGGED (FT.): 947.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-342.0	MODESTO	PIASA	LIMESTONE AND SANDSTONE	5.0	878.0
-347.0	MODESTO		SHALE & SANDSTONE	20.0	883.0
-367.0	CARBONDALE	DANVILLE	COAL	3.0	903.0
-370.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	7.0	906.0
-377.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	19.0	913.0
-396.0	CARBONDALE		GRAY SHALE	2.0	932.0
-398.0	CARBONDALE	BRERETON	LIMESTONE	5.0	934.0
-403.0	CARBONDALE	ANNA	BLACK SHALE	2.0	939.0
-406.0	CARBONDALE	HERRIN	COAL	5.0	942.0

MAPID: 08101348000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 8 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW

QUADRANGLE: OPDYKE LONGITUDE: -88.787283 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.280421 DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 3065.0 LOG TYPE:

SOURCE: PEAK DRLG CO WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-401.0	CARBONDALE	HERRIN	COAL	4.0	927.0
-442.0	CARBONDALE	BRIAR HILL	COAL	-	968.0
-480.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1006.0
-568.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1094.0

BLACK SHALE & LIMESTONE ROOF

MAPID: 08102423000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 8 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: OPDYKE LONGITUDE: -88.784979 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.278601 DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0 LOGGED (FT.): 966.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-409.0	MODESTO	PIASA	LIMESTONE	6.0	917.0	
-415.0	MODESTO		GRAY SHALE	4.0	923.0	
-419.0	CARBONDALE	DANVILLE	COAL	4.0	927.0	
-423.0	CARBONDALE		SILTY SHALE	8.0	931.0	
-431.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	5.0	939.0	
-436.0	CARBONDALE		GRAY SHALE	12.0	944.0	
-448.0	CARBONDALE	BRERETON	LIMESTONE	4.0	956.0	
-452.0	CARBONDALE	ANNA	BLACK SHALE	2.0	960.0	
-454.0	CARBONDALE	HERRIN	COAL	4.0	962.0	

MAPID: 08100251200M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 9 QUARTERS/FOOTAGES: NE SE SW NW

QUADRANGLE: OPDYKE LONGITUDE: -88.772816 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.280946 DATE COLLECTED: 0 / 0 / 1967

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 11.2 LOG TYPE:

SOURCE: FLD NOTES-MURRAY, WALTER COLE MINE WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.0			UNKNOWN	10.0	0.0	
-	MATTOON	OPDYKE	COAL	1.2		ESTIMATED, NOT SEEN

MAPID: 08100424800M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 9 QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: OPDYKE LONGITUDE: -88.759506 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.286035 DATE COLLECTED: 0 / 0 / 1938

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 10.7 LOG TYPE:

SOURCE: MINE NOTES-BUBE C C WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	10.0	0.0	
-	MATTOON	OPDYKE	COAL	1.5		

MAPID: 08101351000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.775626 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.286005 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 3104.0 LOG TYPE:

SOURCE: DORAN THOMAS S WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-405.0	CARBONDALE	HERRIN	COAL	4.0	907.0	
-450.0	CARBONDALE	BRIAR HILL	COAL	-	952.0	
-480.0	CARBONDALE	SPRINGFIELD	COAL	4.0	982.0	BLACK SHALE & LIMESTONE ROOF
-562.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1064.0	

MAPID: 08102424000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 9 QUARTERS/FOOTAGES: 330' N line, 400' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.775381 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.286006 DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0 LOGGED (FT.): 904.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-326.0	MODESTO	PIASA	LIMESTONE	7.0	804.0	
-333.0	MODESTO		GRAY SHALE	3.0	811.0	
-336.0	CARBONDALE	DANVILLE	COAL	6.0	814.0	
-342.0	CARBONDALE		GRAY SHALE	12.0	820.0	
-354.0	CARBONDALE	ALLENBY	COAL	1.0	832.0	
-355.0	CARBONDALE		SANDSTONE	10.0	833.0	
-365.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	6.0	843.0	
-371.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	38.0	849.0	
-409.0	CARBONDALE	BRERETON	LIMESTONE	6.0	887.0	
-415.0	CARBONDALE	ANNA	BLACK SHALE	2.0	893.0	
-420.0	CARBONDALE	HERRIN	COAL	6.0	898.0	

MAPID: 081242D0015F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.775652 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.284158 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 500.0 **LOGGED (FT.):** 2.1 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-MURRAY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK		0.3	
-			COAL		1.5	
-			ROCK		0.3	

MAPID: 081242D0014F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 9 **QUARTERS/FOOTAGES:** SW NE NE NE
QUADRANGLE: OPDYKE **LONGITUDE:** -88.760089 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.285572 **DATE COLLECTED:** 0 / 0 / 1928
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 6.0 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WILLMAN **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK		3.0	
-			COAL		2.0	
-			ROCK		1.0	

MAPID: 08100251400M **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** NW NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.757198 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.286023 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 11.4 **LOG TYPE:**
SOURCE: MINE NOTES-SHELTON C C **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	10.0	0.0	
-			COAL		1.4	AVERAGE THICKNESS

MAPID: 08101145000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.757198 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.286034 DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 908.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-326.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	5.0	816.0	
-331.0	MODESTO		GRAY SHALE	5.0	821.0	
-336.0	CARBONDALE	DANVILLE	COAL	5.0	826.0	
-341.0	CARBONDALE		GRAY SHALE	12.0	831.0	
-353.0	CARBONDALE	ALLENBY	COAL	2.0	843.0	
-355.0	CARBONDALE		SHALE	1.0	845.0	
-356.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	5.0	846.0	
-361.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	45.0	851.0	
-406.0	CARBONDALE	BRERETON	LIMESTONE	5.0	896.0	
-411.0	CARBONDALE	ANNA	BLACK SHALE	2.0	901.0	
-413.0	CARBONDALE	HERRIN	COAL	5.0	903.0	

MAPID: 08101353000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 10 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW NW

QUADRANGLE: OPDYKE LONGITUDE: -88.757261 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.282343 DATE COLLECTED:

SURFACE ELEVATION (FT.): 484.0 LOGGED (FT.): 3056.0 LOG TYPE:

SOURCE: GULF REFINING CO. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-417.0	CARBONDALE	HERRIN	COAL	-	901.0	
-460.0	CARBONDALE	BRIAR HILL	COAL	-	944.0	
-496.0	CARBONDALE	SPRINGFIELD	COAL	5.0	980.0	BLACK SHALE & LIMESTONE ROOF
-582.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1066.0	

MAPID: 081242D0018F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.757228 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.284176 **DATE COLLECTED:** 0 / 0 / 1949
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 14.8 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-CADY **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCONSOLIDATED	8.0	0.0	
-			SHALE	3.0		
-	MATTOON	OPDYKE	COAL	2.1		
-			UNDERCLAY	1.7		

MAPID: 081242D0019F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.757228 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.284176 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 15.4 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-MURRAY **WELL TYPE:** Outcrop
COMMENT: OTHER NOTES ON THIS LOCALITY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCONSOLIDATED	8.0	0.0	
-			ROCK	3.3		CLOD,SH,THIN COAL INTERBEDDED
-	MATTOON	OPDYKE	COAL	1.5		SH PTG .06'
-			ROCK	2.5		

MAPID: 081242D0017F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.756241 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.274016 **DATE COLLECTED:** 0 / 0 / 1936
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 18.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-ROBINSON **WELL TYPE:** Outcrop
COMMENT: ABD STRIP MINE NOTED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	4.0		
-	MATTOON	OPDYKE	COAL	2.2		LOWER .08' SHALY
-			ROCK	12.1		

MAPID: 081242D0016F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 10 **QUARTERS/FOOTAGES:** NE NW SW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.755009 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.278618 **DATE COLLECTED:** 0 / 0 / 1932
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 14.2 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK		1.0	
-			COAL		1.5	
-			ROCK		11.7	

MAPID: 08101355000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 11 **QUARTERS/FOOTAGES:** SW SE SE
QUADRANGLE: BLUFORD **LONGITUDE:** -88.724715 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.272629 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 3207.0 **LOG TYPE:**
SOURCE: GRIFFITH WILBUR L **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-466.0	CARBONDALE	HERRIN	COAL	4.0	931.0	
-511.0	CARBONDALE	BRIAR HILL	COAL	-	976.0	
-547.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1012.0	BLACK SHALE & LIMESTONE ROOF
-637.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1102.0	

MAPID: 08101355000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 11 QUARTERS/FOOTAGES: SW SE SE

QUADRANGLE: BLUFORD LONGITUDE: -88.724715

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.272629

DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0

LOGGED (FT.): 930.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-379.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	6.0	844.0
-385.0	MODESTO		GRAY SHALE	10.0	850.0
-395.0	CARBONDALE	DANVILLE	COAL	1.0	860.0
-396.0	CARBONDALE		GRAY SHALE	20.0	861.0
-416.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	45.0	881.0
-461.0	CARBONDALE		GRAY SHALE	3.0	926.0
-464.0	CARBONDALE	BRERETON	LIMESTONE	5.0	929.0
-469.0	CARBONDALE	ANNA	BLACK SHALE	2.0	934.0
-460.0	CARBONDALE	HERRIN	COAL	5.0	925.0

MAPID: 08102433000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 13 QUARTERS/FOOTAGES: 330' N line, 360' W line

QUADRANGLE: BLUFORD LONGITUDE: -88.719949

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.270678

DATE COLLECTED:

SURFACE ELEVATION (FT.): 444.0

LOGGED (FT.): 940.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-398.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	5.0	842.0
-403.0	MODESTO		GRAY SHALE	16.0	847.0
-419.0	CARBONDALE	DANVILLE	COAL	3.0	863.0
-422.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	60.0	866.0
-482.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	926.0
-491.0	CARBONDALE	HERRIN	COAL	5.0	935.0

MAPID: 08100782000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 15 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.741382 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.2584 DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 3200.0 LOG TYPE:

SOURCE: REDWINE NASH ETAL WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-445.0	CARBONDALE	HERRIN	COAL	4.0	913.0	
-490.0	CARBONDALE	BRIAR HILL	COAL	-	958.0	
-526.0	CARBONDALE	SPRINGFIELD	COAL	5.0	994.0	BLACK SHALE & LIMESTONE ROOF
-612.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1080.0	

MAPID: 08100782000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 15 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: BLUFORD LONGITUDE: -88.741382 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.2584 DATE COLLECTED:

SURFACE ELEVATION (FT.): 468.0 LOGGED (FT.): 918.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-365.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	5.0	833.0	
-370.0	MODESTO		GRAY SHALE	14.0	838.0	
-384.0	CARBONDALE	DANVILLE	COAL	1.0	852.0	
-385.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	53.0	853.0	
-438.0	CARBONDALE	BRERETON	LIMESTONE	6.0	906.0	
-444.0	CARBONDALE	ANNA	BLACK SHALE	1.0	912.0	
-445.0	CARBONDALE	HERRIN	COAL	5.0	913.0	

MAPID: 08101640000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE

QUADRANGLE: OPDYKE LONGITUDE: -88.766942 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.258433 DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 3179.0 LOG TYPE:

SOURCE: LAMPLEY, WILLIAM E. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-415.0	CARBONDALE	HERRIN	COAL	4.0	897.0	
-452.0	CARBONDALE	BRIAR HILL	COAL	-	934.0	
-489.0	CARBONDALE	SPRINGFIELD	COAL	5.0	971.0	BLACK SHALE & LIMESTONE ROOF
-576.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1058.0	

MAPID: 08101800000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 16 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.760173 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.258459 DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0 LOGGED (FT.): 897.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-334.0	MODESTO	PIASA	LIMESTONE	5.0	812.0	
-339.0	MODESTO		GRAY SHALE	17.0	817.0	
-356.0	CARBONDALE	DANVILLE	COAL	4.0	834.0	
-360.0	CARBONDALE		GRAY SHALE	2.0	838.0	
-362.0	CARBONDALE	ALLENBY	COAL	1.0	840.0	
-363.0	CARBONDALE		GRAY SHALE	3.0	841.0	
-366.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	5.0	844.0	
-371.0	CARBONDALE	LAWSON	SILTY SHALE	25.0	849.0	
-396.0	CARBONDALE		GRAY SHALE	3.0	874.0	
-399.0	CARBONDALE	BRERETON	LIMESTONE	5.0	877.0	
-404.0	CARBONDALE	ANNA	BLACK SHALE	2.0	882.0	
-415.0	CARBONDALE	HERRIN	COAL	4.0	893.0	

MAPID: 08100011000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** SE SE NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.791428 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.268917 **DATE COLLECTED:** 0 / 0 / 1924
SURFACE ELEVATION (FT.): 523.5 **LOGGED (FT.):** 2311.0 **LOG TYPE:**
SOURCE: OPDYKE OIL **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-371.5	CARBONDALE	HERRIN	COAL	3.0	895.0	

MAPID: 08100011000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 17 **QUARTERS/FOOTAGES:** SE SE NW NW
QUADRANGLE: OPDYKE **LONGITUDE:** -88.791428 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.268917 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 2280.0 **LOG TYPE:** Drillers Log
SOURCE: OPDYKE OIL CO **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
524.0			UNCONSOLIDATED	15.0	0.0	
509.0			ROCK	15.0	15.0	
494.0			SHALE	30.0	30.0	
464.0			COAL	5.0	60.0	
459.0			SHALE	20.0	65.0	
439.0			ROCK	727.0	85.0	
-288.0			COAL WITH SHALE	3.0	812.0	COAL AND SHALE MIXED
-291.0			ROCK	55.0	815.0	
-346.0			SHALE	25.0	870.0	
-371.0	CARBONDALE	HERRIN	COAL	3.0	895.0	
-374.0	CARBONDALE		ROCK	1382.0	898.0	

MAPID: 08101356000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 17 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.778336 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.258397 DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0 LOGGED (FT.): 3100.0 LOG TYPE:

SOURCE: BREHM, C. E. DRLG.&PROD. WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-393.0	CARBONDALE	HERRIN	COAL	5.0	901.0	
-437.0	CARBONDALE	BRIAR HILL	COAL	-	945.0	
-472.0	CARBONDALE	SPRINGFIELD	COAL	4.0	980.0	BLACK SHALE & LIMESTONE ROOF
-554.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1062.0	

MAPID: 08101356000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 17 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: OPDYKE LONGITUDE: -88.778336 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.258397 DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0 LOGGED (FT.): 908.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-317.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	75.0	825.0	
-392.0	CARBONDALE	HERRIN	COAL	8.0	900.0	

MAPID: 08100191000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 18 QUARTERS/FOOTAGES: 660' S line, 330' W line of SE SW

QUADRANGLE: OPDYKE LONGITUDE: -88.808329 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.259454 DATE COLLECTED:

SURFACE ELEVATION (FT.): 541.0 LOGGED (FT.): 3204.0 LOG TYPE:

SOURCE: KINGWOOD OIL CO WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-304.0	CARBONDALE	DANVILLE	COAL	-	845.0	
-309.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	18.0	850.0	
-332.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	873.0	
-339.0	CARBONDALE	ANVIL ROCK	SILTSTONE	4.0	880.0	
-364.0	CARBONDALE	HERRIN	COAL	3.0	905.0	
-381.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	8.0	922.0	
-404.0	CARBONDALE	BRIAR HILL	COAL	-	945.0	
-412.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	17.0	953.0	
-439.0	CARBONDALE	SPRINGFIELD	COAL	5.0	980.0	BLACK SHALE & LIMESTONE ROOF
-526.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1067.0	

MAPID: 08100781000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' W line of SW NE

QUADRANGLE: OPDYKE LONGITUDE: -88.766949 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.252955 DATE COLLECTED:

SURFACE ELEVATION (FT.): 485.0 LOGGED (FT.): 3175.0 LOG TYPE:

SOURCE: SINCLAIR WYOMING OIL WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-361.0	CARBONDALE	DANVILLE	COAL	-	846.0	
-365.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	850.0	
-379.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	864.0	
-391.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	14.0	876.0	
-419.0	CARBONDALE	HERRIN	COAL	4.0	904.0	
-434.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	8.0	919.0	
-457.0	CARBONDALE	BRIAR HILL	COAL	-	942.0	
-461.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	17.0	946.0	
-493.0	CARBONDALE	SPRINGFIELD	COAL	5.0	978.0	BLACK SHALE ROOF
-503.0	CARBONDALE	SS BELOW NO. 5	SILTSTONE	12.0	988.0	
-580.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1065.0	

MAPID: 08100473000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SE
QUADRANGLE: DAHLGREN **LONGITUDE:** -88.747352 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.244673 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 465.0 **LOGGED (FT.):** 3194.0 **LOG TYPE:**
SOURCE: SINCLAIR WYOMING OIL **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-425.0	CARBONDALE	HERRIN	COAL	6.0	890.0	
-465.0	CARBONDALE	BRIAR HILL	COAL	-	930.0	
-501.0	CARBONDALE	SPRINGFIELD	COAL	5.0	966.0	BLACK SHALE ROOF
-585.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1050.0	

MAPID: 08100473000C **VERSION:** 2 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 660' S line, 660' W line of SE
QUADRANGLE: DAHLGREN **LONGITUDE:** -88.747352 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.244673 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 3194.0 **LOG TYPE:** Survey Sample Study
SOURCE: SINCLAIR WYOMING OIL **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08101357000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SE NE
QUADRANGLE: BLUFORD **LONGITUDE:** -88.741443 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.252909 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 464.0 **LOGGED (FT.):** 3173.0 **LOG TYPE:**
SOURCE: FRODERMAN G H **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-446.0	CARBONDALE	HERRIN	COAL	2.0	910.0	
-486.0	CARBONDALE	BRIAR HILL	COAL	-	950.0	
-519.0	CARBONDALE	SPRINGFIELD	COAL	5.0	983.0	BLACK SHALE ROOF
-606.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1070.0	

MAPID: 08101552000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 22 QUARTERS/FOOTAGES: 330' N line, 990' W line

QUADRANGLE: OPDYKE LONGITUDE: -88.755574 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.256629 DATE COLLECTED:

SURFACE ELEVATION (FT.): 475.0 LOGGED (FT.): 918.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-367.0	MODESTO	PIASA	LIMESTONE AND SANDSTONE	4.0	842.0	
-371.0	CARBONDALE		GRAY SHALE	10.0	846.0	
-381.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	5.0	856.0	
-386.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	42.0	861.0	
-428.0	CARBONDALE	BRERETON	LIMESTONE	5.0	903.0	
-433.0	CARBONDALE	ANNA	BLACK SHALE	4.0	908.0	
-437.0	CARBONDALE	HERRIN	COAL	6.0	912.0	

MAPID: 081242D0020F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 22 QUARTERS/FOOTAGES: NE NE NE NW

QUADRANGLE: OPDYKE LONGITUDE: -88.750233 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.257064 DATE COLLECTED: 0 / 0 / 1967

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 25.8 LOG TYPE: Measured section

SOURCE: FLD NOTES-MURRAY WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			UNCONSOLIDATED	25.0	0.0	
-	MATTOON	OPDYKE	COAL	0.8		WEATHERED, SLUMPED
-			ROCK	-		

MAPID: 08100219000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 23 QUARTERS/FOOTAGES: 992' N line, 330' E line of SE NE

QUADRANGLE: BLUFORD LONGITUDE: -88.722611 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.250638 DATE COLLECTED:

SURFACE ELEVATION (FT.): 431.0 LOGGED (FT.): 3285.0 LOG TYPE:

SOURCE: UNION MINING WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-423.0	CARBONDALE	DANVILLE	COAL	-	854.0
-425.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	6.0	856.0
-446.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	877.0
-452.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	17.0	883.0
-486.0	CARBONDALE	HERRIN	COAL	4.0	917.0
-499.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SILTSTONE	26.0	930.0
-529.0	CARBONDALE	BRIAR HILL	COAL	-	960.0
-534.0	CARBONDALE	CANTON	SANDSTONE/SHALE	18.0	965.0
-655.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1086.0

MAPID: 08101496000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 23 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: DAHLGREN LONGITUDE: -88.739224 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.243698 DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0 LOGGED (FT.): 946.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-402.0	MODESTO	PIASA	CALCAREOUS SANDSTONE	4.0	858.0
-406.0	MODESTO		GRAY SHALE	12.0	862.0
-418.0	CARBONDALE	DANVILLE	COAL	4.0	874.0
-422.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	56.0	878.0
-478.0	CARBONDALE	BRERETON	LIMESTONE	6.0	934.0
-484.0	CARBONDALE	ANNA	BLACK SHALE	2.0	940.0
-486.0	CARBONDALE	HERRIN	COAL	4.0	942.0

MAPID: 08100530000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 26 QUARTERS/FOOTAGES: 660' S line, 635' W line of NW NW

QUADRANGLE: DAHLGREN LONGITUDE: -88.738189 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.240886 DATE COLLECTED:

SURFACE ELEVATION (FT.): 454.0 LOGGED (FT.): 3108.0 LOG TYPE:

SOURCE: CENTRAL PIPELINE CO WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-362.0	CARBONDALE	DANVILLE	COAL	-	816.0	
-363.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	9.0	817.0	
-381.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	835.0	
-392.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	18.0	846.0	
-420.0	CARBONDALE	HERRIN	COAL	4.0	874.0	
-438.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	12.0	892.0	
-468.0	CARBONDALE	BRIAR HILL	COAL	-	922.0	
-472.0	CARBONDALE	CANTON	SILTSTONE	7.0	926.0	
-501.0	CARBONDALE	SPRINGFIELD	COAL	5.0	955.0	BLACK SHALE & LIMESTONE ROOF
-582.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1036.0	

MAPID: 08100543000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 26 QUARTERS/FOOTAGES: 660' S line, 660' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.72408 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.229414 DATE COLLECTED:

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 911.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-373.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	60.0	840.0	
-433.0	CARBONDALE	BRERETON	LIMESTONE	4.0	900.0	
-437.0	CARBONDALE	ANNA	BLACK SHALE	2.0	904.0	
-439.0	CARBONDALE	HERRIN	COAL	5.0	906.0	

MAPID: 08100526000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 27 QUARTERS/FOOTAGES: 660' N line, 660' E line of NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.751994 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.241054 DATE COLLECTED: 6 / 0 / 1943

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 3201.0 LOG TYPE: Drillers Log

SOURCE: GULF REFINING CO. WELL TYPE: Oil and Gas Test

COMMENT: QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			UNCONSOLIDATED	113.0	0.0	
347.0			ROCK	445.0	113.0	
-98.0			SHALE	72.0	558.0	
-170.0			COAL	5.0	630.0	
-175.0			ROCK	2566.0	635.0	

MAPID: 08100870000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 27 QUARTERS/FOOTAGES: 330' N line, 330' E line of NW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.755467 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.241985 DATE COLLECTED:

SURFACE ELEVATION (FT.): 472.0 LOGGED (FT.): 3120.0 LOG TYPE:

SOURCE: GULF REFINING CO. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-365.0	CARBONDALE	DANVILLE	COAL	-	837.0	
-370.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	842.0	
-383.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	855.0	
-393.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	15.0	865.0	
-424.0	CARBONDALE	HERRIN	COAL	4.0	896.0	
-432.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	19.0	904.0	
-470.0	CARBONDALE	BRIAR HILL	COAL	-	942.0	
-477.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	5.0	949.0	
-500.0	CARBONDALE	SPRINGFIELD	COAL	4.0	972.0	BLACK SHALE & LIMESTONE ROOF
-583.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1055.0	

MAPID: 0810245000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 27 QUARTERS/FOOTAGES: 172' N line, 330' W line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.75779 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.242433 DATE COLLECTED:

SURFACE ELEVATION (FT.): 453.0 LOGGED (FT.): 865.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-337.0	MODESTO		SHALE & SANDSTONE	16.0	790.0	
-353.0	CARBONDALE	DANVILLE	COAL	4.0	806.0	
-357.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	43.0	810.0	
-400.0	CARBONDALE	BRERETON	LIMESTONE	5.0	853.0	
-405.0	CARBONDALE	ANNA	BLACK SHALE	2.0	858.0	
-407.0	CARBONDALE	HERRIN	COAL	5.0	860.0	

MAPID: 081255A0001F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 27 QUARTERS/FOOTAGES: NE NE NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.75025 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.242406 DATE COLLECTED: 0 / 0 / 1938

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 25.2 LOG TYPE:

SOURCE: FLD NOTES-LESTER WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
450.0			UNCONSOLIDATED	20.0	0.0	
-			ROCK	5.0		
-			COAL	0.7		

MAPID: 081255A0002F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 27 QUARTERS/FOOTAGES: NE SW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.755505 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.238316 DATE COLLECTED: 0 / 0 / 1936

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 0.0 LOG TYPE:

SOURCE: FLD NOTES-WANLESS WELL TYPE: Strip Mine

COMMENT: "MACOUPIN COAL FORMERLY STRIPPED HERE"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			COAL	-		NOT SEEN

MAPID: 08100373000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 28 QUARTERS/FOOTAGES: 330' N line, 990' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.762416 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.241996 DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0 LOGGED (FT.): 3193.0 LOG TYPE:

SOURCE: SEABOARD OIL OF DE WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-359.0	CARBONDALE	DANVILLE	COAL	-	824.0	
-360.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	825.0	
-375.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	840.0	
-385.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SILTSTONE	16.0	850.0	
-417.0	CARBONDALE	HERRIN	COAL	4.0	882.0	
-433.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	10.0	898.0	
-457.0	CARBONDALE	BRIAR HILL	COAL	-	922.0	
-459.0	CARBONDALE	CANTON	SANDSTONE/SHALE	23.0	924.0	
-493.0	CARBONDALE	SPRINGFIELD	COAL	5.0	958.0	BLACK SHALE & LIMESTONE ROOF
-575.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1040.0	

MAPID: 08100373000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 28 QUARTERS/FOOTAGES: 330' N line, 990' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.762416 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.241996 DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0 LOGGED (FT.): 882.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-343.0	MODESTO	PIASA	LIMESTONE	5.0	808.0	
-348.0	MODESTO		GRAY SHALE	12.0	813.0	
-360.0	CARBONDALE	DANVILLE	COAL	3.0	825.0	
-363.0	CARBONDALE		SILTY SHALE	9.0	828.0	
-372.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	8.0	837.0	
-380.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	17.0	845.0	
-397.0	CARBONDALE	ENERGY	GRAY SHALE	14.0	862.0	
-411.0	CARBONDALE	HERRIN	COAL	6.0	876.0	

MAPID: 08102799000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 29 QUARTERS/FOOTAGES: NW SW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.794534

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.238476

DATE COLLECTED:

SURFACE ELEVATION (FT.): 501.0 LOGGED (FT.): 921.3

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION C.C. IN-6

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-344.0	CARBONDALE	DANVILLE	COAL	1.0	845.0	
-345.0	CARBONDALE		SILTY SHALE	40.0	846.0	
-385.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	886.0	
-395.0	CARBONDALE		GRAY SHALE	0.3	896.0	
-395.3	CARBONDALE	BRERETON	LIMESTONE	1.3	896.3	
-396.7	CARBONDALE	ANNA	BLACK SHALE	1.3	897.7	
-398.0	CARBONDALE	ENERGY	GRAY SHALE	17.0	899.0	
-415.0	CARBONDALE	HERRIN	COAL	5.3	916.0	

MAPID: 08100780000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 30 QUARTERS/FOOTAGES: 330' S line, 330' E line of NE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.796844

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.236684

DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 3264.0

LOG TYPE:

SOURCE: THOMPSON NEIL H TRST

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-413.0	CARBONDALE	HERRIN	COAL	4.0	913.0	
-456.0	CARBONDALE	BRIAR HILL	COAL	-	956.0	
-486.0	CARBONDALE	SPRINGFIELD	COAL	5.0	986.0	BLACK SHALE & LIMESTONE ROOF
-570.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1070.0	

MAPID: 081255A0003F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 3S 4E SECTION: 33 QUARTERS/FOOTAGES: SE SE NE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.760307

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.221812

DATE COLLECTED: 8 / 0 / 1949

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 0.0

LOG TYPE:

SOURCE: FLD NOTES-WILLIAMS

WELL TYPE: Strip Mine

COMMENT: OLD STRIP PIT, COVERED.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	0.0	0.0	

MAPID: 08100083000M **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 3S 4E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NW SW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.755711 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.219894 **DATE COLLECTED:** 8 / 0 / 1957
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 19.8 **LOG TYPE:**
SOURCE: BELLE RIVE C C **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNKNOWN	18.0	0.0	
-	MATTOON	OPDYKE	COAL	1.8		

MAPID: 08100027000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.052632 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.206744 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 496.9 **LOGGED (FT.):** 1800.0 **LOG TYPE:**
SOURCE: JEFFERSON 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-296.1	CARBONDALE	HERRIN	COAL	8.0	793.0	
-328.1	CARBONDALE	SPRINGFIELD	COAL	7.0	825.0	

MAPID: 08100795000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 1 **QUARTERS/FOOTAGES:** 996' S line, 990' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.043448 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.201189 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 458.0 **LOGGED (FT.):** 2444.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-351.0	CARBONDALE	SPRINGFIELD	COAL	-	809.0	
-519.0	CARBONDALE	COLCHESTER	COAL	-	977.0	
-1986.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2444.0	

MAPID: 08100795000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 1 QUARTERS/FOOTAGES: 996' S line, 990' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.043448

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.201189

DATE COLLECTED:

SURFACE ELEVATION (FT.): 461.0

LOGGED (FT.): 770.5

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-219.0	MODESTO	PIASA	LIMESTONE	9.0	680.0	
-228.0	MODESTO		GRAY SHALE	3.0	689.0	
-231.0	CARBONDALE	DANVILLE	COAL	2.0	692.0	
-233.0	CARBONDALE		GRAY SHALE	6.0	694.0	
-239.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	700.0	
-244.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	58.0	705.0	
-302.0	CARBONDALE	HERRIN	COAL	7.5	763.0	

MAPID: 08100028000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 2 QUARTERS/FOOTAGES: SW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.066468

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.206468

DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0

LOGGED (FT.): 830.0

LOG TYPE: Drillers Log

SOURCE: SOUTHERN GEM COAL CORP.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
526.0			UNCONSOLIDATED	16.0	0.0	
510.0			ROCK	150.0	16.0	
360.0			COAL	0.7	166.0	
359.3			ROCK	182.3	166.7	
177.0			COAL	0.6	349.0	
176.4			ROCK	13.4	349.6	
163.0			COAL	0.3	363.0	
162.7			ROCK	421.7	363.3	
-259.0			SHALE	31.0	785.0	SANDY
-290.0	CARBONDALE	HERRIN	COAL	8.8	816.0	
-298.8	CARBONDALE		ROCK	2.8	824.8	

MAPID: 08101578000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 2 QUARTERS/FOOTAGES: 405' N line, 565' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.06033 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.212361 DATE COLLECTED:

SURFACE ELEVATION (FT.): 529.0 LOGGED (FT.): 814.8 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-3-61 WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-187.0	MODESTO	PIASA	LIMESTONE	4.0	716.0
-191.0	CARBONDALE		LIMESTONE W/ SHALE	4.0	720.0
-195.0	CARBONDALE		SILTY SHALE	36.5	724.0
-231.5	CARBONDALE	BRERETON	LIMESTONE	2.0	760.5
-233.5	CARBONDALE	ANNA	BLACK SHALE	0.8	762.5
-234.3	CARBONDALE	ENERGY	SILTY SHALE	6.5	763.3
-240.8	CARBONDALE	ENERGY	SILTSTONE	18.0	769.8
-258.8	CARBONDALE	ENERGY	SILTY SHALE	21.5	787.8
-280.3	CARBONDALE	ENERGY	GRAY SHALE	1.2	809.3
-277.0	CARBONDALE	HERRIN	COAL	8.8	806.0

MAPID: 081254A0004F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 2 QUARTERS/FOOTAGES: NE NW NW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.065837 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.212979 DATE COLLECTED: 8 / 30 / 1931

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 5.2 LOG TYPE: Measured section

SOURCE: FLD NOTES-WELLER WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
500.0			UNCONSOLIDATED	3.0	0.0
-			ROCK	2.1	
-			COAL	0.3	SHALY
-			ROCK	2.8	

MAPID: 08100840000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 3 QUARTERS/FOOTAGES: 10' S line, 40' W line of SE SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.090537

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.197195

DATE COLLECTED: 7 / 7 / 1953

SURFACE ELEVATION (FT.): 493.5

LOGGED (FT.): 748.5

LOG TYPE: Drillers Log

SOURCE: CW & F COAL CO 16-J-53

WELL TYPE: Coal Test

COMMENT: CORE LOG FROM 700 TO BASE IS AVAILABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
493.5	PLEISTOCENE		CLAY & GRAVEL	11.0	0.0	
482.5			SANDSTONE	9.0	11.0	
473.5			SHALE	5.0	20.0	SOFT
468.5			GRAY SHALE	75.0	25.0	
393.5			SHALE	4.0	100.0	
389.5			LIMESTONE	1.0	104.0	
388.5			SHALE	15.0	105.0	
373.5			LIMESTONE	2.0	120.0	
371.5			SHALE	36.0	122.0	SOFT
335.5			LIMESTONE	2.0	158.0	
333.5			SHALE WITH LIMESTONE	20.0	160.0	
313.5			BROWN SHALE	23.0	180.0	
290.5			GRAY SHALE	20.0	203.0	
270.5			LIMESTONE	4.0	223.0	
266.5			SHALE	28.0	227.0	LIMESTONE INTERBEDS
238.5			SHALE	31.0	255.0	
207.5			LIMESTONE	6.0	286.0	
201.5			SHALE WITH LIMESTONE	18.0	292.0	HARD
183.5			SHALE	28.0	310.0	BEDDED
155.5			COAL	2.0	338.0	
153.5			SHALE	2.5	340.0	
151.0			COAL	1.5	342.5	
149.5			UNDERCLAY	6.0	344.0	
143.5			SHALE	35.0	350.0	BEDDED
108.5			SHALE	10.0	385.0	SANDY
98.5			SHALY SANDSTONE	70.0	395.0	
28.5			SHALE	18.0	465.0	SOFT STICKY
10.5			SHALE	32.0	483.0	SOFT, BEDDED
-21.5			COAL	2.3	515.0	
-23.8			UNDERCLAY	4.8	517.3	
-28.5			SHALE	23.0	522.0	SOFT
-51.5			SHALE	56.0	545.0	SOFT STICKY
-107.5			SHALE	33.0	601.0	BEDDED
-140.5	CARBONDALE	DANVILLE	COAL	1.0	634.0	
-141.5	CARBONDALE		CLAYSTONE	7.0	635.0	
-148.5	CARBONDALE	ENERGY	SHALE	16.0	642.0	SOFT
-164.5	CARBONDALE	ENERGY	SHALE	21.0	658.0	
-185.5	CARBONDALE	ENERGY	BLACK SHALE	2.0	679.0	TENUOUSLY IDENTIFIED AS COAL BY DRILLER
-187.5	CARBONDALE	ENERGY	SHALE	19.0	681.0	INCLUDES UNDER CLAY

-206.5	CARBONDALE	ENERGY	SHALY SILTSTONE	26.0	700.0	LITHOLOGY FROM CORE STUDY
-232.5	CARBONDALE	HERRIN	COAL	7.3	726.0	DETAILED DESCRIPT. AVAIL. IN CORE STUDY
-239.8	CARBONDALE		SHALY SILTSTONE	15.2	733.3	LITHOLOGY FROM CORE STUDY

MAPID: 08101608000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 3 **QUARTERS/FOOTAGES:** 29' S line, 52' W line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.095084 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.197285 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 516.0 **LOGGED (FT.):** 809.3 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-5-61 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-187.0	MODESTO	PIASA	LIMESTONE	3.5	703.0	
-190.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	706.5	
-198.0	CARBONDALE		SILTY SHALE	43.5	714.0	
-241.5	CARBONDALE	BRERETON	LIMESTONE	0.5	757.5	
-242.0	CARBONDALE	ENERGY	SILTSTONE	20.0	758.0	
-262.0	CARBONDALE	ENERGY	SILTSTONE	3.0	778.0	
-265.0	CARBONDALE	ENERGY	SILTSTONE	2.5	781.0	
-267.5	CARBONDALE	ENERGY	GRAY SHALE	14.5	783.5	
-282.0	CARBONDALE	ENERGY	GRAY SHALE	2.5	798.0	
-284.0	CARBONDALE	HERRIN	COAL	9.3	800.0	

MAPID: 08100580000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' S line, 990' W line of NW
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.10899 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.206331 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 520.0 **LOGGED (FT.):** 2369.0 **LOG TYPE:** Electric Log
SOURCE: DEEP ROCK OIL CORP **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-236.0	CARBONDALE	SPRINGFIELD	COAL	-	756.0	
-402.0	CARBONDALE	COLCHESTER	COAL	-	922.0	
-1849.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2369.0	

MAPID: 0810058000C VERSION: 2

PROJECT: CONTROL

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 4 QUARTERS/FOOTAGES: 330' S line, 990' W line of NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.10899 GEOLOGIST: HINES

CONFIDENTIAL: N LATITUDE: 38.206331 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 2984.0 LOG TYPE: Survey Sample Study

SOURCE: DEEP ROCK OIL CORP WELL TYPE: Oil and Gas Test

COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			NO RECORD	0.0	0.0

MAPID: 08101832000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 4 QUARTERS/FOOTAGES: 1039' S line, 1078' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.099046 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.200162 DATE COLLECTED:

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 734.0 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-10-64 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-132.0	MODESTO	PIASA	LIMESTONE	2.9	641.0
-134.9	MODESTO		CLAYSTONE	3.5	643.9
-138.4	CARBONDALE	DANVILLE	COAL	1.0	647.4
-139.4	CARBONDALE		CLAYSTONE	8.4	648.4
-147.9	CARBONDALE	BANKSTON FORK	LIMESTONE/UNDERCLAY	5.8	656.9
-153.7	CARBONDALE		SILTY SHALE	7.5	662.7
-161.2	CARBONDALE	BRERETON	LIMESTONE	6.4	670.2
-167.6	CARBONDALE	ANNA	BLACK SHALE	3.9	676.6
-171.5	CARBONDALE	ENERGY	SILTSTONE	10.2	680.5
-181.7	CARBONDALE	ENERGY	SILTY SHALE	26.5	690.7
-216.0	CARBONDALE	HERRIN	COAL	9.0	725.0

MAPID: 08100029000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 5 QUARTERS/FOOTAGES: SW SW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.121172 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.205847 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 692.5 LOG TYPE: Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
509.0			UNCONSOLIDATED	28.0	0.0	
481.0			ROCK	234.0	28.0	
247.0			COAL	0.2	262.0	
246.8			ROCK	317.8	262.2	
-71.0			COAL	0.3	580.0	
-71.3			ROCK	18.2	580.3	
-89.5			COAL	1.4	598.5	
-90.9			ROCK	49.1	599.9	
-140.0			SHALE	31.2	649.0	
-171.2	CARBONDALE	HERRIN	COAL	7.2	680.2	
-178.3	CARBONDALE		COAL WITH SHALE	0.5	687.3	COAL AND SHALE MIXED
-178.8	CARBONDALE	HERRIN	COAL	2.7	687.8	LOWER BENCH
-181.5	CARBONDALE		ROCK	2.0	690.5	

MAPID: 08101801000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 5 QUARTERS/FOOTAGES: 100' N line, 7' W line

QUADRANGLE: TAMAROA LONGITUDE: -89.130969 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.212504 DATE COLLECTED:

SURFACE ELEVATION (FT.): 499.0 LOGGED (FT.): 658.4 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-8-64 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-95.0	MODESTO	PIASA	LIMESTONE	3.0	594.0	
-98.0	CARBONDALE		DARK GRAY SHALE	3.0	597.0	
-101.0	CARBONDALE	BANKSTON FORK	LIMESTONE	20.0	600.0	
-121.0	CARBONDALE	ENERGY	SILTY SHALE	10.3	620.0	
-131.3	CARBONDALE	ENERGY	SILTY SHALE	6.7	630.3	
-137.9	CARBONDALE	ENERGY	SILTY SHALE	10.8	636.9	
-148.8	CARBONDALE	ENERGY	SILTY SHALE	4.3	647.8	
-153.0	CARBONDALE	HERRIN	COAL	6.4	652.0	

MAPID: 08100030000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 8

QUARTERS/FOOTAGES: SW SW NE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.116709

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.187241

DATE COLLECTED: 0 / 0 / 1910

SURFACE ELEVATION (FT.): 490.0

LOGGED (FT.): 690.2

LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.0			UNCONSOLIDATED	49.0	0.0	
441.0			ROCK	51.0	49.0	
390.0			COAL	1.0	100.0	
389.0			ROCK	133.5	101.0	
255.5			COAL	1.5	234.5	
254.0			ROCK	12.8	236.0	
241.2			COAL	0.3	248.8	
241.0			ROCK	149.5	249.0	
91.5			COAL	0.5	398.5	
91.0			ROCK	175.0	399.0	
-84.0			COAL	1.0	574.0	
-85.0			ROCK	42.0	575.0	
-127.0			BLACK SHALE	63.0	617.0	
-190.0	CARBONDALE	HERRIN	COAL	8.8	680.0	
-198.8	CARBONDALE		UNDERCLAY	1.3	688.8	

MAPID: 08100793000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 8

QUARTERS/FOOTAGES: 330' N line, 990' E line of NW NE NW

QUADRANGLE: TAMAROA

LONGITUDE: -89.127625

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.196848

DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0

LOGGED (FT.): 2290.0

LOG TYPE: Electric Log

SOURCE: TEXAS INC

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-178.0	CARBONDALE	SPRINGFIELD	COAL	-	686.0	
-357.0	CARBONDALE	COLCHESTER	COAL	-	865.0	
-1782.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2290.0	

MAPID: 08101797000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 8 QUARTERS/FOOTAGES: 40' S line, 85' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.112949 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.183267 DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 740.0 LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-4-64 WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-158.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	1.5	688.0
-159.5	CARBONDALE	ENERGY	SILTSTONE	9.8	689.5
-169.3	CARBONDALE	ENERGY	SILTSTONE	9.9	699.3
-179.3	CARBONDALE	ENERGY	SILTSTONE	9.8	709.3
-189.0	CARBONDALE	ENERGY	SILTSTONE	9.7	719.0
-198.7	CARBONDALE	ENERGY	SILTY SHALE	1.3	728.7
-200.0	CARBONDALE	HERRIN	COAL	10.0	730.0

MAPID: 08100031000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 990' N line, 660' E line of SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.106217 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.187501 DATE COLLECTED: 0 / 0 / 1922

SURFACE ELEVATION (FT.): 490.0 LOGGED (FT.): 698.0 LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
490.0			UNCONSOLIDATED	20.0	0.0
470.0			ROCK	63.0	20.0
407.0			COAL	0.3	83.0
406.7			ROCK	141.7	83.3
265.0			COAL	1.0	225.0
264.0			ROCK	18.0	226.0
246.0			COAL	0.3	244.0
245.7			ROCK	154.7	244.3
91.0			COAL	1.0	399.0
90.0			ROCK	254.0	400.0
-164.0			SANDSTONE	26.0	654.0
-190.0			SHALE	6.3	680.0
-196.3	CARBONDALE	HERRIN	COAL	10.3	686.3
-206.7	CARBONDALE		UNDERCLAY	1.0	696.7
-207.7	CARBONDALE		ROCK	0.3	697.7

WITH SANDY CONGLOMERATE

MAPID: 08100838000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 47' S line, 0' W line of NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.10391 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.186706 DATE COLLECTED: 12 / 23 / 1953

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 754.0 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-13-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 675.1'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
509.0	PLEISTOCENE		CLAY	9.0	0.0	
500.0			SANDSTONE	13.0	9.0	
487.0			SHALE	138.0	22.0	SOFT
349.0			SHALE WITH LIMESTONE	20.0	160.0	
329.0			SHALE	57.0	180.0	SOFT
272.0			LIMESTONE	5.0	237.0	HARD
267.0			SHALE WITH LIMESTONE	18.0	242.0	
249.0			SHALE	10.0	260.0	SOFT
239.0			SHALE	170.0	270.0	BANDED
69.0			SHALE	80.0	440.0	
-11.0			SANDSTONE	16.0	520.0	
-27.0			SHALE	76.0	536.0	BANDED
-103.0			SHALE	63.1	612.0	SANDSTONE INTERBEDS
-166.1			SHALE	17.5	675.1	DATA FROM CORE STUDY HENCEFORTH
-183.6			SILTSTONE/SANDSTONE	6.6	692.6	INTERBEDDED
-190.2	CARBONDALE	BRERETON	LIMESTONE	0.8	699.2	DIRTY DARK GRAY DENSE
-190.9	CARBONDALE	ENERGY	SILTSTONE/SANDSTONE	24.7	699.9	
-215.6	CARBONDALE	ENERGY	GRAY SHALE	0.8	724.6	
-216.4	CARBONDALE	ENERGY	SANDSTONE	0.3	725.4	FINE CARBONACEOUS
-216.7	CARBONDALE	ENERGY	GRAY SHALE	0.3	725.7	INCLINED CONTACT; SANDSTONE LAMINAE
-216.9	CARBONDALE	HERRIN	COAL	9.3	725.9	DETAILED DESCRIPTION IN CORE STUDY
-226.2	CARBONDALE		UNDERCLAY	5.7	735.2	
-231.8	CARBONDALE		GRAY SHALE	1.4	740.8	
-233.3	CARBONDALE	ST. DAVID	LIMESTONE	1.4	742.3	ARGILLACEOUS CLAY LAMINAE
-234.7	CARBONDALE	TURNER MINE	BLACK SHALE	3.1	743.7	PYRITIC; VERTICALLY JOINTED
-237.8	CARBONDALE	SPRINGFIELD	COAL	4.5	746.8	DETAILED DESCRIPTION IN CORE STUDY
-242.3			UNDERCLAY	2.8	751.3	

MAPID: 08100839000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 660' S line, 660' E line of SE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.097492

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.184649

DATE COLLECTED: 1 / 7 / 1954

SURFACE ELEVATION (FT.): 511.0

LOGGED (FT.): 764.5

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-1-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 693'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
511.0	PLEISTOCENE		CLAY	20.0	0.0	
491.0			SHALE	5.0	20.0	SOFT
486.0			SHALE	65.0	25.0	
421.0			LIMESTONE	1.0	90.0	
420.0			COAL	2.0	91.0	
418.0			UNDERCLAY	7.0	93.0	
411.0			SHALE	109.0	100.0	BANDED
302.0			LIMESTONE	3.0	209.0	
299.0			SHALE	62.0	212.0	
237.0			LIMESTONE	5.0	274.0	
232.0			SHALE	4.0	279.0	
228.0			LIMESTONE	2.0	283.0	
226.0			SHALE	38.0	285.0	BANDED
188.0			CARBONACEOUS SHALE	3.0	323.0	
185.0			BLACK SHALE	13.0	326.0	TOUGH
172.0			SHALE WITH LIMESTONE	10.0	339.0	
162.0			SHALE	11.0	349.0	BANDED
151.0			SHALE	90.0	360.0	SOFT
61.0			SHALE	85.0	450.0	
-24.0			SHALY SANDSTONE	40.0	535.0	
-64.0			SHALE	105.0	575.0	TOUGH
-169.0			SHALE	13.0	680.0	SANDY
-182.0			SHALE	7.3	693.0	
-189.3			SHALE	0.1	700.3	CLAYEY
-189.4			BLACK SHALE	1.6	700.4	COAL LAMINAE AT BASE
-191.0			LIMESTONE	0.9	702.0	DIRTY, HARD, CARBONACEOUS
-191.9			SHALE	0.6	702.9	CALC
-192.5	CARBONDALE	BRERETON	LIMESTONE	7.6	703.5	DIRTY BAND AT 707'
-200.1	CARBONDALE	BRERETON	SHALE	0.3	711.1	DARK CALC NODULAR
-200.4	CARBONDALE	BRERETON	LIMESTONE	6.1	711.4	GRAY SHALE PARTINGS
-206.5	CARBONDALE	HERRIN	COAL	8.6	717.5	
-215.1	CARBONDALE		GRAY SHALE	0.2	726.1	DARK LAMINATED COAL PYRITE
-215.3	CARBONDALE		UNDERCLAY	0.8	726.3	
-216.1	CARBONDALE		COAL	0.7	727.1	BRIGHT, VERTICAL KAOLINITE VEINS
-216.8	CARBONDALE		SILTSTONE	0.0	727.8	COAL LAMINAE
-216.8	CARBONDALE		SILTSTONE	8.2	727.8	CARB; OCC COAL
-225.0	CARBONDALE	BRIAR HILL	COAL	2.3	736.0	DETAILED DESCRIPTION IN CORE STUDY
-227.3	CARBONDALE		UNDERCLAY	7.3	738.3	LIMESTONE NODULES

-234.6	CARBONDALE		LIMESTONE	0.8	745.6	
-235.3	CARBONDALE		GRAY SHALE	0.5	746.3	CLAYEY, CALC
-235.8	CARBONDALE		GRAY SHALE	5.8	746.8	CARBONACEOUS
-241.7	CARBONDALE	ST. DAVID	LIMESTONE	2.0	752.7	DIRTY, GRAY
-243.7	CARBONDALE	TURNER MINE	BLACK SHALE	2.6	754.7	LIMESTONE LAMINAE AT BASE
-246.3	CARBONDALE	SPRINGFIELD	COAL	0.3	757.3	BONY, VITRAIN LAMINAE
-246.5	CARBONDALE	SPRINGFIELD	COAL	4.2	757.5	BASAL CONTACT INCLINED
-250.7	CARBONDALE		UNDERCLAY	2.8	761.7	

MAPID: 08100845000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 15' N line, 0' W line of SE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.099553

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.186437

DATE COLLECTED: 9 / 7 / 1953

SURFACE ELEVATION (FT.): 513.5

LOGGED (FT.): 768.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-6-53

WELL TYPE: Coal Test

COMMENT: SURVEY CORE STUDY; 690' TO BASE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
513.5	PLEISTOCENE		CLAY	18.0	0.0	DRILLERS LOG ONLY TO 690'
495.5			GRAY SHALE	15.0	18.0	SOFT
480.5			SHALE	60.0	33.0	
420.5			SANDSTONE	17.0	93.0	
403.5			SHALE	40.0	110.0	BANDED
363.5			SHALE	55.0	150.0	
308.5			SHALE	25.0	205.0	SANDY
283.5			SHALE	30.0	230.0	SOFT
253.5	BOND	CARTHAGE	LIMESTONE	5.0	260.0	UNCERTAIN CORRELATION
248.5	MODESTO		SHALE	3.0	265.0	
245.5	MODESTO	NEW HAVEN	COAL	1.0	268.0	
244.5	MODESTO		SHALE	81.0	269.0	
163.5	MODESTO		SHALE	20.0	350.0	SANDY
143.5	MODESTO		SHALE	140.0	370.0	
3.5	MODESTO		SANDSTONE	10.0	510.0	
-6.5	MODESTO		SHALE	40.0	520.0	SANDY
-46.5	MODESTO		SHALE	25.0	560.0	TOUGH
-71.5	MODESTO	PIASA	LIMESTONE	10.0	585.0	
-81.5	MODESTO		SHALE	25.0	595.0	
-106.5	CARBONDALE	DANVILLE	COAL	2.0	620.0	
-108.5	CARBONDALE	BANKSTON FORK	LIMESTONE	38.0	622.0	
-146.5	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	660.0	
-156.5	CARBONDALE		SHALE WITH LIMESTONE	10.0	670.0	
-166.5	CARBONDALE	ENERGY	SHALE	10.0	680.0	SANDY
-176.5	CARBONDALE	ENERGY	SILTSTONE	1.8	690.0	SURVEY CORE STUDY DATA HENCE FORTH
-178.3	CARBONDALE	ENERGY	GRAY SHALE	2.4	691.8	SILTSTONE LAMINAE
-180.7	CARBONDALE	ENERGY	SILTSTONE	11.8	694.2	THICKNESS ADJUSTED
-192.5	CARBONDALE	HERRIN	COAL	2.3	706.0	DETAILED DESCRIPTION AVAILABLE
-194.8	CARBONDALE	HERRIN	CLAYSTONE	0.1	708.3	
-194.9	CARBONDALE	HERRIN	GRAY SHALE	5.5	708.4	SLICKENSLIDES; THICKNESS ADJUSTED
-200.4	CARBONDALE	HERRIN	COAL	2.1	713.9	DETAILED DESCRIPTION AVAILABLE
-202.5	CARBONDALE	HERRIN	SILTSTONE	2.9	716.0	COALY LAMINAE AT TOP
-205.4	CARBONDALE	HERRIN	COAL	1.2	718.9	DETAILED DESCRIPTION AVAILABLE
-206.6	CARBONDALE		UNDERCLAY	0.2	720.1	
-206.8	CARBONDALE		SILTSTONE	29.2	720.3	
-236.0	CARBONDALE		GRAY SHALE	7.8	749.5	SIDERITE
-243.8	CARBONDALE		CONGLOMERATE	0.7	757.3	LIMESTONE PEBBLES, CLAY MATRIX
-244.4	CARBONDALE		SHALE	0.1	757.9	CLAYEY, CONGL

-244.5	CARBONDALE		CONGLOMERATE	0.3	758.0	LIMESTONE PEBBLES, CLAY MATRIX
-244.8	CARBONDALE		SHALE	0.3	758.3	CLAYEY, CALC. SIDERITE
-245.2	CARBONDALE		LIMESTONE	1.0	758.7	NODULAR
-246.2	CARBONDALE		GRAY SHALE	0.3	759.7	
-246.5	CARBONDALE	ST. DAVID	LIMESTONE	0.5	760.0	
-247.0	CARBONDALE	TURNER MINE	BLACK SHALE	1.5	760.5	LAMINATED THICKNESS ADJUSTED
-248.5	CARBONDALE		GRAY SHALE	0.1	762.0	COAL LAMINAE
-248.6	CARBONDALE	SPRINGFIELD	COAL	4.1	762.1	DETAILED DESCRIPTION AVAILABLE
-252.7	CARBONDALE		UNDERCLAY	1.8	766.2	

MAPID: 08100848000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 170' N line, 0' W line of NE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.099563

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.189618

DATE COLLECTED: 10 / 22 / 1953

SURFACE ELEVATION (FT.): 501.0

LOGGED (FT.): 771.4

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-9-53

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; SURVEY CORE STUDY 691.3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
501.0	PLEISTOCENE		CLAY	16.0	0.0	
485.0			SANDSTONE	6.0	16.0	SOFT
479.0			SHALE	38.0	22.0	SANDY
441.0			SHALE/COAL	5.0	60.0	
436.0			SHALE	15.0	65.0	SOFT
421.0			SHALE	90.0	80.0	
331.0			SANDSTONE	30.0	170.0	
301.0			SHALE	20.0	200.0	BANDED
281.0			SHALE	21.0	220.0	
260.0	BOND	CARTHAGE	LIMESTONE	5.0	241.0	
255.0			SHALE	3.0	246.0	
252.0	MODESTO	NEW HAVEN	COAL	2.0	249.0	
250.0			SHALE	66.0	251.0	
184.0			LIMESTONE	2.0	317.0	
182.0			SHALE	231.0	319.0	
-49.0			SANDSTONE	25.0	550.0	
-74.0			BLACK SHALE	15.0	575.0	
-89.0			SHALE	70.0	590.0	
-159.0	CARBONDALE	ENERGY	SHALE	28.3	660.0	SANDY
-187.3	CARBONDALE	HERRIN	COAL	2.2	688.3	
-189.5	CARBONDALE		SHALE	1.8	690.5	DATA FROM SURVEY CORE STUDY HENCE FORTH
-191.3	CARBONDALE		SILTSTONE	13.0	692.3	LAMINATED
-204.3	CARBONDALE		GRAY SHALE	6.5	705.3	
-210.8	CARBONDALE		SILTSTONE	1.1	711.8	
-211.9	CARBONDALE		GRAY SHALE	17.3	712.9	LAMINATED
-229.3	CARBONDALE		GRAY SHALE	28.3	730.3	SILTSTONE LAMINATIONS
-257.5	CARBONDALE		BLACK SHALE	2.4	758.5	CLAYEY
-259.9	CARBONDALE		GRAY SHALE	3.3	760.9	CLAYEY
-263.3	CARBONDALE		GRAY SHALE	1.0	764.3	DARK SOFT SLICKENSLIDED
-264.3	CARBONDALE	TURNER MINE	BLACK SHALE	0.7	765.3	CALCITE, PYRITE, LAMINATED
-264.9	CARBONDALE	SPRINGFIELD	COAL	4.2	765.9	DETAILED DESCRIPTION AVAILABLE
-269.1	CARBONDALE		UNDERCLAY	1.3	770.1	

MAPID: 08100849000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 20' S line, 620' E line of NE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.09741 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.193704 DATE COLLECTED: 11 / 4 / 1953

SURFACE ELEVATION (FT.): 496.0 LOGGED (FT.): 731.3 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-10-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; SURVEY CORE STUDY 680'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
496.0	PLEISTOCENE		BOULDERS & CLAY	12.0	0.0	
484.0			SANDSTONE	11.0	12.0	DECOMPOSED
473.0			SHALE	60.0	23.0	
413.0			COAL	2.0	83.0	
411.0			UNDERCLAY	5.0	85.0	
406.0			SANDSTONE	20.0	90.0	
386.0			SHALE	32.0	110.0	BANDED
354.0			SHALE	48.0	142.0	
306.0	BOND	CARTHAGE	LIMESTONE	6.0	190.0	
300.0	MODESTO		SHALE	2.0	196.0	
298.0	MODESTO		LIMESTONE	2.0	198.0	
296.0	MODESTO		SHALE	58.0	200.0	
238.0	MODESTO	CARLINVILLE	LIMESTONE	5.0	258.0	
233.0	MODESTO		SHALE	37.0	263.0	LIMY
196.0	MODESTO		SHALE	160.0	300.0	
36.0	MODESTO		SHALE	110.0	460.0	LIMESTONE INTERBEDS
-74.0	MODESTO		SHALE	45.0	570.0	
-119.0	MODESTO		SHALE	15.0	615.0	STICKY
-134.0	MODESTO		SHALE	16.0	630.0	
-150.0	MODESTO	PIASA	LIMESTONE	1.0	646.0	
-151.0			SHALE	18.0	647.0	
-169.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	665.0	
-172.0	CARBONDALE	ENERGY	SHALE	12.0	668.0	
-184.0	CARBONDALE	ENERGY	SILTSTONE	42.1	680.0	1.5" SANDSTONE BED AT 693' LAMINATED
-226.1	CARBONDALE	ENERGY	LIMESTONE	0.6	722.1	HARD DIRTY DOLOMITIC
-226.7	CARBONDALE	ENERGY	SILTSTONE	0.4	722.7	PYRITE COAL DIP AT BASE=30
-227.1	CARBONDALE	ENERGY	SHALE	0.1	723.1	BONE INTERLAMINATE; DIP=30
-227.2	CARBONDALE	HERRIN	COAL	6.2	723.2	DETAILED DESCRIPTION AVAILABLE
-233.4	CARBONDALE		SILTSTONE	1.2	729.4	
-234.6	CARBONDALE		SANDSTONE	0.8	730.6	SILTSTONE BLEBS

MAPID: 08100850000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 170' N line, 410' W line of NE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.098129

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.189588

DATE COLLECTED: 0 / 0 / 1953

SURFACE ELEVATION (FT.): 510.5

LOGGED (FT.): 794.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-11-53

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; SURVEY CORE STUDY 680.2'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.5	PLEISTOCENE		CLAY & GRAVEL	14.0	0.0	
496.5			SANDSTONE	11.0	14.0	DECOMPOSED
485.5			SHALE	56.0	25.0	
429.5			COAL	2.0	81.0	
427.5			SHALE	93.0	83.0	
334.5			SHALE	14.0	176.0	BANDED
320.5			SHALE	30.0	190.0	LIMY
290.5			SHALE	37.0	220.0	
253.5	BOND	CARTHAGE	LIMESTONE	5.0	257.0	
248.5	MODESTO		SHALE	70.0	262.0	
178.5	MODESTO	CARLINVILLE	LIMESTONE	2.0	332.0	HARD
176.5	MODESTO		SHALE	268.0	334.0	
-91.5	MODESTO	PIASA	LIMESTONE	5.0	602.0	
-96.5			SHALE WITH LIMESTONE	43.0	607.0	INTERBEDDED
-139.5	CARBONDALE	ENERGY	SHALE	30.2	650.0	
-169.7	CARBONDALE	ENERGY	SILTSTONE	16.4	680.2	PYRITE LAMINATED
-186.1	CARBONDALE	ENERGY	GRAY SHALE	3.6	696.6	
-189.6	CARBONDALE	ENERGY	SILTSTONE	46.0	700.1	PARTLY CALC; LAMINATED PYRITE
-235.6	CARBONDALE		GRAY SHALE	24.4	746.1	COALY OR CARB LAMINAE
-260.0	CARBONDALE		COAL	0.3	770.5	PYRITE, CALCITE
-260.2	CARBONDALE		GRAY SHALE	9.5	770.7	SIDERITIC BONDS
-269.7	CARBONDALE		SHALE	0.2	780.2	CLAYEY
-269.9	CARBONDALE		UNDERCLAY	4.2	780.4	
-274.1	CARBONDALE		GRAY SHALE	3.0	784.6	COAL FRAGMENTS
-277.1	CARBONDALE		CONGLOMERATE	0.3	787.6	LIMESTONE PEBBLES, SHALY MATRIX
-277.4	CARBONDALE	SPRINGFIELD	COAL	3.7	787.9	DETAILED DESCRIPTION IN CORE STUDY
-281.1	CARBONDALE		UNDERCLAY	0.9	791.6	
-282.0	CARBONDALE		SHALE	1.1	792.5	CLAY
-283.1	CARBONDALE		GRAY SHALE	0.4	793.6	

MAPID: 08100851000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 170' N line, 410' E line of NE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.096649 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.189555 DATE COLLECTED: 4 / 0 / 1954

SURFACE ELEVATION (FT.): 499.5 LOGGED (FT.): 763.7 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-12-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; SURVEY CORE STUDY 680.1'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
499.5	PLEISTOCENE		CLAY	16.0	0.0	
483.5			SANDSTONE	7.0	16.0	DECOMPOSED
476.5			SHALE	35.0	23.0	SOFT
441.5			SHALE/COAL	2.0	58.0	
439.5			SHALE	41.0	60.0	SOFT
398.5			LIMESTONE	1.0	101.0	
397.5			SHALE/COAL	3.0	102.0	
394.5			SHALE	15.0	105.0	CLAYEY
379.5			SHALE	50.0	120.0	SOFT
329.5	BOND	CARTHAGE	LIMESTONE	8.0	170.0	
321.5			SANDSTONE	22.0	178.0	
299.5			SHALE	35.0	200.0	
264.5	MODESTO	CARLINVILLE	LIMESTONE	6.0	235.0	
258.5			SHALE	144.0	241.0	
114.5			SHALE	80.0	385.0	SOFT, STICKY
34.5			SHALE	50.0	465.0	SOFT
-15.5			SHALE	35.0	515.0	TOUGH BANDED
-50.5			SHALE	60.0	550.0	TOUGH BANDED
-110.5			SANDSTONE	15.0	610.0	
-125.5			SHALE	35.0	625.0	TOUGH
-160.5			SHALE	20.1	660.0	SANDY
-180.6			GRAY SHALE	17.8	680.1	COALY AT BASE; SILTSTONE LAMINAE
-198.3			SILTSTONE	0.4	697.8	
-198.8			GRAY SHALE	0.1	698.3	COALY; 1/8" COAL BED
-198.8			UNDERCLAY	0.1	698.3	
-198.9	CARBONDALE	ENERGY	SHALY SILTSTONE	8.3	698.4	CARB SILTSTONE; INTERLAMINATED
-207.3	CARBONDALE	ENERGY	SILTSTONE	29.8	706.8	CARB AT BASE
-237.0	CARBONDALE	HERRIN	COAL	0.7	736.5	BRIGHT BANDED
-237.7	CARBONDALE		LIMESTONE	5.6	737.2	ARGILLACEOUS NODULAR
-243.3	CARBONDALE		UNDERCLAY	0.2	742.8	
-243.4	CARBONDALE		LIMESTONE	3.0	742.9	ARGILLACEOUS NODULAR
-246.4	CARBONDALE		GRAY SHALE	1.2	745.9	CALC NODULES
-247.6	CARBONDALE		UNDERCLAY	2.8	747.1	FRIABLE
-250.3	CARBONDALE		GRAY SHALE	0.9	749.8	
-251.3	CARBONDALE		BLACK SHALE	2.8	750.8	
-254.1	CARBONDALE	ST. DAVID	LIMESTONE	1.8	753.6	ARGILLACEOUS
-255.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	755.3	
-258.3	CARBONDALE	SPRINGFIELD	COAL	4.2	757.8	DETAILED DESCRIPTION IN CORE STUDY

MAPID: 08100853000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 50' S line, 660' E line of SW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.101852

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.18306

DATE COLLECTED: 2 / 12 / 1954

SURFACE ELEVATION (FT.): 504.2

LOGGED (FT.): 765.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-3-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 670

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
504.2	PLEISTOCENE		CLAY	16.0	0.0	
488.2			SHALE	50.0	16.0	SOFT
438.2			COAL	2.0	66.0	
436.2			UNDERCLAY	7.0	68.0	
429.2			SANDSTONE	25.0	75.0	
404.2			SHALE	50.0	100.0	BANDED
354.2			SHALE	30.0	150.0	
324.2			SANDSTONE	20.0	180.0	
304.2			SHALE	41.0	200.0	
263.2			LIMESTONE	6.0	241.0	
257.2			SHALE WITH LIMESTONE	33.0	247.0	
224.2			SHALE	55.0	280.0	LIMESTONE INTERBEDS
169.2			SANDSTONE	6.0	335.0	
163.2			SHALE	221.0	341.0	
-57.8			SANDSTONE	20.0	562.0	
-77.8			SHALE	10.0	582.0	
-87.8			BLACK SHALE	4.0	592.0	
-91.8			SHALE	36.0	596.0	BANDED
-127.8	CARBONDALE	ENERGY	SHALE	38.0	632.0	SANDY
-165.8	CARBONDALE	ENERGY	SILTSTONE	1.1	670.0	DATA FROM CORE STUDY HENCE FORTH
-166.9	CARBONDALE	ENERGY	SANDSTONE	5.8	671.1	LIMESTONE GRAVEL; CONTORTED BEDDING
-172.7	CARBONDALE	ENERGY	SILTSTONE	6.3	676.9	CARB
-179.0	CARBONDALE	ENERGY	GRAY SHALE	4.9	683.2	CARB
-183.9	CARBONDALE	ENERGY	COAL	2.2	688.1	
-186.1	CARBONDALE	ENERGY	SILTSTONE	3.1	690.3	CARB
-189.2	CARBONDALE	ENERGY	COAL	0.1	693.4	DETAILED DESCRIPTION IN CORE STUDY
-189.3	CARBONDALE	ENERGY	GRAY SHALE	2.2	693.5	
-191.5	CARBONDALE	ENERGY	SILTSTONE	7.1	695.7	
-198.6	CARBONDALE	ENERGY	GRAY SHALE	1.6	702.8	CARB & COALY AT BASE
-200.1	CARBONDALE	HERRIN	COAL	9.0	704.3	FURTHER DESCRIPTION IN CORE STUDY
-209.1	CARBONDALE		UNDERCLAY	0.3	713.3	
-209.4	CARBONDALE		SILTSTONE	23.6	713.6	
-233.0	CARBONDALE		GRAY SHALE	5.5	737.2	
-238.5	CARBONDALE	ST. DAVID	LIMESTONE	0.9	742.7	PALE ARGILLACEOUS
-239.4	CARBONDALE		GRAY SHALE	2.2	743.6	
-241.6	CARBONDALE	SPRINGFIELD	COAL	0.2	745.8	BONY AT TOP; BRIGHT BANDED
-241.8	CARBONDALE		UNDERCLAY	1.3	746.0	
-243.1	CARBONDALE		GRAY SHALE	1.7	747.3	LIMESTONE NODULES

-244.8	CARBONDALE	SILTSTONE	0.8	749.0	
-245.6	CARBONDALE	LIMESTONE	0.2	749.8	DENSE ARGILLACEOUS
-245.7	CARBONDALE	GRAY SHALE	0.4	749.9	CLAYEY
-246.1	CARBONDALE	SILTSTONE	4.3	750.3	OCCASIONAL SHALE BEDS
-250.5	CARBONDALE	GRAY SHALE	3.3	754.7	
-253.7	CARBONDALE	SILTSTONE	6.0	757.9	GRAY SHALE LAMINAE
-259.7	CARBONDALE	SHALE	1.1	763.9	

MAPID: 08100854000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 40' S line, 1230' E line of SW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.103846

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.183076

DATE COLLECTED: 1 / 26 / 1954

SURFACE ELEVATION (FT.): 510.6

LOGGED (FT.): 759.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-2-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 669.7'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.6	PLEISTOCENE		CLAY	15.0	0.0	
495.6			SHALE	8.0	15.0	DECOMPOSED
487.6			SHALE	44.0	23.0	SOFT
443.6			COAL	2.0	67.0	
441.6			UNDERCLAY	6.0	69.0	
435.6			SHALE	55.0	75.0	
380.6			SANDSTONE	20.0	130.0	
360.6			SHALE	10.0	150.0	BANDED
350.6			SHALE WITH LIMESTONE	25.0	160.0	
325.6			SHALE	57.0	185.0	
268.6			LIMESTONE	5.0	242.0	
263.6			SHALE	5.0	247.0	
258.6			LIMESTONE	2.0	252.0	
256.6			SHALE	11.0	254.0	
245.6			SHALE	80.0	265.0	TOUGH; LIMESTONE INTERBEDS
165.6			SHALE	80.0	345.0	LIMESTONE INTERBEDS
85.6			SHALE	35.0	425.0	SOFT STICKY
50.6			SHALE	40.0	460.0	HARD BANDED
10.6			SHALE	90.0	500.0	
-79.4	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	590.0	
-82.4	CARBONDALE		SHALE	37.0	593.0	LIMY
-119.4	CARBONDALE	ENERGY	SHALE	39.0	630.0	SANDY
-158.4	CARBONDALE	ENERGY	GRAY SHALE	27.3	669.0	CARB
-185.7	CARBONDALE	HERRIN	COAL	0.0	696.3	
-185.8	CARBONDALE	HERRIN	GRAY SHALE	2.3	696.4	COAL LAMINAE
-188.1	CARBONDALE	HERRIN	GRAY SHALE	1.0	698.7	SILTSTONE & COAL LAMINAE
-189.1	CARBONDALE	HERRIN	SHALY SILTSTONE	3.4	699.7	INTERBEDDED; 20% BRIGHT COAL BEDS
-192.5	CARBONDALE		SHALY SILTSTONE	11.3	703.1	
-203.8	CARBONDALE		SHALE	23.7	714.4	DATA FROM DRILLERS LOG
-227.5	CARBONDALE		SILTSTONE	2.9	738.1	CARB
-230.4	CARBONDALE		GRAY SHALE	2.0	741.0	CLAYEY; LIMESTONE PEBBLE BEDS
-232.4	CARBONDALE		LIMESTONE	4.2	743.0	DIRTY NODULAR
-236.6	CARBONDALE		GRAY SHALE	1.5	747.2	DARK HARD BRITTLE
-238.1	CARBONDALE		BLACK SHALE	1.0	748.7	LAMINATED, PYRITE
-239.1	CARBONDALE	ST. DAVID	LIMESTONE	1.5	749.7	ARGILLACEOUS
-240.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.1	751.2	
-242.7	CARBONDALE	SPRINGFIELD	COAL	4.0	753.3	
-246.7	CARBONDALE		UNDERCLAY	1.8	757.3	

MAPID: 08100855000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 135' N line, 80' E line of NE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.095541

GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.19684

DATE COLLECTED: 3 / 18 / 1954

SURFACE ELEVATION (FT.): 497.5 LOGGED (FT.): 791.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-5-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 694.3'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
497.5	PLEISTOCENE		CLAY	20.0	0.0	
477.5			SHALE	30.0	20.0	SOFT
447.5			SHALE	43.0	50.0	
404.5			COAL	3.0	93.0	
401.5			SHALE	57.0	96.0	
344.5			COAL	2.0	153.0	
342.5			SHALE	50.0	155.0	BANDED
292.5			LIMESTONE	8.0	205.0	HARD
284.5			SHALE	60.0	213.0	LIMESTONE INTERBEDS
224.5			LIMESTONE	5.0	273.0	HARD
219.5			SHALE	52.0	278.0	BANDED
167.5			SHALE	215.0	330.0	
-47.5			SANDSTONE	35.0	545.0	HARD
-82.5			SHALE	70.0	580.0	HARD BANDED
-152.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	650.0	HARD
-157.5	CARBONDALE		SHALE	5.0	655.0	SLICKY
-162.5	CARBONDALE		SHALE	11.0	660.0	SANDY; CORE STUDY HENCE FORTH
-173.5	CARBONDALE	ENERGY	GRAY SHALE	89.1	671.0	SILTSTONE LAMINAE
-262.6	CARBONDALE	HERRIN	COAL	9.8	760.1	DETAILED DESCRIPTION IN CORE STUDY
-272.4	CARBONDALE		UNDERCLAY	2.1	769.9	
-274.5	CARBONDALE		GRAY SHALE	6.4	772.0	LIMESTONE LAMINAE NEAR BASE
-280.9	CARBONDALE	ST. DAVID	LIMESTONE	4.5	778.4	NODULAR, CONGLOMERATIC
-285.4	CARBONDALE	SPRINGFIELD	COAL	3.3	782.9	BRIGHT BANDED VERTICAL CALCITE VEINS
-288.7	CARBONDALE		UNDERCLAY	4.8	786.2	

MAPID: 08100856000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 600' S line, 410' W line of SE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.098135

GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.191714

DATE COLLECTED: 0 / 0 / 1954

SURFACE ELEVATION (FT.): 505.4 LOGGED (FT.): 788.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-4-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 710'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
505.4	PLEISTOCENE		CLAY	12.0	0.0	
493.4			SANDSTONE	12.0	12.0	WEATHERED
481.4			SHALE	56.0	24.0	SOFT
425.4			SHALE	2.0	80.0	
423.4			COAL	2.0	82.0	
421.4			UNDERCLAY	6.0	84.0	
415.4			SHALE	100.0	90.0	SOFT
315.4			SHALE	1.0	190.0	
314.4			LIMESTONE	4.0	191.0	
310.4			SHALE WITH LIMESTONE	65.0	195.0	
245.4			LIMESTONE	6.0	260.0	
239.4			SHALE	99.0	266.0	BANDED
140.4			SHALE	65.0	365.0	HARD
75.4			SANDSTONE	20.0	430.0	
55.4			LIMESTONE	2.0	450.0	
53.4			SHALE	98.0	452.0	
-44.6			SHALE	75.0	550.0	BANDED TOUGH
-119.6	CARBONDALE	ENERGY	SHALE	73.0	625.0	SANDY IN PARTS
-192.6	CARBONDALE	ENERGY	SHALE	1.5	698.0	STICKY
-194.1	CARBONDALE	HERRIN	COAL	9.5	699.5	
-203.6	CARBONDALE		UNDERCLAY	1.0	709.0	DATA FROM CORE STUDY HENCEFORTH
-204.6	CARBONDALE		SILTSTONE	63.4	710.0	LAMINATED
-268.0	CARBONDALE		UNDERCLAY	1.6	773.4	
-269.6	CARBONDALE		GRAY SHALE	1.4	775.0	LAMINATED SOFT BRITTLE
-271.0	CARBONDALE	ST. DAVID	LIMESTONE	1.3	776.4	
-272.4	CARBONDALE	TURNER MINE	GRAY SHALE	1.0	777.8	DARK TO BLACK, SOFT
-273.4	CARBONDALE	TURNER MINE	BLACK SHALE	1.3	778.8	SILTSTONE LENSES
-274.6	CARBONDALE	TURNER MINE	PYRITE	0.0	780.0	
-274.6	CARBONDALE	SPRINGFIELD	COAL	4.4	780.0	DETAILED DESCRIPTION IN CORE STUDY
-279.0	CARBONDALE		UNDERCLAY	3.7	784.4	

MAPID: 08101795000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 9 QUARTERS/FOOTAGES: 650' S line, 50' E line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.095359

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.184576

DATE COLLECTED:

SURFACE ELEVATION (FT.): 503.0

LOGGED (FT.): 780.3

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-2-64

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-234.0	CARBONDALE	BANKSTON FORK	LIMESTONE AND SANDSTONE	1.5	737.0
-235.5	CARBONDALE	ENERGY	SILTSTONE	9.8	738.5
-245.3	CARBONDALE	ENERGY	SILTSTONE	9.7	748.3
-255.0	CARBONDALE	ENERGY	SILTSTONE	10.8	758.0
-265.8	CARBONDALE	ENERGY	CARBONACEOUS SHALE	0.2	768.8
-266.0	CARBONDALE	HERRIN	COAL	11.3	769.0

MAPID: 08100841000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 10 QUARTERS/FOOTAGES: 145' S line, 10' W line of NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.090607 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.186767 DATE COLLECTED: 7 / 16 / 1953

SURFACE ELEVATION (FT.): 519.0 LOGGED (FT.): 764.3 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 17-J-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
519.0	PLEISTOCENE		SANDY CLAY	13.0	0.0	
506.0			SANDSTONE	7.0	13.0	WEATHERED
499.0			SHALE	24.0	20.0	SANDY
475.0			SHALE	10.0	44.0	WEATHERED
465.0			GRAY SHALE	71.0	54.0	SANDY LAMINAE
394.0			COAL	2.0	125.0	
392.0			SHALE	57.0	127.0	INCLUDES UNDERCLAY
335.0			COAL	1.0	184.0	
334.0			CLAYSTONE	10.0	185.0	
324.0			SHALE	30.0	195.0	
294.0			SHALY SANDSTONE	5.0	225.0	
289.0			LIMESTONE	1.0	230.0	
288.0			SHALE	4.0	231.0	DARK
284.0			SHALE	70.0	235.0	
214.0			UNDERCLAY	1.0	305.0	SOFT
213.0	BOND	CARTHAGE	LIMESTONE	4.0	306.0	HARD
209.0	BOND	CARTHAGE	LIMESTONE	3.0	310.0	
206.0	MODESTO	NEW HAVEN	COAL	3.5	313.0	
202.5	MODESTO		SHALE	16.5	316.5	
186.0	MODESTO	WOMAC	COAL	2.0	333.0	
184.0	MODESTO	WOMAC	SHALE	2.0	335.0	
182.0	MODESTO	WOMAC	COAL	1.3	337.0	
180.7	MODESTO		SHALE	81.8	338.3	
99.0	MODESTO		GRAY SHALE	15.0	420.0	
84.0	MODESTO		SHALE WITH LIMESTONE	20.0	435.0	DARK SHALE INTERBEDDED
64.0	MODESTO	CHAPEL	COAL	3.0	455.0	LITHOLOGY UNCERTAIN
61.0	MODESTO		SHALE WITH LIMESTONE	37.0	458.0	INTERBEDDED SOFT SHALE HARD LIMESTONE
24.0	MODESTO		SHALE WITH LIMESTONE	70.0	495.0	INTERBEDS
-46.0	MODESTO		GRAY SHALE	50.0	565.0	STICKY
-96.0	MODESTO		SHALE	10.0	615.0	
-106.0	CARBONDALE	BANKSTON FORK	LIMESTONE	20.0	625.0	SHALEY
-126.0	CARBONDALE	ENERGY	SHALE	30.0	645.0	DARK
-156.0	CARBONDALE	ENERGY	SHALE WITH LIMESTONE	40.0	675.0	SLICKY SHALE
-196.0	CARBONDALE	ENERGY	SHALE	15.3	715.0	
-211.3	CARBONDALE	ENERGY	SANDSTONE	4.3	730.3	LS & SIDERITE NODULES, COAL FRAGMENTS
-215.6	CARBONDALE	ENERGY	GRAY SHALE	15.8	734.6	ISGS CORE STUDY HENCEFORTH
-231.3	CARBONDALE	ENERGY	COAL	0.2	750.3	PYRITE
-231.5	CARBONDALE	ENERGY	GRAY SHALE	4.0	750.5	COAL LAMINAE

-235.5	CARBONDALE	ENERGY	COAL	0.3	754.5	BRIGHT BANDED SHALY LENSES
-235.8	CARBONDALE	ENERGY	GRAY SHALE	0.8	754.8	VERY DARK AT BASE
-236.6	CARBONDALE	HERRIN	COAL	7.0	755.6	DETAILED DESCRIPTION AVAILABLE
-243.6	CARBONDALE		SILTSTONE	0.3	762.6	
-243.8	CARBONDALE		GRAY SHALE	1.5	762.8	VITRAIN BANDS, COALY

MAPID: 08100842000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 10 QUARTERS/FOOTAGES: 10' N line, 10' W line of NW SE NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.090631

GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.19354

DATE COLLECTED: 7 / 28 / 1953

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 766.6

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 18-J-53

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
523.0	PLEISTOCENE		CLAY	12.0	0.0	
511.0	PLEISTOCENE		SAND	28.0	12.0	SOFT
483.0			SHALE	15.0	40.0	
468.0			SHALE/COAL	2.0	55.0	
466.0			UNDERCLAY	3.0	57.0	
463.0			GRAY SHALE	35.0	60.0	
428.0			SHALY SANDSTONE	50.0	95.0	GRAY
378.0			LIMESTONE	10.0	145.0	
368.0			SHALY SANDSTONE	20.0	155.0	
348.0			SHALE	11.0	175.0	LIMESTONE INTERBEDS
337.0			SHALE/COAL	3.0	186.0	
334.0			UNDERCLAY	6.0	189.0	
328.0			SHALE	70.0	195.0	LIMESTONE INTERBEDS
258.0			SHALE	45.0	265.0	STICKY
213.0			LIMESTONE	25.0	310.0	
188.0			SHALE	10.0	335.0	
178.0			SHALE	10.0	345.0	SOFT
168.0			LIMESTONE	45.0	355.0	SHALE LAMINAE
123.0			SHALE	20.0	400.0	BANDED
103.0			SHALE	65.0	420.0	
38.0			LIMESTONE	62.0	485.0	SHALY
-24.0	MODESTO	PIASA	LIMESTONE	3.0	547.0	SHALY
-27.0	CARBONDALE		SHALE	6.0	550.0	SOFT STICKY
-33.0	CARBONDALE		SHALE	4.0	556.0	SANDY
-37.0	CARBONDALE		SHALE	35.0	560.0	TOUGH BANDED
-72.0	CARBONDALE		SHALE	20.0	595.0	SANDY
-92.0	CARBONDALE		SHALE	12.0	615.0	IRON BANDS
-104.0	CARBONDALE		SHALE	60.0	627.0	TOUGH BANDED
-164.0	CARBONDALE		SHALE	13.0	687.0	LIMESTONE INTERBEDS
-177.0	CARBONDALE		SHALE WITH LIMESTONE	32.3	700.0	ISGS CORE STUDY HENCE FORTH
-209.3	CARBONDALE	ENERGY	SILTSTONE	10.8	732.3	LAMINATED CARBANACEOUS
-220.1	CARBONDALE	ENERGY	GRAY SHALE	2.0	743.1	COARSE LAMINATED
-222.1	CARBONDALE	ENERGY	SILTSTONE	5.0	745.1	
-227.1	CARBONDALE	ENERGY	GRAY SHALE	4.8	750.1	
-231.8	CARBONDALE	ENERGY	COAL	0.1	754.8	BRIGHT BANDED
-231.9	CARBONDALE	ENERGY	GRAY SHALE	0.2	754.9	
-232.1	CARBONDALE	HERRIN	COAL	6.2	755.1	DETAILED DESCRIPTION IN CORE STUDY
-238.3	CARBONDALE		BLACK SHALE	0.1	761.3	

-238.4	CARBONDALE	GRAY SHALE	1.7	761.4
-240.0	CARBONDALE	SILTSTONE	3.6	763.0

MAPID: 08100843000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 10 QUARTERS/FOOTAGES: 40' S line, 10' W line of SW NE SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.090605

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.186477

DATE COLLECTED: 8 / 13 / 1953

SURFACE ELEVATION (FT.): 518.5

LOGGED (FT.): 787.3

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 19-J-53

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
518.5	PLEISTOCENE		CLAY	20.0	0.0	
498.5	PLEISTOCENE		SAND	15.0	20.0	
483.5			SANDSTONE	5.0	35.0	
478.5			SHALE	5.0	40.0	SOFT
473.5			SHALE	11.0	45.0	
462.5			SHALE	49.0	56.0	LIMESTONE INTERBEDS
413.5			SHALE	17.0	105.0	
396.5			LIMESTONE	3.0	122.0	
393.5			SHALE	50.0	125.0	LIMY
343.5			LIMESTONE	2.0	175.0	
341.5			SHALE	43.0	177.0	
298.5			SHALE WITH LIMESTONE	8.0	220.0	
290.5			SHALE	22.0	228.0	BANDED
268.5			SANDSTONE	5.0	250.0	
263.5			SHALE	47.0	255.0	
216.5			LIMESTONE	5.0	302.0	
211.5			SHALE	15.0	307.0	LIMY
196.5			SHALE	5.0	322.0	
191.5	MODESTO	CHAPEL	SHALE/COAL	3.0	327.0	
188.5	MODESTO		SHALE	19.0	330.0	
169.5	MODESTO		SHALE/COAL	2.0	349.0	
167.5	MODESTO		SHALE	46.0	351.0	
121.5	MODESTO		SHALE	48.0	397.0	LIMY
73.5	MODESTO		SHALE	15.0	445.0	
58.5	CARBONDALE		COAL	1.5	460.0	POSSIBLY BONE
57.0	CARBONDALE		UNDERCLAY	3.5	461.5	
53.5	CARBONDALE		SHALE	10.0	465.0	
43.5	CARBONDALE		SHALE	15.0	475.0	LIMY
28.5	CARBONDALE		SHALE WITH LIMESTONE	30.0	490.0	STICKY SHALE; INTERBEDDED
-1.5	CARBONDALE		SHALE	20.0	520.0	
-21.5	CARBONDALE		SANDY SHALE	7.0	540.0	
-28.5	CARBONDALE		SHALE WITH LIMESTONE	13.0	547.0	
-41.5	CARBONDALE		SHALE	35.0	560.0	
-76.5	CARBONDALE		SHALE	60.0	595.0	LIMY
-136.5	CARBONDALE		SHALE	13.0	655.0	
-149.5	CARBONDALE		SHALE/COAL	3.0	668.0	
-152.5	CARBONDALE		CLAYSTONE	9.0	671.0	
-161.5	CARBONDALE		SHALE	43.0	680.0	
-204.5	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	723.0	

-208.5	CARBONDALE		SHALE	3.0	727.0	
-211.5	CARBONDALE	ENERGY	SANDSTONE	3.3	730.0	SHALEY WITH COAL BITS; SIDERITE; LS
-214.8	CARBONDALE	ENERGY	GRAY SHALE	1.2	733.3	
-216.0	CARBONDALE	ENERGY	SANDSTONE	13.3	734.5	FINE, SILTSTONE LAMINAE
-229.3	CARBONDALE	ENERGY	SILTSTONE	1.5	747.8	CARB LAMINATED
-230.8	CARBONDALE	ENERGY	LIMESTONE	0.3	749.3	FINE DENSE HARD DIRTY
-231.1	CARBONDALE	ENERGY	SILTSTONE	16.4	749.6	THICKNESS ADJUSTED
-247.5	CARBONDALE	ENERGY	GRAY SHALE	9.8	766.0	
-257.3	CARBONDALE	HERRIN	COAL	0.1	775.8	PARTLY BONY
-257.4	CARBONDALE	HERRIN	GRAY SHALE	0.1	775.9	COAL LAMINAE
-257.5	CARBONDALE	HERRIN	COAL	0.3	776.0	BRIGHT BANDED
-257.8	CARBONDALE	HERRIN	GRAY SHALE	0.4	776.3	CARB PYRITE
-258.2	CARBONDALE	HERRIN	COAL	9.3	776.7	DETAILED LOG IN ISGS STUDY
-267.4	CARBONDALE		UNDERCLAY	1.3	785.9	

MAPID: 08100844000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 10 QUARTERS/FOOTAGES: 147' N line, 35' W line of NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.085967 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.189536 DATE COLLECTED: 8 / 24 / 1953

SURFACE ELEVATION (FT.): 523.0 LOGGED (FT.): 768.0 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 20-J-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY 710.3'

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
523.0	PLEISTOCENE		CLAY	20.0	0.0	
503.0	PLEISTOCENE		SAND	10.0	20.0	SOFT
493.0			SHALE	10.0	30.0	SOFT
483.0			SHALE	75.0	40.0	
408.0			COAL WITH SHALE	4.0	115.0	
404.0			UNDERCLAY	6.0	119.0	
398.0			SHALE	111.0	125.0	
287.0			LIMESTONE	4.0	236.0	
283.0			SHALE	20.0	240.0	
263.0			SHALE WITH LIMESTONE	25.0	260.0	
238.0			SHALE	15.0	285.0	
223.0			LIMESTONE	5.0	300.0	
218.0			SHALE	50.0	305.0	
168.0			COAL	1.5	355.0	
166.5			UNDERCLAY	3.5	356.5	
163.0			SHALE	60.0	360.0	
103.0			SANDSTONE	15.0	420.0	
88.0			SHALE	57.0	435.0	
31.0			SHALE/COAL	3.0	492.0	
28.0			SHALE	35.0	495.0	
-7.0			LIMESTONE	6.0	530.0	
-13.0			SHALE	19.0	536.0	SANDY
-32.0			SHALE	10.0	555.0	
-42.0			SANDSTONE	10.0	565.0	HARD
-52.0			SHALE	35.0	575.0	
-87.0			SHALE	20.0	610.0	HARD LIMY
-107.0			SHALE	10.0	630.0	LIMY
-117.0			SHALE	25.0	640.0	
-142.0	CARBONDALE	DANVILLE	COAL	2.0	665.0	
-144.0	CARBONDALE		SHALE	28.0	667.0	
-172.0	CARBONDALE	BANKSTON FORK	LIMESTONE	21.1	695.0	VERY HARD AT TOP
-193.1	CARBONDALE	ENERGY	SILTSTONE	17.3	716.1	
-210.4	CARBONDALE	ENERGY	COAL	0.1	733.4	
-210.5	CARBONDALE	ENERGY	SILTSTONE	7.5	733.5	LAMINATED
-217.9	CARBONDALE	ENERGY	GRAY SHALE	0.1	740.9	CARB COALY
-218.0	CARBONDALE	ENERGY	COAL	0.1	741.0	
-218.1	CARBONDALE	ENERGY	GRAY SHALE	0.3	741.1	
-218.4	CARBONDALE	ENERGY	COAL	0.2	741.4	
-218.6	CARBONDALE	ENERGY	COAL	0.3	741.6	SHALE INTERBEDS PARTLY BONY

-218.9	CARBONDALE	ENERGY	COAL	0.2	741.9	
-219.1	CARBONDALE	ENERGY	GRAY SHALE	1.3	742.1	
-220.4	CARBONDALE	ENERGY	BONE COAL	0.1	743.4	WITH SHALE
-220.5	CARBONDALE	ENERGY	GRAY SHALE	0.2	743.5	
-220.6	CARBONDALE	ENERGY	COAL	0.1	743.6	WITH SHALE
-220.7	CARBONDALE	ENERGY	COAL	0.1	743.7	
-220.8	CARBONDALE	ENERGY	GRAY SHALE	0.3	743.8	COALY CARB
-221.2	CARBONDALE	ENERGY	COAL	0.4	744.2	
-221.6	CARBONDALE	ENERGY	GRAY SHALE	0.8	744.6	PYRITE
-222.3	CARBONDALE	ENERGY	SILTSTONE	3.6	745.3	
-225.9	CARBONDALE	ENERGY	GRAY SHALE	7.6	748.9	
-233.5	CARBONDALE	HERRIN	COAL	9.3	756.5	DETAILED DESCRIPTION IN CORE STUDY
-242.8	CARBONDALE		UNDERCLAY	0.5	765.8	
-243.3	CARBONDALE		GRAY SHALE	0.6	766.3	CLAYEY, CALC NODULES
-243.9	CARBONDALE		SILTSTONE	1.2	766.9	HARD

MAPID: 08100873000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** 0' S line, 0' W line of NW NE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.080359 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.196181 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 509.0 **LOGGED (FT.):** 810.0 **LOG TYPE:** Electric Log
SOURCE: SOHIO PETROLEUM CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
-301.0	CARBONDALE	SPRINGFIELD	COAL	-	810.0	

MAPID: 08101157000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 10 **QUARTERS/FOOTAGES:** 285' N line, 60' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.07713 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.19626 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 524.0 **LOGGED (FT.):** 775.6 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-1-58 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
-200.3	CARBONDALE	BANKSTON FORK	LIMESTONE	8.3	724.3	
-208.6	CARBONDALE	ENERGY	SILTSTONE	8.8	732.6	
-217.4	CARBONDALE	ENERGY	SILTSTONE	6.8	741.4	
-224.2	CARBONDALE	ENERGY	SILTSTONE	13.2	748.2	
-237.4	CARBONDALE	ENERGY	SILTSTONE	3.9	761.4	
-241.3	CARBONDALE	ENERGY	CARBONACEOUS SHALE	0.7	765.3	
-242.0	CARBONDALE	HERRIN	COAL	9.6	766.0	

MAPID: 08100032000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 11

QUARTERS/FOOTAGES: SW SW NE SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.071746

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.186914

DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0

LOGGED (FT.): 828.8

LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
515.0			UNCONSOLIDATED	10.0	0.0	
505.0			ROCK	49.4	10.0	
455.6			COAL	0.1	59.4	
455.5			ROCK	73.2	59.5	
382.3			COAL	0.6	132.7	
381.7			ROCK	56.7	133.3	
325.0			COAL	0.7	190.0	
324.3			ROCK	151.8	190.7	
172.5			COAL	0.5	342.5	
172.0			ROCK	27.8	343.0	
144.2			COAL	1.3	370.8	
143.0			ROCK	139.5	372.0	
3.5			COAL	0.5	511.5	
3.0			ROCK	191.0	512.0	
-188.0			COAL	2.6	703.0	
-190.6			ROCK	38.4	705.6	
-229.0			SHALE	40.3	744.0	
-269.3	CARBONDALE	HERRIN	COAL	9.1	784.3	BLUE BAND .06' AT 791.42'
-278.4	CARBONDALE		UNDERCLAY	2.4	793.4	
-280.8	CARBONDALE		LIMESTONE	11.5	795.8	
-292.3	CARBONDALE		SHALE	11.0	807.3	LIMEY
-303.3	CARBONDALE		BLACK SHALE	3.2	818.3	
-306.5	CARBONDALE	SPRINGFIELD	COAL	4.4	821.5	
-310.9	CARBONDALE		ROCK	0.2	825.9	HARD
-311.1	CARBONDALE		UNDERCLAY	2.7	826.1	

MAPID: 08100032000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES: SW SW NE SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.071746

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.186914

DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.0

LOGGED (FT.): 775.1

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-184.0	MODESTO	PIASA	LIMESTONE	4.5	699.0
-188.5	MODESTO		DARK GRAY SHALE	1.7	703.5
-190.2	CARBONDALE	DANVILLE	COAL	7.6	705.2
-197.8	CARBONDALE		GRAY SHALE	11.7	712.8
-209.4	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	724.4
-214.4	CARBONDALE		GRAY SHALE	7.0	729.4
-221.4	CARBONDALE	BRERETON	LIMESTONE	10.0	736.4
-231.4	CARBONDALE	ANNA	BLACK SHALE	4.3	746.4
-251.0	CARBONDALE	HERRIN	COAL	9.1	766.0

MAPID: 08100032000C VERSION: 3

PROJECT: NCRDS87

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES: SW SW NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.071746 GEOLOGIST: WEIBEL

CONFIDENTIAL: N LATITUDE: 38.186914 DATE COLLECTED:

SURFACE ELEVATION (FT.): 515.7 LOGGED (FT.): 828.8 LOG TYPE: Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
515.7			UNCONSOLIDATED	10.0	0.0
505.7	BOND		SANDSTONE	39.0	10.0
466.7	BOND		SHALE	7.5	49.0
459.2	BOND		BLACK SHALE	2.9	56.5
456.3	BOND		COAL	0.1	59.4
456.2	BOND		UNDERCLAY	1.5	59.5
454.7	BOND		SHALE & SANDSTONE	58.0	61.0
396.7	BOND		DARK SHALE	11.0	119.0
385.7	BOND		BLACK SHALE	2.7	130.0
383.0	BOND		COAL	0.6	132.7
382.4	BOND		UNDERCLAY	2.8	133.3
379.7	BOND		SHALE	20.0	136.0
359.7	BOND		DARK SHALE	34.0	156.0
325.7	BOND		COAL	0.7	190.0
325.0	BOND		UNDERCLAY	1.3	190.7
323.7	BOND		SHALE & SANDSTONE	123.5	192.0
200.2	BOND	CARTHAGE	LIMESTONE	5.0	315.5
195.2	MODESTO		SHALE	4.0	320.5
191.2	MODESTO		DARK SHALE	18.5	324.5
172.7	MODESTO		COAL	0.5	343.0
172.2	MODESTO		DARK SHALE	27.3	343.5
144.9	MODESTO		BONE COAL	1.3	370.8
143.7	MODESTO		SHALE	16.0	372.0
127.7	MODESTO		BLACK SHALE	5.0	388.0
122.7	MODESTO		SHALE	115.0	393.0
7.7	MODESTO		BLACK SHALE	3.5	508.0
4.2	MODESTO		COAL	0.5	511.5
3.7	MODESTO		SHALE	146.0	512.0
-142.3	MODESTO		BLACK SHALE	2.0	658.0
-144.3	MODESTO		DARK SHALE	5.5	660.0
-149.8	MODESTO		BLACK SHALE	1.5	665.5
-151.3	MODESTO		SHALE	11.0	667.0
-162.3	MODESTO		BLACK SHALE	4.5	678.0
-166.8	MODESTO		SHALE	12.0	682.5
-178.8	MODESTO	PIASA	LIMESTONE	4.5	694.5
-183.3	MODESTO		BLACK SHALE	2.3	699.0
-185.6	MODESTO		DARK SHALE	1.7	701.3
-187.3	CARBONDALE	DANVILLE	COAL	2.6	703.0
-189.9	CARBONDALE		SHALE	10.4	705.6

-200.3	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	716.0
-205.3	CARBONDALE		SHALE	7.0	721.0
-212.3	CARBONDALE	BRERETON	LIMESTONE	10.0	728.0
-222.3	CARBONDALE	ANNA	BLACK SHALE	6.0	738.0
-228.3	CARBONDALE		SHALE	40.3	744.0
-268.6	CARBONDALE	HERRIN	COAL	9.1	784.3
-277.7	CARBONDALE		UNDERCLAY	2.3	793.4
-280.1	CARBONDALE		LIMESTONE	11.5	795.8
-291.6	CARBONDALE		SHALE	11.0	807.3
-302.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.3	818.3
-305.8	CARBONDALE	SPRINGFIELD	COAL	4.4	821.5
-310.2	CARBONDALE		UNCLASSIFIED	0.2	825.9
-310.4	CARBONDALE		UNDERCLAY	2.7	826.1

MAPID: 08100821000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.075812 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.187247 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 76.8 LOG TYPE: Drillers Log

SOURCE: CW & F COAL CO 2 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNCLASSIFIED	14.0	0.0	
-			SANDSTONE	42.0	14.0	MASSIVE; THICKNESS ADJUSTED
-			LIMESTONE	2.0	56.0	
-			SHALE	16.8	58.0	FRIABLE
-			LIMESTONE	0.2	74.8	
-			BLACK SHALE	1.0	75.0	
-			LIMESTONE	0.7	76.0	
-			COAL	0.1	76.7	OVER UNDERCLAY

MAPID: 08100822000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE LONGITUDE: -89.067686

GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.190187

DATE COLLECTED: 0 / 0 / 1947

SURFACE ELEVATION (FT.): LOGGED (FT.): 136.1

LOG TYPE: Survey Core Study

SOURCE: CW & F COAL CO 4

WELL TYPE: Coal Test

COMMENT: LOCATED N OF #3 HOLE, BESIDE CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNCLASSIFIED	10.0	0.0	
-			SANDSTONE	32.1	10.0	PARTLY CARB; OCC LAMINATED
-			GRAY SHALE	14.9	42.1	SEDERITIC WITH CONCRETIONS; FISSILE
-			LIMESTONE	0.5	57.0	DARK ARGILLACEOUS FRIABLE
-			GRAY SHALE	0.5	57.5	DARK CALC LAMINATED
-			GRAY SHALE	0.9	58.0	DARK
-			BLACK SHALE	1.6	58.9	HARD LAMINATED
-			LIMESTONE	0.5	60.5	ARGILLACEOUS
-			GRAY SHALE	0.0	61.0	FRIABLE
-			COAL	0.2	61.0	
-			UNDERCLAY	1.6	61.2	THICKNESS ADJUSTED
-			GRAY SHALE	3.1	62.8	CLAY FRIABLE
-			LIMESTONE	5.0	65.8	NODULAR UP TO 50
-			GRAY SHALE	0.2	70.8	LAMINATED NODULAR
-			SHALY SILTSTONE	12.9	71.0	
-			SHALY SILTSTONE	9.3	83.9	LAMINAE RIPPLES = 70% SHALES
-			SHALY SILTSTONE	5.7	93.3	ARGILLACEOUS 30% SHALES
-			SHALY SILTSTONE	7.8	98.9	NODULAR, SIDERITE 85% SHALES
-			SHALY SILTSTONE	22.6	106.7	RIPPLES LAMINAE NODULAR 90% SHALES
-			GRAY SHALE	0.5	129.3	DARK
-			BLACK SHALE	1.3	129.8	FISSILE LAMINATED
-			LIMESTONE	0.0	131.0	
-			GRAY SHALE	0.1	131.0	DARK SILTSTONE LAMINAE
-			LIMESTONE	1.5	131.1	DARK DIRTY SILTSTONE LAMINAE
-			COAL	0.6	132.6	
-			UNDERCLAY	2.9	133.2	

MAPID: 08100825000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES: 368' S line, 40' W line of SW SW NE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.067547

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.191208

DATE COLLECTED: 6 / 7 / 1947

SURFACE ELEVATION (FT.): 519.5

LOGGED (FT.): 833.0

LOG TYPE: Survey Core Study

SOURCE: CW & F COAL CO 3-7-47

WELL TYPE: Coal Test

COMMENT: INCLUDES DRILLERS LOG DATA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
519.5	PLEISTOCENE		SOIL	13.0	0.0	CLAY
506.5			SANDSTONE	8.0	13.0	SOFT
498.5			SANDSTONE	1.3	21.0	WEATHERED
497.2			SHALE	0.4	22.3	SILTY
496.8			SANDSTONE	34.9	22.7	MICACEOUS CARB
461.9			SHALY SANDSTONE	4.3	57.6	INTERBEDDED INTERLAMINATED
457.7			GRAY SHALE	9.7	61.8	
448.0			BLACK SHALE	2.8	71.5	LAMINATED
445.2			SHALE	0.3	74.3	CALC
444.8			LIMESTONE	0.8	74.7	ARGILLACEOUS
444.1			COAL	0.2	75.4	FRAGMENTARY, BRIGHT BONDED
443.9			UNDERCLAY	1.3	75.6	
442.6			GRAY SHALE	4.0	76.9	CLAY
438.6			SHALY SILTSTONE	61.3	80.9	RIPPLES; INTERBEDDED INTERLAMINATED
377.3			GRAY SHALE	2.8	142.2	DARK; THICKNESS & DEPTH ADJUSTED
374.5			BLACK SHALE	1.3	145.0	HARD FISSILE
373.2			LIMESTONE	1.7	146.3	ARGILLACEOUS
371.5			GRAY SHALE	0.2	148.0	
371.4			COAL	0.5	148.1	STUDY SUGGESTS #15
370.8			UNDERCLAY	3.1	148.7	
367.7			GRAY SHALE	3.4	151.8	CLAY; SIDERITE MASSES & BANDS
364.3			GRAY SHALE	5.3	155.2	LAMINATED
359.1			COAL	0.9	160.4	BRIGHT BONDED NAMED #14
358.2			UNDERCLAY	1.3	161.3	
356.9			SHALY SILTSTONE	39.1	162.6	INTERBEDDED; INTERLAMINATED
317.8			LIMESTONE	0.7	201.7	DARK ARGILLACEOUS
317.2			GRAY SHALE	1.7	202.3	DARK TO BLACK FRIABLE
315.5			BLACK SHALE	1.6	204.0	HARD FRIABLE, PYRITIC
313.9			COAL	0.4	205.6	BRIGHT BONDED SUGGESTED #13
313.5			UNDERCLAY	0.7	206.0	
312.9			GRAY SHALE	1.6	206.6	COALY WEAK FRIABLE
311.3			COAL	0.1	208.2	
311.2			UNDERCLAY	0.3	208.3	
310.9			GRAY SHALE	1.3	208.6	CLAY
309.7			GRAY SHALE	9.9	209.8	PLANTS
299.7			SHALY SILTSTONE	12.5	219.8	INTERBEDDED INTELAMINATED
287.3			SANDSTONE	3.2	232.2	CARB & SHALE LAMINAE
284.1			GRAY SHALE	4.4	235.4	

279.7			LIMESTONE	0.7	239.8	DARK ARGILLACEOUS
279.1			GRAY SHALE	3.9	240.4	DARK, HARD
275.2			COAL	0.2	244.3	CORE STUDY SUGGESTS #12
275.0			UNDERCLAY	0.2	244.5	
274.8			SHALE WITH LIMESTONE	0.1	244.7	FRAGMENTARY
274.7			GRAY SHALE	1.6	244.8	CLAY; NODULAR VEINS
273.1			GRAY SHALE	0.3	246.4	
272.9			GRAY SHALE	13.2	246.6	SILTSTONE LAMINAE
259.7			SHALY SILTSTONE	9.0	259.8	FINE SANDSTONE BEDS
250.7			LIMESTONE	2.1	268.8	ARGILLACEOUS SILTY
248.6			SHALY SILTSTONE	43.8	270.9	
204.8			GRAY SHALE	13.4	314.7	
191.4	BOND		SHALE WITH LIMESTONE	1.0	328.1	DARK SHALE MATRIC
190.4	BOND	CARTHAGE	LIMESTONE	5.0	329.1	MASSIVE DENSE
185.5	MODESTO		GRAY SHALE	0.8	334.0	WEAK
184.7	MODESTO		BLACK SHALE	3.7	334.8	HARD FISSILE
181.0	MODESTO		GRAY SHALE	18.5	338.5	SIDERITE PYRITE LIMESTONE
162.4	MODESTO		COAL	0.5	357.1	PYRITIC
161.9	MODESTO		GRAY SHALE	1.2	357.6	DARK TO BLACK, FRIABLE
160.7	MODESTO		GRAY SHALE	3.9	358.8	CLAY
156.8	MODESTO		GRAY SHALE	21.7	362.7	SIDERITE; SILTSTONE LAMINAE
135.2	MODESTO	NEW HAVEN	COAL	0.8	384.3	BRIGHT BONDED
134.4	MODESTO	NEW HAVEN	COAL	0.1	385.1	BONY PYRITIC
134.3	MODESTO		UNDERCLAY	0.9	385.2	
133.4	MODESTO		LIMESTONE	0.2	386.1	FRESHWATER
133.2	MODESTO		GRAY SHALE	0.8	386.3	CALC NODULAR
132.4	MODESTO		LIMESTONE	0.2	387.1	1/2" SHALE BOARD
132.2	MODESTO		GRAY SHALE	1.9	387.3	
130.3	MODESTO		LIMESTONE	0.8	389.2	NODULAR
129.5	MODESTO		GRAY SHALE	3.0	390.0	SIDERITE
126.6	MODESTO		LIMESTONE	0.2	392.9	ARGILLACEOUS
126.4	MODESTO		GRAY SHALE	2.9	393.1	
123.5	MODESTO		SILTSTONE	1.6	396.0	CALC
121.9	MODESTO		GRAY SHALE	4.3	397.6	
117.7	MODESTO		BLACK SHALE	1.6	401.8	CALC PYRITE SIDERITE
116.1	MODESTO		GRAY SHALE	0.3	403.4	DARK
115.7	MODESTO		LIMESTONE	0.3	403.8	ARGILLACEOUS WEAK
115.4	MODESTO		GRAY SHALE	1.0	404.1	DARK
114.4	MODESTO		BLACK SHALE	4.6	405.1	
109.8	MODESTO		GRAY SHALE	0.2	409.7	DARK
109.6	MODESTO		LIMESTONE	0.7	409.9	MASSIVE HARD ARGILLACEOUS
108.9	MODESTO		GRAY SHALE	7.1	410.6	
101.8	MODESTO		COAL	0.1	417.7	BRIGHT BONDED
101.7	MODESTO		UNDERCLAY	1.3	417.8	
100.4	MODESTO		GRAY SHALE	1.0	419.1	CLAY
99.4	MODESTO		LIMESTONE	1.8	420.1	SHALY NODULAR

97.6	MODESTO		SILTSTONE	1.2	421.9	RIPPLED
96.3	MODESTO		SANDSTONE	9.8	423.2	RIPPLES, CALCAREOUS
86.5	MODESTO		SILTSTONE	4.2	433.0	LAMINATED
82.3	MODESTO		SANDSTONE	0.2	437.2	FINE, CALCEREOUS, SHALE BLEBS
82.1	MODESTO		SHALY SILTSTONE	1.5	437.4	RIPPLES
80.6	MODESTO		SANDSTONE	0.6	438.9	FINE, CALCEREOUS
80.0	MODESTO		GRAY SHALE	0.2	439.5	
79.8	MODESTO		GRAY SHALE	0.3	439.7	CLAY
79.5	MODESTO		SILTSTONE	0.7	440.0	
78.8	MODESTO		CONGLOMERATE	0.2	440.7	SHALE CLASTS AND MATRIX
78.6	MODESTO		SHALY SILTSTONE	29.5	440.9	INTERLAMINATED
49.2	MODESTO		LIMESTONE	0.5	470.3	DARK
48.7	MODESTO		GRAY SHALE	34.5	470.8	SILTSTONE LAMINAE
14.2	MODESTO		GRAY SHALE	4.7	505.3	DARK TO BLACK, LAMINATED
9.5	MODESTO		GRAY SHALE	0.8	510.0	DARK, CALCEREOUS
8.7	MODESTO		BLACK SHALE	2.6	510.8	PYRITIC, CALCEREOUS PARTINGS
6.1	MODESTO		GRAY SHALE	0.4	513.4	DARK TO BLACK, CALCEREOUS
5.7	MODESTO	CHAPEL	COAL	0.4	513.8	NAMED #8 IN CORE STUDY
5.3	MODESTO		GRAY SHALE	4.5	514.2	CLAY, FRIABLE, PYRITIC
0.8	MODESTO		SHALE & SILTSTONE	22.7	518.7	INTERLAMINATED
-21.8	MODESTO		SANDSTONE	9.5	541.3	FINE, MICAREOUS, CARBONACEOUS
-31.3	MODESTO		SHALE & SILTSTONE	67.9	550.8	INTERLAMINATED
-99.2	MODESTO		GRAY SHALE	40.3	618.7	LAMINATED
-139.5	MODESTO		GRAY SHALE	11.1	659.0	DARK TO BLACK, LAMINATED
-150.6	MODESTO		GRAY SHALE	3.2	670.1	CLAY
-153.8	MODESTO		SHALY SILTSTONE	21.7	673.3	INTERLAMINATED
-175.5	MODESTO		GRAY SHALE	8.3	695.0	CLAY
-183.8	MODESTO		GRAY SHALE	1.5	703.3	NODULAR
-185.3	MODESTO		LIMESTONE	2.5	704.8	NODULAR, SHALY
-187.8	MODESTO		LIMESTONE	3.1	707.3	CRYSTALLINE, SHALE PARTINGS
-190.9	MODESTO		GRAY SHALE	4.9	710.4	
-195.8	MODESTO	PIASA	LIMESTONE	2.0	715.3	ARGILLACEOUS; CRYSTALLINE
-197.8	MODESTO		SHALE	14.7	717.3	DRILLER'S LOG REPORTS COAL SEAMS
-212.5	CARBONDALE	BANKSTON FORK	LIMESTONE	2.5	732.0	ARGILLACEOUS; CRYSTALLINE
-215.0	CARBONDALE		SHALE WITH LIMESTONE	0.8	734.5	NODULAR
-215.8	CARBONDALE		GRAY SHALE	5.0	735.3	
-220.8	CARBONDALE		LIMESTONE	0.9	740.3	SHALY
-221.7	CARBONDALE		GRAY SHALE	0.4	741.2	DARK TO BLACK, LAMINATED
-222.1	CARBONDALE	BRERETON	LIMESTONE	5.8	741.6	CRYSTALLINE, HARD
-227.9	CARBONDALE	BRERETON	LIMESTONE	7.4	747.4	PALE, ARGILLACEOUS
-235.3	CARBONDALE	ANNA	BLACK SHALE	1.8	754.8	PYRITIC
-237.1	CARBONDALE	ANNA	GRAY SHALE	0.7	756.6	CARBONACEOUS
-237.8	CARBONDALE	ANNA	BLACK SHALE	2.5	757.3	HARD, LAMINATED
-240.3	CARBONDALE	ENERGY	SILTSTONE	26.7	759.8	DAT FROM DRILLER'S LOG TO 806'
-267.0	CARBONDALE	ENERGY	SHALE	5.0	786.5	

-272.0	CARBONDALE	HERRIN	COAL	9.0	791.5	
-281.0	CARBONDALE		UNDERCLAY	2.5	800.5	
-283.5	CARBONDALE		LIMESTONE	3.0	803.0	
-286.5	CARBONDALE		GRAY SHALE	12.0	806.0	DARK, CALCEREOUS, NODULAR
-298.5	CARBONDALE	TURNER MINE	BLACK SHALE	9.0	818.0	HARD, LAMINATED
-307.5	CARBONDALE	SPRINGFIELD	COAL	4.0	827.0	DRILLER'S LOG DATA FROM 823'
-311.5	CARBONDALE		UNDERCLAY	2.0	831.0	

MAPID: 08100826000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 11 QUARTERS/FOOTAGES: 40' S line, 40' W line of SW SE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.062873

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.183187

DATE COLLECTED: 7 / 4 / 1947

SURFACE ELEVATION (FT.): 520.0

LOGGED (FT.): 837.0

LOG TYPE: Survey Core Study

SOURCE: CW & F COAL CO 3-8-47

WELL TYPE: Coal Test

COMMENT: INCLUDES SOME DATA FROM DRILLERS LOG

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
520.0	PLEISTOCENE		UNCONSOLIDATED	12.0	0.0	
508.0			SANDSTONE	42.3	12.0	CARB CROSS-BEDDED
465.7			GRAY SHALE	10.5	54.3	WEAK FRIABLE LAMINATED
455.2			LIMESTONE	0.6	64.8	
454.7			GRAY SHALE	2.0	65.3	DARK
452.7			BLACK SHALE	1.2	67.3	LAMINATED
451.5			LIMESTONE	0.3	68.5	
451.2			COAL	0.1	68.8	SUGGESTED #16
451.1			UNDERCLAY	5.5	68.9	THICKNESS ADJUSTED
445.7			SHALY SILTSTONE	61.6	74.3	SIDERITE
384.1			LIMESTONE	0.3	135.9	SHALY
383.7			BLACK SHALE	0.7	136.3	PYRITE
383.1			LIMESTONE	0.2	136.9	CONCRETION, BLACK
382.9			GRAY SHALE	0.2	137.1	DARK, HARD
382.7			BLACK SHALE	0.5	137.3	HARD
382.3			COAL	0.7	137.7	BRIGHT, BONDED, "#15"
381.6			UNDERCLAY	2.9	138.4	WEAK, CALCEREOUS
378.7			GRAY SHALE	9.0	141.3	CLAY WEAK
369.7			SHALY SILTSTONE	37.5	150.3	LAMINATED
332.2			LIMESTONE	0.5	187.8	DIRTY
331.7			GRAY SHALE	5.8	188.3	DARK, FISSILE, LAMINATED
325.9			BLACK SHALE	0.8	194.1	FISSILE
325.1			COAL	0.7	194.9	BRIGHT, SUGGESTED #13
324.4			UNDERCLAY	0.1	195.6	
324.3			COAL	0.0	195.7	PYRITIC
324.2			UNDERCLAY	1.1	195.8	LAMINATED, PYRITIC
323.2			COAL	0.0	196.8	BONY
323.1			GRAY SHALE	0.2	196.9	CLAY
322.9			SHALE	6.9	197.1	PLANT FOSSILS
316.0			GRAY SHALE	27.3	204.0	LAMINATED
288.7			SILTSTONE/SANDSTONE	0.5	231.3	INTERBEDDED
288.3			SHALY SILTSTONE	2.2	231.7	INTERBEDDED
286.1			SANDSTONE	2.7	233.9	
283.4			GRAY SHALE	1.8	236.6	
281.7			SANDSTONE	28.7	238.3	SIDERITE, CARBONACEOUS, SHALE, AND COAL
253.0			SANDSTONE	1.4	267.0	CONGLOMERATIC
251.6			GRAY SHALE	4.5	268.4	LAMINATED, PYRITE, SIDERITE
247.1			CONGLOMERATE	0.2	272.9	SIDERITE GRANULES

246.9			SHALY SILTSTONE	49.8	273.1	
197.1			LIMESTONE	1.5	322.9	SHALY
195.6	BOND	CARTHAGE	LIMESTONE	4.4	324.4	MASSIVE, HARD, MILDLY SHALY
191.2	MODESTO		GRAY SHALE	0.8	328.8	CALCEREOUS, FRIABLE
190.3	MODESTO		BLACK SHALE	1.7	329.7	FISSILE
188.7	MODESTO		LIMESTONE	0.4	331.3	CONCRETION, BLACK
188.2	MODESTO		BLACK SHALE	1.0	331.8	FISSILE
187.2	MODESTO		LIMESTONE CONCRETION	0.6	332.8	SEPTARIAN CONCRETION
186.7	MODESTO		GRAY SHALE	17.9	333.3	CALCEREOUS, SIDERITE
168.7	MODESTO	NEW HAVEN	COAL	0.5	351.3	BRIGHT, BONDED, #11
168.2	MODESTO		UNDERCLAY	0.3	351.8	
167.9	MODESTO		GRAY SHALE	2.9	352.1	PLANTS
165.0	MODESTO		SHALY SILTSTONE	22.7	355.0	
142.3	MODESTO		GRAY SHALE	1.9	377.7	DARK, PLANTS
140.4	MODESTO	WOMAC	COAL	1.1	379.6	BRIGHT, BONDED, "#10"
139.3	MODESTO		UNDERCLAY	3.0	380.7	WEAK
136.3	MODESTO		GRAY SHALE	33.6	383.7	CLAY, NODULAR
102.7	MODESTO		GRAY SHALE	1.6	417.3	DARK
101.1	MODESTO		GRAY SHALE	4.4	418.9	CLAY, CALCEREOUS, NODULAR
96.6	MODESTO		SILTSTONE	1.0	423.4	SHALE LENSES
95.6	MODESTO		SANDSTONE	20.8	424.4	FINE, SHALE, LAMINAE
74.8	MODESTO		SILTSTONE	12.1	445.2	
62.7	MODESTO		GRAY SHALE	19.3	457.3	DARK, SILTSTONE, LAMINAE
43.5	MODESTO		SILTSTONE	1.3	476.5	
42.2	MODESTO		SILTSTONE	14.2	477.8	LAMINATED, THICKNESS ADJUSTED
28.0	MODESTO		GRAY SHALE	18.0	492.0	LAMINATED, =10% SILTSTONE
10.0	MODESTO		GRAY SHALE	3.6	510.0	LAMINATED
6.4	MODESTO	CRAMER	LIMESTONE	1.4	513.6	DIRTY, SIDERITE
5.1	MODESTO		GRAY SHALE	0.2	514.9	DARK
4.9	MODESTO		BLACK SHALE	2.3	515.1	LAMINATED
2.7	MODESTO		LIMESTONE	0.3	517.3	DIRTY
2.4	MODESTO	CHAPEL	COAL	0.4	517.6	BRIGHT, BANDED, #8
2.0	MODESTO		UNDERCLAY	0.7	518.0	
1.4	MODESTO		GRAY SHALE	3.2	518.6	NODULAR
-1.8	MODESTO		SHALY SILTSTONE	2.8	521.8	NODULAR
-4.6	MODESTO		SHALE	0.3	524.6	CLAY
-4.9	MODESTO		GRAY SHALE	1.2	524.9	
-6.1	MODESTO		SHALY SILTSTONE	6.7	526.1	
-12.8	MODESTO		GRAY SHALE	4.3	532.8	DARK, SILTSTONE LAMINAE
-17.1	MODESTO		SILTSTONE	1.4	537.1	
-18.5	MODESTO		GRAY SHALE	110.2	538.5	LAMINATED
-128.7	MODESTO		UNDERCLAY	1.3	648.7	
-129.9	MODESTO		GRAY SHALE	0.7	649.9	CLAY, NODULAR
-130.6	MODESTO		SHALY SILTSTONE	10.9	650.6	LAMINATED
-141.5	MODESTO		SANDSTONE	0.9	661.5	CALCEREOUS
-142.4	MODESTO		SHALY SILTSTONE	13.6	662.4	LAMINATED, THICKNESS ADJUSTED

-156.0	MODESTO		GRAY SHALE	0.5	676.0	DARK
-156.5	MODESTO		BLACK SHALE	2.2	676.5	
-158.7	MODESTO		COAL	0.3	678.7	BONY, SUGGESTED CUTLER I
-159.0	MODESTO		SHALE	2.5	679.0	CLAY, WEAK
-161.5	MODESTO		SHALE	14.5	681.5	CLAY, THICKNESS ADJUSTED
-176.0	MODESTO	PIASA	LIMESTONE	6.8	696.0	WHITE, HARD, CLAYEY LAYERS
-182.8	MODESTO		GRAY SHALE	3.9	702.8	SOFT
-186.7	CARBONDALE	DANVILLE	COAL	2.3	706.7	BRIGHT, BONDED, CUTLER
-189.0	CARBONDALE		UNDERCLAY	0.7	709.0	
-189.7	CARBONDALE		GRAY SHALE	1.8	709.7	CLAY
-191.4	CARBONDALE		BLACK SHALE	0.6	711.4	BRITTLE
-192.0	CARBONDALE	ALLENBY	COAL	0.3	712.0	BONY, NAMED BANKSTON FK
-192.3	CARBONDALE		UNDERCLAY	5.5	712.3	
-197.8	CARBONDALE	BANKSTON FORK	LIMESTONE	4.4	717.8	
-202.2	CARBONDALE		GRAY SHALE	4.7	722.2	
-206.8	CARBONDALE	BRERETON	LIMESTONE	6.2	726.8	PALE, CLEAN
-213.0	CARBONDALE	BRERETON	LIMESTONE	3.5	733.0	DIRTY, SHALY PARTINGS
-216.5	CARBONDALE	ANNA	BLACK SHALE	3.6	736.5	
-220.1	CARBONDALE	ENERGY	SILTSTONE	53.6	740.1	CARBONACEOUS, MICACEOUS
-273.7	CARBONDALE	HERRIN	COAL	9.3	793.7	DATA FROM DRILLER'S LOG
-283.0	CARBONDALE		UNDERCLAY	3.0	803.0	
-286.0	CARBONDALE		CONGLOMERATE	12.0	806.0	LIMESTONE
-298.0	CARBONDALE		SHALE	12.0	818.0	
-310.0	CARBONDALE	SPRINGFIELD	COAL	4.0	830.0	
-314.0	CARBONDALE		UNDERCLAY	3.0	834.0	

MAPID: 08100033000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 12 QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.04118 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.190327 DATE COLLECTED: 8 / 0 / 1918

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 744.0 LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
450.0			UNCONSOLIDATED	15.0	0.0
435.0			ROCK	67.0	15.0
368.0			COAL	0.3	82.0
367.7			ROCK	61.7	82.3
306.0			COAL	0.5	144.0
305.5			ROCK	177.5	144.5
128.0			COAL	0.7	322.0
127.3			ROCK	121.8	322.7
5.5			COAL	0.5	444.5
5.0			ROCK	168.8	445.0
-163.8			COAL	0.6	613.8
-164.5			ROCK	21.0	614.5
-185.5			COAL	1.2	635.5
-186.7			ROCK	34.3	636.7
-221.0			SHALE & SANDSTONE	45.0	671.0
-266.0			SHALE	19.3	716.0
-285.3	CARBONDALE	HERRIN	COAL	8.7	735.3
-293.9	CARBONDALE		UNDERCLAY	0.1	743.9

MAPID: 08100827000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 12 QUARTERS/FOOTAGES: NW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.056106 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.188754 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 137.1 LOG TYPE: Survey Core Study

SOURCE: CW & F COAL CO #1 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNCLASSIFIED	10.0	0.0	
-			SANDSTONE	39.0	10.0	
-			SHALE	7.0	49.0	FRIABLE
-			SHALE	7.0	56.0	FRIABLE SEPTARIUM AT BASE
-			LIMESTONE	0.3	63.0	
-			BLACK SHALE	3.8	63.3	
-			LIMESTONE	0.5	67.1	
-			COAL	0.3	67.6	
-			GRAY SHALE	2.9	67.9	CLAY; LIMESTONE CONCRETION
-			UNCLASSIFIED	61.0	70.8	GAP IN RECORD
-			LIMESTONE	0.3	131.8	DIRTY
-			SHALE	0.8	132.1	SOFT DECOMPOSED
-			BLACK SHALE	1.1	132.9	HARD
-			COAL	0.7	134.0	
-			UNDERCLAY	2.4	134.7	

MAPID: 08100828000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 12 QUARTERS/FOOTAGES: 375' S line, 650' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.042327 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.184921 DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 805.3 LOG TYPE: Drillers Log

SOURCE: C.W.&F. COAL CO. 03-3-47 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-234.5	CARBONDALE	BANKSTON FORK	LIMESTONE	3.4	728.5	
-237.9	CARBONDALE		SHALE & SILTSTONE	10.8	731.9	
-248.7	CARBONDALE	BRERETON	LIMESTONE W/ SHALE	11.6	742.7	
-260.3	CARBONDALE	ANNA	BLACK SHALE	1.8	754.3	
-262.1	CARBONDALE	ENERGY	SHALE & SILTSTONE	13.6	756.1	
-275.7	CARBONDALE	ENERGY	GRAY SHALE	9.8	769.7	
-285.4	CARBONDALE	ENERGY	GRAY SHALE	16.6	779.4	
-302.0	CARBONDALE	HERRIN	COAL	9.3	796.0	

MAPID: 08123748000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 13 QUARTERS/FOOTAGES: 220' N line, 400' E line of NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.055185 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.182713 DATE COLLECTED:

SURFACE ELEVATION (FT.): 526.0 LOGGED (FT.): 4535.0 LOG TYPE: Electric Log

SOURCE: BLACK HAWK RES. CORP. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1982.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2508.0	
-3944.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4470.0	TOP OF NEW ALBANY
-3948.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4474.0	
-4009.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4535.0	BASE OF NEW ALBANY

MAPID: 081254A0005F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 13 QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.045871 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.169938 DATE COLLECTED: 0 / 0 / 1932

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 4.7 LOG TYPE: Measured section

SOURCE: FLD NOTES-WANLESS WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
450.0			ROCK	-	0.0	
-			UNKNOWN	-		
-			ROCK	-		
-			COAL		0.6	
-			ROCK	-		

MAPID: 08100034000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.066597 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.174769 DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 789.0 LOG TYPE:

SOURCE: BG MUDDYCS 2 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-278.0	CARBONDALE	HERRIN	COAL	8.7	780.0	

MAPID: 08100034000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 14

QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.066597

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.174769

DATE COLLECTED: 2 / 0 / 1909

SURFACE ELEVATION (FT.): 510.0

LOGGED (FT.): 790.7

LOG TYPE: Survey Core Study

SOURCE: BIG MUDDY COAL SYN.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.0			UNCONSOLIDATED	18.0	0.0	
492.0			ROCK	33.0	18.0	
459.0			COAL	0.2	51.0	
458.8			ROCK	76.2	51.2	
382.6			COAL	0.8	127.4	
381.7			ROCK	53.7	128.3	
328.0			COAL	0.5	182.0	
327.5			ROCK	1.5	182.5	
326.0			COAL	0.2	184.0	
325.8			ROCK	39.8	184.2	
286.0			COAL	0.2	224.0	
285.8			ROCK	100.8	224.2	
185.0			COAL	0.5	325.0	
184.5			ROCK	35.5	325.5	
149.0			COAL	0.5	361.0	
148.5			ROCK	22.5	361.5	
126.0			COAL	0.2	384.0	BONE COAL
125.8			ROCK	101.5	384.2	
24.3			COAL	0.3	485.7	
24.0			ROCK	217.0	486.0	
-193.0			SHALE	79.0	703.0	SANDY
-272.0	CARBONDALE	HERRIN	COAL	8.7	782.0	
-280.7	CARBONDALE		CLAYSTONE & SHALE	-	790.7	

MAPID: 08100846000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: 30' S line, 480' E line of SW SW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.076392

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.175532

DATE COLLECTED: 9 / 25 / 1953

SURFACE ELEVATION (FT.): 504.0

LOGGED (FT.): 794.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-7-53

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG & ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
504.0	PLEISTOCENE		CLAY	12.0	0.0	
492.0			SANDSTONE	48.0	12.0	
444.0			GRAY SHALE	30.0	60.0	SANDY
414.0			SANDSTONE	20.0	90.0	
394.0			SHALE	12.0	110.0	
382.0			SHALE/COAL	3.0	122.0	
379.0			SHALE	50.0	125.0	
329.0			SHALE WITH LIMESTONE	5.0	175.0	
324.0			SHALE	38.0	180.0	BANDED
286.0			COAL	1.0	218.0	
285.0			SHALE	16.0	219.0	
269.0			SHALE WITH LIMESTONE	5.0	235.0	
264.0			LIMESTONE	5.0	240.0	HARD
259.0			SHALE	45.0	245.0	HARD BANDED
214.0			SHALE	9.0	290.0	
205.0			LIMESTONE	4.0	299.0	
201.0			SHALE	67.0	303.0	STICKY
134.0			SHALE	20.0	370.0	
114.0			SHALE	35.0	390.0	SANDY
79.0			SHALE	45.0	425.0	HARD HANDED
34.0			SHALE	45.0	470.0	
-11.0			LIMESTONE	5.0	515.0	
-16.0			SHALE	45.0	520.0	BANDED
-61.0			SANDSTONE	15.0	565.0	
-76.0			SHALE	20.0	580.0	STICKY
-96.0			SHALE	70.0	600.0	
-166.0			LIMESTONE	22.0	670.0	
-188.0	CARBONDALE	ENERGY	SHALE	50.0	692.0	DATA FROM CORE STUDY HENCE FORTH
-238.0	CARBONDALE	ENERGY	GRAY SHALE	39.3	742.0	CARB
-277.3	CARBONDALE	HERRIN	COAL	4.0	781.3	DETAILED LOG AVAILABLE
-281.3	CARBONDALE	HERRIN	SILTSTONE	2.1	785.3	CARB COAL PARTINGS
-283.4	CARBONDALE	HERRIN	COAL	5.0	787.4	DETAILED LOG AVAILABLE
-288.4	CARBONDALE		UNDERCLAY	1.6	792.4	HALF FUSAIN WITH CALCITE

MAPID: 08100847000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: 20' S line, 480' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.075396 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.168218 DATE COLLECTED: 10 / 9 / 1953

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 812.3 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-8-53 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG & ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
514.0	PLEISTOCENE		CLAY	16.0	0.0	
498.0			SANDSTONE	14.0	16.0	
484.0			SHALE	60.0	30.0	
424.0			SHALE	20.0	90.0	BANDED
404.0			SHALE	70.0	110.0	LIMESTONE INTERBEDS
334.0			LIMESTONE	4.0	180.0	
330.0			SHALE	46.0	184.0	HARD BANDED
284.0			SHALE	80.0	230.0	
204.0			LIMESTONE	10.0	310.0	
194.0			SHALE WITH LIMESTONE	17.0	320.0	
177.0			COAL	2.0	337.0	
175.0			SHALE	131.0	339.0	
44.0			SHALE WITH LIMESTONE	10.0	470.0	
34.0			SHALE	30.0	480.0	
4.0			SHALE	40.0	510.0	SANDY
-36.0			SHALE	40.0	550.0	STICKY
-76.0			SHALE	10.0	590.0	
-86.0			SHALE	20.0	600.0	STICKY
-106.0			SHALE	10.0	620.0	
-116.0			SHALE	50.0	630.0	HARD LIMEY
-166.0			SHALE	3.0	680.0	
-169.0			LIMESTONE	8.0	683.0	
-177.0			SHALE	11.0	691.0	
-188.0	MODESTO	PIASA	LIMESTONE	6.0	702.0	
-194.0			SHALE	12.0	708.0	
-206.0	CARBONDALE	DANVILLE	COAL	2.0	720.0	
-208.0	CARBONDALE	ENERGY	SHALE	28.0	722.0	LIMESTONE INTERBEDS
-236.0	CARBONDALE	ENERGY	SILTSTONE	34.3	750.0	DATA FROM CORE STUDY HENCE FORTH
-270.3	CARBONDALE	ENERGY	GRAY SHALE	16.5	784.3	
-286.8	CARBONDALE	HERRIN	COAL	9.6	800.8	DETAILED LOG AVAILABLE
-296.3	CARBONDALE		UNDERCLAY	2.0	810.3	LIMESTONE NODULES

MAPID: 08100847000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: 20' S line, 480' W line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.075396

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.168218

DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0

LOGGED (FT.): 810.6

LOG TYPE: Survey Core Study

SOURCE: C.W.&F. COAL CO. 03-8-53

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-192.0	MODESTO	PIASA	LIMESTONE	6.0	706.0
-198.0	MODESTO		GRAY SHALE	12.0	712.0
-210.0	CARBONDALE	DANVILLE	COAL	2.0	724.0
-212.0	CARBONDALE	ENERGY	SHALE	28.0	726.0
-240.0	CARBONDALE	ENERGY	SILTSTONE	34.2	754.0
-274.2	CARBONDALE	ENERGY	GRAY SHALE	13.1	788.2
-287.0	CARBONDALE	HERRIN	COAL	9.6	801.0

MAPID: 08100857000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: 55' N line, 400' W line of NW NW SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.075637

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.175317

DATE COLLECTED: 4 / 17 / 1954

SURFACE ELEVATION (FT.): 501.1

LOGGED (FT.): 831.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-7-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG & ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
501.1	PLEISTOCENE		CLAY	12.0	0.0	
489.1			SANDSTONE	29.0	12.0	DECOMPOSED
460.1			COAL	1.0	41.0	
459.1			UNDERCLAY	7.0	42.0	
452.1			COAL	2.0	49.0	
450.1			CLAYSTONE	9.0	51.0	
441.1			SHALY SANDSTONE	120.0	60.0	LIMESTONE INTERBEDS
321.1			SHALE	50.0	180.0	
271.1			LIMESTONE	2.0	230.0	
269.1			SHALE	68.0	232.0	
201.1			LIMESTONE	4.0	300.0	
197.1			SHALE	96.0	304.0	LIMESTONE INTERBEDS
101.1			SHALE	100.0	400.0	SANDY
1.1			SHALE	90.0	500.0	
-88.9			SHALE	60.0	590.0	
-148.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	650.0	
-154.9	CARBONDALE		SHALE WITH LIMESTONE	14.0	656.0	
-168.9	CARBONDALE	ENERGY	SHALE	70.0	670.0	BANDED
-238.9	CARBONDALE	ENERGY	SHALE	20.3	740.0	SANDY; DATA FROM CORE STUDY HENCE FORTH
-259.2	CARBONDALE	ENERGY	GRAY SHALE	26.7	760.3	SILTSTONE LAMINAE
-285.8	CARBONDALE	HERRIN	COAL	9.3	786.9	DETAILED DESCRIPTION AVAILABLE
-295.2	CARBONDALE		UNDERCLAY	2.6	796.3	
-297.7	CARBONDALE		LIMESTONE	3.1	798.8	NODULAR ARGILLACEOUS
-300.8	CARBONDALE		GRAY SHALE	14.6	801.9	
-315.4	CARBONDALE		GRAY SHALE	1.8	816.5	DARK TO BLACK
-317.2	CARBONDALE	ST. DAVID	LIMESTONE	1.7	818.3	DARK ARGILLACEOUS
-318.9	CARBONDALE	TURNER MINE	BLACK SHALE	5.0	820.0	BRITTLE, LAMINATED
-323.9	CARBONDALE	SPRINGFIELD	COAL	4.4	825.0	DETAILED DESCRIPTION AVAILABLE
-328.3	CARBONDALE		UNDERCLAY	1.6	829.4	

MAPID: 08102449000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 14 QUARTERS/FOOTAGES: 330' S line, 330' W line of NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.066586 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.176594 DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 2509.0 LOG TYPE: Electric Log

SOURCE: GALLAGHER, VICTOR R. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-318.0	CARBONDALE	SPRINGFIELD	COAL	-	832.0
-495.0	CARBONDALE	COLCHESTER	COAL	-	1009.0
-1995.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2509.0

MAPID: 08100852000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 15 QUARTERS/FOOTAGES: 25' N line, 10' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.095139

GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.182706

DATE COLLECTED: 4 / 2 / 1954

SURFACE ELEVATION (FT.): 493.7 LOGGED (FT.): 804.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-6-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG & ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
493.7	PLEISTOCENE		CLAY	5.0	0.0	
488.7			SANDSTONE	15.0	5.0	DECOMPOSED
473.7			SHALE/COAL	4.0	20.0	
469.7			CLAYSTONE	8.0	24.0	
461.7			SHALE	78.0	32.0	SOFT
383.7			SHALE	50.0	110.0	
333.7			COAL	2.0	160.0	
331.7			SANDSTONE	18.0	162.0	
313.7			SHALE	55.0	180.0	BANDED
258.7			SHALE WITH LIMESTONE	40.0	235.0	
218.7			LIMESTONE	6.0	275.0	
212.7			SHALE	39.0	281.0	LIMESTONE INTERBEDS
173.7			SHALE	91.0	320.0	BEDDED
82.7			SHALE	69.0	411.0	BANDED
13.7			SANDSTONE	20.0	480.0	
-6.3			SHALE	80.0	500.0	BANDED
-86.3			LIMESTONE W/ SHALE	7.0	580.0	
-93.3			SHALE	63.0	587.0	HARD, BANDED
-156.3			SHALE	13.0	650.0	
-169.3	MODESTO	PIASA	LIMESTONE	5.0	663.0	
-174.3			SHALE	3.0	668.0	
-177.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	671.0	
-183.3	CARBONDALE	ENERGY	SHALE	53.1	677.0	DATA FROM CORE STUDY HENCE FORTH
-236.4	CARBONDALE	ENERGY	SILTSTONE	16.8	730.1	
-253.1	CARBONDALE	ENERGY	GRAY SHALE	7.7	746.8	MICACEOUS
-260.8	CARBONDALE	ENERGY	SILTSTONE	12.8	754.5	
-273.6	CARBONDALE	ENERGY	GRAY SHALE	8.3	767.3	DARK & COALY AT BASE
-281.9	CARBONDALE	HERRIN	COAL	11.1	775.6	DETAILED DESCRIPTION AVAILABLE
-293.0	CARBONDALE		UNDERCLAY	0.6	786.7	
-293.6	CARBONDALE		LIMESTONE	0.3	787.3	NODULAR DENSE CLAY MATRIX
-293.8	CARBONDALE		GRAY SHALE	5.6	787.5	SIDERITIC LAMINATED
-299.4	CARBONDALE		GRAY SHALE	0.5	793.1	HARD MASSIVE
-299.9	CARBONDALE	ST. DAVID	LIMESTONE	1.0	793.6	DARK ARGILLACEOUS MASSIVE
-300.9	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	794.6	PYRITIC LAMINATED
-303.3	CARBONDALE	TURNER MINE	LIMESTONE	0.5	797.0	CONCRETION PYRITIC
-303.8	CARBONDALE	TURNER MINE	BLACK SHALE	0.5	797.5	LAMINATED PYRITIC
-304.3	CARBONDALE	SPRINGFIELD	COAL	4.1	798.0	
-308.4	CARBONDALE		UNDERCLAY	1.9	802.1	

MAPID: 08100852000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 15 QUARTERS/FOOTAGES: 25' N line, 10' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.095139

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.182706

DATE COLLECTED:

SURFACE ELEVATION (FT.): 494.0 LOGGED (FT.): 787.0

LOG TYPE: Survey Core Study

SOURCE: C.W.&F. COAL CO. 03-6-54

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-221.0	MODESTO	PIASA	LIMESTONE	5.0	715.0
-226.0	MODESTO		SHALE	3.0	720.0
-229.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	723.0
-235.0	CARBONDALE	ENERGY	SILTSTONE	16.8	729.0
-251.8	CARBONDALE	ENERGY	GRAY SHALE	3.3	745.8
-255.0	CARBONDALE	ENERGY	GRAY SHALE	4.6	749.0
-259.6	CARBONDALE	ENERGY	SILTSTONE	12.8	753.6
-272.4	CARBONDALE	ENERGY	GRAY SHALE	9.5	766.4
-282.0	CARBONDALE	HERRIN	COAL	11.0	776.0

MAPID: 08102469000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 15 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.087235

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.1764

DATE COLLECTED:

SURFACE ELEVATION (FT.): 506.0 LOGGED (FT.): 2461.0

LOG TYPE: Electric Log

SOURCE: GALLAGHER, VICTOR R.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-305.0	CARBONDALE	SPRINGFIELD	COAL	-	811.0
-494.0	CARBONDALE	COLCHESTER	COAL	-	1000.0
-1955.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2461.0

MAPID: 08100035000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 16 QUARTERS/FOOTAGES: 1320' N line, 1' W line of NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.103933 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.179321 DATE COLLECTED: 9 / 0 / 1918

SURFACE ELEVATION (FT.): 510.0 LOGGED (FT.): 705.0 LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.0			UNCONSOLIDATED	0.1	0.0	
509.9			UNKNOWN	90.9	0.1	
419.0			ROCK	32.0	91.0	
387.0			COAL	0.3	123.0	
386.7			ROCK	136.3	123.3	
250.4			COAL	0.4	259.6	
250.0			ROCK	15.0	260.0	
235.0			COAL	0.3	275.0	
234.7			ROCK	154.2	275.3	
80.5			COAL	0.5	429.5	
80.0			ROCK	211.0	430.0	
-131.0			SHALE	50.6	641.0	SAND SHALE
-181.6	CARBONDALE	HERRIN	COAL	11.2	691.6	SH PTG .08'
-192.8	CARBONDALE		SANDSTONE	0.0	702.8	

MAPID: 08100858000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 16 QUARTERS/FOOTAGES: 185' N line, 610' E line of NE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.097259

GEOLOGIST: HAMER

CONFIDENTIAL: N

LATITUDE: 38.175052

DATE COLLECTED: 6 / 2 / 1954

SURFACE ELEVATION (FT.): 477.0

LOGGED (FT.): 723.0

LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-8-54

WELL TYPE: Coal Test

COMMENT: DRILLERS LOG & ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
477.0	PLEISTOCENE		CLAY & GRAVEL	20.0	0.0	
457.0			SHALE	20.0	20.0	SOFT
437.0			LIMESTONE	2.0	40.0	
435.0			COAL	2.0	42.0	
433.0			SHALE	36.0	44.0	
397.0			SHALY SANDSTONE	110.0	80.0	
287.0			SHALE	14.0	190.0	
273.0			LIMESTONE	5.0	204.0	
268.0			SHALE WITH LIMESTONE	21.0	209.0	
247.0			SHALE	60.0	230.0	
187.0			SHALE	90.0	290.0	BANDED
97.0			SHALE	5.0	380.0	
92.0			SHALE	10.0	385.0	BANDED
82.0			SHALE	230.0	395.0	
-148.0			BLACK SHALE	20.0	625.0	
-168.0	CARBONDALE	ENERGY	SHALE	15.0	645.0	DATA FROM CORE STUDY HENCE FORTH
-183.0	CARBONDALE	ENERGY	SILTSTONE	15.8	660.0	
-198.8	CARBONDALE	ENERGY	GRAY SHALE	4.7	675.8	SILTY LAMINATED
-203.5	CARBONDALE	ENERGY	SILTSTONE	3.4	680.5	SHALE INTERBEDS
-206.9	CARBONDALE	ENERGY	GRAY SHALE	12.9	683.9	LAMINATED
-219.8	CARBONDALE	ENERGY	GRAY SHALE	0.2	696.8	DARK TO BLACK COAL PARTINGS
-220.0	CARBONDALE	HERRIN	COAL	11.5	697.0	DETAILED LOG AVAILABLE, CORE BROKEN
-231.5	CARBONDALE	HERRIN	COAL	0.3	708.5	BONY
-231.8	CARBONDALE	HERRIN	GRAY SHALE	0.3	708.8	CARBONACEOUS
-232.1	CARBONDALE	HERRIN	COAL	0.3	709.1	BONY
-232.4	CARBONDALE		UNDERCLAY	0.8	709.4	
-233.2	CARBONDALE		SILTSTONE	0.8	710.2	THICKNESS ADJUSTED; NODULAR SIDERITIC
-234.0	CARBONDALE		GRAY SHALE	3.4	711.0	
-237.4	CARBONDALE		GRAY SHALE	0.4	714.4	CLAY LIMESTONE NODULES
-237.8	CARBONDALE		GRAY SHALE	0.2	714.8	SOFT FRIABLE
-238.0	CARBONDALE	SPRINGFIELD	COAL	4.1	715.0	DETAILED LOG AVAILABLE
-242.1	CARBONDALE		UNDERCLAY	1.5	719.1	
-243.7	CARBONDALE		GRAY SHALE	1.7	720.7	CLAY CALC
-245.4	CARBONDALE		LIMESTONE	0.4	722.4	
-245.6	CARBONDALE		SILTSTONE	0.4	722.6	ARGILLACEOUS

MAPID: 08100859000C VERSION: 1

PROJECT: ISGS97

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 16 QUARTERS/FOOTAGES: 60' N line, 50' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.095349 GEOLOGIST: HAMER

CONFIDENTIAL: N LATITUDE: 38.182613 DATE COLLECTED: 6 / 2 / 1954

SURFACE ELEVATION (FT.): 514.1 LOGGED (FT.): 739.0 LOG TYPE: Multiple log types

SOURCE: CW & F COAL CO 3-9-54 WELL TYPE: Coal Test

COMMENT: DRILLERS LOG; ISGS CORE STUDY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
514.1	PLEISTOCENE		UNCONSOLIDATED	9.0	0.0	
505.1			SANDSTONE	21.0	9.0	
484.1			SHALE	30.0	30.0	
454.1			SHALE	5.0	60.0	DARK
449.1			COAL	1.0	65.0	
448.1			SHALE	54.0	66.0	BANDED, LIMESTONE INTERBEDS
394.1			SHALE	45.0	120.0	
349.1			LIMESTONE	1.0	165.0	
348.1			SHALE	64.0	166.0	
284.1			LIMESTONE	4.0	230.0	
280.1			SHALE	46.0	234.0	
234.1			SHALE	40.0	280.0	DARK
194.1			SHALE	271.0	320.0	
-76.9	MODESTO	PIASA	LIMESTONE	5.0	591.0	
-81.9	MODESTO		SHALE	8.0	596.0	
-89.9	CARBONDALE	DANVILLE	COAL	1.0	604.0	
-90.9	CARBONDALE		SHALE	6.0	605.0	
-96.9	CARBONDALE		LIMESTONE	3.0	611.0	
-99.9	CARBONDALE		SHALE	2.0	614.0	
-101.9	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	616.0	
-108.9	CARBONDALE	ENERGY	SHALE	27.0	623.0	DATA FROM CORE STUDY HENCE FORTH
-135.9	CARBONDALE	ENERGY	SANDSTONE	20.5	650.0	OCC COALY STRINERS
-156.4	CARBONDALE	ENERGY	SILTSTONE	10.1	670.5	
-166.5	CARBONDALE	ENERGY	GRAY SHALE	0.0	680.6	FUSAIN & VITRAIN LAMINAE
-166.5	CARBONDALE	ENERGY	SILTSTONE	10.5	680.6	CARB
-177.0	CARBONDALE	HERRIN	COAL	11.4	691.1	CORE BROKEN; DETAILED LOG AVAILABLE
-188.3	CARBONDALE		UNDERCLAY	2.4	702.4	
-190.7	CARBONDALE		GRAY SHALE	5.5	704.8	CLAY
-196.2	CARBONDALE		SILTSTONE	3.3	710.3	SHALE LAMINAE, LS BEDS & CONCRETIONS
-199.4	CARBONDALE		LIMESTONE	0.6	713.5	CRYSTALLINE HARD
-200.0	CARBONDALE		SHALE WITH LIMESTONE	2.8	714.1	NODULAR
-202.8	CARBONDALE		GRAY SHALE	0.6	716.9	DARK SIDERITIC
-203.4	CARBONDALE		GRAY SHALE	5.5	717.5	CLAY; LIMESTONE NODULES
-208.9	CARBONDALE		GRAY SHALE	3.5	723.0	SIDERITIC CALC
-212.4	CARBONDALE		GRAY SHALE	2.7	726.5	DARK TO BLACK
-215.1	CARBONDALE	ST. DAVID	LIMESTONE	0.9	729.2	DARK ARGILLACEOUS
-216.0	CARBONDALE	TURNER MINE	BLACK SHALE	2.9	730.1	
-218.9	CARBONDALE	SPRINGFIELD	COAL	4.0	733.0	DETAILED LOG AVAILABLE

-222.9 CARBONDALE

UNDERCLAY

2.0 737.0

MAPID: 08100859000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 16 QUARTERS/FOOTAGES: 60' N line, 50' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.095349

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.182613

DATE COLLECTED:

SURFACE ELEVATION (FT.): 514.0 LOGGED (FT.): 702.3

LOG TYPE: Survey Core Study

SOURCE:

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-136.0	CARBONDALE	ENERGY	SANDSTONE/SILTSTONE	41.0	650.0	
-177.0	CARBONDALE	HERRIN	COAL	11.3	691.0	

MAPID: 08102681000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 16 QUARTERS/FOOTAGES: 330' N line, 330' E line of NE NE NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.105072

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.18208

DATE COLLECTED:

SURFACE ELEVATION (FT.): 513.0 LOGGED (FT.): 2426.0

LOG TYPE: Electric Log

SOURCE: KEWANEE OIL CO.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-246.0	CARBONDALE	SPRINGFIELD	COAL	-	759.0	
-416.0	CARBONDALE	COLCHESTER	COAL	-	929.0	
-1913.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2426.0	

MAPID: 08100036000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 17 QUARTERS/FOOTAGES: 1320' N line, 1' W line of NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.122087 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.179545 DATE COLLECTED:

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 656.5 LOG TYPE: Survey Core Study

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			UNCONSOLIDATED	37.0	0.0	
423.0			SHALE	133.0	37.0	
290.0			COAL	0.7	170.0	
289.3			ROCK	155.1	170.7	
134.2			COAL	0.3	325.8	
134.0			ROCK	144.0	326.0	
-10.0			COAL	0.4	470.0	
-10.4			ROCK	19.9	470.4	
-30.3			COAL	0.8	490.3	
-31.2			ROCK	15.8	491.2	
-47.0			COAL	0.7	507.0	
-47.7			ROCK	55.3	507.7	
-103.0			COAL	2.8	563.0	
-105.8			ROCK	22.0	565.8	
-127.8			COAL	1.3	587.8	
-129.2			ROCK	1.8	589.2	
-131.0			COAL WITH SHALE	4.0	591.0	COAL AND SHALE MIXED
-135.0			ROCK	21.8	595.0	
-156.8			COAL	2.2	616.8	
-158.9			ROCK	8.1	618.9	
-167.0			LIMESTONE	11.0	627.0	WITH SHALE PARTINGS
-178.0			SHALE	6.0	638.0	
-184.0			LIMESTONE	1.0	644.0	
-185.0			BLACK SHALE	5.8	645.0	
-190.8	CARBONDALE	HERRIN	COAL	4.3	650.8	
-195.0	CARBONDALE		UNDERCLAY	1.5	655.0	

MAPID: 08101808000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 17 QUARTERS/FOOTAGES: 50' N line, 660' E line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.114965

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.183025

DATE COLLECTED:

SURFACE ELEVATION (FT.): 470.0 LOGGED (FT.): 628.3

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-7-64

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-61.0	MODESTO	PIASA	LIMESTONE	6.0	531.0
-67.0	CARBONDALE		GRAY SHALE	7.0	537.0
-74.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	544.0
-80.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	27.7	550.0
-107.7	CARBONDALE	ENERGY	SILTSTONE	22.9	577.7
-130.6	CARBONDALE	ENERGY	SILTSTONE	8.9	600.6
-139.5	CARBONDALE	ENERGY	SILTSTONE	9.8	609.5
-149.3	CARBONDALE	ENERGY	GRAY SHALE	2.1	619.3
-151.0	CARBONDALE	HERRIN	COAL	7.3	621.0

MAPID: 08124936000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 20 QUARTERS/FOOTAGES: NW NW NW

QUADRANGLE: TAMAROA LONGITUDE: -89.023845 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.304775 DATE COLLECTED:

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 768.5 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 8315133 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
440.0	PLEISTOCENE		CLAY	18.0	0.0	
422.0	MATTOON		GRAY SHALE	31.0	18.0	
391.0	MATTOON		BLACK SHALE	4.0	49.0	
387.0	BOND	MILLERSVILLE	LIMESTONE	1.0	53.0	
386.0	BOND		GRAY SHALE	19.0	54.0	
367.0	BOND		SANDSTONE	84.0	73.0	
283.0	BOND		GRAY SHALE	20.0	157.0	
263.0	BOND		SANDSTONE	4.0	177.0	
259.0	BOND		GRAY SHALE	47.5	181.0	
211.5	BOND	CARTHAGE	LIMESTONE	4.5	228.5	
207.0	MODESTO		GRAY SHALE	0.5	233.0	
206.5	MODESTO		BLACK SHALE	3.5	233.5	
203.0	MODESTO		GRAY SHALE	22.0	237.0	
181.0	MODESTO		COAL	0.5	259.0	
180.5	MODESTO		SHALE	18.5	259.5	
162.0	MODESTO		SANDSTONE	7.0	278.0	TOP 1.0 LIMY
155.0	MODESTO		GRAY SHALE	45.0	285.0	
110.0	MODESTO		SANDSTONE	13.0	330.0	
97.0	MODESTO		SANDY SHALE	110.0	343.0	
-13.0	MODESTO		SILTSTONE	52.0	453.0	
-65.0	MODESTO		GRAY SHALE	75.0	505.0	
-140.0	MODESTO		BLACK SHALE	4.0	580.0	
-144.0	MODESTO		SANDSTONE	13.0	584.0	
-157.0	CARBONDALE	DANVILLE	COAL	2.0	597.0	
-159.0	CARBONDALE		GRAY SHALE	8.0	599.0	
-167.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	607.0	
-178.0	CARBONDALE	ENERGY	SANDSTONE	32.0	618.0	
-210.0	CARBONDALE	ENERGY	SANDSTONE	8.0	650.0	
-218.0	CARBONDALE	ENERGY	SILTSTONE	5.7	658.0	
-223.7	CARBONDALE	ENERGY	SHALE	62.9	663.7	
-286.6	CARBONDALE	HERRIN	COAL	10.4	726.6	
-297.0	CARBONDALE		UNDERCLAY	2.0	737.0	
-299.0	CARBONDALE		SILTSTONE	25.5	739.0	
-324.5	CARBONDALE		SANDSTONE	4.0	764.5	

MAPID: 08124937000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 20 QUARTERS/FOOTAGES: NW SW SW

QUADRANGLE: TAMAROA LONGITUDE: -89.02257 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.157873 DATE COLLECTED:

SURFACE ELEVATION (FT.): 440.0 LOGGED (FT.): 746.2 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 841S147 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
440.0	PLEISTOCENE		CLAY	12.0	0.0	
428.0	BOND		SHALE	6.0	12.0	
422.0	BOND		GRAY SHALE	12.0	18.0	
410.0	BOND		SANDY SHALE	15.0	30.0	
395.0	BOND		SANDY SHALE	35.0	45.0	
360.0	BOND		SANDY SHALE	25.0	80.0	
335.0	BOND		BLACK SHALE	5.0	105.0	
330.0	BOND		CALCAREOUS SHALE	5.0	110.0	
325.0	BOND		SANDSTONE	25.0	115.0	
300.0	BOND		SANDY SHALE	42.0	140.0	
258.0	BOND	CARTHAGE	SANDY LIMESTONE	8.0	182.0	
250.0	MODESTO		DARK SHALE	20.0	190.0	
230.0	MODESTO	MACOUPIN	LIMESTONE	4.0	210.0	
226.0	MODESTO		BLACK SHALE	2.0	214.0	
224.0	MODESTO		GRAY SHALE	34.0	216.0	
190.0	MODESTO		SANDY SHALE	10.0	250.0	
180.0	MODESTO		CALCAREOUS SHALE	5.0	260.0	
175.0	MODESTO		SANDY SHALE	5.0	265.0	
170.0	MODESTO		CALCAREOUS SHALE	10.0	270.0	
160.0	MODESTO		GRAY SHALE	2.0	280.0	
158.0	MODESTO		BLACK SHALE	1.0	282.0	
157.0	MODESTO	CARLINVILLE	LIMESTONE	7.0	283.0	
150.0	MODESTO		DARK GRAY SHALE	30.0	290.0	
120.0	MODESTO		SANDY SHALE	40.0	320.0	LIMY
80.0	MODESTO		SANDY SHALE	20.0	360.0	
60.0	MODESTO		SANDY DARK SHALE	14.0	380.0	
46.0	MODESTO	CHAPEL	COAL	1.0	394.0	
45.0	MODESTO		GRAY SHALE	35.0	395.0	
10.0	MODESTO		SANDY SHALE	50.0	430.0	
-40.0	MODESTO		GRAY SHALE	54.0	480.0	
-94.0	MODESTO		SHALE WITH LIMESTONE	6.0	534.0	
-100.0	MODESTO		SANDY SHALE	15.0	540.0	
-115.0	CARBONDALE	DANVILLE	COAL	2.0	555.0	
-117.0	CARBONDALE		SHALE	14.0	557.0	
-131.0	CARBONDALE		SANDSTONE	13.0	571.0	
-144.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	584.0	
-150.0	CARBONDALE		SANDY SHALE	6.0	590.0	
-156.0	CARBONDALE		SHALE WITH LIMESTONE	8.0	596.0	
-164.0	CARBONDALE	BRERETON	LIMESTONE	10.0	604.0	

-174.0	CARBONDALE	ENERGY	SANDSTONE	21.0	614.0
-195.0	CARBONDALE	ENERGY	SHALY SANDSTONE	5.0	635.0
-200.0	CARBONDALE	ENERGY	SANDSTONE	2.0	640.0
-202.0	CARBONDALE	ENERGY	SANDY SHALE	18.0	642.0
-220.0	CARBONDALE	ENERGY	SILTSTONE	32.8	660.0
-252.8	CARBONDALE	HERRIN	COAL	7.5	692.8
-260.3	CARBONDALE		SILTSTONE	1.8	700.3
-262.1	CARBONDALE		SANDSTONE	7.8	702.1
-269.9	CARBONDALE		SILTSTONE	16.0	709.9
-285.9	CARBONDALE		DARK GRAY SHALE	1.6	725.9
-287.5	CARBONDALE	BRIAR HILL	COAL	1.1	727.5
-288.6	CARBONDALE		SHALE	1.7	728.6
-290.3	CARBONDALE		SILTSTONE	0.6	730.3
-290.9	CARBONDALE		DARK GRAY SHALE	6.8	730.9
-297.7	CARBONDALE	ST. DAVID	LIMESTONE	1.4	737.7
-299.1	CARBONDALE	TURNER MINE	BLACK SHALE	2.9	739.1
-302.0	CARBONDALE	SPRINGFIELD	COAL	3.9	742.0
-305.9	CARBONDALE		UNDERCLAY	0.3	745.9

MAPID: 08102459000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 21 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.102969 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.160153 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 2404.0 **LOG TYPE:** Electric Log
SOURCE: GALLAGHER, VICTOR R. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-283.0	CARBONDALE	SPRINGFIELD	COAL	-	754.0
-448.0	CARBONDALE	COLCHESTER	COAL	-	919.0
-1933.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2404.0

MAPID: 08102459000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.102969

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.160153

DATE COLLECTED:

SURFACE ELEVATION (FT.): 471.0

LOGGED (FT.): 702.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-82.0	CARBONDALE	ENERGY	GRAY SHALE	50.0	553.0	
-132.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	85.0	603.0	
-217.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	14.0	688.0	

MAPID: 08100037000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 22 QUARTERS/FOOTAGES: SW SW SW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.094525

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.161437

DATE COLLECTED:

SURFACE ELEVATION (FT.): 446.4

LOGGED (FT.): 718.0

LOG TYPE:

SOURCE: TRAER STAM

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-264.6	CARBONDALE	HERRIN	COAL	6.8	711.0	

MAPID: 08100037000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 22

QUARTERS/FOOTAGES: SW SW SW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.094525

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.161437

DATE COLLECTED:

SURFACE ELEVATION (FT.): 446.0

LOGGED (FT.): 717.8

LOG TYPE: Survey Core Study

SOURCE: TRAER & STAMPER

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
446.0			UNCONSOLIDATED	23.0	0.0	
423.0			ROCK	103.0	23.0	
320.0			COAL	0.3	126.0	
319.7			ROCK	93.7	126.3	
226.0			COAL	0.5	220.0	
225.5			ROCK	33.5	220.5	
192.0			COAL	0.3	254.0	
191.7			ROCK	137.7	254.3	
54.0			COAL	1.0	392.0	
53.0			ROCK	238.5	393.0	
-185.5			COAL	0.5	631.5	
-186.0			SHALE	70.8	632.0	
-256.8			COAL	0.3	702.8	SPLIT COAL
-257.1			COAL WITH SHALE	7.4	703.1	COAL AND SHALE MIXED
-264.5	CARBONDALE	HERRIN	COAL	6.8	710.5	
-271.3	CARBONDALE		UNDERCLAY	0.5	717.3	

MAPID: 08100605000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 22

QUARTERS/FOOTAGES: 30' N line, 30' E line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.077184

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.168039

DATE COLLECTED:

SURFACE ELEVATION (FT.): 487.0

LOGGED (FT.): 750.5

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-113.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	600.0	
-116.0	CARBONDALE	ENERGY	DARK GRAY SHALE	37.0	603.0	
-153.0	CARBONDALE	ENERGY	GRAY SHALE	50.0	640.0	
-203.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	50.0	690.0	
-253.0	CARBONDALE	HERRIN	COAL	10.5	740.0	

MAPID: 08123843000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 22 QUARTERS/FOOTAGES: SW SE NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.090362 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.161188 DATE COLLECTED:

SURFACE ELEVATION (FT.): 482.0 LOGGED (FT.): 821.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 22-1-C WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
482.0			UNKNOWN	700.0	0.0	NO CORE
-218.0	CARBONDALE	ENERGY	SILTSTONE	30.0	700.0	
-248.0	CARBONDALE	ENERGY	SANDSTONE	1.0	730.0	
-249.0	CARBONDALE	ENERGY	SILTSTONE	13.7	731.0	
-262.7	CARBONDALE	HERRIN	COAL	1.9	744.7	
-264.6	CARBONDALE	HERRIN	GRAY SHALE	1.2	746.6	
-265.8	CARBONDALE	HERRIN	COAL	10.9	747.8	
-276.6	CARBONDALE		GRAY SHALE	16.4	758.6	
-293.0	CARBONDALE	ST. DAVID	LIMESTONE	2.3	775.0	
-295.2	CARBONDALE	SPRINGFIELD	COAL	0.6	777.2	
-295.8	CARBONDALE		SILTSTONE	23.2	777.8	
-319.0	CARBONDALE		SANDSTONE	10.0	801.0	
-329.0	CARBONDALE		SILTSTONE	10.0	811.0	

MAPID: 08124938000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 22 QUARTERS/FOOTAGES: SW NE NE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.080982

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.165121

DATE COLLECTED: 10 / 20 / 1987

SURFACE ELEVATION (FT.): 473.9

LOGGED (FT.): 820.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL251

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
473.9	PLEISTOCENE		CLAY	17.0	0.0	
456.9	MATTOON		SANDSTONE	4.0	17.0	GRAY
452.9	MATTOON		SANDY SHALE	33.0	21.0	
419.9	MATTOON		GRAY SHALE	16.5	54.0	
403.4	BOND		BLACK SHALE	3.6	70.5	
399.8	BOND		SANDSTONE	20.9	74.1	
378.9	BOND		GRAY SHALE	36.0	95.0	
342.9	BOND		CLAYSTONE	1.8	131.0	
341.1	BOND		GRAY SHALE	3.7	132.8	
337.4	BOND		SANDY SHALE	37.5	136.5	
299.9	BOND		LIMESTONE	1.0	174.0	
298.9	BOND		SANDSTONE	27.0	175.0	
271.9	BOND		GRAY SHALE	53.3	202.0	
218.6	BOND	CARTHAGE	LIMESTONE	7.2	255.3	
211.4	MODESTO		BLACK SHALE	4.9	262.5	
206.5	MODESTO		GRAY SHALE	37.8	267.4	
168.7	MODESTO		CALCAREOUS SHALE	13.8	305.2	
154.9	MODESTO		GRAY SHALE	7.1	319.0	
147.8	MODESTO		BLACK SHALE	4.7	326.1	
143.1	MODESTO		SANDY SHALE	93.5	330.8	
49.6	MODESTO		GRAY SHALE	4.5	424.3	
45.1	MODESTO		BLACK SHALE	2.7	428.8	
42.4	MODESTO	CHAPEL	COAL	0.5	431.5	
41.9	MODESTO		SANDY SHALE	88.5	432.0	
-46.6	MODESTO		GRAY SHALE	75.1	520.5	
-121.7	MODESTO		BLACK SHALE	4.0	595.6	
-125.7	MODESTO		GRAY SHALE	17.5	599.6	
-143.2	MODESTO	PIASA	LIMESTONE	2.4	617.1	
-145.6	MODESTO		BLACK SHALE	7.9	619.5	
-153.5	CARBONDALE	BANKSTON FORK	LIMESTONE	3.2	627.4	
-156.7	CARBONDALE	ENERGY	SANDSTONE	119.4	630.6	
-276.1	CARBONDALE	ENERGY	SHALY SANDSTONE	3.4	750.0	GRAY
-279.5	CARBONDALE	ENERGY	GRAY SHALE	0.0	753.4	
-279.6	CARBONDALE	ENERGY	SHALY SANDSTONE	1.1	753.5	GRAY
-280.6	CARBONDALE	ENERGY	COAL	0.0	754.5	
-280.6	CARBONDALE	ENERGY	SHALY SANDSTONE	2.8	754.5	GRAY
-283.4	CARBONDALE	ENERGY	COAL	0.0	757.3	
-283.4	CARBONDALE	ENERGY	SHALY SANDSTONE	0.3	757.3	GRAY
-283.7	CARBONDALE	ENERGY	COAL	0.0	757.6	

-283.7	CARBONDALE	ENERGY	SHALY SANDSTONE	0.4	757.6	GRAY
-284.1	CARBONDALE	ENERGY	COAL	0.0	758.0	
-284.1	CARBONDALE	ENERGY	SHALY SANDSTONE	0.2	758.0	GRAY
-284.3	CARBONDALE	HERRIN	COAL	0.3	758.2	
-284.6	CARBONDALE	HERRIN	SANDSTONE	0.0	758.5	
-284.6	CARBONDALE	HERRIN	COAL	9.9	758.5	
-294.5	CARBONDALE		UNDERCLAY	4.5	768.4	
-298.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	0.5	772.8	
-299.4	CARBONDALE	HIGGINSVILLE	UNDERCLAY	1.9	773.3	
-301.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.2	775.2	
-302.5	CARBONDALE		SANDY SHALE	4.2	776.4	
-306.7	CARBONDALE		BLACK SHALE	1.8	780.6	
-308.5	CARBONDALE	BRIAR HILL	COAL	1.9	782.4	
-310.4	CARBONDALE		UNDERCLAY	3.4	784.3	
-313.8	CARBONDALE		SANDSTONE	3.8	787.7	
-317.6	CARBONDALE		SANDY SHALE	28.5	791.5	

MAPID: 08100038000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 23

QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.06735

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.160668

DATE COLLECTED: 0 / 0 / 1908

SURFACE ELEVATION (FT.): 513.0

LOGGED (FT.): 795.0

LOG TYPE: Survey Core Study

SOURCE: BIG MUDDY COAL SYN

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
513.0			UNCONSOLIDATED	18.0	0.0	
495.0			SANDSTONE	38.0	18.0	
457.0			COAL	0.3	56.0	
456.8			ROCK	70.1	56.2	
386.7			COAL	0.8	126.3	
385.9			ROCK	44.7	127.1	
341.2			COAL	1.0	171.8	
340.2			ROCK	35.2	172.8	
305.0			COAL	0.5	208.0	
304.5			ROCK	105.6	208.5	
198.9			COAL	0.5	314.1	
198.4			BLACK SHALE	5.9	314.6	
192.5			COAL	0.3	320.5	
192.2			BLACK SHALE	16.8	320.8	
175.4			COAL	0.5	337.6	
174.9			ROCK	136.6	338.1	
38.3			COAL	0.7	474.7	
37.7			ROCK	212.7	475.3	
-175.0			COAL	0.1	688.0	
-175.1			ROCK	65.9	688.1	
-241.0			SANDSTONE	11.0	754.0	LIMEY, WITH SHALE PARTINGS
-252.0			SHALE	9.0	765.0	SANDY
-261.0			BLACK SHALE	9.3	774.0	
-270.3	CARBONDALE	HERRIN	COAL	10.7	783.3	
-281.0	CARBONDALE		UNDERCLAY	1.0	794.0	

MAPID: 08100038000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.06735 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160668 DATE COLLECTED:

SURFACE ELEVATION (FT.): 513.0 LOGGED (FT.): 804.7 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-181.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	50.0	694.0	
-231.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	50.0	744.0	
-281.0	CARBONDALE	HERRIN	COAL	10.7	794.0	

MAPID: 08100038000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.06735 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160668 DATE COLLECTED: 0 / 0 / 1908

SURFACE ELEVATION (FT.): 513.1 LOGGED (FT.): 795.0 LOG TYPE:

SOURCE: BG MUDDYCS WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-269.9	CARBONDALE	HERRIN	COAL	10.7	783.0	

MAPID: 08124518000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NW NE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.063311

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.161229

DATE COLLECTED: 2 / 24 / 1987

SURFACE ELEVATION (FT.): 517.6 LOGGED (FT.): 840.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL173

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
517.6	PLEISTOCENE		CLAY	11.0	0.0	
506.6	MATTOON		BROWN SANDSTONE	16.0	11.0	
490.6	MATTOON		SANDY SHALE	5.4	27.0	
485.2	MATTOON		SANDSTONE	2.6	32.4	
482.6	MATTOON		SANDY SHALE	7.0	35.0	
475.6	BOND	MILLERSVILLE	LIMESTONE	1.5	42.0	GRAY
474.1	BOND		SANDSTONE	4.0	43.5	
470.1	BOND		GRAY SHALE	7.0	47.5	
463.1	BOND		BLACK SHALE	4.2	54.5	
458.9	BOND		COAL	0.8	58.7	
458.1	BOND		UNDERCLAY	3.5	59.5	
454.6	BOND		GREEN SHALE	6.3	63.0	
448.3	BOND		SANDSTONE	30.2	69.3	
418.1	BOND		SANDY DARK SHALE	11.9	99.5	
406.2	BOND		GRAY SHALE	9.1	111.4	
397.1	BOND		BLACK SHALE	2.0	120.5	
395.1	BOND		COAL	1.1	122.5	
394.0	BOND		UNDERCLAY	4.6	123.6	
389.4	BOND		SANDY SHALE	9.8	128.2	
379.6	BOND		SANDSTONE	9.4	138.0	
370.2	BOND		GRAY SHALE	12.0	147.4	
358.2	BOND		SANDY SHALE	19.2	159.4	
339.0	BOND		SANDSTONE	7.9	178.6	
331.1	BOND		GRAY SHALE	12.0	186.5	
319.1	BOND		SANDSTONE	11.5	198.5	
307.6	BOND		GRAY SHALE	11.4	210.0	
296.2	BOND		DARK GRAY SHALE	1.1	221.4	
295.1	BOND		GRAY SHALE	2.5	222.5	
292.6	BOND		SANDSTONE	5.0	225.0	
287.6	BOND		SANDY SHALE	43.8	230.0	
243.8	BOND		GRAY SHALE	8.2	273.8	
235.6	BOND		SANDY SHALE	7.1	282.0	
228.5	BOND	CARTHAGE	LIMESTONE	5.9	289.1	GRAY
222.6	MODESTO		BLACK SHALE	5.0	295.0	
217.6	MODESTO		GRAY SHALE	16.3	300.0	
201.3	MODESTO	NEW HAVEN	COAL	1.5	316.3	
199.8	MODESTO		SANDY SHALE	42.2	317.8	
157.6	MODESTO		GRAY SHALE	4.0	360.0	
153.6	MODESTO		BLACK SHALE	4.9	364.0	

148.7	MODESTO		SANDY SHALE	8.1	368.9	
140.6	MODESTO		CALCAREOUS SHALE	8.3	377.0	
132.3	MODESTO		GRAY SHALE	9.7	385.3	
122.6	MODESTO		SANDSTONE	18.0	395.0	
104.6	MODESTO		SANDY SHALE	57.5	413.0	
47.1	MODESTO		GRAY SHALE	3.7	470.5	
43.4	MODESTO		BLACK SHALE	1.6	474.2	
41.8	MODESTO		GRAY SHALE	1.2	475.8	
40.6	MODESTO		COAL	1.0	477.0	
39.6	MODESTO		CALCAREOUS SHALE	8.0	478.0	
31.6	MODESTO		SANDY SHALE	8.2	486.0	
23.4	MODESTO		SANDSTONE	5.8	494.2	
17.6	MODESTO		SANDY SHALE	105.5	500.0	
-87.9	MODESTO		GRAY SHALE	5.0	605.5	
-92.9	MODESTO		SANDY SHALE	13.3	610.5	
-106.2	MODESTO		GRAY SHALE	12.3	623.8	
-118.5	MODESTO		SANDY SHALE	6.8	636.1	
-125.3	MODESTO		GRAY SHALE	2.6	642.9	
-127.9	MODESTO		BLACK SHALE	4.5	645.5	
-132.4	MODESTO		GRAY SHALE	12.5	650.0	
-144.9			SANDY SHALE	56.5	662.5	
-201.4	CARBONDALE	BANKSTON FORK	LIMESTONE	2.4	719.0	TAN
-203.8	CARBONDALE	ENERGY	SANDSTONE	42.6	721.4	
-246.4	CARBONDALE	ENERGY	SANDY SHALE	16.8	764.0	
-263.2	CARBONDALE	ENERGY	SHALE & SANDSTONE	6.2	780.8	INTERBED
-269.4	CARBONDALE	HERRIN	COAL	10.2	787.0	
-279.6	CARBONDALE		UNDERCLAY	1.1	797.2	
-280.7	CARBONDALE		GREEN SHALE	6.7	798.3	
-287.4	CARBONDALE		GRAY SHALE	3.9	805.0	
-291.3	CARBONDALE	ST. DAVID	LIMESTONE	4.0	808.9	
-295.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.3	812.9	
-298.6	CARBONDALE	SPRINGFIELD	COAL	3.7	816.2	
-302.3	CARBONDALE		GRAY SHALE	16.1	819.9	
-318.4	CARBONDALE		SANDY SHALE	4.0	836.0	

MAPID: 08124939000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: SW NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.072628

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.157482

DATE COLLECTED: 9 / 26 / 1987

SURFACE ELEVATION (FT.): 512.7 LOGGED (FT.): 820.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL228

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
512.7	PLEISTOCENE		SAND	19.0	0.0
493.7	MATTOON		SHALE	23.0	19.0
470.7	MATTOON		BLACK SHALE	5.5	42.0
465.2	MATTOON		SANDY SHALE	58.8	47.5
406.4	BOND		BLACK SHALE	2.7	106.3
403.7	BOND		SANDY SHALE	14.7	109.0
389.0	BOND		SANDSTONE	27.4	123.7
361.6	BOND		GRAY SHALE	9.7	151.1
351.9	BOND		SANDY SHALE	4.5	160.8
347.4	BOND	FLAT CREEK	COAL	1.3	165.3
346.1	BOND		UNDERCLAY	1.5	166.6
344.6	BOND		SANDSTONE	6.9	168.1
337.7	BOND		SANDY SHALE	17.6	175.0
320.1	BOND		SANDSTONE	8.4	192.6
311.7	BOND		SANDY SHALE	73.0	201.0
238.7	BOND		GRAY SHALE	7.9	274.0
230.8	BOND	CARTHAGE	LIMESTONE	5.9	281.9
224.9	MODESTO		BLACK SHALE	4.3	287.8
220.6	MODESTO		GRAY SHALE	28.1	292.1
192.5	MODESTO		SANDY SHALE	13.8	320.2
178.7	MODESTO		GRAY SHALE	15.9	334.0
162.8	MODESTO		SANDY SHALE	7.1	349.9
155.7	MODESTO		BLACK SHALE	5.2	357.0
150.5	MODESTO		SANDY SHALE	25.7	362.2
124.8	MODESTO		SANDSTONE	6.2	387.9
118.6	MODESTO		SANDY SHALE	64.4	394.1
54.2	MODESTO		GRAY SHALE	6.4	458.5
47.8	MODESTO		BLACK SHALE	2.2	464.9
45.6	MODESTO	CHAPEL	COAL	1.6	467.1
44.0	MODESTO		SANDY SHALE	119.6	468.7
-75.6	MODESTO		GRAY SHALE	15.3	588.3
-90.9	MODESTO		SANDY SHALE	11.4	603.6
-102.3	MODESTO		GRAY SHALE	15.0	615.0
-117.3	MODESTO		SANDSTONE	6.0	630.0
-123.3	MODESTO		GRAY SHALE	4.0	636.0
-127.3	CARBONDALE		BLACK SHALE	4.8	640.0
-132.1	CARBONDALE	ENERGY	GRAY SHALE	3.2	644.8
-135.3	CARBONDALE	ENERGY	SANDY SHALE	46.8	648.0
-182.1	CARBONDALE	ENERGY	SHALY SANDSTONE	38.2	694.8

-220.3	CARBONDALE	ENERGY	SANDY SHALE	27.0	733.0	
-247.3	CARBONDALE	ENERGY	GRAY SHALE	4.7	760.0	
-252.0	CARBONDALE	ENERGY	COAL	0.0	764.7	
-252.0	CARBONDALE	ENERGY	GRAY SHALE	0.4	764.7	
-252.5	CARBONDALE	ENERGY	COAL	0.0	765.2	
-252.5	CARBONDALE	ENERGY	GRAY SHALE	0.7	765.2	
-253.1	CARBONDALE	ENERGY	COAL	0.0	765.8	
-253.1	CARBONDALE	ENERGY	GRAY SHALE	0.1	765.8	
-253.2	CARBONDALE	ENERGY	COAL	0.0	765.9	
-253.2	CARBONDALE	ENERGY	GRAY SHALE	0.1	765.9	
-253.3	CARBONDALE	HERRIN	COAL	7.3	766.0	
-260.6	CARBONDALE	HERRIN	GRAY SHALE	0.0	773.3	
-260.7	CARBONDALE	HERRIN	COAL	0.3	773.4	
-261.0	CARBONDALE	HERRIN	GRAY SHALE	0.2	773.7	
-261.1	CARBONDALE	HERRIN	COAL	1.6	773.8	
-262.8	CARBONDALE		UNDERCLAY	2.2	775.5	
-264.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	15.0	777.6	GRAY
-279.9	CARBONDALE		SANDY SHALE	2.4	792.6	
-282.3	CARBONDALE		GRAY SHALE	6.0	795.0	
-288.3	CARBONDALE	TURNER MINE	BLACK SHALE	2.9	801.0	
-291.2	CARBONDALE	DYKERSBURG	GRAY SHALE	1.9	803.9	
-293.1	CARBONDALE	SPRINGFIELD	COAL	4.4	805.8	
-297.5	CARBONDALE		UNDERCLAY	1.8	810.2	
-299.3	CARBONDALE		SANDSTONE	8.0	812.0	

MAPID: 08124940000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NW NW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.067531

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.168307

DATE COLLECTED: 9 / 28 / 1987

SURFACE ELEVATION (FT.): 513.2 LOGGED (FT.): 845.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL230

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
513.2	PLEISTOCENE		CLAY	10.6	0.0	
502.6	MATTOON		SANDSTONE	15.2	10.6	BROWN
487.4	MATTOON		SANDSTONE	20.7	25.8	GRAY
466.7	MATTOON		GRAY SHALE	11.5	46.5	
455.2	MATTOON		BLACK SHALE	3.0	58.0	
452.2	MATTOON		LIMESTONE	2.9	61.0	GRAY
449.3	MATTOON		GRAY SHALE	2.0	63.9	
447.3	MATTOON		SHALE WITH LIMESTONE	5.6	65.9	
441.7	MATTOON		SANDSTONE	4.5	71.5	GRAY
437.2	MATTOON		SANDY SHALE	39.2	76.0	
398.0	MATTOON		GRAY SHALE	11.1	115.2	
386.9	MATTOON		BLACK SHALE	4.5	126.3	
382.4	MATTOON		GRAY SHALE	5.2	130.8	
377.2	MATTOON		SANDY SHALE	27.0	136.0	
350.2	MATTOON		GRAY SHALE	12.0	163.0	
338.2	BOND	MILLERSVILLE	LIMESTONE	3.5	175.0	
334.7	BOND		SANDSTONE	17.0	178.5	GRAY
317.7	BOND		GRAY SHALE	21.5	195.5	
296.2	BOND		SANDSTONE	2.4	217.0	GRAY
293.8	BOND		COAL	1.8	219.4	
292.0	BOND		SHALE WITH LIMESTONE	2.8	221.2	
289.2	BOND		GRAY SHALE	9.7	224.0	
279.5	BOND		SANDSTONE	4.3	233.7	GRAY
275.2	BOND		SANDY SHALE	12.5	238.0	
262.7	BOND		SANDSTONE	11.5	250.5	GRAY
251.2	BOND		GRAY SHALE	18.2	262.0	
233.0	BOND		SANDY SHALE	22.8	280.2	
210.2	BOND	CARTHAGE	LIMESTONE	6.0	303.0	GRAY
204.2	MODESTO		BLACK SHALE	4.6	309.0	
199.6	MODESTO		GRAY SHALE	16.4	313.6	
183.2	MODESTO	NEW HAVEN	COAL	1.3	330.0	
181.9	MODESTO		SANDY SHALE	28.0	331.3	
153.9	MODESTO	WOMAC	COAL	1.7	359.3	
152.2	MODESTO		UNDERCLAY	1.0	361.0	
151.2	MODESTO		SHALE WITH LIMESTONE	7.0	362.0	
144.2	MODESTO		GRAY SHALE	5.1	369.0	
139.1	MODESTO		BLACK SHALE	4.7	374.1	
134.4	MODESTO		GRAY SHALE	10.0	378.8	
124.4	MODESTO		SHALE WITH LIMESTONE	4.3	388.8	

120.1	MODESTO		SANDSTONE	64.6	393.1	GRAY
55.5	MODESTO		DARK GRAY SHALE	4.3	457.7	
51.2	MODESTO		SANDY SHALE	23.3	462.0	
27.9	MODESTO		BLACK SHALE	2.1	485.3	
25.8	MODESTO	CHAPEL	COAL	1.6	487.4	
24.2	MODESTO		UNDERCLAY	2.0	489.0	
22.2	MODESTO		CALCAREOUS SHALE	4.3	491.0	
17.9	MODESTO		SANDSTONE	6.6	495.3	GRAY
11.3	MODESTO		GRAY SHALE	7.1	501.9	
4.2	MODESTO		SANDSTONE	13.5	509.0	GRAY
-9.3	MODESTO		SANDY SHALE	72.5	522.5	
-81.8	MODESTO		GRAY SHALE	22.0	595.0	
-103.8	MODESTO		SANDSTONE	15.0	617.0	GRAY
-118.8	MODESTO		GRAY SHALE	26.0	632.0	
-144.8	MODESTO		BLACK SHALE	4.7	658.0	
-149.5			SHALE WITH LIMESTONE	15.9	662.7	
-165.4	CARBONDALE	ENERGY	SANDSTONE	4.4	678.6	GRAY
-169.8	CARBONDALE	ENERGY	SANDY SHALE	29.0	683.0	
-198.8	CARBONDALE	ENERGY	SHALY SANDSTONE	56.5	712.0	GRAY
-255.3	CARBONDALE	ENERGY	SANDY SHALE	21.1	768.5	
-276.4	CARBONDALE	ENERGY	COAL	0.2	789.6	
-276.6	CARBONDALE	ENERGY	GRAY SHALE	0.1	789.8	
-276.7	CARBONDALE	ENERGY	COAL	0.0	789.9	
-276.7	CARBONDALE	ENERGY	GRAY SHALE	1.4	789.9	
-278.1	CARBONDALE	HERRIN	COAL	0.0	791.3	
-278.1	CARBONDALE	HERRIN	GRAY SHALE	0.0	791.3	
-278.2	CARBONDALE	HERRIN	COAL	0.0	791.4	
-278.2	CARBONDALE	HERRIN	GRAY SHALE	0.0	791.4	
-278.2	CARBONDALE	HERRIN	COAL	6.6	791.4	
-284.8	CARBONDALE	HERRIN	GRAY SHALE	0.0	798.0	
-284.8	CARBONDALE	HERRIN	COAL	0.4	798.0	
-285.2	CARBONDALE	HERRIN	GRAY SHALE	0.1	798.4	
-285.3	CARBONDALE	HERRIN	COAL	1.9	798.5	
-287.2	CARBONDALE		UNDERCLAY	2.6	800.4	
-289.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	8.3	803.0	GRAY
-298.1	CARBONDALE		GRAY SHALE	3.7	811.3	
-301.8	CARBONDALE		BLACK SHALE	1.7	815.0	
-303.5	CARBONDALE		GRAY SHALE	3.3	816.7	
-306.8	CARBONDALE	ST. DAVID	LIMESTONE	2.0	820.0	GRAY
-308.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	822.0	
-311.8	CARBONDALE	SPRINGFIELD	COAL	4.0	825.0	
-315.8	CARBONDALE		UNDERCLAY	2.8	829.0	
-318.6	CARBONDALE		SANDSTONE	13.2	831.8	GRAY

MAPID: 08124941000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: SE SE NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.068049

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.161244

DATE COLLECTED: 9 / 29 / 1987

SURFACE ELEVATION (FT.): 517.9 LOGGED (FT.): 840.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL232

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
517.9	PLEISTOCENE		CLAY	16.0	0.0
501.9	MATTOON		SANDSTONE	23.0	16.0
478.9	BOND		LIMESTONE	3.8	39.0
475.1	BOND		GRAY SHALE	9.8	42.8
465.3	BOND		BLACK SHALE	3.8	52.6
461.5	BOND		COAL	0.9	56.4
460.6	BOND		UNDERCLAY	2.7	57.3
457.9	BOND		SANDSTONE	7.5	60.0
450.4	BOND		SANDY SHALE	50.9	67.5
399.5	BOND		BLACK SHALE	3.0	118.4
396.5	BOND		COAL	1.1	121.4
395.4	BOND		SANDY SHALE	29.1	122.5
366.3	BOND		GRAY SHALE	25.6	151.6
340.7	BOND		SANDSTONE	8.6	177.2
332.1	BOND		SANDY SHALE	84.2	185.8
247.9	BOND		GRAY SHALE	20.6	270.0
227.3	BOND	CARTHAGE	LIMESTONE	5.8	290.6
221.5	MODESTO		BLACK SHALE	4.1	296.4
217.4	MODESTO		SANDY SHALE	58.4	300.5
159.0	MODESTO		GRAY SHALE	5.0	358.9
154.0	MODESTO		BLACK SHALE	3.9	363.9
150.1	MODESTO		SANDY SHALE	40.4	367.8
109.7	MODESTO		SHALY SANDSTONE	13.8	408.2
95.9	MODESTO		SANDY SHALE	43.0	422.0
52.9	MODESTO		GRAY SHALE	4.0	465.0
48.9	MODESTO		BLACK SHALE	3.1	469.0
45.8	MODESTO	CHAPEL	COAL	1.0	472.1
44.8	MODESTO		SANDY SHALE	126.4	473.1
-81.6	MODESTO		GRAY SHALE	3.9	599.5
-85.5	MODESTO		SANDY SHALE	8.4	603.4
-93.9	MODESTO		GRAY SHALE	15.9	611.8
-109.8	MODESTO		SANDSTONE	9.3	627.7
-119.1	MODESTO		GRAY SHALE	7.0	637.0
-126.1	MODESTO		BLACK SHALE	4.5	644.0
-130.6	CARBONDALE	ENERGY	GRAY SHALE	6.5	648.5
-137.1	CARBONDALE	ENERGY	SANDY SHALE	38.0	655.0
-175.1	CARBONDALE	ENERGY	SANDSTONE	73.9	693.0
-249.0	CARBONDALE	ENERGY	SANDY SHALE	16.2	766.9
-265.2	CARBONDALE	ENERGY	SANDY SHALE	2.2	783.1

-267.4	CARBONDALE	ENERGY	COAL	0.0	785.3
-267.4	CARBONDALE	ENERGY	GRAY SHALE	1.4	785.3
-268.8	CARBONDALE	HERRIN	COAL	7.5	786.7
-276.3	CARBONDALE	HERRIN	GRAY SHALE	0.0	794.2
-276.4	CARBONDALE	HERRIN	COAL	0.5	794.3
-276.9	CARBONDALE	HERRIN	GRAY SHALE	0.0	794.8
-276.9	CARBONDALE	HERRIN	COAL	3.3	794.8
-280.3	CARBONDALE		UNDERCLAY	7.1	798.2
-287.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	805.3
-290.6	CARBONDALE	SPRINGFIELD	COAL	4.3	808.5
-294.9	CARBONDALE		UNDERCLAY	3.0	812.8
-297.9	CARBONDALE		LIMESTONE	4.2	815.8
-302.1	CARBONDALE		GRAY SHALE	2.8	820.0
-304.9	CARBONDALE		SANDY SHALE	17.2	822.8

MAPID: 08124942000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.063419 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.153972 DATE COLLECTED: 10 / 1 / 1987

SURFACE ELEVATION (FT.): 512.5 LOGGED (FT.): 835.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL233 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
512.5	PLEISTOCENE		CLAY	17.0	0.0	
495.5	MATTOON		GRAY SHALE	14.7	17.0	
480.8	MATTOON		SANDY SHALE	17.3	31.7	
463.5	MATTOON		BLACK SHALE	3.2	49.0	
460.3	MATTOON		COAL	1.1	52.2	
459.2	MATTOON		UNDERCLAY	1.7	53.3	
457.5	BOND		CALCAREOUS SHALE	5.0	55.0	
452.5	BOND		SANDY SHALE	55.2	60.0	
397.3	BOND		BLACK SHALE	4.0	115.2	
393.3	BOND		SANDY SHALE	44.6	119.2	
348.7	BOND		COAL	1.2	163.8	
347.5	BOND		GRAY SHALE	4.5	165.0	
343.0	BOND		SANDSTONE	7.4	169.5	GRAY
335.6	BOND		SANDY SHALE	27.3	176.9	
308.3	BOND		CALCAREOUS SHALE	7.8	204.2	
300.5	BOND		SANDY SHALE	68.9	212.0	
231.6	BOND	CARTHAGE	LIMESTONE	6.1	280.9	GRAY
225.5	MODESTO		BLACK SHALE	4.3	287.0	
221.2	MODESTO		GRAY SHALE	28.1	291.3	
193.1	MODESTO		CALCAREOUS SHALE	5.6	319.4	
187.5	MODESTO		SANDY SHALE	28.0	325.0	
159.5	MODESTO		GRAY SHALE	4.4	353.0	
155.1	MODESTO		BLACK SHALE	4.3	357.4	
150.8	MODESTO	CARLINVILLE	LIMESTONE	1.3	361.7	GRAY
149.5	MODESTO		SANDY SHALE	10.5	363.0	
139.0	MODESTO		SHALE WITH LIMESTONE	9.3	373.5	
129.7	MODESTO		SANDY SHALE	51.7	382.8	
78.0	MODESTO		GRAY SHALE	26.3	434.5	
51.7	MODESTO		BLACK SHALE	3.5	460.8	
48.2	MODESTO	CHAPEL	COAL	1.2	464.3	
47.0	MODESTO		SHALE WITH LIMESTONE	5.5	465.5	
41.5	MODESTO		SANDY SHALE	154.0	471.0	
-112.5	MODESTO		DARK GRAY SHALE	3.0	625.0	
-115.5	MODESTO		SHALE WITH LIMESTONE	18.0	628.0	
-133.5	MODESTO	PIASA	LIMESTONE	5.0	646.0	TAN
-138.5	MODESTO		BLACK SHALE	3.0	651.0	
-141.5	CARBONDALE	DANVILLE	COAL	2.0	654.0	
-143.5	CARBONDALE		CALCAREOUS SHALE	5.4	656.0	
-148.9	CARBONDALE	BANKSTON FORK	LIMESTONE	7.9	661.4	TAN

-156.8	CARBONDALE	ENERGY	SANDSTONE	59.1	669.3	GRAY
-215.9	CARBONDALE	ENERGY	SANDY SHALE	44.6	728.4	
-260.5	CARBONDALE	ENERGY	GRAY SHALE	0.2	773.0	
-260.7	CARBONDALE	ENERGY	DARK SHALE	1.6	773.2	
-262.3	CARBONDALE	HERRIN	COAL	7.3	774.8	
-269.6	CARBONDALE	HERRIN	DARK GRAY SHALE	0.1	782.1	
-269.7	CARBONDALE	HERRIN	COAL	1.8	782.2	
-271.5	CARBONDALE		UNDERCLAY	1.6	784.0	
-273.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	12.4	785.5	GRAY
-285.4	CARBONDALE		SANDY SHALE	9.6	797.9	
-295.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.5	807.5	
-298.5	CARBONDALE	SPRINGFIELD	COAL	4.0	811.0	
-302.5	CARBONDALE		UNDERCLAY	5.0	815.0	
-307.5	CARBONDALE		SANDSTONE	15.0	820.0	GRAY

MAPID: 08124943000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: SE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.068133

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.157272

DATE COLLECTED: 9 / 30 / 1987

SURFACE ELEVATION (FT.): 509.7 LOGGED (FT.): 820.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL234

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
509.7	PLEISTOCENE		CLAY	18.0	0.0
491.7	MATTOON		SANDY SHALE	21.0	18.0
470.7	MATTOON		GRAY SHALE	4.7	39.0
466.0	MATTOON		BLACK SHALE	3.5	43.7
462.5	MATTOON		COAL	0.8	47.2
461.7	MATTOON		SANDY SHALE	57.5	48.0
404.2	MATTOON		GRAY SHALE	6.5	105.5
397.7	MATTOON		BLACK SHALE	4.4	112.0
393.3	MATTOON		COAL	0.9	116.4
392.4	MATTOON		UNDERCLAY	2.3	117.3
390.1	MATTOON		SANDY SHALE	36.4	119.6
353.7	BOND	MILLERSVILLE	LIMESTONE	5.0	156.0
348.7	BOND		GRAY SHALE	5.0	161.0
343.7	BOND		SANDSTONE	8.5	166.0
335.2	BOND		GRAY SHALE	14.5	174.5
320.7	BOND		SANDSTONE	6.3	189.0
314.4	BOND		SANDY SHALE	36.9	195.3
277.5	BOND		GRAY SHALE	44.8	232.2
232.7	BOND	CARTHAGE	LIMESTONE	6.5	277.0
226.2	MODESTO		BLACK SHALE	4.8	283.5
221.4	MODESTO		GRAY SHALE	8.0	288.3
213.4	MODESTO		SANDY SHALE	30.7	296.3
182.7	MODESTO		GRAY SHALE	22.0	327.0
160.7	MODESTO		GRAY SHALE	4.5	349.0
156.2	MODESTO		BLACK SHALE	4.5	353.5
151.7	MODESTO		SANDY SHALE	99.8	358.0
51.9	MODESTO		BLACK SHALE	2.5	457.8
49.4	MODESTO	CHAPEL	COAL	1.2	460.3
48.2	MODESTO		SANDSTONE	10.7	461.5
37.5	MODESTO		SANDY SHALE	117.6	472.2
-80.1	MODESTO		GRAY SHALE	8.5	589.8
-88.6	MODESTO		SANDY SHALE	7.4	598.3
-96.0	MODESTO		GRAY SHALE	16.3	605.7
-112.3	MODESTO		SANDSTONE	6.5	622.0
-118.8	MODESTO		DARK GRAY SHALE	2.5	628.5
-121.3	MODESTO		BLACK SHALE	5.2	631.0
-126.5	CARBONDALE	ENERGY	GRAY SHALE	14.2	636.2
-140.7	CARBONDALE	ENERGY	SANDY SHALE	63.6	650.4
-204.3	CARBONDALE	ENERGY	SANDSTONE	5.5	714.0

-209.8	CARBONDALE	ENERGY	SANDY SHALE	43.2	719.5
-253.0	CARBONDALE	ENERGY	GRAY SHALE	0.5	762.7
-253.4	CARBONDALE	ENERGY	COAL	0.0	763.1
-253.5	CARBONDALE	ENERGY	GRAY SHALE	0.2	763.2
-253.6	CARBONDALE	HERRIN	COAL	7.0	763.3
-260.6	CARBONDALE	HERRIN	GRAY SHALE	0.1	770.3
-260.7	CARBONDALE		COAL	1.8	770.4
-262.5	CARBONDALE		UNDERCLAY	2.8	772.2
-265.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.8	775.0
-275.1	CARBONDALE		GRAY SHALE	11.1	784.8
-286.2	CARBONDALE	ST. DAVID	LIMESTONE	1.1	795.9
-287.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	797.0
-290.3	CARBONDALE	SPRINGFIELD	COAL	4.0	800.0
-294.3	CARBONDALE		GRAY SHALE	16.0	804.0

MAPID: 08124944000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: SW SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.072289 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.153867 DATE COLLECTED: 10 / 6 / 1987

SURFACE ELEVATION (FT.): 491.9 LOGGED (FT.): 800.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO. 87RL236 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
491.9	PLEISTOCENE		CLAY	18.0	0.0
473.9	MATTOON		GRAY SHALE	4.5	18.0
469.4	MATTOON		BLACK SHALE	3.1	22.5
466.3	MATTOON		UNDERCLAY	1.4	25.6
464.9	MATTOON		SANDY SHALE	25.5	27.0
439.4	MATTOON		GRAY SHALE	38.5	52.5
400.9	MATTOON		DARK GRAY SHALE	3.4	91.0
397.5	BOND		BLACK SHALE	3.6	94.4
393.9	BOND		CLAYSTONE	2.0	98.0
391.9	BOND		SANDY SHALE	20.2	100.0
371.7	BOND		GRAY SHALE	11.8	120.2
359.9	BOND		CALCAREOUS SHALE	3.0	132.0
356.9	BOND		LIMESTONE	3.4	135.0
353.5	BOND		GRAY SHALE	4.6	138.4
348.9	BOND		SANDY SHALE	73.0	143.0
275.9	BOND		GRAY SHALE	40.4	216.0
235.5	BOND	CARTHAGE	LIMESTONE	6.0	256.4
229.5	MODESTO		BLACK SHALE	3.8	262.4
225.7	MODESTO		SANDY SHALE	4.5	266.2
221.2	MODESTO		GRAY SHALE	9.3	270.7
211.9	MODESTO	NEW HAVEN	COAL	1.0	280.0
210.9	MODESTO		GRAY SHALE	12.5	281.0
198.4	MODESTO		CALCAREOUS SHALE	6.5	293.5
191.9	MODESTO		GRAY SHALE	31.1	300.0
160.8	MODESTO		BLACK SHALE	4.4	331.1
156.4	MODESTO		CALCAREOUS SHALE	16.5	335.5
139.9	MODESTO		SANDY SHALE	32.0	352.0
107.9	MODESTO		SANDSTONE	8.3	384.0
99.6	MODESTO		GRAY SHALE	41.7	392.3
57.9	MODESTO		DARK GRAY SHALE	2.0	434.0
55.9	MODESTO		BLACK SHALE	2.5	436.0
53.4	MODESTO		SANDY SHALE	128.5	438.5
-75.1	MODESTO		GRAY SHALE	7.0	567.0
-82.1	MODESTO		SANDY SHALE	7.0	574.0
-89.1	MODESTO		GRAY SHALE	14.7	581.0
-103.8	MODESTO		CALCAREOUS SHALE	5.3	595.7
-109.1	MODESTO		DARK GRAY SHALE	3.3	601.0
-112.4	MODESTO		BLACK SHALE	3.8	604.3
-116.2	MODESTO		GRAY SHALE	9.9	608.1

-126.1	MODESTO		CALCAREOUS SHALE	2.0	618.0
-128.1	MODESTO	PIASA	LIMESTONE	4.8	620.0
-132.9	MODESTO		GRAY SHALE	5.2	624.8
-138.1	CARBONDALE	DANVILLE	COAL	2.0	630.0
-140.1	CARBONDALE		CALCAREOUS SHALE	12.0	632.0
-152.1	CARBONDALE	BANKSTON FORK	LIMESTONE	3.5	644.0
-155.6	CARBONDALE	ENERGY	SANDY SHALE	12.8	647.5
-168.4	CARBONDALE	ENERGY	SANDSTONE	26.0	660.3
-194.4	CARBONDALE	ENERGY	SANDY SHALE	51.7	686.3
-246.1	CARBONDALE	ENERGY	GRAY SHALE	0.5	738.0
-246.6	CARBONDALE	ENERGY	DARK GRAY SHALE	0.3	738.5
-246.9	CARBONDALE	ENERGY	GRAY SHALE	0.1	738.8
-246.9	CARBONDALE	HERRIN	COAL	7.2	738.8
-254.2	CARBONDALE	HERRIN	GRAY SHALE	0.0	746.1
-254.2	CARBONDALE	HERRIN	COAL	0.3	746.1
-254.5	CARBONDALE	HERRIN	GRAY SHALE	0.1	746.4
-254.6	CARBONDALE	HERRIN	COAL	1.9	746.5
-256.4	CARBONDALE		UNDERCLAY	2.8	748.3
-259.2	CARBONDALE		SANDSTONE	4.9	751.1
-264.1	CARBONDALE		SANDY SHALE	7.9	756.0
-272.0	CARBONDALE		GRAY SHALE	3.1	763.9
-275.1	CARBONDALE		BLACK SHALE	2.4	767.0
-277.5	CARBONDALE		DARK GRAY SHALE	3.9	769.4
-281.4	CARBONDALE	ST. DAVID	LIMESTONE	1.7	773.3
-283.1	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	775.0
-286.1	CARBONDALE	SPRINGFIELD	COAL	4.1	778.0
-290.2	CARBONDALE		GRAY SHALE	17.9	782.1

MAPID: 08124945000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.073744 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.167389 DATE COLLECTED: 10 / 8 / 1987

SURFACE ELEVATION (FT.): 500.8 LOGGED (FT.): 835.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL240 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.8	PLEISTOCENE		CLAY	18.2	0.0	
482.6	MATTOON		SANDSTONE	16.4	18.2	BROWN
466.2	MATTOON		SANDSTONE	6.2	34.6	GRAY
460.0	MATTOON		GRAY SHALE	5.2	40.8	
454.8	MATTOON		BLACK SHALE	3.0	46.0	
451.8	MATTOON		COAL	1.1	49.0	
450.7	MATTOON		UNDERCLAY	2.9	50.1	
447.8	MATTOON		CALCAREOUS SHALE	6.1	53.0	
441.7	MATTOON		SHALY SANDSTONE	39.9	59.1	
401.8	MATTOON		GRAY SHALE	16.0	99.0	
385.8	MATTOON		BLACK SHALE	4.0	115.0	
381.8	MATTOON		COAL	0.8	119.0	
381.0	MATTOON		UNDERCLAY	6.9	119.8	
374.1	MATTOON		GRAY SHALE	6.1	126.7	
368.0	MATTOON		SANDSTONE	5.2	132.8	GRAY
362.8	MATTOON		GRAY SHALE	30.0	138.0	
332.8	BOND	MILLERSVILLE	LIMESTONE	2.3	168.0	
330.5	BOND		GRAY SHALE	3.2	170.3	
327.3	BOND		COAL	1.4	173.5	
325.9	BOND		GRAY SHALE	3.4	174.9	
322.5	BOND		SANDSTONE	5.2	178.3	GRAY
317.3	BOND		SANDY SHALE	19.3	183.5	
298.0	BOND		GRAY SHALE	22.7	202.8	
275.3	BOND		SANDSTONE	12.0	225.5	GRAY
263.3	BOND		GRAY SHALE	10.0	237.5	
253.3	BOND		SANDSTONE	12.5	247.5	GRAY
240.8	BOND		GRAY SHALE	8.2	260.0	
232.6	BOND		SANDY SHALE	22.4	268.2	
210.2	BOND	CARTHAGE	LIMESTONE	14.5	290.6	
195.7	MODESTO		BLACK SHALE	4.4	305.1	
191.3	MODESTO		CALCAREOUS SHALE	5.5	309.5	
185.8	MODESTO		GRAY SHALE	16.6	315.0	
169.2	MODESTO		SANDY SHALE	18.9	331.6	
150.3	MODESTO		CALCAREOUS SHALE	12.9	350.5	
137.4	MODESTO		GRAY SHALE	6.6	363.4	
130.8	MODESTO		BLACK SHALE	4.9	370.0	
125.9	MODESTO		SANDY SHALE	13.1	374.9	
112.8	MODESTO		SANDSTONE	38.0	388.0	GRAY
74.8	MODESTO		SANDY SHALE	37.5	426.0	

37.3	MODESTO		GRAY SHALE	11.8	463.5	
25.5	MODESTO		BLACK SHALE	2.6	475.3	
22.9	MODESTO	CHAPEL	COAL	0.9	477.9	
22.0	MODESTO		SHALE WITH LIMESTONE	11.7	478.8	
10.3	MODESTO		GRAY SHALE	13.0	490.5	
-2.7	MODESTO		SANDSTONE	8.0	503.5	GRAY
-10.7	MODESTO		SANDY SHALE	127.5	511.5	
-138.2	MODESTO		SANDY SHALE	12.1	639.0	
-150.3	MODESTO		BLACK SHALE	4.4	651.1	
-154.7	CARBONDALE		SANDY SHALE	16.6	655.5	
-171.3	CARBONDALE		BLACK SHALE	4.8	672.1	
-176.1	CARBONDALE	ENERGY	SHALY SANDSTONE	41.6	676.9	GRAY
-217.7	CARBONDALE	ENERGY	SANDY SHALE	61.7	718.5	
-279.4	CARBONDALE	ENERGY	GRAY SHALE	0.5	780.2	
-279.9	CARBONDALE	HERRIN	COAL	7.1	780.7	
-287.0	CARBONDALE	HERRIN	GRAY SHALE	0.0	787.8	
-287.0	CARBONDALE	HERRIN	COAL	0.4	787.8	
-287.4	CARBONDALE	HERRIN	GRAY SHALE	0.1	788.2	
-287.4	CARBONDALE	HERRIN	COAL	1.9	788.2	
-289.4	CARBONDALE		UNDERCLAY	1.4	790.2	
-290.8	CARBONDALE		SANDSTONE	1.1	791.6	GREEN
-291.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.6	792.7	
-301.4	CARBONDALE		GRAY SHALE	3.2	802.2	
-304.6	CARBONDALE		BLACK SHALE	2.4	805.4	
-307.0	CARBONDALE		GRAY SHALE	3.2	807.8	
-310.2	CARBONDALE	ST. DAVID	LIMESTONE	2.2	811.0	
-312.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.7	813.2	
-316.1	CARBONDALE	SPRINGFIELD	COAL	3.1	816.9	
-319.2	CARBONDALE		GRAY SHALE	2.5	820.0	
-321.7	CARBONDALE		SANDSTONE	4.5	822.5	GRAY
-326.2	CARBONDALE		GRAY SHALE	8.0	827.0	

MAPID: 08124946000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 23 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.064646

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.164821

DATE COLLECTED: 8 / 28 / 1989

SURFACE ELEVATION (FT.): 520.0

LOGGED (FT.): 863.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 89RL340

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
520.0	PLEISTOCENE		CLAY	14.0	0.0	
506.0	MATTOON		SANDSTONE	15.0	14.0	
491.0	MATTOON		SANDSTONE	2.6	29.0	GRAY
488.4	MATTOON		SANDY SHALE	7.7	31.6	
480.7	MATTOON		SANDSTONE	4.7	39.3	GRAY
476.0	MATTOON		SANDY SHALE	11.0	44.0	
465.0	MATTOON		GRAY SHALE	4.4	55.0	
460.6	MATTOON		BLACK SHALE	4.4	59.4	
456.2	MATTOON		CLAYSTONE	3.7	63.8	
452.5	MATTOON		GRAY SHALE	4.0	67.5	
448.5	MATTOON		SANDY SHALE	32.3	71.5	
416.2	MATTOON		GRAY SHALE	2.7	103.8	
413.5	MATTOON		SANDY SHALE	9.5	106.5	
404.0	MATTOON		GRAY SHALE	9.0	116.0	
395.0	BOND		BLACK SHALE	4.1	125.0	
390.9	BOND		GRAY SHALE	4.9	129.1	
386.0	BOND		SANDY SHALE	7.0	134.0	
379.0	BOND		GRAY SHALE	31.4	141.0	
347.6	BOND		LIMESTONE	1.8	172.4	TAN
345.8	BOND		GRAY SHALE	3.7	174.2	
342.1	BOND		COAL	0.9	177.9	
341.2	BOND		GRAY SHALE	5.9	178.8	
335.3	BOND		SANDY SHALE	4.7	184.7	
330.6	BOND		SANDSTONE	3.9	189.4	GRAY
326.7	BOND		SANDY SHALE	8.4	193.3	
318.3	BOND		GRAY SHALE	5.3	201.7	
313.0	BOND		SANDSTONE	7.2	207.0	GRAY
305.8	BOND		SANDY SHALE	7.8	214.2	
298.0	BOND		GRAY SHALE	2.8	222.0	
295.2	BOND		GRAY SHALE	4.2	224.8	
291.0	BOND		GRAY SHALE	1.8	229.0	
289.2	BOND		SANDSTONE	5.8	230.8	GRAY
283.4	BOND		GRAY SHALE	8.7	236.6	
274.7	BOND		SANDY SHALE	39.5	245.3	
235.2	BOND		GRAY SHALE	7.2	284.8	
228.0	BOND	CARTHAGE	LIMESTONE	5.3	292.0	
222.7	MODESTO		BLACK SHALE	4.2	297.3	
218.5	MODESTO		SANDY SHALE	9.5	301.5	
209.0	MODESTO		GRAY SHALE	4.9	311.0	

204.1	MODESTO	NEW HAVEN	COAL	0.6	315.9	
203.5	MODESTO		GRAY SHALE	6.1	316.5	
197.4	MODESTO		SANDY SHALE	41.4	322.6	
156.0	MODESTO		GRAY SHALE	5.3	364.0	
150.7	MODESTO		BLACK SHALE	4.3	369.3	
146.4	MODESTO		SANDY SHALE	8.3	373.6	
138.1	MODESTO		GRAY SHALE	2.1	381.9	
136.0	MODESTO		SANDSTONE	4.0	384.0	GRAY
132.0	MODESTO		SANDY SHALE	8.6	388.0	
123.4	MODESTO		SANDSTONE	48.0	396.6	GRAY
75.4	MODESTO		SANDY SHALE	5.6	444.6	
69.8	MODESTO		GRAY SHALE	8.8	450.2	
61.0	MODESTO		SANDY SHALE	24.4	459.0	
36.6	MODESTO		BLACK SHALE	2.8	483.4	
33.8	MODESTO		CLAYSTONE	2.8	486.2	
31.0	MODESTO		SANDY SHALE	1.9	489.0	
29.1	MODESTO		SANDSTONE	2.0	490.9	GRAY
27.1	MODESTO		SANDY SHALE	7.1	492.9	
20.0	MODESTO		GRAY SHALE	5.2	500.0	
14.8	MODESTO		SANDSTONE	2.8	505.2	GRAY
12.0	MODESTO		SANDY SHALE	145.0	508.0	
-133.0	MODESTO		GRAY SHALE	5.0	653.0	
-138.0	MODESTO		BLACK SHALE	5.5	658.0	
-143.5	CARBONDALE	ENERGY	SANDY SHALE	36.4	663.5	
-179.9	CARBONDALE	ENERGY	SANDSTONE	39.1	699.9	GRAY
-219.0	CARBONDALE	ENERGY	SANDY SHALE	65.6	739.0	
-284.6	CARBONDALE	HERRIN	COAL	11.6	804.6	
-296.2	CARBONDALE		UNDERCLAY	0.8	816.2	
-297.0	CARBONDALE		SANDY SHALE	10.0	817.0	
-307.0	CARBONDALE	ST. DAVID	LIMESTONE	1.5	827.0	
-308.5	CARBONDALE	SPRINGFIELD	COAL	3.5	828.5	
-312.0	CARBONDALE		UNDERCLAY	2.0	832.0	
-314.0	CARBONDALE		SANDSTONE	5.1	834.0	GRAY
-319.1	CARBONDALE		SANDY SHALE	23.9	839.1	

MAPID: 08100039000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.050601 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.160683 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 491.0 LOGGED (FT.): 768.3 LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
491.0			UNCONSOLIDATED	3.0	0.0	
488.0			ROCK	109.3	3.0	
378.7			COAL	0.8	112.3	
377.8			ROCK	173.8	113.2	
204.0			COAL	1.0	287.0	
203.0			ROCK	162.0	288.0	
41.0			COAL	0.5	450.0	
40.5			ROCK	253.5	450.5	
-213.0			SANDSTONE	54.0	704.0	
-267.0	CARBONDALE	HERRIN	COAL	8.8	758.0	BLUE BAND .08'
-275.9	CARBONDALE		SHALE	1.4	766.9	

MAPID: 08100039000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.050601 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160683 DATE COLLECTED:

SURFACE ELEVATION (FT.): 491.0 LOGGED (FT.): 764.5 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-146.0	MODESTO	PIASA	LIMESTONE	8.0	637.0	
-154.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	60.0	645.0	
-214.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	61.0	705.0	
-267.0	CARBONDALE	HERRIN	COAL	6.5	758.0	

MAPID: 08100039000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.050601

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160683

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 491.4 LOGGED (FT.): 769.0

LOG TYPE:

SOURCE: INLAND STEEL 3

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-266.6	CARBONDALE	HERRIN	COAL	8.9	758.0	

MAPID: 08124530000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.049639 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.168633 DATE COLLECTED: 3 / 4 / 1987

SURFACE ELEVATION (FT.): 462.9 LOGGED (FT.): 775.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL174 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
462.9	PLEISTOCENE		CLAY	8.0	0.0	
454.9	BOND		BLACK SHALE	0.5	8.0	
454.4	BOND		SANDY SHALE	8.5	8.5	
445.9	BOND		SANDSTONE	17.5	17.0	GRAY
428.4	BOND		SANDY SHALE	30.2	34.5	
398.2	BOND		GRAY SHALE	3.3	64.7	
394.9	BOND		BLACK SHALE	2.5	68.0	
392.4	BOND		SANDY SHALE	11.5	70.5	
380.9	BOND		SANDSTONE	7.5	82.0	GRAY
373.4	BOND		SANDY SHALE	10.0	89.5	
363.4	BOND		GRAY SHALE	13.0	99.5	
350.4	BOND		SANDY SHALE	14.4	112.5	
336.0	BOND		COAL	1.2	126.9	
334.8	BOND		GRAY SHALE	2.9	128.1	
331.9	BOND		SANDY SHALE	3.0	131.0	
328.9	BOND		SANDSTONE	3.0	134.0	GRAY
325.9	BOND		SANDY SHALE	13.5	137.0	
312.4	BOND		GRAY SHALE	5.0	150.5	
307.4	BOND		SANDY SHALE	7.7	155.5	
299.7	BOND		GRAY SHALE	4.2	163.2	
295.5	BOND		SANDY SHALE	2.6	167.4	
292.9	BOND		GRAY SHALE	9.1	170.0	
283.8	BOND		SANDSTONE	5.9	179.1	GRAY
277.9	BOND		GRAY SHALE	11.0	185.0	
266.9	BOND		SANDY SHALE	49.4	196.0	
217.5	BOND	CARTHAGE	LIMESTONE	5.5	245.4	GRAY
212.0	MODESTO		BLACK SHALE	4.6	250.9	
207.4	MODESTO		GRAY SHALE	3.7	255.5	
203.7	MODESTO		SANDY SHALE	3.8	259.2	
199.9	MODESTO		GRAY SHALE	6.9	263.0	
193.0	MODESTO		COAL	1.1	269.9	
191.9	MODESTO		GRAY SHALE	4.5	271.0	
187.4	MODESTO		SANDY SHALE	7.0	275.5	
180.4	MODESTO		GRAY SHALE	17.5	282.5	
162.9	MODESTO		SANDY SHALE	4.2	300.0	
158.7	MODESTO		GRAY SHALE	3.8	304.2	
154.9	MODESTO		CALCAREOUS SHALE	3.4	308.0	
151.5	MODESTO		GRAY SHALE	7.9	311.4	
143.6	MODESTO		DARK GRAY SHALE	2.9	319.3	

140.7	MODESTO		BLACK SHALE	4.5	322.2	
136.2	MODESTO		SANDY SHALE	22.3	326.7	
113.9	MODESTO		SANDSTONE	8.5	349.0	GRAY
105.4	MODESTO		SANDY SHALE	46.5	357.5	
58.9	MODESTO		GRAY SHALE	19.1	404.0	
39.8	MODESTO		BLACK SHALE	3.3	423.1	
36.5	MODESTO		GRAY SHALE	4.8	426.4	
31.7	MODESTO		CALCAREOUS SHALE	8.8	431.2	
22.9	MODESTO		SANDY SHALE	7.5	440.0	
15.4	MODESTO		SANDSTONE	33.0	447.5	GRAY
-17.6	MODESTO		SANDY SHALE	74.5	480.5	
-92.1	MODESTO		GRAY SHALE	12.0	555.0	
-104.1	MODESTO		CALCAREOUS SHALE	7.8	567.0	
-111.9	MODESTO		SANDY SHALE	16.9	574.8	
-128.8	MODESTO		DARK GRAY SHALE	8.3	591.7	
-137.1	MODESTO		BLACK SHALE	4.0	600.0	
-141.1	MODESTO		SANDY SHALE	8.0	604.0	
-149.1	MODESTO		GRAY SHALE	10.0	612.0	
-159.1	MODESTO		CALCAREOUS SHALE	11.0	622.0	
-170.1	CARBONDALE	ENERGY	SANDY SHALE	33.1	633.0	
-203.2	CARBONDALE	ENERGY	SANDSTONE	23.9	666.1	GRAY
-227.1	CARBONDALE	ENERGY	SANDY SHALE	44.0	690.0	
-271.1	CARBONDALE	ENERGY	SILTY SHALE	5.6	734.0	
-276.7	CARBONDALE	ENERGY	DARK GRAY SHALE	0.1	739.6	
-276.8	CARBONDALE	HERRIN	COAL	11.2	739.7	
-288.0	CARBONDALE		UNDERCLAY	1.1	750.9	
-289.1	CARBONDALE		SANDY SHALE	2.6	752.0	
-291.7	CARBONDALE	ST. DAVID	LIMESTONE	0.7	754.6	GRAY
-292.4	CARBONDALE	ST. DAVID	SHALY SANDSTONE	0.2	755.3	INTERBEDDED
-292.6	CARBONDALE	ST. DAVID	LIMESTONE	0.8	755.5	GRAY
-293.4	CARBONDALE	TURNER MINE	BLACK SHALE	1.0	756.3	
-294.4	CARBONDALE	SPRINGFIELD	COAL	4.2	757.3	
-298.6	CARBONDALE		UNDERCLAY	4.7	761.5	
-303.3	CARBONDALE		GRAY SHALE	4.8	766.2	
-308.1	CARBONDALE		CALCAREOUS SHALE	2.3	771.0	
-310.4	CARBONDALE		SANDSTONE	0.8	773.3	GRAY
-311.2	CARBONDALE		SANDY SHALE	0.9	774.1	

MAPID: 08124532000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.048421

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.159794

DATE COLLECTED: 4 / 2 / 1987

SURFACE ELEVATION (FT.): 514.9 LOGGED (FT.): 830.1

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL185

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
514.9	PLEISTOCENE		CLAY	11.0	0.0	
503.9	MATTOON		SANDSTONE	9.3	11.0	BROWN
494.6	MATTOON		SANDSTONE	9.2	20.3	GRAY
485.4	MATTOON		GRAY SHALE	14.8	29.5	
470.6	MATTOON		SANDSTONE	3.7	44.3	GRAY
466.9	MATTOON		GRAY SHALE	3.8	48.0	
463.1	MATTOON		DARK GRAY SHALE	3.2	51.8	
459.9	MATTOON		GRAY SHALE	2.7	55.0	
457.2	MATTOON		DARK GRAY SHALE	2.3	57.7	
454.9	MATTOON		BLACK SHALE	3.5	60.0	
451.4	MATTOON		COAL	1.5	63.5	
449.9	BOND		CALCAREOUS SHALE	9.7	65.0	
440.2	BOND		SANDY SHALE	13.3	74.7	
426.9	BOND		GRAY SHALE	15.8	88.0	
411.1	BOND		SANDY SHALE	22.2	103.8	
388.9	BOND		BLACK SHALE	4.0	126.0	
384.9	BOND		COAL	2.6	130.0	
382.3	BOND		GRAY SHALE	22.6	132.6	
359.7	BOND		SANDY SHALE	19.3	155.2	
340.4	BOND		SANDSTONE	4.5	174.5	GRAY
335.9	BOND		SANDY SHALE	29.0	179.0	
306.9	BOND		CALCAREOUS SHALE	8.8	208.0	
298.1	BOND		GRAY SHALE	16.2	216.8	
281.9	BOND		SANDY SHALE	5.2	233.0	
276.7	BOND		GRAY SHALE	10.0	238.2	
266.7	BOND		SANDY SHALE	34.8	248.2	
231.9	BOND	CARTHAGE	LIMESTONE	5.6	283.0	GRAY
226.3	MODESTO		BLACK SHALE	3.9	288.6	
222.4	MODESTO		GRAY SHALE	13.9	292.5	
208.5	MODESTO	NEW HAVEN	COAL	1.1	306.4	
207.4	MODESTO		GRAY SHALE	18.5	307.5	
188.9	MODESTO		SHALE WITH LIMESTONE	8.2	326.0	
180.7	MODESTO		GRAY SHALE	22.6	334.2	
158.1	MODESTO		DARK GRAY SHALE	2.2	356.8	
155.9	MODESTO		BLACK SHALE	5.1	359.0	
150.8	MODESTO	CARLINVILLE	LIMESTONE	1.7	364.1	TAN
149.1	MODESTO		SANDY SHALE	9.2	365.8	
139.9	MODESTO		SHALE WITH LIMESTONE	6.0	375.0	
133.9	MODESTO		SANDY SHALE	41.0	381.0	

92.9	MODESTO		GRAY SHALE	42.5	422.0	
50.4	MODESTO		BLACK SHALE	3.5	464.5	
46.9	MODESTO	CHAPEL	COAL	2.4	468.0	
44.5	MODESTO		SHALE WITH LIMESTONE	3.9	470.4	
40.6	MODESTO		SANDY SHALE	100.9	474.3	
-60.3	MODESTO		GRAY SHALE	26.8	575.2	
-87.1	MODESTO		SANDY SHALE	11.0	602.0	
-98.1	MODESTO		GRAY SHALE	8.0	613.0	
-106.1	MODESTO		SANDY SHALE	5.0	621.0	
-111.1	MODESTO		GRAY SHALE	6.5	626.0	
-117.6	MODESTO		BLACK SHALE	4.2	632.5	
-121.8	MODESTO		CALCAREOUS SHALE	10.3	636.7	
-132.1	MODESTO	PIASA	LIMESTONE	1.5	647.0	TAN
-133.6			CALCAREOUS SHALE	15.7	648.5	
-149.3	CARBONDALE	BANKSTON FORK	LIMESTONE	3.9	664.2	TAN
-153.2	CARBONDALE	ENERGY	SANDSTONE	62.4	668.1	GRAY
-215.6	CARBONDALE	ENERGY	SANDY SHALE	13.5	730.5	WITH SANDSTONE STREAKS
-229.1	CARBONDALE	ENERGY	SANDSTONE	20.5	744.0	GRAY
-249.6	CARBONDALE	ENERGY	SHALY SANDSTONE	3.9	764.5	INTERBEDDED
-253.5	CARBONDALE	ENERGY	SANDY SHALE	0.5	768.4	
-254.0	CARBONDALE	ENERGY	SHALY SANDSTONE	3.2	768.9	GRAY
-257.2	CARBONDALE	ENERGY	COAL	0.1	772.1	
-257.3	CARBONDALE	ENERGY	SANDY SHALE	0.1	772.2	
-257.4	CARBONDALE	HERRIN	COAL	8.9	772.3	
-266.3	CARBONDALE		UNDERCLAY	3.9	781.2	
-270.2	CARBONDALE		SHALE WITH LIMESTONE	3.0	785.1	
-273.2	CARBONDALE	HIGGINSVILLE	LIMESTONE	5.0	788.1	TAN
-278.2	CARBONDALE		GRAY SHALE	4.5	793.1	
-282.7	CARBONDALE		BLACK SHALE	1.2	797.6	
-283.9	CARBONDALE		GRAY SHALE	5.7	798.8	
-289.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	804.5	
-292.8	CARBONDALE	SPRINGFIELD	COAL	3.9	807.7	
-296.7	CARBONDALE		UNDERCLAY	3.5	811.6	
-300.2	CARBONDALE		SHALE WITH LIMESTONE	6.0	815.1	
-306.2	CARBONDALE		SANDY SHALE	9.0	821.1	

MAPID: 08124539000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NW SW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.05166 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.163597 DATE COLLECTED: 4 / 23 / 1987

SURFACE ELEVATION (FT.): 504.4 LOGGED (FT.): 815.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL194 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
504.4	PLEISTOCENE		CLAY	9.1	0.0	
495.3	MATTOON		BROWN SHALE	5.2	9.1	
490.1	MATTOON		SANDY SHALE	2.7	14.3	
487.4	MATTOON		SANDSTONE	7.9	17.0	GRAY
479.5	MATTOON		SANDY SHALE	9.3	24.9	
470.2	MATTOON		GRAY SHALE	4.3	34.2	
465.9	MATTOON		SANDY SHALE	2.0	38.5	
463.9	MATTOON		DARK GRAY SHALE	4.4	40.5	
459.5	MATTOON		BLACK SHALE	4.1	44.9	
455.4	MATTOON		COAL	0.5	49.0	
454.9	MATTOON		UNDERCLAY	1.5	49.5	
453.4	MATTOON		SHALE WITH LIMESTONE	15.8	51.0	
437.6	MATTOON		SANDY SHALE	24.0	66.8	
413.6	MATTOON		GRAY SHALE	19.0	90.8	
394.6	MATTOON		DARK GRAY SHALE	2.0	109.8	
392.6	MATTOON		LIMESTONE	1.2	111.8	GRAY
391.4	MATTOON		COAL	1.0	113.0	
390.4	MATTOON		UNDERCLAY	2.5	114.0	
387.9	MATTOON		SANDY SHALE	9.5	116.5	
378.4	MATTOON		GRAY SHALE	27.4	126.0	
351.0	MATTOON		SANDY SHALE	2.1	153.4	
348.9	BOND	MILLERSVILLE	LIMESTONE	3.1	155.5	GRAY
345.8	BOND		GRAY SHALE	2.9	158.6	
342.9	BOND		COAL	1.2	161.5	
341.7	BOND		GRAY SHALE	2.3	162.7	
339.4	BOND		SANDSTONE	6.2	165.0	GRAY
333.2	BOND		SANDY SHALE	26.6	171.2	
306.6	BOND		GRAY SHALE	2.2	197.8	
304.4	BOND	FLAT CREEK	COAL	1.0	200.0	
303.4	BOND		CALCAREOUS SHALE	3.3	201.0	
300.1	BOND		GRAY SHALE	70.9	204.3	
229.2	BOND	CARTHAGE	LIMESTONE	5.8	275.2	GRAY
223.4	MODESTO		BLACK SHALE	4.4	281.0	
219.0	MODESTO		GRAY SHALE	2.1	285.4	
216.9	MODESTO		SANDY SHALE	10.3	287.5	
206.6	MODESTO	NEW HAVEN	COAL	1.2	297.8	
205.4	MODESTO		GRAY SHALE	51.2	299.0	
154.2	MODESTO		GRAY SHALE	5.1	350.2	
149.1	MODESTO		BLACK SHALE	3.5	355.3	

145.6	MODESTO		LIMESTONE	1.1	358.8	GRAY
144.5	MODESTO		SHALE WITH LIMESTONE	18.5	359.9	
126.0	MODESTO		SANDSTONE	9.9	378.4	GRAY
116.1	MODESTO		SANDY SHALE	18.2	388.3	
97.9	MODESTO		GRAY SHALE	4.1	406.5	
93.8	MODESTO		SANDSTONE	9.1	410.6	GRAY
84.7	MODESTO		SANDY SHALE	9.5	419.7	
75.2	MODESTO		GRAY SHALE	12.8	429.2	
62.4	MODESTO		SANDY SHALE	20.0	442.0	
42.4	MODESTO		BLACK SHALE	2.6	462.0	
39.8	MODESTO		GRAY SHALE	0.9	464.6	
38.9	MODESTO	CHAPEL	COAL	0.7	465.5	
38.2	MODESTO		CALCAREOUS SHALE	8.8	466.2	
29.4	MODESTO		SANDY SHALE	9.8	475.0	
19.6	MODESTO		SANDSTONE	17.1	484.8	GRAY
2.5	MODESTO		SANDY SHALE	104.3	501.9	
-101.8	MODESTO		GRAY SHALE	17.8	606.2	
-119.6	MODESTO		SANDY SHALE	4.3	624.0	
-123.9	MODESTO		DARK GRAY SHALE	5.7	628.3	
-129.6	MODESTO		BLACK SHALE	4.1	634.0	
-133.7	MODESTO		GRAY SHALE	23.5	638.1	
-157.2	MODESTO		RED SHALE	2.0	661.6	
-159.2			SHALE WITH LIMESTONE	5.9	663.6	
-165.1	CARBONDALE	BANKSTON FORK	LIMESTONE	3.7	669.5	TAN
-168.8	CARBONDALE	ENERGY	SANDSTONE	76.2	673.2	GRAY
-245.0	CARBONDALE	HERRIN	COAL	8.4	749.4	
-253.4	CARBONDALE	HERRIN	SANDY SHALE	2.4	757.8	
-255.8	CARBONDALE	HERRIN	COAL	2.8	760.2	
-258.6	CARBONDALE		UNDERCLAY	1.2	763.0	
-259.8	CARBONDALE		SHALE WITH LIMESTONE	8.8	764.2	
-268.6	CARBONDALE		DARK GRAY SHALE	10.2	773.0	
-278.8	CARBONDALE	ST. DAVID	LIMESTONE	1.8	783.2	GRAY
-280.6	CARBONDALE	TURNER MINE	BLACK SHALE	4.0	785.0	
-284.6	CARBONDALE	SPRINGFIELD	COAL	4.2	789.0	
-288.8	CARBONDALE		UNDERCLAY	2.8	793.2	
-291.6	CARBONDALE		SHALE WITH LIMESTONE	3.0	796.0	
-294.6	CARBONDALE		SANDY SHALE	3.2	799.0	
-297.8	CARBONDALE		GRAY SHALE	12.8	802.2	

MAPID: 08124541000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: SW NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.058146 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.166557 DATE COLLECTED: 4 / 27 / 1987

SURFACE ELEVATION (FT.): 503.1 LOGGED (FT.): 814.7 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL197 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
503.1	PLEISTOCENE		CLAY	11.0	0.0	
492.1	MATTOON		SANDSTONE	10.5	11.0	
481.6	MATTOON		SANDY SHALE	5.8	21.5	
475.8	MATTOON		SANDSTONE	4.7	27.3	GRAY
471.1	MATTOON		SANDY SHALE	14.1	32.0	
457.0	MATTOON		GRAY SHALE	5.5	46.1	
451.5	MATTOON		BLACK SHALE	4.3	51.6	
447.2	MATTOON		COAL	0.4	55.9	
446.8	MATTOON		UNDERCLAY	0.5	56.3	
446.3	MATTOON		SHALE WITH LIMESTONE	10.6	56.8	
435.7	MATTOON		SANDSTONE	22.9	67.4	GRAY
412.8	MATTOON		SANDY SHALE	14.4	90.3	
398.4	MATTOON		GRAY SHALE	10.7	104.7	
387.7	MATTOON		BLACK SHALE	3.1	115.4	
384.6	MATTOON		COAL	0.8	118.5	
383.8	MATTOON		UNDERCLAY	1.6	119.3	
382.2	BOND		SHALE WITH LIMESTONE	8.0	120.9	
374.2	BOND		SANDSTONE	9.3	128.9	GRAY
364.9	BOND		SANDY SHALE	30.7	138.2	
334.2	BOND		LIMESTONE	0.9	168.9	TAN
333.3	BOND		GRAY SHALE	6.2	169.8	
327.1	BOND		COAL	1.0	176.0	
326.1	BOND		GRAY SHALE	6.0	177.0	
320.1	BOND		SANDSTONE	5.0	183.0	GRAY
315.1	BOND		SANDY SHALE	13.5	188.0	
301.6	BOND		SANDSTONE	16.4	201.5	GRAY
285.2	BOND		SHALE WITH LIMESTONE	9.1	217.9	
276.1	BOND		SANDSTONE	9.0	227.0	GRAY
267.1	BOND		SANDY SHALE	40.0	236.0	
227.1	BOND		GRAY SHALE	17.0	276.0	
210.1	BOND	CARTHAGE	LIMESTONE	7.0	293.0	GRAY
203.1	MODESTO		BLACK SHALE	4.8	300.0	
198.3	MODESTO		GRAY SHALE	15.8	304.8	
182.5	MODESTO	NEW HAVEN	COAL	1.2	320.6	
181.3	MODESTO		SANDY SHALE	32.7	321.8	
148.6	MODESTO		GRAY SHALE	14.9	354.5	
133.7	MODESTO		DARK GRAY SHALE	4.1	369.4	
129.6	MODESTO		BLACK SHALE	4.4	373.5	
125.2	MODESTO		SANDY SHALE	21.3	377.9	

103.9	MODESTO		GRAY SHALE	5.9	399.2	
98.0	MODESTO		SANDSTONE	5.9	405.1	GRAY
92.1	MODESTO		SANDY SHALE	66.6	411.0	
25.5	MODESTO		BLACK SHALE	2.7	477.6	
22.8	MODESTO		GRAY SHALE	1.2	480.3	
21.6	MODESTO		SANDSTONE	10.5	481.5	GRAY
11.1	MODESTO		SANDY SHALE	14.9	492.0	
-3.8	MODESTO		GRAY SHALE	113.9	506.9	
-117.7	MODESTO		SANDY SHALE	31.2	620.8	
-148.9	MODESTO		GRAY SHALE	3.8	652.0	
-152.7	MODESTO		BLACK SHALE	8.2	655.8	
-160.9			SANDY SHALE	7.5	664.0	
-168.4	CARBONDALE		CALCAREOUS SHALE	14.0	671.5	
-182.4	CARBONDALE	ENERGY	SANDY SHALE	37.5	685.5	
-219.9	CARBONDALE	ENERGY	SANDSTONE	3.0	723.0	GRAY
-222.9	CARBONDALE	ENERGY	SANDY SHALE	5.0	726.0	
-227.9	CARBONDALE	ENERGY	SANDSTONE	21.8	731.0	GRAY
-249.7	CARBONDALE	ENERGY	SANDY SHALE	3.9	752.8	
-253.6	CARBONDALE	HERRIN	COAL	9.9	756.7	
-263.5	CARBONDALE	HERRIN	SHALE	0.5	766.6	
-264.0	CARBONDALE	HERRIN	COAL	4.5	767.1	
-268.5	CARBONDALE		SANDY SHALE	9.6	771.6	
-278.0	CARBONDALE		SANDSTONE	1.5	781.1	GRAY
-279.5	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.6	782.6	
-281.1	CARBONDALE		SANDSTONE	6.5	784.2	GRAY
-287.6	CARBONDALE		LIMESTONE	1.0	790.7	TAN
-288.6	CARBONDALE		SANDY SHALE	6.2	791.7	
-294.8	CARBONDALE	ST. DAVID	LIMESTONE	2.8	797.9	GRAY
-297.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.5	800.7	
-301.1	CARBONDALE	SPRINGFIELD	COAL	4.2	804.2	
-305.3	CARBONDALE		UNDERCLAY	3.3	808.4	
-308.6	CARBONDALE		SHALE WITH LIMESTONE	3.0	811.7	

MAPID: 08124947000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: SE NE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.041505 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.166459 DATE COLLECTED:

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 799.1 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 8315132 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.0			UNKNOWN	757.9	0.0	NOT CORED
-257.9	CARBONDALE	ENERGY	GRAY SHALE	1.0	757.9	
-258.9	CARBONDALE	HERRIN	COAL	9.3	758.9	
-268.2	CARBONDALE		UNDERCLAY	0.6	768.2	
-268.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	4.9	768.8	
-273.7	CARBONDALE		GREEN SHALE	3.9	773.7	
-277.6	CARBONDALE		BLACK SHALE	5.8	777.6	
-283.4	CARBONDALE	ST. DAVID	LIMESTONE	1.6	783.4	
-285.0	CARBONDALE		SHALE	3.2	785.0	
-288.2	CARBONDALE	SPRINGFIELD	COAL	3.1	788.2	
-291.3	CARBONDALE		UNDERCLAY	4.3	791.3	
-295.6	CARBONDALE		SILTSTONE	3.5	795.6	GRAY

MAPID: 081254A0006F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 24 QUARTERS/FOOTAGES: NW NW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.048195 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.168026 DATE COLLECTED: 8 / 30 / 1931

SURFACE ELEVATION (FT.): 460.0 LOGGED (FT.): 38.4 LOG TYPE: Measured section

SOURCE: FLD NOTES-EKBLAW WELL TYPE: Outcrop

COMMENT: OTHER NOTES IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.0			ROCK	20.4	0.0	
-			COAL	0.3		
-			ROCK	17.8		

MAPID: 08100040000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 25 QUARTERS/FOOTAGES: SW SW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.048996

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.147436

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 472.2

LOGGED (FT.): 735.0

LOG TYPE:

SOURCE: INLAND STEEL 7

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-252.8	CARBONDALE	HERRIN	COAL	10.0	725.0	

MAPID: 08100040000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 25 QUARTERS/FOOTAGES: SW SW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.048996

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.147436

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 472.0

LOGGED (FT.): 735.0

LOG TYPE: Survey Core Study

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
472.0			UNCONSOLIDATED	12.5	0.0	
459.5			SANDSTONE	245.3	12.5	
214.2			COAL	0.6	257.8	
213.7			ROCK	10.7	258.3	
203.0			COAL	0.3	269.0	
202.7			ROCK	147.7	269.3	
55.0			COAL	0.5	417.0	
54.5			ROCK	192.0	417.5	
-137.5			COAL	1.7	609.5	
-139.2			ROCK	88.8	611.2	
-228.0			SHALE	24.6	700.0	SANDY
-252.6	CARBONDALE	HERRIN	COAL	10.0	724.6	BLUE BAND .12'
-262.5	CARBONDALE		UNDERCLAY	0.0	734.5	

MAPID: 08100792000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.055398 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.147773 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 2469.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-285.0	CARBONDALE	SPRINGFIELD	COAL	-	762.0
-464.0	CARBONDALE	COLCHESTER	COAL	-	941.0
-1992.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2469.0

MAPID: 08100792000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 25 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.055398 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.147773 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 477.0 **LOGGED (FT.):** 737.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-128.0	MODESTO	PIASA	LIMESTONE	5.0	605.0
-133.0	MODESTO		GRAY SHALE	7.0	610.0
-140.0	CARBONDALE	DANVILLE	COAL	2.0	617.0
-142.0	CARBONDALE		GRAY SHALE	6.0	619.0
-148.0	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	625.0
-159.0	CARBONDALE	LAWSON	SANDSTONE/SILTSTONE	15.0	636.0
-174.0	CARBONDALE	ENERGY	GRAY SHALE	77.0	651.0
-251.0	CARBONDALE	HERRIN	COAL	9.0	728.0

MAPID: 08100041000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW NW NW SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.067424 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.146127 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 480.4 **LOGGED (FT.):** 746.0 **LOG TYPE:**
SOURCE: INLAND STEEL 6 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-254.6	CARBONDALE	HERRIN	COAL	7.3	735.0

MAPID: 08100041000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 26

QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.067424

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.146127

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 746.0

LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCONSOLIDATED	25.0	0.0	
455.0			ROCK	241.0	25.0	
214.0			COAL	0.5	266.0	
213.5			ROCK	163.5	266.5	
50.0			COAL	0.5	430.0	
49.5			ROCK	186.5	430.5	
-137.0			COAL	2.0	617.0	
-139.0			ROCK	81.0	619.0	
-220.0			SANDSTONE	34.8	700.0	
-254.8	CARBONDALE	HERRIN	COAL	7.3	734.8	BLUE BAND .16'
-262.1	CARBONDALE		UNDERCLAY	3.9	742.1	

MAPID: 08102825000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 26

QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.060063

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.145853

DATE COLLECTED:

SURFACE ELEVATION (FT.): 490.0

LOGGED (FT.): 739.4

LOG TYPE: Survey Core Study

SOURCE:

WELL TYPE: Coal Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-233.2	CARBONDALE	ENERGY	SILTY SHALE	2.8	723.2	
-236.0	CARBONDALE	ENERGY	SILTY SHALE	6.0	726.0	
-242.0	CARBONDALE	HERRIN	COAL	7.4	732.0	

MAPID: 08100042000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 27

QUARTERS/FOOTAGES: SE SE SW SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.091352

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.139514

DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 483.4

LOGGED (FT.): 733.0

LOG TYPE:

SOURCE: BG MUDDYCS 3

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-238.6	CARBONDALE	HERRIN	COAL	10.1	722.0	

MAPID: 08100042000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 27

QUARTERS/FOOTAGES: SE SE SW SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.091352

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.139514

DATE COLLECTED: 3 / 0 / 1909

SURFACE ELEVATION (FT.): 483.0

LOGGED (FT.): 733.0

LOG TYPE: Survey Core Study

SOURCE: BIG MUDDY COAL SYN

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
483.0			UNCONSOLIDATED	15.0	0.0	
468.0			ROCK	212.5	15.0	
255.5			COAL	0.5	227.5	
255.0			ROCK	161.0	228.0	
94.0			COAL	0.7	389.0	
93.3			ROCK	170.3	389.7	
-77.0			COAL	0.7	560.0	
-77.8			COAL WITH SHALE	3.2	560.8	SHALE WITH COAL PARTINGS.
-81.0			ROCK	96.0	564.0	
-177.0			SHALE	62.2	660.0	SANDY
-239.2	CARBONDALE	HERRIN	COAL	10.1	722.2	SH PARTINGS 1.2'
-249.3	CARBONDALE		UNDERCLAY	0.8	732.3	

MAPID: 08123752000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 27

QUARTERS/FOOTAGES: 330' S line, 330' W line of SW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.094223

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.139963

DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0

LOGGED (FT.): 2451.0

LOG TYPE: Electric Log

SOURCE: DART OIL & GAS CORP.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1949.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2451.0	

MAPID: 08123846000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 27 QUARTERS/FOOTAGES: NE SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.082406 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.149962 DATE COLLECTED: 10 / 23 / 1981

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 794.8 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 27-1-F WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
495.0			UNKNOWN	737.0	0.0	NO CORE
-242.0	CARBONDALE	ENERGY	SILTSTONE	2.7	737.0	GRAY
-244.7	CARBONDALE	ENERGY	COAL	0.1	739.7	
-244.7	CARBONDALE	ENERGY	SILTSTONE	0.8	739.7	GRAY
-245.5	CARBONDALE	ENERGY	CALCAREOUS SHALE	0.5	740.5	
-246.0	CARBONDALE	ENERGY	GRAY SHALE	1.9	741.0	
-247.9	CARBONDALE	HERRIN	COAL	1.6	742.9	
-249.5	CARBONDALE	HERRIN	SHALE	0.2	744.5	
-249.7	CARBONDALE	HERRIN	COAL	1.0	744.7	
-250.7	CARBONDALE	HERRIN	SHALE	0.2	745.7	
-250.9	CARBONDALE	HERRIN	COAL	7.1	745.9	
-258.0	CARBONDALE		CALCAREOUS SHALE	4.8	753.0	
-262.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	11.1	757.8	
-273.8	CARBONDALE		SILTSTONE	3.6	768.8	GRAY
-277.4	CARBONDALE		BLACK SHALE	2.4	772.4	
-279.8	CARBONDALE	ST. DAVID	ARGILLACEOUS LIMESTONE	2.0	774.8	
-281.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.6	776.8	
-284.4	CARBONDALE	SPRINGFIELD	COAL	4.0	779.4	
-288.4	CARBONDALE		UNDERCLAY	3.6	783.4	
-292.0	CARBONDALE		SILTSTONE	5.8	787.0	
-297.8	CARBONDALE		SANDSTONE	2.0	792.8	

MAPID: 08124948000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 27 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.087464 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.146385 DATE COLLECTED:

SURFACE ELEVATION (FT.): 496.0 LOGGED (FT.): 777.4 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 841S142 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
496.0	PLEISTOCENE		CLAY	17.0	0.0
479.0	MATTOON		SHALE	21.0	17.0
458.0	MATTOON		DARK SHALE	30.0	38.0
428.0	MATTOON		BLACK SHALE	4.0	68.0
424.0	MATTOON		DARK SHALE	56.0	72.0
368.0	MATTOON		SANDSTONE	30.0	128.0
338.0	BOND	MILLERSVILLE	LIMESTONE	4.0	158.0
334.0	BOND		SANDSTONE	8.0	162.0
326.0	BOND		GRAY SHALE	62.0	170.0
264.0	BOND	CARTHAGE	LIMESTONE	4.0	232.0
260.0	MODESTO		BLACK SHALE	4.0	236.0
256.0	MODESTO		GRAY SHALE	68.0	240.0
188.0	MODESTO		BLACK SHALE	2.0	308.0
186.0	MODESTO		GRAY SHALE	28.0	310.0
158.0	MODESTO		CALCAREOUS SHALE	5.0	338.0
153.0	MODESTO		SHALE	15.0	343.0
138.0	MODESTO		DARK SHALE	50.0	358.0
88.0	MODESTO		CALCAREOUS SHALE	5.0	408.0
83.0	MODESTO	CHAPEL	COAL	4.0	413.0
79.0	MODESTO		SHALE	41.0	417.0
38.0	MODESTO		GRAY SHALE	76.0	458.0
-38.0	MODESTO		CALCAREOUS SHALE	6.0	534.0
-44.0	MODESTO		GRAY SHALE	23.0	540.0
-67.0	MODESTO		SANDY SHALE	15.0	563.0
-82.0	MODESTO	DEGRAFF	COAL	1.0	578.0
-83.0	MODESTO		SANDY SHALE	9.0	579.0
-92.0	MODESTO	PIASA	LIMESTONE	5.0	588.0
-97.0	CARBONDALE	DANVILLE	COAL	5.0	593.0
-102.0	CARBONDALE		GRAY SHALE	10.0	598.0
-112.0	CARBONDALE	BANKSTON FORK	SANDY LIMESTONE	5.0	608.0
-117.0	CARBONDALE		SANDY SHALE	5.0	613.0
-122.0	CARBONDALE	BRERETON	SANDY LIMESTONE	5.0	618.0
-127.0	CARBONDALE	ENERGY	SANDSTONE	20.0	623.0
-147.0	CARBONDALE	ENERGY	SANDY SHALE	45.0	643.0
-192.0	CARBONDALE	ENERGY	SANDSTONE	36.3	688.0
-228.3	CARBONDALE	HERRIN	COAL	5.7	724.3
-234.0	CARBONDALE		SHALE	7.8	730.0
-241.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	12.3	737.8
-254.1	CARBONDALE		SHALE	3.5	750.1

-257.6	CARBONDALE		BLACK SHALE	3.5	753.6
-261.1	CARBONDALE	ST. DAVID	BLACK LIMESTONE	1.4	757.1
-262.5	CARBONDALE	TURNER MINE	BLACK SHALE	3.8	758.5
-266.3	CARBONDALE	SPRINGFIELD	COAL	3.9	762.3
-270.2	CARBONDALE		SILTSTONE	4.5	766.2
-274.7	CARBONDALE		SANDSTONE	6.7	770.7

MAPID: 08190043000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 27 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE LONGITUDE: -89.082406

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.149962

DATE COLLECTED: 10 / 23 / 1981

SURFACE ELEVATION (FT.): 495.0 LOGGED (FT.): 794.8

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 81-15-109

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
495.0			NO RECORD	737.0	0.0
-242.0	CARBONDALE	ENERGY	SILTSTONE	2.7	737.0
-244.7	CARBONDALE	ENERGY	COAL	0.1	739.7
-244.7	CARBONDALE	ENERGY	SILTSTONE	0.8	739.7
-245.5	CARBONDALE	ENERGY	SHALE W/ LIME NODULES	0.5	740.5
-246.0	CARBONDALE	ENERGY	GRAY SHALE	1.9	741.0
-247.9	CARBONDALE	HERRIN	COAL	1.6	742.9
-249.5	CARBONDALE	HERRIN	SHALE	0.2	744.5
-249.7	CARBONDALE	HERRIN	COAL	1.0	744.7
-250.7	CARBONDALE	HERRIN	SHALE	0.2	745.7
-250.9	CARBONDALE	HERRIN	COAL	7.1	745.9
-258.0	CARBONDALE	HERRIN	SHALE W/ LIME NODULES	4.8	753.0
-262.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	11.1	757.8
-273.8	CARBONDALE		SILTSTONE	3.6	768.8
-277.4	CARBONDALE		BLACK SHALE	2.4	772.4
-279.8	CARBONDALE	ST. DAVID	LIMESTONE	2.0	774.8
-281.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.6	776.8
-284.4	CARBONDALE	SPRINGFIELD	COAL	4.0	779.4
-288.4	CARBONDALE		UNDERCLAY	3.6	783.4
-292.0	CARBONDALE		SILTSTONE	5.8	787.0
-297.8	CARBONDALE		SANDSTONE	2.0	792.8

MAPID: 08124949000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 29 QUARTERS/FOOTAGES: SW SE NW

QUADRANGLE: TAMAROA LONGITUDE: -89.018309 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.147312 DATE COLLECTED:

SURFACE ELEVATION (FT.): 428.0 LOGGED (FT.): 745.7 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION C.C. 841S146 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
428.0	PLEISTOCENE		CLAY	14.0	0.0
414.0	MATTOON		SHALE	8.0	14.0
406.0	MATTOON		GRAY SHALE	11.0	22.0
395.0	MATTOON		SANDSTONE	5.0	33.0
390.0	MATTOON		SANDY SHALE	22.0	38.0
368.0	MATTOON		SANDY LIMESTONE	4.0	60.0
364.0	MATTOON		GRAY SHALE	6.0	64.0
358.0	MATTOON		SANDSTONE	10.0	70.0
348.0	MATTOON		SANDY SHALE	5.0	80.0
343.0	BOND	MILLERSVILLE	SANDY LIMESTONE	25.0	85.0
318.0	BOND		GRAY SHALE	5.0	110.0
313.0	BOND		SANDY LIMESTONE	7.0	115.0
306.0	BOND		SANDY SHALE	10.0	122.0
296.0	BOND		DARK GRAY SHALE	8.0	132.0
288.0	BOND		CALCAREOUS SANDSTONE	5.0	140.0
283.0	BOND		SANDY SHALE	15.0	145.0
268.0	BOND		SANDSTONE	2.0	160.0
266.0	BOND		SANDY DARK SHALE	38.0	162.0
228.0	BOND	CARTHAGE	LIMESTONE	6.0	200.0
222.0	MODESTO		BLACK SHALE	4.0	206.0
218.0	MODESTO	MACOUPIN	LIMESTONE	2.0	210.0
216.0	MODESTO		GRAY SHALE	10.0	212.0
206.0	MODESTO		SANDY SHALE	33.0	222.0
173.0	MODESTO		SANDSTONE	19.0	255.0
154.0	MODESTO		SANDY SHALE	2.0	274.0
152.0	MODESTO	BURROUGHS	SHALY LIMESTONE	2.0	276.0
150.0	MODESTO		BLACK SHALE	2.0	278.0
148.0	MODESTO		SANDY SHALE	15.0	280.0
133.0	MODESTO	CARLINVILLE	LIMESTONE	10.0	295.0
123.0	MODESTO		SANDSTONE	9.0	305.0
114.0	MODESTO		SANDY SHALE	6.0	314.0
108.0	MODESTO		SANDSTONE	5.0	320.0
103.0	MODESTO		SHALE	15.0	325.0
88.0	MODESTO		SHALE WITH LIMESTONE	20.0	340.0
68.0	MODESTO		GRAY SHALE	20.0	360.0
48.0	MODESTO		BLACK SHALE	2.0	380.0
46.0	MODESTO		SANDY LIMESTONE	8.0	382.0
38.0	MODESTO		SANDY SHALE	25.0	390.0

13.0	MODESTO		SANDSTONE	10.0	415.0	
3.0	MODESTO		SILTSTONE	125.0	425.0	
-122.0	MODESTO		SHALE	30.0	550.0	
-152.0	MODESTO		SILTSTONE	7.0	580.0	
-159.0	CARBONDALE	DANVILLE	COAL	1.0	587.0	
-160.0	CARBONDALE		SHALE	2.0	588.0	
-162.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	590.0	
-169.0	CARBONDALE	ENERGY	SANDSTONE	10.0	597.0	
-179.0	CARBONDALE	ENERGY	CALCAREOUS SANDSTONE	8.0	607.0	
-187.0	CARBONDALE	ENERGY	SILTSTONE	15.0	615.0	
-202.0	CARBONDALE	ENERGY	SANDSTONE	10.0	630.0	
-212.0	CARBONDALE	ENERGY	SILTSTONE	7.2	640.0	GRAY
-219.2	CARBONDALE	ENERGY	SILTSTONE	35.1	647.2	GRAY
-254.3	CARBONDALE	HERRIN	COAL	7.5	682.3	
-261.8	CARBONDALE		SILTSTONE	1.6	689.8	
-263.4	CARBONDALE		SANDSTONE	4.6	691.4	
-268.0	CARBONDALE		SILTSTONE	16.6	696.0	
-284.6	CARBONDALE		SILTSTONE	1.8	712.6	GRAY
-286.4	CARBONDALE		DARK SHALE	0.8	714.4	
-287.2	CARBONDALE		LIMESTONE	0.1	715.2	BLACK
-287.3	CARBONDALE		BLACK SHALE	1.5	715.3	
-288.8	CARBONDALE		GRAY SHALE	9.3	716.8	
-298.1	CARBONDALE	ST. DAVID	LIMESTONE	1.4	726.1	GRAY
-299.5	CARBONDALE	TURNER MINE	BLACK SHALE	2.7	727.5	
-302.2	CARBONDALE	SPRINGFIELD	COAL	3.8	730.2	
-306.0	CARBONDALE		UNDERCLAY	2.0	734.0	
-308.0	CARBONDALE		SANDSTONE	5.6	736.0	
-313.6	CARBONDALE		SILTSTONE	4.1	741.6	

MAPID: 08124950000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 30 QUARTERS/FOOTAGES: SE NE NE

QUADRANGLE: TAMAROA LONGITUDE: -89.026702 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.289652 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 738.8 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 8S1S141 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
425.0	PLEISTOCENE		CLAY	14.0	0.0
411.0	MATTOON		SHALE	38.0	14.0
373.0	BOND	MILLERSVILLE	LIMESTONE	3.0	52.0
370.0	BOND		SANDSTONE	5.0	55.0
365.0	BOND		BLACK SHALE	3.0	60.0
362.0	BOND		LIMESTONE	1.0	63.0
361.0	BOND		GRAY SHALE	18.0	64.0
343.0	BOND		SHALE	43.0	82.0
300.0	BOND		SANDSTONE	2.0	125.0
298.0	BOND		SANDY SHALE	7.0	127.0
291.0	BOND		SANDSTONE	2.0	134.0
289.0	BOND		SANDY DARK SHALE	39.0	136.0
250.0	BOND		SHALE	5.0	175.0
245.0	BOND		SANDSTONE	14.0	180.0
231.0	BOND	CARTHAGE	LIMESTONE	4.0	194.0
227.0	MODESTO		BLACK SHALE	3.0	198.0
224.0	MODESTO		GRAY SHALE	2.0	201.0
222.0	MODESTO		SHALY SANDSTONE	42.0	203.0
180.0	MODESTO		GRAY SHALE	25.0	245.0
155.0	MODESTO		SHALE	1.0	270.0
154.0	MODESTO		LIMESTONE	3.0	271.0
151.0	MODESTO		SHALE	19.0	274.0
132.0	MODESTO	CARLINVILLE	SANDY LIMESTONE	4.0	293.0
128.0	MODESTO		SANDY SHALE	13.0	297.0
115.0	MODESTO		SANDSTONE	5.0	310.0
110.0	MODESTO		SANDY SHALE	25.0	315.0
85.0	MODESTO		SANDY SHALE	30.0	340.0
55.0	MODESTO		GRAY SHALE	11.0	370.0
44.0	MODESTO		COAL	1.0	381.0
43.0	MODESTO		SHALE	33.0	382.0
10.0	MODESTO		SANDY SHALE	55.0	415.0
-45.0	MODESTO		GRAY SHALE	40.0	470.0
-85.0	MODESTO		SANDSTONE	20.0	510.0
-105.0	MODESTO		SANDY SHALE	10.0	530.0
-115.0	MODESTO		BLACK SHALE	3.0	540.0
-118.0	MODESTO		GRAY SHALE	7.0	543.0
-125.0	MODESTO		SANDY SHALE	14.0	550.0
-139.0	MODESTO		SHALE WITH LIMESTONE	16.0	564.0
-155.0	MODESTO		SANDY SHALE	8.0	580.0

-163.0			LIMESTONE	8.0	588.0	
-171.0	CARBONDALE	ENERGY	SANDSTONE	19.0	596.0	
-190.0	CARBONDALE	ENERGY	SANDY SHALE	13.0	615.0	
-203.0	CARBONDALE	ENERGY	SANDSTONE	7.0	628.0	
-210.0	CARBONDALE	ENERGY	SANDY SHALE	15.0	635.0	
-225.0	CARBONDALE	ENERGY	SILTSTONE	19.0	650.0	
-244.0	CARBONDALE	ENERGY	DARK GRAY SHALE	18.0	669.0	
-262.0	CARBONDALE	ENERGY	SILTSTONE	3.9	687.0	GRAY
-265.9	CARBONDALE	HERRIN	COAL	8.2	690.9	
-274.1	CARBONDALE		UNDERCLAY	1.0	699.1	
-275.1	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.2	700.1	
-284.3	CARBONDALE		SANDSTONE	7.1	709.3	
-291.4	CARBONDALE		SHALE	0.6	716.4	
-292.0	CARBONDALE		LIMESTONE	0.2	717.0	
-292.2	CARBONDALE		SHALE	1.2	717.2	
-293.4	CARBONDALE	BRIAR HILL	COAL	0.7	718.4	
-294.1	CARBONDALE		SHALE	2.0	719.1	
-296.1	CARBONDALE		DARK SHALE	6.2	721.1	
-302.3	CARBONDALE	ST. DAVID	LIMESTONE	2.3	727.3	
-304.6	CARBONDALE		SHALE	2.4	729.6	
-307.0	CARBONDALE	SPRINGFIELD	COAL	3.0	732.0	
-310.0	CARBONDALE		SILTSTONE	3.8	735.0	

MAPID: 08100043000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** SW SE SW
QUADRANGLE: TAMAROA **LONGITUDE:** -89.145294 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.125826 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 457.5 **LOGGED (FT.):** 540.0 **LOG TYPE:**
SOURCE: SOUTHERN GEM COAL CORP. 2 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-77.5	CARBONDALE	HERRIN	COAL	-	535.0

MAPID: 08100791000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: TAMAROA **LONGITUDE:** -89.138023 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.138486 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 427.0 **LOGGED (FT.):** 2269.0 **LOG TYPE:** Electric Log
SOURCE: GEORGE & WRATHER OIL **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-193.0	CARBONDALE	SPRINGFIELD	COAL	-	620.0
-369.0	CARBONDALE	COLCHESTER	COAL	-	796.0
-1842.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2269.0

MAPID: 08100791000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 31 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: TAMAROA **LONGITUDE:** -89.138023 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.138486 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 427.0 **LOGGED (FT.):** 600.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-76.0	MODESTO	PIASA	LIMESTONE	5.0	503.0
-81.0	CARBONDALE	DANVILLE	COAL	1.0	508.0
-82.0	CARBONDALE		SHALE	27.0	509.0
-109.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	536.0
-117.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	21.0	544.0
-138.0	CARBONDALE	ENERGY	GRAY SHALE	25.0	565.0
-163.0	CARBONDALE	HERRIN	COAL	10.0	590.0

MAPID: 08123070000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 33 **QUARTERS/FOOTAGES:** NE NE NE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.096551 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.138149 **DATE COLLECTED:** 9 / 3 / 1976
SURFACE ELEVATION (FT.): 518.0 **LOGGED (FT.):** 120.0 **LOG TYPE:** Drillers Log
SOURCE: JAMES GEER, DRILLER **WELL TYPE:** Water Well
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
518.0			UNCONSOLIDATED	20.0	0.0
-			ROCK	18.0	
-			COAL	2.0	
-			ROCK	80.0	

MAPID: 08124951000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 33 QUARTERS/FOOTAGES: NE SW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.001051 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.135577 DATE COLLECTED:

SURFACE ELEVATION (FT.): 416.0 LOGGED (FT.): 694.5 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 841S136 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
416.0	MATTOON		SHALE	22.4	0.0
393.6	MATTOON		LIMESTONE	0.3	22.4
393.3	MATTOON		SANDSTONE	45.8	22.7
347.5	MATTOON		CLAYSTONE	3.0	68.5
344.5	MATTOON		SANDSTONE	24.2	71.5
320.3	BOND	MILLERSVILLE	LIMESTONE	1.2	95.7
319.1	BOND	MILLERSVILLE	SANDSTONE	0.4	96.9
318.7	BOND	MILLERSVILLE	LIMESTONE	0.4	97.3
318.3	BOND		COAL	1.3	97.7
317.0	BOND		UNDERCLAY	5.6	99.0
311.4	BOND		GRAY SHALE	19.0	104.6
292.4	BOND		GRAY SHALE	11.6	123.6
280.8	BOND		DARK SHALE	7.4	135.2
273.4	BOND		SILTSTONE	2.2	142.6
271.2	BOND		SHALE	38.3	144.8
232.9	BOND	CARTHAGE	LIMESTONE	6.5	183.1
226.3	MODESTO		BLACK SHALE	5.0	189.7
221.3	MODESTO		GRAY SHALE	16.2	194.7
205.1	MODESTO	NEW HAVEN	COAL	0.4	210.9
204.7	MODESTO		GRAY SHALE	29.0	211.3
175.7	MODESTO		SANDSTONE	13.9	240.3
161.8	MODESTO		COAL	1.8	254.2
160.0	MODESTO		SHALE	20.6	256.0
139.4	MODESTO	CARLINVILLE	LIMESTONE	2.4	276.6
137.0	MODESTO		GREEN SHALE	7.6	279.0
129.4	MODESTO		SILTSTONE	48.2	286.6
81.2	MODESTO		SHALE	37.4	334.8
43.8	MODESTO		LIMESTONE	0.5	372.2
43.3	MODESTO		SHALE	1.8	372.7
41.5	MODESTO		LIMESTONE	0.2	374.5
41.3	MODESTO		SHALE	0.4	374.7
40.9	MODESTO	CHAPEL	COAL	0.9	375.1
40.0	MODESTO		UNDERCLAY	2.1	376.0
37.9	MODESTO		SILTSTONE	4.0	378.1
33.9	MODESTO		SILTY SHALE	10.6	382.1
23.3	MODESTO		SANDSTONE	11.4	392.7
11.9	MODESTO		SILTSTONE	101.0	404.1
-89.1	MODESTO		DARK SHALE	3.8	505.1
-92.9	MODESTO		SHALE	1.4	508.9

-94.3	MODESTO		SANDSTONE	5.4	510.3
-99.7	MODESTO		SHALE	40.4	515.7
-140.1	MODESTO		CLAYSTONE	1.5	556.1
-141.6	MODESTO	PIASA	LIMESTONE	4.2	557.6
-145.8	MODESTO		SHALE	3.6	561.8
-149.4	CARBONDALE	DANVILLE	COAL	2.5	565.4
-151.9	CARBONDALE		UNDERCLAY	5.8	567.9
-157.7	CARBONDALE		SANDSTONE	1.8	573.7
-159.5	CARBONDALE	BANKSTON FORK	LIMESTONE	9.2	575.5
-168.7	CARBONDALE	ENERGY	SANDSTONE	12.5	584.7
-181.2	CARBONDALE	ENERGY	SILTSTONE	6.9	597.2
-188.1	CARBONDALE	ENERGY	SANDSTONE	65.3	604.1
-253.4	CARBONDALE	HERRIN	COAL	7.5	669.4
-260.9	CARBONDALE		UNDERCLAY	3.8	676.9
-264.7	CARBONDALE		SANDSTONE	13.8	680.7

MAPID: 08100790000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 34 **QUARTERS/FOOTAGES:** 330' N line, 330' W line of NE SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.080392 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.130911 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 474.0 **LOGGED (FT.):** 2415.0 **LOG TYPE:** Electric Log
SOURCE: SKELLY OIL CO **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN COMMENT
-226.0	CARBONDALE	SPRINGFIELD	COAL	-	700.0
-396.0	CARBONDALE	COLCHESTER	COAL	-	870.0
-1941.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2415.0

MAPID: 08102835000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 34 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.085037 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.130903 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 497.0 **LOGGED (FT.):** 705.8 **LOG TYPE:** Survey Core Study
SOURCE: **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN COMMENT
-181.9	CARBONDALE	ENERGY	GRAY SHALE	14.1	678.9
-196.0	CARBONDALE	ENERGY	GRAY SHALE	3.0	693.0
-199.0	CARBONDALE	HERRIN	COAL	9.8	696.0

MAPID: 08124952000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 34 QUARTERS/FOOTAGES: SE SE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.077446 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.132523 DATE COLLECTED:

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 730.4 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 841A143 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
480.0	PLEISTOCENE		CLAY	12.0	0.0
468.0	BOND		DARK GRAY SHALE	13.0	12.0
455.0	BOND		BLACK SHALE	3.0	25.0
452.0	BOND		GRAY SHALE	37.0	28.0
415.0	BOND		SANDY SHALE	10.0	65.0
405.0	BOND		SANDSTONE	25.0	75.0
380.0	BOND		BLACK SHALE	4.0	100.0
376.0	BOND		GRAY SHALE	26.0	104.0
350.0	BOND		SHALY LIMESTONE	4.0	130.0
346.0	BOND		SANDY SHALE	6.0	134.0
340.0	BOND		GRAY SHALE	15.0	140.0
325.0	BOND		SILTSTONE	25.0	155.0
300.0	BOND		SHALE	5.0	180.0
295.0	BOND	CARTHAGE	LIMESTONE	10.0	185.0
285.0	MODESTO		BLACK SHALE	3.0	195.0
282.0	MODESTO		GRAY SHALE	11.0	198.0
271.0	MODESTO		BLACK SHALE	1.0	209.0
270.0	MODESTO		GRAY SHALE	58.0	210.0
212.0	MODESTO	CARLINVILLE	LIMESTONE	3.0	268.0
209.0	MODESTO		GRAY SHALE	24.0	271.0
185.0	MODESTO		SANDSTONE	17.0	295.0
168.0	MODESTO		SILTSTONE	28.0	312.0
140.0	MODESTO		GRAY SHALE	14.0	340.0
126.0	MODESTO		SHALE	4.0	354.0
122.0	MODESTO		SILTSTONE	33.0	358.0
89.0	MODESTO		SILTSTONE	3.0	391.0
86.0	MODESTO		SHALE	14.0	394.0
72.0	MODESTO		SANDSTONE	7.0	408.0
65.0	MODESTO		SILTSTONE	25.0	415.0
40.0	MODESTO		SILTSTONE	7.0	440.0
33.0	MODESTO		GRAY SHALE	43.0	447.0
-10.0	MODESTO		SANDY SHALE	33.0	490.0
-43.0	MODESTO		SANDSTONE	4.0	523.0
-47.0	MODESTO		BLACK SHALE	2.0	527.0
-49.0	MODESTO		SILTSTONE	19.0	529.0
-68.0	MODESTO		GRAY SHALE	3.0	548.0
-71.0	MODESTO	PIASA	LIMESTONE	4.0	551.0
-75.0	CARBONDALE	DANVILLE	COAL	6.0	555.0
-81.0	CARBONDALE		GRAY SHALE	1.0	561.0

-82.0	CARBONDALE	ALLENBY	COAL	2.0	562.0	
-84.0	CARBONDALE		CALCAREOUS SHALE	6.0	564.0	
-90.0	CARBONDALE		SANDSTONE	8.0	570.0	
-98.0	CARBONDALE		SANDY SHALE	14.0	578.0	
-112.0	CARBONDALE		SANDSTONE	38.0	592.0	
-150.0	CARBONDALE		UNKNOWN	45.2	630.0	LOST CORE
-195.2	CARBONDALE	HERRIN	COAL	10.3	675.2	
-205.5	CARBONDALE		SHALE	2.2	685.5	
-207.7	CARBONDALE		SANDSTONE	1.2	687.7	
-208.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.4	688.9	
-218.3	CARBONDALE		SHALE	8.7	698.3	
-227.0	CARBONDALE		LIMESTONE	2.1	707.0	
-229.1	CARBONDALE		BLACK SHALE	3.0	709.1	
-232.1	CARBONDALE		SHALE	3.9	712.1	
-236.0	CARBONDALE		GRAY SHALE	4.4	716.0	
-240.4	CARBONDALE		SANDSTONE	3.7	720.4	
-244.1	CARBONDALE		GRAY SHALE	6.3	724.1	

MAPID: 08124953000C **VERSION:** 1 **PROJECT:** LUMP
COUNTY: JEFFERSON **TWP/RNG:** 4S 1E **SECTION:** 34 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.077029 **GEOLOGIST:** NORTH
CONFIDENTIAL: N **LATITUDE:** 38.130363 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 485.0 **LOGGED (FT.):** 724.0 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. 8415144 **WELL TYPE:** Coal Test
COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
485.0			UNKNOWN	640.9	0.0	NOT CORED
-155.9	CARBONDALE	ENERGY	SILTSTONE	5.6	640.9	
-161.5	CARBONDALE	ENERGY	GRAY SHALE	22.1	646.5	
-183.6	CARBONDALE	HERRIN	COAL	6.0	668.6	
-189.6	CARBONDALE		DARK SHALE	3.4	674.6	
-193.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	10.4	678.0	
-203.4	CARBONDALE		SILTSTONE	3.4	688.4	
-206.8	CARBONDALE		SHALE	4.2	691.8	
-211.0	CARBONDALE	ST. DAVID	BLACK LIMESTONE	1.8	696.0	
-212.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	697.8	
-216.0	CARBONDALE	SPRINGFIELD	COAL	3.8	701.0	
-219.8	CARBONDALE		UNDERCLAY	3.4	704.8	
-223.2	CARBONDALE		SANDSTONE	3.4	708.2	
-226.6	CARBONDALE		SHALE	5.5	711.6	
-232.1	CARBONDALE		SANDSTONE	6.9	717.1	

MAPID: 08190044000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 34 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE LONGITUDE: -89.077029

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.130363

DATE COLLECTED: 1 / 26 / 1987

SURFACE ELEVATION (FT.): 485.0 LOGGED (FT.): 724.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 84-1S-44

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
485.0			NO RECORD	640.9	0.0	
-155.9	CARBONDALE	ENERGY	SILTSTONE	5.6	640.9	
-161.5	CARBONDALE	ENERGY	GRAY SHALE	22.1	646.5	
-183.6	CARBONDALE	HERRIN	COAL	6.0	668.6	
-189.6	CARBONDALE		SHALE	3.4	674.6	
-193.0	CARBONDALE	HIGGINSVILLE	LIMESTONE	10.4	678.0	
-203.3	CARBONDALE		SILTSTONE	3.5	688.3	
-206.8	CARBONDALE		SHALE	4.2	691.8	
-211.0	CARBONDALE	ST. DAVID	LIMESTONE	1.8	696.0	
-212.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	697.8	
-216.0	CARBONDALE	SPRINGFIELD	COAL	3.8	701.0	
-219.8	CARBONDALE		UNDERCLAY	3.4	704.8	
-223.2	CARBONDALE		SANDSTONE	3.5	708.2	
-226.6	CARBONDALE		SHALE	5.5	711.6	
-232.1	CARBONDALE		SANDSTONE	6.9	717.1	

MAPID: 08100044000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 35 QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.067372

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.131522

DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 481.7 LOGGED (FT.): 718.0

LOG TYPE:

SOURCE: BG MUDDYCC 3

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-225.3	CARBONDALE	HERRIN	COAL	10.3	707.0	

MAPID: 08100044000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 35

QUARTERS/FOOTAGES: NW NW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.067372

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.131522

DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 482.0

LOGGED (FT.): 717.7

LOG TYPE: Survey Core Study

SOURCE: BIG MUDDY COAL SYN

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
482.0			UNCONSOLIDATED	23.0	0.0	
459.0			ROCK	216.7	23.0	
242.3			COAL	0.3	239.7	
242.0			ROCK	160.3	240.0	
81.7			COAL	0.5	400.3	
81.2			ROCK	152.2	400.8	
-71.0			COAL	0.5	553.0	
-71.5			ROCK	29.8	553.5	
-101.3			COAL	2.6	583.3	
-103.9			ROCK	85.1	585.9	
-189.0			SANDSTONE	29.0	671.0	
-218.0			SANDSTONE	6.7	700.0	SHALEY
-224.7	CARBONDALE	HERRIN	COAL	10.3	706.7	BLUE BAND .16'
-235.0	CARBONDALE		SHALE	0.7	717.0	

MAPID: 08100789000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 35

QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.066784

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.1329

DATE COLLECTED:

SURFACE ELEVATION (FT.): 487.0

LOGGED (FT.): 2451.0

LOG TYPE: Electric Log

SOURCE: HOUGHTON HALLIBURTON

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-263.0	CARBONDALE	SPRINGFIELD	COAL	-	750.0	
-431.0	CARBONDALE	COLCHESTER	COAL	-	918.0	
-1964.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2451.0	

MAPID: 08100789000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 35 QUARTERS/FOOTAGES: 330' S line, 330' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.066784 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.1329 DATE COLLECTED:

SURFACE ELEVATION (FT.): 487.0 LOGGED (FT.): 729.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-97.0	MODESTO	PIASA	LIMESTONE	5.0	584.0
-102.0	MODESTO		GRAY SHALE	4.0	589.0
-106.0	CARBONDALE	DANVILLE	COAL	2.0	593.0
-108.0	CARBONDALE		GRAY SHALE	4.0	595.0
-112.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	599.0
-117.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	26.0	604.0
-143.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	90.0	630.0
-233.0	CARBONDALE	HERRIN	COAL	9.0	720.0

MAPID: 08100045000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 36 QUARTERS/FOOTAGES: NE SW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.055492 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.134906 DATE COLLECTED: 0 / 0 / 1906

SURFACE ELEVATION (FT.): 472.4 LOGGED (FT.): 733.0 LOG TYPE:

SOURCE: BALD HILL WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-244.6	CARBONDALE	HERRIN	COAL	9.8	717.0

MAPID: 08100045000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 36

QUARTERS/FOOTAGES: NE SW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.055492

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.134906

DATE COLLECTED: 0 / 0 / 1906

SURFACE ELEVATION (FT.): 472.0

LOGGED (FT.): 733.0

LOG TYPE: Drillers Log

SOURCE: BALD HILL C C

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
472.0			UNCONSOLIDATED	50.0	0.0
422.0			ROCK	203.0	50.0
219.0			COAL	0.5	253.0
218.5			ROCK	11.5	253.5
207.0			COAL	0.3	265.0
206.7			ROCK	143.4	265.3
63.3			COAL	0.3	408.7
63.0			ROCK	189.0	409.0
-126.0			COAL	2.7	598.0
-129.2			ROCK	66.8	601.2
-196.0			SANDSTONE	39.0	668.0
-235.0			SHALE	9.8	707.0
-244.8	CARBONDALE	HERRIN	COAL	9.8	716.8
-254.6	CARBONDALE		SHALE	6.4	726.6

MAPID: 08100198000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 1E

SECTION: 36

QUARTERS/FOOTAGES: 330' S line, 660' E line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.042803

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.125826

DATE COLLECTED:

SURFACE ELEVATION (FT.): 478.0

LOGGED (FT.): 2468.0

LOG TYPE: Electric Log

SOURCE: REINHARDT S L

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-292.0	CARBONDALE	SPRINGFIELD	COAL	-	770.0
-472.0	CARBONDALE	COLCHESTER	COAL	-	950.0
-1990.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2468.0

MAPID: 08100788000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 36 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.057836

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.138567

DATE COLLECTED:

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 729.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-118.0	MODESTO	PIASA	LIMESTONE	5.0	598.0
-123.0	MODESTO		GRAY SHALE	3.0	603.0
-126.0	CARBONDALE	DANVILLE	COAL	2.0	606.0
-128.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	37.0	608.0
-165.0	CARBONDALE	ENERGY	GRAY SHALE	75.0	645.0
-240.0	CARBONDALE	HERRIN	COAL	9.0	720.0

MAPID: 08190020000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 1E SECTION: 36 QUARTERS/FOOTAGES: NW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.048873 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.134794 DATE COLLECTED:

SURFACE ELEVATION (FT.): 460.5 LOGGED (FT.): 720.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 751S87 WELL TYPE: Coal Test

COMMENT: PERMIT 281; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
460.5	PLEISTOCENE		UNCONSOLIDATED	8.0	0.0	
452.5	PLEISTOCENE		SAND & GRAVEL	5.5	8.0	BROWN
447.0	BOND		SHALE	9.5	13.5	
437.5	BOND		SANDY SHALE	15.0	23.0	
422.5	BOND		SHALY SANDSTONE	8.0	38.0	
414.5	BOND		LIMESTONE	2.5	46.0	DARK
412.0	BOND		GRAY SHALE	2.5	48.5	
409.5	BOND		SILTY SHALE	13.0	51.0	
396.5	BOND	FLAT CREEK	COAL	1.0	64.0	APPROXIMATE THICKNESS
395.5	BOND		ROCK	3.0	65.0	
392.5	BOND		SILTY SHALE	20.0	68.0	
372.5	BOND		SANDSTONE	19.5	88.0	
353.0	BOND		CALCAREOUS SANDSTONE	3.5	107.5	
349.5	BOND		SANDSTONE	29.0	111.0	
320.5	BOND		CALCAREOUS SANDSTONE	2.5	140.0	
318.0	BOND		SANDSTONE	24.0	142.5	
294.0	BOND		CALCAREOUS SANDSTONE	1.5	166.5	
292.5	BOND		SHALY SANDSTONE	7.0	168.0	
285.5	BOND		SILTY SHALE	41.5	175.0	
244.0	BOND	CARTHAGE	LIMESTONE	4.5	216.5	
239.5	MODESTO		GRAY SHALE	4.0	221.0	
235.5	MODESTO		SILTY SHALE	8.5	225.0	
227.0	MODESTO	NEW HAVEN	COAL	1.0	233.5	APPROXIMATE THICKNESS
226.0	MODESTO		SILTY SHALE	23.5	234.5	
202.5	MODESTO		GRAY SHALE	8.0	258.0	
194.5	MODESTO		SILTY SHALE	23.5	266.0	
171.0	MODESTO		DARK GRAY SHALE	5.5	289.5	
165.5	MODESTO		LIMESTONE	0.5	295.0	
165.0	MODESTO		SILTY SHALE	8.0	295.5	
157.0	MODESTO		GRAY SHALE	10.5	303.5	
146.5	MODESTO		SANDY SHALE	16.5	314.0	
130.0	MODESTO		SANDSTONE	2.0	330.5	
128.0	MODESTO		SHALY SANDSTONE	26.5	332.5	
101.5	MODESTO		SILTY SHALE	68.5	359.0	
33.0	MODESTO		SHALY SANDSTONE	4.5	427.5	
28.5	MODESTO		SANDY SHALE	83.0	432.0	
-54.5	MODESTO		SILTY SHALE	20.5	515.0	

-75.0	MODESTO		SANDY LIMESTONE	3.0	535.5	
-78.0	MODESTO		SANDY SHALE	16.0	538.5	
-94.0	MODESTO		SANDY LIMESTONE	4.5	554.5	
-98.5	MODESTO		SANDY SHALE	11.0	559.0	
-109.5	MODESTO		RED SHALE	2.0	570.0	
-111.5	MODESTO		GRAY SHALE	3.0	572.0	
-114.5	MODESTO		SANDY SHALE	9.0	575.0	
-123.5	MODESTO	PIASA	LIMESTONE	4.5	584.0	
-128.0	MODESTO		GRAY SHALE	6.5	588.5	
-134.5	CARBONDALE	DANVILLE	COAL	1.0	595.0	APPROXIMATE THICKNESS
-135.5	CARBONDALE		GRAY SHALE	7.5	596.0	
-143.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.5	603.5	
-147.5	CARBONDALE	ENERGY	SANDSTONE/SHALE	86.5	608.0	
-234.0	CARBONDALE		MINE OPENING	25.5	694.5	OLD MINE OPENING

MAPID: 08100403000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' S line, 1650' E line
QUADRANGLE: INA **LONGITUDE:** -88.938135 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.203271 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 416.0 **LOGGED (FT.):** 2418.0 **LOG TYPE:** Electric Log
SOURCE: KENNEDY JACK **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
-351.0	CARBONDALE	SPRINGFIELD	COAL	-	767.0	
-520.0	CARBONDALE	COLCHESTER	COAL	-	936.0	
-2002.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2418.0	

MAPID: 08100403000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 1 **QUARTERS/FOOTAGES:** 330' S line, 1650' E line
QUADRANGLE: INA **LONGITUDE:** -88.938135 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.203271 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 416.0 **LOGGED (FT.):** 711.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
-206.0	MODESTO	PIASA	LIMESTONE	3.0	622.0	
-209.0	MODESTO		SHALE	15.0	625.0	
-224.0	CARBONDALE	DANVILLE	COAL	2.0	640.0	
-226.0	CARBONDALE	ENERGY	GRAY SHALE	63.0	642.0	
-289.0	CARBONDALE	HERRIN	COAL	6.0	705.0	

MAPID: 0810280000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 2 QUARTERS/FOOTAGES: NE NE NW

QUADRANGLE: INA LONGITUDE: -88.959024 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.213111 DATE COLLECTED:

SURFACE ELEVATION (FT.): 439.0 LOGGED (FT.): 763.8 LOG TYPE: Drillers Log

SOURCE: NO COMPANY WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-244.0	MODESTO	PIASA	LIMESTONE	6.5	683.0
-250.5	MODESTO		GRAY SHALE	3.5	689.5
-254.0	CARBONDALE	DANVILLE	COAL	0.5	693.0
-254.5	CARBONDALE		GRAY SHALE	11.9	693.5
-266.4	CARBONDALE	BANKSTON FORK	LIMESTONE	0.3	705.4
-266.7	CARBONDALE	ENERGY	SILTY SHALE	43.7	705.7
-310.3	CARBONDALE	ENERGY	GRAY SHALE	8.7	749.3
-319.0	CARBONDALE	HERRIN	COAL	5.8	758.0

MAPID: 08190001000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 2 QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: INA LONGITUDE: -88.949792 GEOLOGIST: C TREWORYG

CONFIDENTIAL: N LATITUDE: 38.205166 DATE COLLECTED: 10 / 0 / 1985

SURFACE ELEVATION (FT.): 445.2 LOGGED (FT.): 735.2 LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-7-85 WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
445.2			UNCONSOLIDATED	5.0	0.0	SURFACE DEPOSITS
440.2			UNCONSOLIDATED	13.0	5.0	GLACIAL DRIFT/TILL
427.2	BOND		SANDSTONE	44.0	18.0	SS W/ GY SH
383.2	BOND		BLACK SHALE	2.0	62.0	
381.2	BOND		COAL	1.0	64.0	
380.2	BOND		UNDERCLAY	1.0	65.0	
379.2	BOND		GRAY SHALE	5.0	66.0	GY SH W/ SS
374.2	BOND		SANDSTONE	19.0	71.0	
355.2	BOND		SANDSTONE	30.0	90.0	SS W/ GY SH
325.2	BOND		SANDSTONE	125.0	120.0	
200.2	BOND		GRAY SHALE	30.0	245.0	GY SH W/ SS
170.2	BOND	CARTHAGE	LIMESTONE	6.0	275.0	
164.2	MODESTO		BLACK SHALE	2.0	281.0	
162.2	MODESTO		GRAY SHALE	27.0	283.0	
135.2	MODESTO		SANDSTONE	55.0	310.0	
80.2	MODESTO		BLACK SHALE	2.0	365.0	
78.2	MODESTO		GRAY SHALE	8.0	367.0	
70.2	MODESTO		SANDSTONE	114.5	375.0	
-44.3	MODESTO		BLACK SHALE	1.2	489.5	
-45.5	MODESTO		GRAY SHALE	1.3	490.7	
-46.8	MODESTO		SANDSTONE	5.0	492.0	
-51.8	MODESTO		GRAY SHALE	27.0	497.0	
-78.8	MODESTO		LIMESTONE	6.5	524.0	
-85.3	MODESTO		GRAY SHALE	13.5	530.5	
-98.8	MODESTO		SANDSTONE	93.0	544.0	
-191.8	MODESTO		DARK GRAY SHALE	17.0	637.0	
-208.8	MODESTO		BLACK SHALE	2.0	654.0	
-210.8	CARBONDALE	ENERGY	GRAY SHALE	51.0	656.0	GY SH W/ SS
-261.8	CARBONDALE	ENERGY	GRAY SHALE	5.7	707.0	GY SH W/ SS LAMS
-267.5	CARBONDALE	ENERGY	SANDSTONE	1.7	712.7	SS CONGLOMERATE
-269.2	CARBONDALE	ENERGY	GRAY SHALE	6.1	714.4	GY SH W/ SS LAMS
-275.3	CARBONDALE	ENERGY	SILTY SHALE	7.1	720.5	
-282.4	CARBONDALE	HERRIN	COAL	5.5	727.6	
-287.9	CARBONDALE		UNDERCLAY	2.1	733.1	

MAPID: 08190002000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 2 QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: INA LONGITUDE: -88.949784 GEOLOGIST: C TREWORY

CONFIDENTIAL: N LATITUDE: 38.213023 DATE COLLECTED: 0 / 0 / 1971

SURFACE ELEVATION (FT.): 443.5 LOGGED (FT.): 741.0 LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-02-71 WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
443.5			CLAY	18.0	0.0	
425.5	MATTOON		SHALE	30.0	18.0	SH & SD
395.5	MATTOON		COAL	2.0	48.0	
393.5	MATTOON		UNDERCLAY	2.3	50.0	
391.2	MATTOON		SHALE	48.7	52.3	SH & SDY SH W/ LS STREAKS
342.5	MATTOON		SHALE	15.0	101.0	
327.5	MATTOON		COAL	2.5	116.0	
325.0	MATTOON		UNDERCLAY	3.5	118.5	
321.5	MATTOON		DARK SHALE	6.0	122.0	
315.5	MATTOON		GRAY SHALE	11.0	128.0	
304.5	MATTOON		SANDY SHALE	22.0	139.0	
282.5	BOND	MILLERSVILLE	LIMESTONE	28.0	161.0	
254.5	BOND	MILLERSVILLE	LIMESTONE	21.0	189.0	LS W/ SH STRINGERS
233.5	BOND		COAL	2.0	210.0	
231.5	BOND		UNDERCLAY	1.5	212.0	
230.0	BOND		SANDSTONE	1.5	213.5	
228.5	BOND		SANDY SHALE	3.0	215.0	
225.5	BOND		LIMESTONE	56.0	218.0	
169.5	BOND		BLACK SHALE	8.0	274.0	
161.5	BOND		SANDY SHALE	3.0	282.0	
158.5	BOND		UNCLASSIFIED	25.0	285.0	ERROR IN LOG
133.5	BOND		COAL	1.3	310.0	
132.2	BOND		UNDERCLAY	1.5	311.3	
130.7	BOND		SHALE	4.2	312.8	
126.5	BOND		COAL	1.0	317.0	
125.5	BOND		UNDERCLAY	1.0	318.0	
124.5	BOND	CARTHAGE	LIMESTONE	1.0	319.0	
123.5	BOND	CARTHAGE	SHALY LIMESTONE	7.0	320.0	
116.5	MODESTO		GRAY SHALE	12.0	327.0	
104.5	MODESTO		SHALE W/ COAL STREAKS	30.0	339.0	STRINGER COAL W/ DK SH
74.5	MODESTO		GRAY SHALE	6.0	369.0	
68.5	MODESTO		SANDY SHALE	35.0	375.0	
33.5	MODESTO		DARK SHALE	81.0	410.0	DK SH & COAL STRINGERS
-47.5	MODESTO		UNDERCLAY	6.0	491.0	UCLY & DK SH
-53.5	MODESTO		SHALE	2.0	497.0	SH W/ LS STRINGERS
-55.5	MODESTO		SHALE	5.0	499.0	
-60.5	MODESTO		SANDY SHALE	32.0	504.0	
-92.5	MODESTO		DARK SHALE	48.0	536.0	
-140.5	MODESTO		GRAY SHALE	13.0	584.0	

-153.5		UNCLASSIFIED	17.0	597.0	LOG SAYS 'HARD STREAKS'
-170.5		DARK SHALE	12.0	614.0	DK SH & DIRTY CO
-182.5		GRAY SHALE	2.0	626.0	
-184.5		DARK SHALE	29.0	628.0	DK SH & CO
-213.5	CARBONDALE	GRAY SHALE	2.0	657.0	GY SH W/ HARD STREAKS
-215.5	CARBONDALE	GRAY SHALE	25.0	659.0	GY SH W/ HARD STREAKS
-240.5	CARBONDALE	COAL	0.2	684.0	COAL BAND
-240.7	CARBONDALE	GRAY SHALE	23.0	684.2	GY SH W/ HARD STREAKS
-263.7	CARBONDALE	GRAY SHALE	9.6	707.2	GY SH W/ HARD STREAKS
-273.3	CARBONDALE	UNCLASSIFIED	2.4	716.8	CORE LOSS
-275.7	CARBONDALE	SANDY SHALE	8.6	719.2	
-284.3	CARBONDALE	GRAY SHALE	6.5	727.8	GY SH W/ HARD LAMS
-290.8	CARBONDALE	DARK SHALE	0.5	734.3	DK SH W/ COAL LAMS
-291.3	CARBONDALE HERRIN	COAL	4.1	734.8	
-295.4	CARBONDALE	UNDERCLAY	2.1	738.9	

MAPID: 08190004000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: SE NW SE

QUADRANGLE: INA

LONGITUDE: -88.954449

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.203223

DATE COLLECTED: 7 / 0 / 1990

SURFACE ELEVATION (FT.): 443.8

LOGGED (FT.): 729.4

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-05-90

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
443.8			CLAY	1.0	0.0	
442.8			CLAY	17.0	1.0	
425.8	BOND		SANDSTONE	11.0	18.0	
414.8	BOND		GRAY SHALE	16.0	29.0	
398.8	BOND		DARK GRAY SHALE	21.0	45.0	
377.8	BOND		BLACK SHALE	2.0	66.0	
375.8	BOND		LIMESTONE	0.5	68.0	
375.3	BOND		GRAY SHALE	6.5	68.5	
368.8	BOND		SANDSTONE	20.0	75.0	
348.8	BOND		DARK GRAY SHALE	18.0	95.0	
330.8	BOND		BLACK SHALE	2.0	113.0	BK SH W/ CO
328.8	BOND		GRAY SHALE	13.0	115.0	
315.8	BOND		GRAY SHALE	9.0	128.0	
306.8	BOND		DARK GRAY SHALE	24.0	137.0	
282.8	BOND		SANDSTONE	12.0	161.0	
270.8	BOND		CALCAREOUS SANDSTONE	4.0	173.0	
266.8	BOND		SANDSTONE	46.0	177.0	
220.8	BOND		GRAY SHALE	41.0	223.0	
179.8	BOND	CARTHAGE	LIMESTONE	6.5	264.0	
173.3	MODESTO		BLACK SHALE	2.5	270.5	
170.8	MODESTO		GRAY SHALE	20.0	273.0	
150.8	MODESTO		DARK GRAY SHALE	6.5	293.0	
144.3	MODESTO	WOMAC	COAL	0.5	299.5	
143.8	MODESTO		GRAY SHALE	8.0	300.0	
135.8	MODESTO		SANDSTONE	8.0	308.0	
127.8	MODESTO		DARK GRAY SHALE	38.5	316.0	
89.3	MODESTO		BLACK SHALE	2.0	354.5	
87.3	MODESTO		LIMESTONE	1.5	356.5	
85.8	MODESTO		DARK GRAY SHALE	13.0	358.0	
72.8	MODESTO		CALCAREOUS SHALE	8.0	371.0	
64.8	MODESTO		GRAY SHALE	13.0	379.0	
51.8	MODESTO		CALCAREOUS SANDSTONE	3.0	392.0	
48.8	MODESTO		GRAY SHALE	45.0	395.0	
3.8	MODESTO		DARK GRAY SHALE	30.0	440.0	
-26.2	MODESTO		BLACK SHALE	3.0	470.0	BK SH W/ CO
-29.2	MODESTO		GRAY SHALE	10.0	473.0	
-39.2	MODESTO		GRAY SHALE	7.0	483.0	
-46.2	MODESTO		DARK GRAY SHALE	14.0	490.0	

-60.2	MODESTO		GRAY SHALE	21.0	504.0
-81.2	MODESTO		CALCAREOUS SANDSTONE	2.0	525.0
-83.2			GRAY SHALE	43.0	527.0
-126.2			GRAY SHALE	40.0	570.0
-166.2			DARK GRAY SHALE	10.0	610.0
-176.2			BLACK SHALE	2.0	620.0
-178.2	CARBONDALE		GRAY SHALE	13.0	622.0
-191.2	CARBONDALE		LIMESTONE	2.0	635.0
-193.2	CARBONDALE		DARK GRAY SHALE	6.0	637.0
-199.2	CARBONDALE		BLACK SHALE	4.0	643.0
-203.2	CARBONDALE		GRAY SHALE	10.0	647.0
-213.2	CARBONDALE	ENERGY	SANDSTONE	46.0	657.0
-259.2	CARBONDALE	ENERGY	GRAY SHALE	14.9	703.0
-274.1	CARBONDALE	ENERGY	GRAY SHALE	3.3	717.9
-277.4	CARBONDALE	HERRIN	COAL	5.5	721.2
-282.8	CARBONDALE		CLAYSTONE & SILTSTONE	2.8	726.6

MAPID: 08190007000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: NE SE NW

QUADRANGLE: INA

LONGITUDE: -88.959058

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.209164

DATE COLLECTED: 6 / 0 / 1989

SURFACE ELEVATION (FT.): 453.8

LOGGED (FT.): 758.7

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-02-89

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
453.8			UNCONSOLIDATED	3.0	0.0	
450.8			UNCONSOLIDATED	19.0	3.0	GLACIAL DRIFT (TILL)
431.8	BOND		GRAY SHALE	28.0	22.0	GY SH & SS
403.8	BOND		GRAY SHALE	36.0	50.0	GY SH W/ SS BANDS
367.8	BOND		BLACK SHALE	1.0	86.0	
366.8	BOND		SANDSTONE	163.0	87.0	SS W/ SH BANDS
203.8	BOND		GRAY SHALE	35.0	250.0	GY SH W/ SIDERITE BANDS
168.8	BOND	CARTHAGE	LIMESTONE	6.5	285.0	
162.3	MODESTO		BLACK SHALE	2.5	291.5	
159.8	MODESTO		GRAY SHALE	27.0	294.0	
132.8	MODESTO	WOMAC	COAL	2.0	321.0	
130.8	MODESTO		GRAY SHALE	7.0	323.0	
123.8	MODESTO		SANDSTONE	17.0	330.0	
106.8	MODESTO		GRAY SHALE	7.0	347.0	
99.8	MODESTO		BLACK SHALE	1.5	354.0	
98.3	MODESTO		GRAY SHALE	9.5	355.5	
88.8	MODESTO		SANDSTONE	60.0	365.0	
28.8	MODESTO		GRAY SHALE	67.0	425.0	GY SH W/ SS
-38.2	MODESTO		BLACK SHALE	4.0	492.0	
-42.2	MODESTO		GRAY SHALE	5.0	496.0	
-47.2	MODESTO	CHAPEL	COAL	1.0	501.0	
-48.2	MODESTO		GRAY SHALE	33.0	502.0	
-81.2	MODESTO		LIMESTONE	0.5	535.0	
-81.7	MODESTO		GRAY SHALE	135.5	535.5	
-217.2	MODESTO		BLACK SHALE	2.0	671.0	
-219.2	CARBONDALE	ENERGY	GRAY SHALE	57.0	673.0	
-276.2	CARBONDALE	ENERGY	GRAY SHALE	15.9	730.0	
-292.0	CARBONDALE	ENERGY	DARK GRAY SHALE	0.2	745.8	DGY SH W/ COAL LAMS
-292.2	CARBONDALE	HERRIN	COAL	6.3	746.0	
-298.5	CARBONDALE		UNDERCLAY	3.2	752.3	
-301.7	CARBONDALE		SANDSTONE	3.2	755.5	

MAPID: 08190008000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: INA

LONGITUDE: -88.959143

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.199294

DATE COLLECTED: 6 / 0 / 1989

SURFACE ELEVATION (FT.): 458.5

LOGGED (FT.): 745.8

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-05-89

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
458.5			UNCONSOLIDATED	22.0	0.0	
436.5	BOND		SANDSTONE	13.0	22.0	
423.5	BOND		GRAY SHALE	84.0	35.0	GY SH W/ SS
339.5	BOND		BLACK SHALE	5.0	119.0	
334.5	BOND		COAL	1.0	124.0	
333.5	BOND		GRAY SHALE	9.0	125.0	
324.5	BOND		SANDSTONE	111.0	134.0	
213.5	BOND		COAL	0.5	245.0	
213.0	BOND		GRAY SHALE	3.1	245.5	
209.9	BOND		LIMESTONE	0.2	248.6	
209.7	BOND		GRAY SHALE	20.5	248.8	
189.2	BOND	CARTHAGE	LIMESTONE	5.7	269.3	
183.5	MODESTO		BLACK SHALE	2.1	275.0	
181.4	MODESTO		SANDSTONE	0.2	277.1	
181.2	MODESTO		GRAY SHALE	62.7	277.3	GY SH W/ TRACE OF COAL
118.5	MODESTO		SANDSTONE	55.0	340.0	
63.5	MODESTO		GRAY SHALE	81.0	395.0	
-17.5	MODESTO	MOUND CITY	BLACK SHALE	2.0	476.0	
-19.5	MODESTO	CHAPEL	COAL	1.0	478.0	
-20.5	MODESTO		GRAY SHALE	152.0	479.0	
-172.5	MODESTO		BLACK SHALE	3.0	631.0	
-175.5	MODESTO		GRAY SHALE	7.0	634.0	
-182.5	MODESTO		DARK GRAY SHALE	14.0	641.0	
-196.5	MODESTO		BLACK SHALE	1.7	655.0	
-198.2	CARBONDALE	ENERGY	GRAY SHALE	50.3	656.7	GY SH W/ SIDERITE BANDS
-248.5	CARBONDALE	ENERGY	SANDSTONE	3.0	707.0	SS CONGLOMERATE
-251.5	CARBONDALE	ENERGY	GRAY SHALE	5.0	710.0	
-256.5	CARBONDALE	ENERGY	GRAY SHALE	6.4	715.0	
-262.9	CARBONDALE	ENERGY	UNCLASSIFIED	8.1	721.4	CORE LOSS
-271.0	CARBONDALE	ENERGY	GRAY SHALE	1.8	729.5	
-272.8	CARBONDALE	ENERGY	UNCLASSIFIED	0.5	731.3	CORE LOSS
-273.3	CARBONDALE	ENERGY	GRAY SHALE	1.8	731.8	
-275.1	CARBONDALE	ENERGY	DARK GRAY SHALE	0.5	733.6	
-275.6	CARBONDALE	HERRIN	COAL	5.2	734.1	
-280.8	CARBONDALE		UNDERCLAY	2.7	739.3	
-283.5	CARBONDALE		SANDSTONE	3.8	742.0	

MAPID: 08190009000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: NE SE SW

QUADRANGLE: INA

LONGITUDE: -88.959124

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.201268

DATE COLLECTED: 8 / 0 / 1982

SURFACE ELEVATION (FT.): 454.3

LOGGED (FT.): 825.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-02-82

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
454.3			UNCONSOLIDATED	21.0	0.0	
433.3	BOND		GRAY SHALE	7.0	21.0	
426.3	BOND		GRAY SHALE	31.0	28.0	GY SH W/ SS BANDS
395.3	BOND		BLACK SHALE	2.0	59.0	
393.3	BOND		LIMESTONE	1.0	61.0	
392.3	BOND		SANDY SHALE	56.0	62.0	
336.3	BOND		GRAY SHALE	30.0	118.0	GY SH W/ SIDERITE
306.3	BOND		SANDSTONE	12.0	148.0	
294.3	BOND		GRAY SHALE	9.0	160.0	GY SH W/ SS
285.3	BOND		SANDSTONE	23.0	169.0	SS W/ LGY SH
262.3	BOND		CALCAREOUS SANDSTONE	3.5	192.0	
258.8	BOND		SANDSTONE	22.5	195.5	
236.3	BOND		GRAY SHALE	6.0	218.0	LGY SH W/ SS BANDS
230.3	BOND		SANDSTONE	47.0	224.0	
183.3	BOND	CARTHAGE	LIMESTONE	7.0	271.0	
176.3	MODESTO		BLACK SHALE	2.0	278.0	
174.3	MODESTO		SANDSTONE	26.0	280.0	
148.3	MODESTO		BLACK SHALE	1.0	306.0	
147.3	MODESTO	WOMAC	COAL	1.0	307.0	
146.3	MODESTO		GRAY SHALE	13.0	308.0	
133.3	MODESTO		SANDSTONE	4.0	321.0	
129.3	MODESTO		GRAY SHALE	21.0	325.0	
108.3	MODESTO		GRAY SHALE	12.0	346.0	GY SH W/ SS BANDS
96.3	MODESTO		CALCAREOUS SANDSTONE	1.0	358.0	
95.3	MODESTO		GRAY SHALE	40.0	359.0	GY SH W/ SS
55.3	MODESTO		LIMESTONE	1.0	399.0	
54.3	MODESTO		GRAY SHALE	78.0	400.0	GY SH W/ SS
-23.7	MODESTO	MOUND CITY	BLACK SHALE	2.0	478.0	
-25.7	MODESTO	CHAPEL	COAL	1.0	480.0	
-26.7	MODESTO		GRAY SHALE	3.0	481.0	
-29.7			GRAY SHALE	136.0	484.0	GY SH W/ SS
-165.7			LIMESTONE	1.0	620.0	
-166.7			GRAY SHALE	33.0	621.0	GY SH W/ SS
-199.7			BLACK SHALE	3.0	654.0	
-202.7	CARBONDALE	ENERGY	SANDSTONE	57.0	657.0	
-259.7	CARBONDALE	ENERGY	SANDSTONE	4.7	714.0	
-264.4	CARBONDALE	ENERGY	SANDSTONE	3.0	718.7	SS W/ LS NODS

-267.4	CARBONDALE	ENERGY	SANDSTONE	7.5	721.7	
-274.9	CARBONDALE	ENERGY	SANDY SHALE	1.2	729.2	
-276.0	CARBONDALE	ENERGY	GRAY SHALE	3.2	730.3	
-279.2	CARBONDALE	HERRIN	COAL	5.1	733.5	
-284.3	CARBONDALE		UNCLASSIFIED	0.7	738.6	CORE LOSS
-285.0	CARBONDALE		DARK GRAY SHALE	0.2	739.3	
-285.2	CARBONDALE		UNDERCLAY	0.7	739.5	
-285.8	CARBONDALE		UNCLASSIFIED	0.9	740.1	CORE LOSS
-286.7	CARBONDALE		CLAYSTONE & SILTSTONE	2.0	741.0	
-288.7	CARBONDALE		GRAY SHALE	39.0	743.0	GY SH W/ SS
-327.7	CARBONDALE	BRIAR HILL	COAL	1.0	782.0	
-328.7	CARBONDALE		GRAY SHALE	3.0	783.0	
-331.7	CARBONDALE		SANDSTONE	9.0	786.0	
-340.7	CARBONDALE		GRAY SHALE	3.0	795.0	GY SH W/ SS
-343.7	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	798.0	
-345.7	CARBONDALE	SPRINGFIELD	COAL	4.0	800.0	
-349.7	CARBONDALE		GRAY SHALE	3.0	804.0	
-352.7	CARBONDALE		SANDSTONE	18.0	807.0	

MAPID: 08190010000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 2 QUARTERS/FOOTAGES: SE SE NE

QUADRANGLE: INA LONGITUDE: -88.949791 GEOLOGIST: C TREWORYG

CONFIDENTIAL: N LATITUDE: 38.207129 DATE COLLECTED: 8 / 0 / 1982

SURFACE ELEVATION (FT.): 450.1 LOGGED (FT.): 718.4 LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-01-82 WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
450.1			UNCONSOLIDATED	2.0	0.0	
448.1			UNCONSOLIDATED	4.0	2.0	GLACIAL DRIFT
444.1	BOND		SANDSTONE	10.0	6.0	
434.1	BOND		GRAY SHALE	35.0	16.0	
399.1	BOND		BLACK SHALE	2.5	51.0	
396.6	BOND		COAL	2.5	53.5	
394.1	BOND		GRAY SHALE	44.0	56.0	
350.1	BOND		COAL	1.8	100.0	
348.3	BOND		GRAY SHALE	23.2	101.8	
325.1	BOND		SANDSTONE	68.8	125.0	
256.3	BOND		COAL	1.2	193.8	
255.1	BOND		GRAY SHALE	15.5	195.0	
239.6	BOND		SANDSTONE	1.5	210.5	
238.1	BOND		DARK GRAY SHALE	41.0	212.0	
197.1	BOND	CARTHAGE	LIMESTONE	9.5	253.0	
187.6	MODESTO		BLACK SHALE	3.5	262.5	
184.1	MODESTO	NEW HAVEN	COAL	3.0	266.0	
181.1	MODESTO		GRAY SHALE	26.0	269.0	
155.1	MODESTO	WOMAC	COAL	1.0	295.0	
154.1	MODESTO		GRAY SHALE	5.0	296.0	
149.1	MODESTO		SANDSTONE	10.5	301.0	
138.6	MODESTO		DARK GRAY SHALE	4.5	311.5	
134.1	MODESTO		DARK GRAY SHALE	32.0	316.0	
102.1	MODESTO		BLACK SHALE	1.0	348.0	
101.1	MODESTO		LIMESTONE	1.5	349.0	
99.6	MODESTO		GRAY SHALE	12.5	350.5	
87.1	MODESTO		SANDSTONE	47.0	363.0	
40.1	MODESTO		GRAY SHALE	25.0	410.0	
15.1	MODESTO		SANDSTONE	20.0	435.0	
-4.9	MODESTO		GRAY SHALE	13.0	455.0	
-17.9	MODESTO	CHAPEL	COAL	3.0	468.0	
-20.9	MODESTO		GRAY SHALE	64.0	471.0	
-84.9	MODESTO		SANDSTONE	25.0	535.0	
-109.9			GRAY SHALE	40.0	560.0	GY SH W/ SS
-149.9			SANDSTONE	20.0	600.0	
-169.9			DARK GRAY SHALE	18.0	620.0	
-187.9			BLACK SHALE	4.3	638.0	
-192.2	CARBONDALE		GRAY SHALE	2.7	642.3	
-194.9	CARBONDALE		LIMESTONE	1.0	645.0	

-195.9	CARBONDALE		GRAY SHALE	4.0	646.0	
-199.9	CARBONDALE		SANDSTONE	5.0	650.0	
-204.9	CARBONDALE		GRAY SHALE	6.5	655.0	
-211.4	CARBONDALE		LIMESTONE	1.5	661.5	
-212.9	CARBONDALE		GRAY SHALE	4.0	663.0	
-216.9	CARBONDALE		LIMESTONE	2.0	667.0	
-218.9	CARBONDALE	ENERGY	GRAY SHALE	28.0	669.0	
-246.9	CARBONDALE	ENERGY	GRAY SILTSTONE	0.3	697.0	GRAY SILTSTONE
-247.2	CARBONDALE	ENERGY	GRAY SHALE	0.4	697.3	
-247.6	CARBONDALE	ENERGY	CLAYSTONE & SILTSTONE	0.3	697.7	
-247.9	CARBONDALE	ENERGY	SANDSTONE	0.2	698.0	
-248.1	CARBONDALE	ENERGY	CONGLOMERATE	1.8	698.2	
-249.9	CARBONDALE	ENERGY	GRAY SHALE	0.4	700.0	
-250.3	CARBONDALE	ENERGY	SILTSTONE	5.9	700.4	
-256.2	CARBONDALE	ENERGY	GRAY SHALE	0.2	706.3	
-256.3	CARBONDALE	ENERGY	SILTSTONE	1.3	706.4	
-257.7	CARBONDALE	ENERGY	SILTSTONE	0.3	707.8	
-257.9	CARBONDALE	ENERGY	GRAY SHALE	2.4	708.0	
-260.3	CARBONDALE	ENERGY	GRAY SHALE	0.1	710.4	
-260.4	CARBONDALE	HERRIN	COAL	5.9	710.5	
-266.3	CARBONDALE		UNDERCLAY	2.0	716.4	

MAPID: 08190011000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: NW NW NE

QUADRANGLE: INA

LONGITUDE: -88.956715

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.213089

DATE COLLECTED: 8 / 0 / 1982

SURFACE ELEVATION (FT.): 473.8

LOGGED (FT.): 835.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-03-82

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
473.8			UNCONSOLIDATED	2.0	0.0	
471.8			UNCONSOLIDATED	32.0	2.0	GLACIAL DRIFT
439.8	BOND		SANDY SHALE	48.0	34.0	
391.8	BOND		LIMESTONE	0.5	82.0	
391.3	BOND		BLACK SHALE	1.5	82.5	
389.8	BOND		LIMESTONE	0.4	84.0	
389.4	BOND		COAL	1.6	84.4	
387.8	BOND		GRAY SHALE	14.0	86.0	GY SH W/ SS BANDS
373.8	BOND		SANDSTONE	7.0	100.0	
366.8	BOND		DARK GRAY SHALE	19.0	107.0	
347.8	BOND		BLACK SHALE	3.0	126.0	
344.8	BOND		GRAY SHALE	51.0	129.0	
293.8	BOND		SANDSTONE	52.0	180.0	
241.8	BOND		COAL	2.0	232.0	
239.8	BOND		SANDSTONE	3.0	234.0	
236.8	BOND		BLACK SHALE	1.0	237.0	
235.8	BOND		DARK GRAY SHALE	51.5	238.0	
184.3	BOND	CARTHAGE	LIMESTONE	7.0	289.5	
177.3	MODESTO		BLACK SHALE	2.5	296.5	
174.8	MODESTO	NEW HAVEN	COAL	2.5	299.0	
172.3	MODESTO		GRAY SHALE	27.5	301.5	GY SH W/ SS BANDS
144.8	MODESTO	WOMAC	COAL	3.0	329.0	
141.8	MODESTO		GRAY SHALE	1.0	332.0	
140.8	MODESTO		SANDSTONE	20.0	333.0	
120.8	MODESTO		DARK GRAY SHALE	31.5	353.0	
89.3	MODESTO		BLACK SHALE	4.0	384.5	
85.3	MODESTO		LIMESTONE	1.0	388.5	
84.3	MODESTO		GRAY SHALE	30.5	389.5	
53.8	MODESTO		SANDSTONE	10.0	420.0	
43.8	MODESTO		GRAY SHALE	18.0	430.0	
25.8	MODESTO		SANDSTONE	45.0	448.0	
-19.2	MODESTO		GRAY SHALE	12.0	493.0	
-31.2	MODESTO		COAL	1.0	505.0	
-32.2	MODESTO		GRAY SHALE	4.0	506.0	
-36.2	MODESTO		SANDSTONE	50.0	510.0	
-86.2	MODESTO		GRAY SHALE	85.0	560.0	GY SH W/ SS BANDS
-171.2	MODESTO		DARK GRAY SHALE	11.0	645.0	
-182.2	CARBONDALE	DANVILLE	COAL	3.3	656.0	
-185.5	CARBONDALE		GRAY SHALE	13.2	659.3	

-198.7	CARBONDALE		LIMESTONE	4.0	672.5	
-202.7	CARBONDALE		GRAY SHALE	1.5	676.5	
-204.2	CARBONDALE		BLACK SHALE	4.0	678.0	
-208.2	CARBONDALE		GRAY SHALE	2.0	682.0	
-210.2	CARBONDALE		LIMESTONE	0.5	684.0	
-210.7	CARBONDALE		GRAY SHALE	9.5	684.5	
-220.2	CARBONDALE		LIMESTONE	1.0	694.0	
-221.2	CARBONDALE	ENERGY	SANDSTONE	43.0	695.0	SS W/ SH BANDS
-264.2	CARBONDALE	ENERGY	GRAY SHALE	6.0	738.0	
-270.2	CARBONDALE	ENERGY	DARK GRAY SHALE	4.0	744.0	
-274.2	CARBONDALE	ENERGY	CLAYSTONE	0.4	748.0	CLAY BAND
-274.6	CARBONDALE	HERRIN	COAL	5.1	748.4	
-279.6	CARBONDALE		UNDERCLAY	1.8	753.4	
-281.5	CARBONDALE		SANDSTONE	2.8	755.3	
-284.2	CARBONDALE		GRAY SHALE	39.0	758.0	
-323.2	CARBONDALE		BLACK SHALE	1.8	797.0	
-325.0	CARBONDALE		GRAY SHALE	13.2	798.8	
-338.2	CARBONDALE		BLACK SHALE	1.5	812.0	
-339.7	CARBONDALE		GRAY SHALE	1.5	813.5	
-341.2	CARBONDALE		BLACK SHALE	4.5	815.0	
-345.7	CARBONDALE		GRAY SHALE	15.5	819.5	

MAPID: 08190012000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: NE NW SE

QUADRANGLE: INA

LONGITUDE: -88.954441

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.205191

DATE COLLECTED: 7 / 0 / 1990

SURFACE ELEVATION (FT.): 451.2

LOGGED (FT.): 740.2

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-07-90

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
451.2			CLAY	1.0	0.0	
450.2			CLAY	17.0	1.0	
433.2	BOND		GRAY SHALE	50.5	18.0	
382.7	BOND		BLACK SHALE	2.0	68.5	
380.7	BOND		LIMESTONE	0.5	70.5	
380.2	BOND		GRAY SHALE	6.0	71.0	
374.2	BOND		GREEN SHALE	8.0	77.0	
366.2	BOND		GRAY SHALE	8.0	85.0	
358.2	BOND		DARK GRAY SHALE	23.0	93.0	
335.2	BOND		BLACK SHALE	3.0	116.0	BK SH W/ CO
332.2	BOND		GRAY SHALE	22.0	119.0	
310.2	BOND		SANDSTONE	84.0	141.0	
226.2	BOND		GRAY SHALE	8.0	225.0	
218.2	BOND		SANDSTONE	1.0	233.0	
217.2	BOND		DARK GRAY SHALE	44.0	234.0	
173.2	BOND	CARTHAGE	LIMESTONE	6.0	278.0	
167.2	MODESTO		BLACK SHALE	2.0	284.0	
165.2	MODESTO		GRAY SHALE	29.5	286.0	
135.7	MODESTO	WOMAC	COAL	0.5	315.5	
135.2	MODESTO		GRAY SHALE	6.0	316.0	
129.2	MODESTO		SANDSTONE	11.0	322.0	CALC SS
118.2	MODESTO		GRAY SHALE	6.0	333.0	
112.2	MODESTO		DARK GRAY SHALE	31.0	339.0	
81.2	MODESTO		BLACK SHALE	2.0	370.0	
79.2	MODESTO		LIMESTONE	1.5	372.0	
77.7	MODESTO		DARK GRAY SHALE	13.5	373.5	
64.2	MODESTO		GRAY SHALE	78.0	387.0	
-13.8	MODESTO		GRAY SHALE	23.0	465.0	
-36.8	MODESTO		BLACK SHALE	3.0	488.0	BK SH W/ CO
-39.8	MODESTO		GRAY SHALE	8.0	491.0	
-47.8	MODESTO		GRAY SHALE	32.0	499.0	
-79.8	MODESTO		LIMESTONE	2.0	531.0	
-81.8			GRAY SHALE	47.0	533.0	
-128.8			GRAY SHALE	41.0	580.0	
-169.8			GRAY SHALE	4.0	621.0	
-173.8	CARBONDALE		SANDSTONE	2.0	625.0	CALC SS
-175.8	CARBONDALE		GRAY SHALE	10.0	627.0	
-185.8	CARBONDALE		DARK GRAY SHALE	27.0	637.0	
-212.8	CARBONDALE	ENERGY	GRAY SHALE	21.0	664.0	

-233.8	CARBONDALE	ENERGY	GRAY SHALE	32.0	685.0	GY SH W/ SILTY SS STREAKS
-265.8	CARBONDALE	ENERGY	GRAY SHALE	6.0	717.0	
-271.8	CARBONDALE	ENERGY	SILTY SHALE	6.0	723.0	
-277.8	CARBONDALE	ENERGY	SILTY SHALE	2.7	729.0	
-280.5	CARBONDALE	ENERGY	GRAY SHALE	0.6	731.7	
-281.1	CARBONDALE	HERRIN	COAL	5.7	732.3	
-286.8	CARBONDALE		UNDERCLAY	2.2	738.0	

MAPID: 08190013000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 2

QUARTERS/FOOTAGES: NW SE NE

QUADRANGLE: INA

LONGITUDE: -88.952106

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.209111

DATE COLLECTED: 7 / 0 / 1990

SURFACE ELEVATION (FT.): 451.0

LOGGED (FT.): 741.7

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-08-90

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
451.0			CLAY	23.0	0.0	
428.0	BOND		GRAY SHALE	27.0	23.0	
401.0	BOND		LIMESTONE	0.5	50.0	
400.5	BOND		DARK GRAY SHALE	16.5	50.5	
384.0	BOND		COAL	1.0	67.0	
383.0	BOND		GRAY SHALE	27.0	68.0	
356.0	BOND		DARK GRAY SHALE	20.0	95.0	
336.0	BOND		COAL	1.0	115.0	
335.0	BOND		GRAY SHALE	14.0	116.0	
321.0	BOND		DARK GRAY SHALE	7.0	130.0	
314.0	BOND		GRAY SHALE	5.0	137.0	
309.0	BOND		SANDSTONE	16.0	142.0	
293.0	BOND		GRAY SHALE	4.0	158.0	
289.0	BOND		SANDSTONE	15.0	162.0	
274.0	BOND		SANDSTONE	4.0	177.0	SS W/LS
270.0	BOND		SANDSTONE	49.0	181.0	
221.0	BOND		SANDY SHALE	15.0	230.0	
206.0	BOND		DARK GRAY SHALE	33.0	245.0	
173.0	BOND	CARTHAGE	LIMESTONE	6.5	278.0	
166.5	MODESTO	NEW HAVEN	COAL	1.0	284.5	
165.5	MODESTO		GRAY SHALE	19.5	285.5	
146.0	MODESTO		DARK GRAY SHALE	19.0	305.0	
127.0	MODESTO		SANDSTONE	11.0	324.0	SS W/LS
116.0	MODESTO		DARK GRAY SHALE	5.0	335.0	
111.0	MODESTO		DARK GRAY SHALE	33.0	340.0	
78.0	MODESTO		COAL	1.0	373.0	
77.0	MODESTO		GRAY SHALE	6.0	374.0	
71.0	MODESTO		DARK GRAY SHALE	7.0	380.0	
64.0	MODESTO		GRAY SHALE	17.0	387.0	
47.0	MODESTO		GRAY SHALE	3.0	404.0	
44.0	MODESTO		GRAY SHALE	3.0	407.0	GY SH W/SS
41.0	MODESTO		SANDSTONE	15.0	410.0	
26.0	MODESTO		GRAY SHALE	15.0	425.0	GY SH W/SS
11.0	MODESTO		DARK GRAY SHALE	20.0	440.0	
-9.0	MODESTO		DARK GRAY SHALE	33.0	460.0	
-42.0	MODESTO	CHAPEL	COAL	1.0	493.0	
-43.0	MODESTO		GRAY SHALE	6.0	494.0	
-49.0	MODESTO		GRAY SHALE	10.0	500.0	
-59.0	MODESTO		DARK GRAY SHALE	25.0	510.0	

-84.0	MODESTO		LIMESTONE	1.5	535.0	
-85.5	MODESTO		DARK GRAY SHALE	3.5	536.5	
-89.0	MODESTO		GRAY SHALE	26.0	540.0	
-115.0	MODESTO		GRAY SHALE	12.0	566.0	GY SH W/ SS
-127.0	MODESTO		DARK GRAY SHALE	32.0	578.0	
-159.0	MODESTO		GRAY SHALE	8.0	610.0	
-167.0	MODESTO		GRAY SHALE	2.0	618.0	GY SH W/ SS
-169.0	MODESTO		GRAY SHALE	15.0	620.0	
-184.0	MODESTO		DARK GRAY SHALE	14.0	635.0	
-198.0	CARBONDALE	DANVILLE	COAL	2.0	649.0	
-200.0	CARBONDALE		GRAY SHALE	8.0	651.0	
-208.0	CARBONDALE		LIMESTONE	4.0	659.0	
-212.0	CARBONDALE		GRAY SHALE	6.0	663.0	
-218.0	CARBONDALE		COAL	1.0	669.0	
-219.0	CARBONDALE	ENERGY	GRAY SHALE	47.0	670.0	
-266.0	CARBONDALE	ENERGY	GRAY SHALE	5.0	717.0	
-271.0	CARBONDALE	ENERGY	SILTY SHALE	3.0	722.0	
-274.0	CARBONDALE	ENERGY	GRAY SHALE	6.8	725.0	
-280.8	CARBONDALE	ENERGY	GRAY SHALE	2.4	731.8	
-283.2	CARBONDALE	HERRIN	COAL	5.4	734.2	
-288.6	CARBONDALE		UNDERCLAY	2.1	739.6	

MAPID: 08101150000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of NW NE
QUADRANGLE: INA **LONGITUDE:** -88.972922 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.213261 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 461.0 **LOGGED (FT.):** 2392.0 **LOG TYPE:** Electric Log
SOURCE: NAT'L. ASSOC. PETRO. CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-334.0	CARBONDALE	SPRINGFIELD	COAL	-	795.0
-503.0	CARBONDALE	COLCHESTER	COAL	-	964.0
-1931.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2392.0

MAPID: 08102523000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 3 **QUARTERS/FOOTAGES:** NE NE SW
QUADRANGLE: INA **LONGITUDE:** -88.977656 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.205205 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 445.0 **LOGGED (FT.):** 722.0 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-4-67 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-130.9	CARBONDALE	ENERGY	SHALE	99.0	575.9	
-229.9	CARBONDALE	ENERGY	SHALE & SILTSTONE	29.3	674.9	
-259.2	CARBONDALE	ENERGY	SHALE & SILTSTONE	11.8	704.2	
-271.0	CARBONDALE	HERRIN	COAL	6.0	716.0	

MAPID: 08100410000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 4 **QUARTERS/FOOTAGES:** 330' N line, 660' E line of NW
QUADRANGLE: INA **LONGITUDE:** -88.9972 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.213127 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 2316.0 **LOG TYPE:** Electric Log
SOURCE: KINGWOOD OIL CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-312.0	CARBONDALE	SPRINGFIELD	COAL	-	727.0	
-477.0	CARBONDALE	COLCHESTER	COAL	-	892.0	
-1901.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2316.0	

MAPID: 08102555000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 4 QUARTERS/FOOTAGES: SW SE NE

QUADRANGLE: INA LONGITUDE: -88.989188

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.207115

DATE COLLECTED:

SURFACE ELEVATION (FT.): 410.0 LOGGED (FT.): 682.7

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 03-5-65

WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-194.0	MODESTO	PIASA	LIMESTONE	4.5	604.0
-198.5	MODESTO		GRAY SHALE	6.0	608.5
-204.5	CARBONDALE	DANVILLE	COAL	1.5	614.5
-206.0	CARBONDALE		CLAYSTONE	1.5	616.0
-207.5	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	617.5
-211.5	CARBONDALE	ENERGY	SHALE	16.0	621.5
-227.5	CARBONDALE	ENERGY	SHALE & SILTSTONE	20.3	637.5
-247.8	CARBONDALE	ENERGY	LIMESTONE/SILTSTONE	16.8	657.8
-267.0	CARBONDALE	HERRIN	COAL	5.7	677.0

MAPID: 08100046000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 5 QUARTERS/FOOTAGES: NE NE SW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.018427

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.209367

DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 417.1 LOGGED (FT.): 700.0

LOG TYPE:

SOURCE: BG MUDDYCC

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-274.9	CARBONDALE	HERRIN	COAL	6.2	692.0

MAPID: 08100046000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 5

QUARTERS/FOOTAGES: NE NE SW NW

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.018427

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.209367

DATE COLLECTED:

SURFACE ELEVATION (FT.): 417.0

LOGGED (FT.): 700.0

LOG TYPE: Drillers Log

SOURCE: ROTRAMEL

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
417.0			UNCONSOLIDATED	21.3	0.0
395.7			SANDSTONE	66.0	21.3
329.7			COAL	0.8	87.3
328.8			ROCK	39.6	88.2
289.2			COAL	0.3	127.8
289.0			ROCK	139.5	128.0
149.5			COAL	0.3	267.5
149.2			ROCK	13.0	267.8
136.2			COAL	0.3	280.8
136.0			ROCK	149.4	281.0
-13.4			COAL	0.6	430.4
-14.0			ROCK	180.5	431.0
-194.5			COAL	1.0	611.5
-195.5			ROCK	25.5	612.5
-221.0			SHALE	53.8	638.0
-274.8	CARBONDALE	HERRIN	COAL	7.0	691.8
-281.8	CARBONDALE		SHALE	1.2	698.8

MAPID: 08101236000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 5

QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.005189

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.213043

DATE COLLECTED:

SURFACE ELEVATION (FT.): 410.0

LOGGED (FT.): 686.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-190.0	MODESTO	PIASA	LIMESTONE	3.0	600.0
-193.0	MODESTO		GRAY SHALE	6.0	603.0
-199.0	CARBONDALE	DANVILLE	COAL	2.0	609.0
-201.0	CARBONDALE	ENERGY	SILTY SHALE	69.2	611.0
-270.0	CARBONDALE	HERRIN	COAL	6.0	680.0

MAPID: 08100404000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 6 **QUARTERS/FOOTAGES:** 2940' N line, 660' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.024793 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.204984 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 2396.0 **LOG TYPE:** Electric Log
SOURCE: CONREY, T. M. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-349.0	CARBONDALE	SPRINGFIELD	COAL	-	780.0
-519.0	CARBONDALE	COLCHESTER	COAL	-	950.0
-1965.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2396.0

MAPID: 08100404000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 6 **QUARTERS/FOOTAGES:** 2940' N line, 660' E line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.024793 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.204984 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 746.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-211.0	MODESTO	PIASA	LIMESTONE	7.0	642.0
-218.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	25.0	649.0
-243.0	CARBONDALE	ENERGY	GRAY SHALE	65.0	674.0
-308.0	CARBONDALE	HERRIN	COAL	7.0	739.0

MAPID: 08102507000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 7 **QUARTERS/FOOTAGES:** 295' N line, 230' W line
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.039205 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.197221 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 436.0 **LOGGED (FT.):** 798.3 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-3-66 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-275.3	CARBONDALE	DANVILLE	COAL	0.5	711.3
-275.8	CARBONDALE		SILTSTONE	2.5	711.8
-278.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.3	714.3
-284.7	CARBONDALE	ENERGY	SANDSTONE	10.0	720.7
-294.7	CARBONDALE	ENERGY	SHALE & SILTSTONE	23.3	730.7
-318.0	CARBONDALE	ENERGY	GRAY SHALE	37.0	754.0
-355.0	CARBONDALE	HERRIN	COAL	7.3	791.0

MAPID: 08100047000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 8 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.01214 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.189772 DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 408.1 LOGGED (FT.): 686.0 LOG TYPE:

SOURCE: BG MUDDYCC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-269.9	CARBONDALE	HERRIN	COAL	7.4	678.0	

MAPID: 08100047000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 8 QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.01214 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.189772 DATE COLLECTED: 5 / 11 / 1909

SURFACE ELEVATION (FT.): 408.0 LOGGED (FT.): 686.0 LOG TYPE: Drillers Log

SOURCE: SOUTHERN GEM COAL CORP. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
408.0			UNCONSOLIDATED	17.0	0.0	
391.0			ROCK	225.0	17.0	
166.0			COAL	0.7	242.0	
165.3			ROCK	90.0	242.7	
75.3			COAL/SANDSTONE	0.3	332.7	SS WITH COAL PARTINGS
75.0			ROCK	75.0	333.0	
0.0			COAL	0.3	408.0	
-0.3			ROCK	215.7	408.3	
-216.0			COAL WITH SHALE	4.3	624.0	COAL AND SANDY LIME SHALE MIXED
-220.3			ROCK	11.7	628.3	
-232.0			BLACK SHALE	14.0	640.0	
-246.0			SHALE	23.8	654.0	SANDY
-269.8	CARBONDALE	HERRIN	COAL	7.4	677.8	
-277.3	CARBONDALE		SHALE	0.0	685.3	

MAPID: 08100504000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** 330' N line, 430' W line of NW SE
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.011793 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.189765 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 903.0 **LOG TYPE:** Electric Log
SOURCE: SOHIO PRODUCING **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-320.0	CARBONDALE	SPRINGFIELD	COAL	-	735.0
-488.0	CARBONDALE	COLCHESTER	COAL	-	903.0

MAPID: 08102444000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 8 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: WALTONVILLE **LONGITUDE:** -89.015598 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.196158 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 686.8 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 03-1-65 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-252.3	CARBONDALE	ENERGY	GRAY SHALE	15.8	664.3
-268.0	CARBONDALE	HERRIN	COAL	6.8	680.0

MAPID: 08100161000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 330' N line, 575' E line of SW
QUADRANGLE: INA **LONGITUDE:** -88.996927 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.189786 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 2318.0 **LOG TYPE:** Electric Log
SOURCE: BENDENUM & TREES **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-307.0	CARBONDALE	SPRINGFIELD	COAL	-	725.0
-467.0	CARBONDALE	COLCHESTER	COAL	-	885.0
-1900.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2318.0

MAPID: 08100832000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 1320' S line, 2640' E line
QUADRANGLE: INA **LONGITUDE:** -88.995011 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.187086 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 670.5 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. NC-3 **WELL TYPE:** Coal Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-212.0	CARBONDALE	ENERGY	GRAY SHALE	21.3	627.0
-233.3	CARBONDALE	ENERGY	DARK GRAY SHALE	7.3	648.3
-240.5	CARBONDALE	ENERGY	GRAY SHALE	7.5	655.5
-248.0	CARBONDALE	HERRIN	COAL	7.5	663.0

MAPID: 08123798000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 9 **QUARTERS/FOOTAGES:** 660' S line, 760' E line of SE
QUADRANGLE: INA **LONGITUDE:** -88.988434 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.185337 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 432.0 **LOGGED (FT.):** 4330.0 **LOG TYPE:** Electric Log
SOURCE: BLACK HAWK RES. CORP. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-1910.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2342.0
-3804.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4236.0 TOP OF NEW ALBANY
-3809.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4241.0
-3898.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4330.0 BASE OF NEW ALBANY

MAPID: 08100800000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE
QUADRANGLE: INA **LONGITUDE:** -88.975413 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.191868 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 441.0 **LOGGED (FT.):** 2350.0 **LOG TYPE:** Electric Log
SOURCE: MARTIN, R. B. & IL OIL **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-321.0	CARBONDALE	SPRINGFIELD	COAL	-	762.0
-482.0	CARBONDALE	COLCHESTER	COAL	-	923.0
-1909.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2350.0

MAPID: 08102525000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 10 **QUARTERS/FOOTAGES:** SW NE
QUADRANGLE: INA **LONGITUDE:** -88.974262 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.192791 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 707.8 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-5-67 **WELL TYPE:** Coal Test
COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-247.3	CARBONDALE	ENERGY	SILTSTONE	14.5	675.3
-261.8	CARBONDALE	ENERGY	SILTY SHALE	12.3	689.8
-274.0	CARBONDALE	HERRIN	COAL	5.8	702.0

MAPID: 08101238000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of NE
QUADRANGLE: INA **LONGITUDE:** -88.956876 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.191929 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 2407.0 **LOG TYPE:** Electric Log
SOURCE: SOHIO PETROLEUM CO. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-339.0	CARBONDALE	SPRINGFIELD	COAL	-	779.0
-497.0	CARBONDALE	COLCHESTER	COAL	-	937.0
-1967.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2407.0

MAPID: 08102739000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 11 **QUARTERS/FOOTAGES:** 660' N line, 1320' E line
QUADRANGLE: INA **LONGITUDE:** -88.953269 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.196475 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 429.0 **LOGGED (FT.):** 711.5 **LOG TYPE:** Survey Core Study
SOURCE: FREEMAN UNITED 06-01-71 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-268.8	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	697.8
-271.8	CARBONDALE	ENERGY	SHALE & SILTSTONE	6.3	700.8
-278.0	CARBONDALE	HERRIN	COAL	4.5	707.0

MAPID: 08190003000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 11

QUARTERS/FOOTAGES: NE NW NE

QUADRANGLE: INA

LONGITUDE: -88.954483

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.197389

DATE COLLECTED: 0 / 0 / 1971

SURFACE ELEVATION (FT.): 429.3

LOGGED (FT.): 729.4

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-01-71

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
429.3			CLAY	11.0	0.0	
418.3			SAND	41.0	11.0	SD & SH
377.3	BOND		COAL	1.5	52.0	
375.8	BOND		UNDERCLAY	2.5	53.5	
373.3	BOND		SANDY SHALE	40.0	56.0	SDY SH W/ LS STRINGERS
333.3	BOND		COAL	1.5	96.0	
331.8	BOND		UNDERCLAY	2.5	97.5	
329.3	BOND		SHALE	56.0	100.0	SH W/ SD STREAKS
273.3	BOND		SANDSTONE	45.0	156.0	
228.3	BOND		SANDY SHALE	47.0	201.0	
181.3	BOND	CARTHAGE	LIMESTONE	9.0	248.0	
172.3	MODESTO		SANDY SHALE	83.0	257.0	
89.3	MODESTO		LIMESTONE	2.0	340.0	
87.3	MODESTO		SANDY SHALE	2.0	342.0	
85.3	MODESTO		DARK SHALE	7.0	344.0	
78.3	MODESTO		SANDY SHALE	114.0	351.0	
-35.7	MODESTO		SANDSTONE	86.0	465.0	SS & SH STREAKS
-121.7			DARK SHALE	3.0	551.0	
-124.7			SANDY SHALE	41.0	554.0	SDY GRAY SH W/ CO STRINGERS
-165.7			LIMESTONE	2.0	595.0	
-167.7	CARBONDALE	ENERGY	SHALE	37.0	597.0	SH W/ LS STRINGERS
-204.7	CARBONDALE	ENERGY	SANDY SHALE	66.0	634.0	
-270.7	CARBONDALE	ENERGY	SANDY SHALE	6.3	700.0	
-277.0	CARBONDALE	HERRIN	COAL	6.9	706.3	
-283.9	CARBONDALE		SANDY SHALE	2.5	713.2	
-286.4	CARBONDALE		SANDSTONE	13.7	715.7	

MAPID: 08190005000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 11

QUARTERS/FOOTAGES: SW NE NE

QUADRANGLE: INA

LONGITUDE: -88.952164

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.195564

DATE COLLECTED: 7 / 0 / 1990

SURFACE ELEVATION (FT.): 437.2

LOGGED (FT.): 728.0

LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-03-90

WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
437.2			CLAY	0.5	0.0	
436.7			CLAY	14.5	0.5	
422.2	BOND		DARK GRAY SHALE	46.0	15.0	
376.2	BOND		BLACK SHALE	3.0	61.0	
373.2	BOND		GRAY SHALE	19.0	64.0	
354.2	BOND		SANDSTONE	10.0	83.0	
344.2	BOND		DARK GRAY SHALE	29.0	93.0	
315.2	BOND		BLACK SHALE	2.0	122.0	
313.2	BOND		GRAY SHALE	20.0	124.0	
293.2	BOND		GRAY SHALE	49.0	144.0	
244.2	BOND		SANDSTONE	36.0	193.0	
208.2	BOND		DARK GRAY SHALE	24.0	229.0	
184.2	BOND		DARK GRAY SHALE	6.0	253.0	
178.2	BOND	CARTHAGE	LIMESTONE	6.5	259.0	
171.7	MODESTO		BLACK SHALE	2.0	265.5	
169.7	MODESTO		LIMESTONE	0.5	267.5	
169.2	MODESTO		GRAY SHALE	43.0	268.0	
126.2	MODESTO		SANDSTONE	5.0	311.0	
121.2	MODESTO		GRAY SHALE	14.0	316.0	
107.2	MODESTO		DARK GRAY SHALE	23.0	330.0	
84.2	MODESTO		BLACK SHALE	3.0	353.0	
81.2	MODESTO		LIMESTONE	0.5	356.0	
80.7	MODESTO		DARK GRAY SHALE	6.5	356.5	
74.2	MODESTO		GREEN SHALE	4.0	363.0	
70.2	MODESTO		GRAY SHALE	28.0	367.0	
42.2	MODESTO		CALCAREOUS SANDSTONE	3.0	395.0	
39.2	MODESTO		SANDSTONE	6.0	398.0	
33.2	MODESTO		GRAY SHALE	36.0	404.0	
-2.8	MODESTO		DARK GRAY SHALE	23.0	440.0	
-25.8	MODESTO		BLACK SHALE	3.0	463.0	BK SH W/ CO
-28.8	MODESTO		GRAY SHALE	8.0	466.0	
-36.8	MODESTO		GRAY SHALE	12.0	474.0	
-48.8	MODESTO		SANDSTONE	27.0	486.0	
-75.8			GRAY SHALE	67.0	513.0	
-142.8			GRAY SHALE	21.0	580.0	
-163.8			SANDSTONE	6.0	601.0	
-169.8			GRAY SHALE	10.0	607.0	
-179.8			DARK GRAY SHALE	10.0	617.0	

-189.8	CARBONDALE		BLACK SHALE	2.0	627.0	
-191.8	CARBONDALE		GRAY SHALE	14.0	629.0	
-205.8	CARBONDALE		SANDSTONE	9.0	643.0	
-214.8	CARBONDALE	BRERETON	LIMESTONE	2.0	652.0	
-216.8	CARBONDALE	ENERGY	SANDSTONE	9.0	654.0	
-225.8	CARBONDALE	ENERGY	GRAY SHALE	33.0	663.0	
-258.8	CARBONDALE	ENERGY	GRAY SHALE	7.0	696.0	
-265.8	CARBONDALE	ENERGY	GRAY SHALE	6.0	703.0	
-271.8	CARBONDALE	ENERGY	GRAY SHALE	7.0	709.0	
-278.8	CARBONDALE	ENERGY	GRAY SHALE	1.5	716.0	GY SH W/ SS LAMS
-280.3	CARBONDALE	ENERGY	GRAY SHALE	2.7	717.5	
-283.0	CARBONDALE	ENERGY	DARK GRAY SHALE	0.7	720.2	
-283.6	CARBONDALE	HERRIN	COAL	5.2	720.8	
-288.8	CARBONDALE		UNDERCLAY	2.0	726.0	

MAPID: 08190006000C VERSION: 1

PROJECT: NCRDS92

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 11 QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: INA LONGITUDE: -88.949809 GEOLOGIST: C TREWORYG

CONFIDENTIAL: N LATITUDE: 38.197381 DATE COLLECTED: 7 / 0 / 1990

SURFACE ELEVATION (FT.): 431.3 LOGGED (FT.): 720.9 LOG TYPE: Drillers Log

SOURCE: FREEMAN UNITED COAL MINING CO.06-01-90 WELL TYPE: Coal Test

COMMENT: PERMIT #42, REVISION #5, APPDX N-3A3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
431.3			CLAY	1.0	0.0	
430.3			CLAY	10.0	1.0	
420.3	BOND		SHALE	10.0	11.0	
410.3	BOND		DARK GRAY SHALE	27.0	21.0	
383.3	BOND		BLACK SHALE	1.0	48.0	
382.3	BOND		GRAY SHALE	12.0	49.0	
370.3	BOND		SANDSTONE	18.0	61.0	
352.3	BOND		DARK GRAY SHALE	14.0	79.0	
338.3	BOND		BLACK SHALE	2.0	93.0	
336.3	BOND		GRAY SHALE	18.0	95.0	
318.3	BOND		GRAY SHALE	5.0	113.0	
313.3	BOND		SANDSTONE	101.0	118.0	
212.3	BOND		DARK GRAY SHALE	36.0	219.0	
176.3	BOND	CARTHAGE	LIMESTONE	6.5	255.0	
169.8	MODESTO		BLACK SHALE	2.5	261.5	
167.3	MODESTO		GRAY SHALE	20.0	264.0	
147.3	MODESTO		DARK GRAY SHALE	12.0	284.0	
135.3	MODESTO	WOMAC	COAL	0.5	296.0	
134.8	MODESTO		GRAY SHALE	6.5	296.5	
128.3	MODESTO		SANDSTONE	10.0	303.0	
118.3	MODESTO		DARK GRAY SHALE	35.0	313.0	
83.3	MODESTO		BLACK SHALE	2.0	348.0	
81.3	MODESTO		LIMESTONE	0.5	350.0	
80.8	MODESTO		DARK GRAY SHALE	12.5	350.5	
68.3	MODESTO		GREEN SHALE	12.0	363.0	
56.3	MODESTO		GRAY SHALE	14.0	375.0	
42.3	MODESTO		CALCAREOUS SANDSTONE	2.0	389.0	
40.3	MODESTO		DARK GRAY SHALE	72.0	391.0	
-31.7	MODESTO		BLACK SHALE	3.0	463.0	BK SH W/ CO
-34.7	MODESTO		GREEN SHALE	5.0	466.0	
-39.7	MODESTO		DARK GRAY SHALE	20.0	471.0	
-59.7	MODESTO		SANDSTONE	22.0	491.0	
-81.7			GRAY SHALE	72.0	513.0	
-153.7			DARK GRAY SHALE	14.0	585.0	
-167.7			GRAY SHALE	6.0	599.0	
-173.7			SANDSTONE	4.0	605.0	
-177.7			DARK GRAY SHALE	6.0	609.0	
-183.7			SANDSTONE	2.0	615.0	

-185.7			DARK GRAY SHALE	3.0	617.0
-188.7	CARBONDALE		BLACK SHALE	31.0	620.0
-219.7	CARBONDALE	ENERGY	GRAY SHALE	42.0	651.0
-261.7	CARBONDALE	ENERGY	GRAY SHALE	7.1	693.0
-268.8	CARBONDALE	ENERGY	GRAY SHALE	11.0	700.1
-279.8	CARBONDALE	ENERGY	DARK GRAY SHALE	0.2	711.1
-280.0	CARBONDALE	HERRIN	COAL	5.7	711.3
-285.6	CARBONDALE		UNDERCLAY	4.0	716.9

MAPID: 08100070000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** NE NE SE SE
QUADRANGLE: INA **LONGITUDE:** -88.930634 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.187395 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 709.8 **LOG TYPE:** Drillers Log
SOURCE: ROTRAMEL, T. O. **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN COMMENT
405.0			UNCONSOLIDATED	40.0	0.0
365.0			ROCK	213.0	40.0
152.0			COAL	0.5	253.0
151.5			ROCK	184.5	253.5
-33.0			COAL	0.5	438.0
-33.5			ROCK	175.5	438.5
-209.0			COAL	0.5	614.0
-209.5			ROCK	60.5	614.5
-270.0			SHALE	26.2	675.0
-296.2	CARBONDALE	HERRIN	COAL	7.2	701.2
-303.3	CARBONDALE		UNDERCLAY	0.5	708.3
-303.8	CARBONDALE		ROCK	1.0	708.8

MAPID: 08100070000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** NE NE SE SE
QUADRANGLE: INA **LONGITUDE:** -88.930634 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.187395 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 708.2 **LOG TYPE:** Drillers Log
SOURCE: **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN COMMENT
-226.7	CARBONDALE	ENERGY	SILTY SHALE	43.0	631.7
-269.7	CARBONDALE	ENERGY	GRAY SHALE	26.3	674.7
-296.0	CARBONDALE	HERRIN	COAL	7.2	701.0

MAPID: 08100070000C **VERSION:** 3 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 12 **QUARTERS/FOOTAGES:** NE NE SE SE
QUADRANGLE: INA **LONGITUDE:** -88.930634 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.187395 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 404.7 **LOGGED (FT.):** 710.0 **LOG TYPE:**
SOURCE: ROTRAMEL **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-296.3	CARBONDALE	HERRIN	COAL	7.2	701.0	COAL ABSENT OR ERODED

MAPID: 08100048000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: INA **LONGITUDE:** -88.943062 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.177435 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 405.5 **LOGGED (FT.):** 680.0 **LOG TYPE:**
SOURCE: PEABODY 3 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-266.5	CARBONDALE	HERRIN	COAL	6.3	672.0	

MAPID: 08100048000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 13 **QUARTERS/FOOTAGES:** SW SE NW
QUADRANGLE: INA **LONGITUDE:** -88.943062 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.177435 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 406.0 **LOGGED (FT.):** 680.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
406.0			UNCONSOLIDATED	24.0	0.0	
382.0			ROCK	216.2	24.0	
165.8			COAL	2.2	240.2	
163.7			ROCK	167.5	242.3	
-3.8			COAL	0.8	409.8	
-4.6			ROCK	165.7	410.6	
-170.3			COAL	1.0	576.3	
-171.3			ROCK	62.7	577.3	
-234.0			SHALE	31.5	640.0	
-265.5	CARBONDALE	HERRIN	COAL	6.3	671.5	
-271.8	CARBONDALE		UNDERCLAY	0.2	677.8	
-272.0	CARBONDALE		SHALE	2.0	678.0	

MAPID: 08100799000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 13 QUARTERS/FOOTAGES: 1980' S line, 1980' W line

QUADRANGLE: INA LONGITUDE: -88.942028 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.174619 DATE COLLECTED:

SURFACE ELEVATION (FT.): 408.0 LOGGED (FT.): 660.5 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-158.0	MODESTO	PIASA	LIMESTONE	4.0	566.0	
-162.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	25.0	570.0	
-187.0	CARBONDALE	ENERGY	GRAY SHALE	60.0	595.0	
-247.0	CARBONDALE	HERRIN	COAL	5.5	655.0	

MAPID: 08100049000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 14 QUARTERS/FOOTAGES: SW SW SE NW

QUADRANGLE: INA LONGITUDE: -88.962257 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.176874 DATE COLLECTED:

SURFACE ELEVATION (FT.): 432.2 LOGGED (FT.): 732.0 LOG TYPE:

SOURCE: NASON CC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-292.8	CARBONDALE	HERRIN	COAL	6.6	725.0	

MAPID: 08100049000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** SW SW SE NW
QUADRANGLE: INA **LONGITUDE:** -88.962257 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.176874 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 433.0 **LOGGED (FT.):** 732.0 **LOG TYPE:** Drillers Log
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
433.0			UNCONSOLIDATED	55.0	0.0	
378.0			ROCK	207.0	55.0	
171.0			COAL	1.0	262.0	BONY
170.0			ROCK	31.0	263.0	
139.0			COAL	0.5	294.0	
138.5			ROCK	18.9	294.5	
119.6			COAL	0.1	313.4	
119.5			SHALE	3.2	313.5	
116.3			COAL	0.3	316.7	
116.0			ROCK	129.0	317.0	
-13.0			COAL	0.5	446.0	
-13.5			ROCK	163.5	446.5	
-177.0			COAL	0.8	610.0	
-177.8			ROCK	19.2	610.8	
-197.0			COAL	0.3	630.0	
-197.3			ROCK	24.7	630.3	
-222.0			SHALE	69.8	655.0	SANDY, BROWN BANDS
-291.8	CARBONDALE	HERRIN	COAL	6.6	724.8	
-298.5	CARBONDALE		SHALE	0.6	731.5	

MAPID: 08101181000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 14 **QUARTERS/FOOTAGES:** 230' N line, 330' W line of SE SE
QUADRANGLE: INA **LONGITUDE:** -88.952476 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.172069 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 411.0 **LOGGED (FT.):** 2381.0 **LOG TYPE:** Electric Log
SOURCE: TEXAS COMPANY, THE **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-481.0	CARBONDALE	COLCHESTER	COAL	-	892.0	
-1970.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2381.0	

MAPID: 08100013000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 15 QUARTERS/FOOTAGES: 150' N line, 75' W line of SE

QUADRANGLE: INA LONGITUDE: -88.976379 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.175946 DATE COLLECTED:

SURFACE ELEVATION (FT.): 430.0 LOGGED (FT.): 759.0 LOG TYPE:

SOURCE: NASON CC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-294.0	CARBONDALE	HERRIN	COAL	8.1	724.0	
-325.0	CARBONDALE	SPRINGFIELD	COAL	3.6	755.0	

MAPID: 08100013000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 15 QUARTERS/FOOTAGES: 150' N line, 75' W line of SE

QUADRANGLE: INA LONGITUDE: -88.976379 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.175946 DATE COLLECTED:

SURFACE ELEVATION (FT.): 430.0 LOGGED (FT.): 758.5 LOG TYPE: Survey Core Study

SOURCE: NASON CC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
430.0			UNCONSOLIDATED	58.0	0.0	
372.0			ROCK	214.7	58.0	
157.3			COAL	0.3	272.7	
157.1			ROCK	29.8	272.9	
127.3			COAL	0.2	302.7	
127.2			ROCK	312.6	302.8	
-185.4			COAL	0.4	615.4	
-185.8			ROCK	38.2	615.8	
-224.0			SHALE	40.0	654.0	SANDY
-264.0			BLACK SHALE	29.9	694.0	
-293.9	CARBONDALE	HERRIN	COAL	8.1	723.9	CL PTG .08'
-302.0	CARBONDALE		UNDERCLAY	0.7	732.0	
-302.7	CARBONDALE		LIMESTONE	6.3	732.7	
-309.0	CARBONDALE		COAL	0.6	739.0	
-309.6	CARBONDALE		SHALE	11.4	739.6	
-321.0	CARBONDALE		LIMESTONE	1.0	751.0	
-322.0	CARBONDALE		BLACK SHALE	2.7	752.0	
-324.7	CARBONDALE	SPRINGFIELD	COAL	3.6	754.7	
-328.3	CARBONDALE		UNDERCLAY	0.3	758.3	

MAPID: 08100044702M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 15 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.976638

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.176358

DATE COLLECTED: 11 / 30 / 1925

SURFACE ELEVATION (FT.): LOGGED (FT.): 730.6

LOG TYPE: Measured section

SOURCE: ILL COAL CORP

WELL TYPE: Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNKNOWN	725.0	0.0	
-	CARBONDALE	HERRIN	COAL	5.6	725.0	

MAPID: 08100044700M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 15 QUARTERS/FOOTAGES: 120' N line, 430' E line of SW

QUADRANGLE: INA LONGITUDE: -88.978145

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.176012

DATE COLLECTED: 0 / 0 / 1951

SURFACE ELEVATION (FT.): 430.0 LOGGED (FT.): 746.4

LOG TYPE: Measured section

SOURCE: BELL & ZOLLER MNG C

WELL TYPE: Underground mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
430.0			UNKNOWN	650.0	0.0	AVERAGE THICKNESS
-220.0			COAL	0.4	650.0	
-			ROCK	40.0		
-			BLACK SHALE	29.9		
-	CARBONDALE	HERRIN	COAL	8.1		SOME SH PTG
-	CARBONDALE		UNDERCLAY	0.7		
-	CARBONDALE		ROCK	17.3		

MAPID: 08100044701M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 15 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.976638

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.176358

DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 8.6

LOG TYPE: Measured section

SOURCE: ILL COAL CORP

WELL TYPE: Underground mine

COMMENT: OTHER MEASURED SECTIONS AVAILABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			SHALE	2.0		
-	CARBONDALE	HERRIN	COAL	6.6		
-			SHALE	-		

MAPID: 08100081000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 120' N line, 430' E line of SW
QUADRANGLE: INA **LONGITUDE:** -88.978145 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.176012 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 430.2 **LOGGED (FT.):** 742.0 **LOG TYPE:** Measured section
SOURCE: NASON CC **WELL TYPE:** Underground mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-294.8	CARBONDALE	HERRIN	COAL	8.0	725.0	

MAPID: 08100081000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 120' N line, 430' E line of SW
QUADRANGLE: INA **LONGITUDE:** -88.978145 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.176012 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 430.0 **LOGGED (FT.):** 730.0 **LOG TYPE:** Drillers Log
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT: "A"SHAFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
430.0			UNCONSOLIDATED	71.0	0.0	
359.0			ROCK	609.0	71.0	
-250.0			SHALE	40.5	680.0	
-290.5	CARBONDALE	HERRIN	COAL	6.5	720.5	
-297.0	CARBONDALE		SANDSTONE	8.0	727.0	
-305.0	CARBONDALE	HERRIN	COAL	7.0	735.0	LOWER BENCH

MAPID: 08100211000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 500' N line, 750' E line of SW
QUADRANGLE: INA **LONGITUDE:** -88.979275 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.174954 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 726.0 **LOG TYPE:** Drillers Log
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT: B SHAFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
428.0			UNCONSOLIDATED	75.0	0.0	
353.0			ROCK	541.0	75.0	
-188.0			BLACK SHALE	101.2	616.0	
-289.2	CARBONDALE	HERRIN	COAL	9.0	717.2	

MAPID: 08100836000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 144' N line, 1320' W line
QUADRANGLE: INA **LONGITUDE:** -88.98116 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.183201 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 428.0 **LOGGED (FT.):** 708.2 **LOG TYPE:** Drillers Log
SOURCE: CONSOLIDATED COAL CO. **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-97.0	CARBONDALE		GRAY SHALE	97.0	525.0	
-194.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	622.0	
-199.0	CARBONDALE	ENERGY	GRAY SHALE	74.0	627.0	
-273.0	CARBONDALE	HERRIN	COAL	7.2	701.0	

MAPID: 08123719000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 15 **QUARTERS/FOOTAGES:** 660' N line, 660' W line of NE
QUADRANGLE: INA **LONGITUDE:** -88.974286 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.181853 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 440.0 **LOGGED (FT.):** 4448.0 **LOG TYPE:** Electric Log
SOURCE: BLACK HAWK RES. CORP. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-335.0	CARBONDALE	SPRINGFIELD	COAL	-	775.0	
-501.0	CARBONDALE	COLCHESTER	COAL	-	941.0	
-1934.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2374.0	
-3907.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4347.0	TOP OF NEW ALBANY
-3913.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4353.0	
-4008.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4448.0	BASE OF NEW ALBANY

MAPID: 08100199000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 16 **QUARTERS/FOOTAGES:** NW NE
QUADRANGLE: INA **LONGITUDE:** -88.992647 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.181642 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 416.0 **LOGGED (FT.):** 2316.0 **LOG TYPE:** Electric Log
SOURCE: BENDENUM & TREES **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-1900.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2316.0	

MAPID: 08100527000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 16 QUARTERS/FOOTAGES: NW NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.002935

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.182447

DATE COLLECTED:

SURFACE ELEVATION (FT.): 428.0 LOGGED (FT.): 686.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-144.0	MODESTO	PIASA	LIMESTONE	5.0	572.0	
-149.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	12.0	577.0	
-161.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	589.0	
-251.0	CARBONDALE	HERRIN	COAL	7.0	679.0	

MAPID: 08102506000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 17 QUARTERS/FOOTAGES: 2440' S line, 35' W line

QUADRANGLE: WALTONVILLE LONGITUDE: -89.022598

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.175713

DATE COLLECTED:

SURFACE ELEVATION (FT.): 444.0 LOGGED (FT.): 738.6

LOG TYPE: Survey Core Study

SOURCE: FREEMAN UNITED 06-1-66

WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-190.8	CARBONDALE	ENERGY	SANDSTONE/SILTSTONE	42.5	634.8	
-233.3	CARBONDALE	ENERGY	SANDSTONE	1.0	677.3	
-234.3	CARBONDALE	ENERGY	SILTSTONE	45.5	678.3	
-279.8	CARBONDALE	ENERGY	GRAY SHALE	8.3	723.8	
-288.0	CARBONDALE	HERRIN	COAL	6.6	732.0	

MAPID: 08100623000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 18 QUARTERS/FOOTAGES: SW NW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.030689

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.180752

DATE COLLECTED:

SURFACE ELEVATION (FT.): 430.0 LOGGED (FT.): 725.7

LOG TYPE: Drillers Log

SOURCE: BELL & ZOLLER COAL CO. 37

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-225.9	CARBONDALE	BANKSTON FORK	LIMESTONE	6.3	655.9	
-232.2	CARBONDALE	ENERGY	SILTSTONE	30.0	662.2	
-262.2	CARBONDALE	ENERGY	GRAY SHALE	25.8	692.2	
-288.0	CARBONDALE	HERRIN	COAL	7.7	718.0	

MAPID: 08100052000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 19 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.031542

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.161596

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 466.0

LOGGED (FT.): 744.3

LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
466.0			UNCONSOLIDATED	14.0	0.0	
452.0			ROCK	274.0	14.0	
178.0			COAL	0.5	288.0	
177.5			ROCK	130.0	288.5	
47.5			COAL	0.5	418.5	
47.5			ROCK	281.5	418.5	
-234.0			SHALE	34.3	700.0	SANDY
-268.3	CARBONDALE	HERRIN	COAL	9.3	734.3	BLUE BAND .08'
-277.7	CARBONDALE		SHALE	0.0	743.7	

MAPID: 08100052000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 19 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.031542

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.161596

DATE COLLECTED:

SURFACE ELEVATION (FT.): 466.0

LOGGED (FT.): 740.5

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-164.2	CARBONDALE	DANVILLE	COAL	0.5	630.2	
-164.7	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	630.7	
-172.7	CARBONDALE	ENERGY	SANDSTONE	18.0	638.7	
-184.7	CARBONDALE	ENERGY	SILTY SHALE	39.0	650.7	
-223.7	CARBONDALE	ENERGY	GRAY SHALE	44.3	689.7	
-268.0	CARBONDALE	HERRIN	COAL	6.5	734.0	

MAPID: 08100052000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 19 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE LONGITUDE: -89.031542

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.161596

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 466.1

LOGGED (FT.): 745.0

LOG TYPE:

SOURCE: INLAND STEEL 5

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-267.9	CARBONDALE	HERRIN	COAL	9.3	734.0	

MAPID: 08100053000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 20 QUARTERS/FOOTAGES: SW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013075

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160205

DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 403.0

LOGGED (FT.): 689.0

LOG TYPE:

SOURCE: BG MUDDYCS

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-277.0	CARBONDALE	HERRIN	COAL	8.3	680.0	

MAPID: 08100053000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 20 QUARTERS/FOOTAGES: SW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013075

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.160205

DATE COLLECTED:

SURFACE ELEVATION (FT.): 403.0

LOGGED (FT.): 688.3

LOG TYPE: Drillers Log

SOURCE: BIG MUDDY COAL SYN

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
403.0			UNCONSOLIDATED	15.0	0.0	
388.0			ROCK	220.0	15.0	
168.0			COAL	0.5	235.0	
167.5			ROCK	1.0	235.5	
166.5			COAL	0.3	236.5	
166.2			ROCK	27.2	236.8	
139.0			COAL	1.1	264.0	
137.9			ROCK	122.4	265.1	
15.5			COAL	0.5	387.5	
15.0			ROCK	265.0	388.0	
-250.0			SHALE	27.0	653.0	
-277.0	CARBONDALE	HERRIN	COAL	8.3	680.0	
-285.3	CARBONDALE		SHALE	-	688.3	

MAPID: 08190014000C VERSION: 1

PROJECT: NCRDS93

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 20 QUARTERS/FOOTAGES:

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.017502

GEOLOGIST: HOKE

CONFIDENTIAL: N

LATITUDE: 38.158669

DATE COLLECTED: 8 / 27 / 1987

SURFACE ELEVATION (FT.): 423.9

LOGGED (FT.): 760.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL COMPANY 87-RL-217

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
423.9			CLAY	9.5	0.0	
414.4			SAND	0.5	9.5	
413.9			CLAY	3.0	10.0	
410.9	BOND		GRAY SHALE	3.2	13.0	
407.7	BOND		GRAY SHALE	14.3	16.2	GY SH W/ SS STREAKS
393.4	BOND		SHALE	12.5	30.5	SH W/ SS INTERBEDDED
380.9	BOND		SANDSTONE	81.2	43.0	
299.7	BOND		COAL	1.5	124.2	
298.2	BOND		UNDERCLAY	3.5	125.7	
294.7	BOND		LIMESTONE	0.9	129.2	
293.8	BOND		SANDY SHALE	2.9	130.1	
290.9	BOND		GRAY SHALE	3.5	133.0	
287.4	BOND		SANDY SHALE	68.4	136.5	
219.0	BOND	CARTHAGE	LIMESTONE	5.1	204.9	
213.9	MODESTO		BLACK SHALE	4.9	210.0	
209.0	MODESTO		GRAY SHALE	10.6	214.9	
198.4	MODESTO		SANDY SHALE	9.0	225.5	
189.4	MODESTO		COAL	0.9	234.5	
188.5	MODESTO		GRAY SHALE	4.6	235.4	
183.9	MODESTO		SANDY SHALE	19.4	240.0	
164.5	MODESTO		SANDSTONE	9.5	259.4	
155.0	MODESTO	WOMAC	COAL	1.1	268.9	
153.9	MODESTO		GRAY SHALE	27.3	270.0	
126.6	MODESTO		CLAYSTONE & SILTSTONE	5.3	297.3	
121.3	MODESTO		SHALE	4.4	302.6	
116.9	MODESTO		LIMESTONE	3.0	307.0	
113.9	MODESTO		GRAY SHALE	4.0	310.0	
109.9	MODESTO		SANDY SHALE	17.0	314.0	
92.9	MODESTO		CALCAREOUS SHALE	57.0	331.0	
35.9	MODESTO	CHAPEL	COAL	1.0	388.0	
34.9	MODESTO		CALCAREOUS SHALE	7.5	389.0	
27.4	MODESTO		CALCAREOUS SHALE	1.5	396.5	
25.9	MODESTO		GRAY SHALE	6.0	398.0	
19.9	MODESTO		SANDSTONE	8.7	404.0	SHALEY SS
11.2	MODESTO		SANDY SHALE	73.1	412.7	
-61.9	MODESTO		GRAY SHALE	35.2	485.8	
-97.1	MODESTO		SANDY SHALE	6.0	521.0	
-103.1	MODESTO		GRAY SHALE	22.8	527.0	
-125.9	MODESTO		BLACK SHALE	3.6	549.8	

-129.5			SANDY SHALE	31.6	553.4
-161.1			DARK GRAY SHALE	2.1	585.0
-163.2			SANDY SHALE	3.3	587.1
-166.5	CARBONDALE	BANKSTON FORK	LIMESTONE	10.1	590.4
-176.6	CARBONDALE	ANVIL ROCK	SANDSTONE	17.2	600.5
-193.8	CARBONDALE	ENERGY	SANDY SHALE	43.3	617.7
-237.1	CARBONDALE	ENERGY	GRAY SHALE	26.5	661.0
-263.6	CARBONDALE	HERRIN	COAL	8.4	687.5
-272.0	CARBONDALE		GRAY SHALE	4.6	695.9
-276.6	CARBONDALE		CALCAREOUS SHALE	6.5	700.5
-283.1	CARBONDALE		GRAY SHALE	6.0	707.0
-289.1	CARBONDALE	BRIAR HILL	COAL	1.0	713.0
-290.1	CARBONDALE		GRAY SHALE	9.6	714.0
-299.7	CARBONDALE	ST. DAVID	LIMESTONE	1.4	723.6
-301.1	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	725.0
-304.3	CARBONDALE	SPRINGFIELD	COAL	3.8	728.2
-308.1	CARBONDALE		GRAY SHALE	2.5	732.0
-310.6	CARBONDALE		LIMESTONE	1.5	734.5
-312.1	CARBONDALE		SANDY SHALE	24.0	736.0

MAPID: 08100054000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 21 **QUARTERS/FOOTAGES:** 1320' S line, 1570' E line
QUADRANGLE: INA **LONGITUDE:** -88.991416 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.158018 **DATE COLLECTED:** 11 / 0 / 1921
SURFACE ELEVATION (FT.): 402.0 **LOGGED (FT.):** 701.0 **LOG TYPE:** Survey Core Study
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
402.0			UNCONSOLIDATED	57.0	0.0	
345.0			ROCK	199.2	57.0	
145.8			COAL	0.8	256.2	
145.0			ROCK	38.0	257.0	
107.0			COAL	1.7	295.0	
105.3			ROCK	117.3	296.7	
-12.0			COAL	0.7	414.0	
-12.7			ROCK	159.8	414.7	
-172.5			COAL	0.5	574.5	
-173.0			ROCK	25.4	575.0	
-198.4			COAL	2.3	600.4	
-200.7			ROCK	22.3	602.7	
-223.0			SANDSTONE	67.8	625.0	
-290.8	CARBONDALE	HERRIN	COAL	8.1	692.8	BLUE BAND .08'
-299.0	CARBONDALE		UNDERCLAY	1.0	701.0	

MAPID: 08100054000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 21 QUARTERS/FOOTAGES: 1320' S line, 1570' E line

QUADRANGLE: INA LONGITUDE: -88.991416 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.158018 DATE COLLECTED:

SURFACE ELEVATION (FT.): 402.0 LOGGED (FT.): 708.0 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-184.0	MODESTO	PIASA	LIMESTONE	5.0	586.0
-189.0	MODESTO		DARK GRAY SHALE	4.4	591.0
-193.4	CARBONDALE	DANVILLE	COAL	2.3	595.4
-195.7	CARBONDALE		CLAYSTONE	3.3	597.7
-199.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	9.0	601.0
-208.0	CARBONDALE	ENERGY	SILTY SHALE	5.0	610.0
-213.0	CARBONDALE	ENERGY	SANDSTONE	5.0	615.0
-218.0	CARBONDALE	ENERGY	CALCAREOUS SHALE	67.7	620.0
-298.0	CARBONDALE	HERRIN	COAL	8.0	700.0

MAPID: 08100054000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 21 QUARTERS/FOOTAGES: 1320' S line, 1570' E line

QUADRANGLE: INA LONGITUDE: -88.991416 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.158018 DATE COLLECTED:

SURFACE ELEVATION (FT.): 402.4 LOGGED (FT.): 701.0 LOG TYPE:

SOURCE: NASON CC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-290.6	CARBONDALE	HERRIN	COAL	-	693.0

MAPID: 08124577000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 21 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.003281

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.294895

DATE COLLECTED: 8 / 5 / 1987

SURFACE ELEVATION (FT.): 411.5 LOGGED (FT.): 771.2

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL203

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
411.5	PLEISTOCENE		CLAY	41.0	0.0	
370.5	BOND		SILTY SHALE	79.9	41.0	
290.6	BOND		SHALE	7.5	120.9	
283.1	BOND		SANDSTONE	6.6	128.4	
276.5	BOND		SILTY SHALE	6.0	135.0	
270.5	BOND		SANDY SHALE	4.0	141.0	
266.5	BOND		SANDSTONE	33.3	145.0	
233.2	BOND		SHALE	4.7	178.3	
228.5	BOND		SANDSTONE	10.4	183.0	
218.1	BOND		SANDY SHALE	5.0	193.4	
213.1	BOND		SHALE	35.7	198.4	
177.4	MODESTO		SANDSTONE	6.9	234.1	
170.5	MODESTO		BLACK SHALE	5.0	241.0	
165.5	MODESTO		SHALE	59.9	246.0	
105.6	MODESTO		LIMESTONE	2.2	305.9	
103.4	MODESTO		SHALE	278.5	308.1	
-175.1	MODESTO		BLACK SHALE	3.2	586.6	
-178.3	MODESTO	DEGRAFF	COAL	1.8	589.8	
-180.1	MODESTO		SHALE	6.0	591.6	
-186.1	MODESTO	PIASA	LIMESTONE	5.4	597.6	
-191.5			SHALE	3.0	603.0	
-194.5			UNKNOWN	1.9	606.0	NO ROCK RECOVERED
-196.4			SHALE	4.0	607.9	
-200.4	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	611.9	
-206.5	CARBONDALE	ENERGY	SILTY SHALE	25.5	618.0	
-232.0	CARBONDALE	ENERGY	SHALE	50.8	643.5	
-282.8	CARBONDALE	ENERGY	GRAY SHALE	9.2	694.3	
-292.0	CARBONDALE	HERRIN	COAL	7.2	703.5	
-299.2	CARBONDALE		SILTY SHALE	2.8	710.7	
-302.0	CARBONDALE		SILTY SHALE	2.1	713.5	
-304.1	CARBONDALE		SHALE	31.0	715.6	
-335.1	CARBONDALE	BRIAR HILL	COAL	1.4	746.6	
-336.5	CARBONDALE		SHALE	11.5	748.0	
-348.0	CARBONDALE	TURNER MINE	BLACK SHALE	3.9	759.5	
-351.9	CARBONDALE		SHALE	2.4	763.4	
-354.3	CARBONDALE	SPRINGFIELD	COAL	4.4	765.8	
-358.7	CARBONDALE		UNDERCLAY	1.0	770.2	

MAPID: 08124954000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 21

QUARTERS/FOOTAGES: NE SW SE

QUADRANGLE: INA

LONGITUDE: -88.993874

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.29494

DATE COLLECTED: 8 / 20 / 1987

SURFACE ELEVATION (FT.): 412.6

LOGGED (FT.): 800.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL209

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.6			UNKNOWN	19.0	0.0	NO ROCK RECOVERED (WATER)
393.6	PLEISTOCENE		CLAY	42.3	19.0	
351.3	BOND		GRAY SHALE	23.7	61.3	
327.6	BOND		SANDSTONE	12.6	85.0	
315.0	BOND		SHALE	7.9	97.6	
307.1	BOND		SANDSTONE	55.5	105.5	
251.6	BOND		SHALE	44.6	161.0	
207.0	BOND		GRAY SHALE	22.7	205.6	
184.3	BOND		CLAYSTONE	12.0	228.3	
172.3	BOND	CARTHAGE	LIMESTONE	5.3	240.3	
167.0	MODESTO		BLACK SHALE	5.6	245.6	
161.4	MODESTO		SHALE	28.3	251.2	
133.1	MODESTO		SILTY SHALE	29.6	279.5	
103.5	MODESTO		SANDSTONE	1.7	309.1	
101.8	MODESTO		SHALE	277.2	310.8	
-175.4	MODESTO		BLACK SHALE	4.0	588.0	
-179.4	MODESTO		SHALE	16.2	592.0	
-195.6	MODESTO	PIASA	LIMESTONE	4.2	608.2	
-199.8	MODESTO		SHALE	5.1	612.4	
-204.9	CARBONDALE	DANVILLE	COAL	2.3	617.5	
-207.2	CARBONDALE		UNDERCLAY	4.2	619.8	
-211.4	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	624.0	
-218.9	CARBONDALE	ENERGY	GRAY SHALE	19.2	631.5	
-238.1	CARBONDALE	ENERGY	SHALE	55.6	650.7	
-293.7	CARBONDALE	ENERGY	GRAY SHALE	2.2	706.3	
-295.9	CARBONDALE	HERRIN	COAL	7.0	708.5	
-302.9	CARBONDALE		UNDERCLAY	0.1	715.5	
-303.0	CARBONDALE		GRAY SHALE	0.8	715.6	
-303.8	CARBONDALE		SANDSTONE	1.2	716.4	
-305.0	CARBONDALE		SHALE	31.8	717.6	
-336.8	CARBONDALE	BRIAR HILL	COAL	0.6	749.4	
-337.4	CARBONDALE		SHALE	10.1	750.0	
-347.5	CARBONDALE	ST. DAVID	LIMESTONE	1.9	760.1	
-349.4	CARBONDALE	TURNER MINE	BLACK SHALE	2.2	762.0	
-351.6	CARBONDALE	SPRINGFIELD	COAL	4.9	764.2	
-356.5	CARBONDALE		SANDSTONE	3.9	769.1	
-360.4	CARBONDALE		SHALE	27.0	773.0	

MAPID: 08124955000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 21

QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: INA

LONGITUDE: -88.995216

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.154518

DATE COLLECTED: 8 / 5 / 1987

SURFACE ELEVATION (FT.): 412.1

LOGGED (FT.): 790.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL212

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.1			UNKNOWN	18.0	0.0	NO RECOVERY (WATER)
394.1	PLEISTOCENE		CLAY	36.0	18.0	
358.1	BOND		SHALE	63.0	54.0	
295.1	BOND		SANDY SHALE	53.1	117.0	
242.0	BOND		SHALE	76.2	170.1	
165.8	BOND	CARTHAGE	LIMESTONE	6.4	246.3	
159.4	MODESTO		BLACK SHALE	4.1	252.7	
155.3	MODESTO		SHALE	18.6	256.8	
136.7	MODESTO	NEW HAVEN	COAL	1.0	275.4	
135.7	MODESTO		SHALE	43.1	276.4	
92.6	MODESTO	CHAPEL	COAL	1.7	319.5	
90.9	MODESTO		SILTY SHALE	2.8	321.2	
88.1	MODESTO		SHALE	18.0	324.0	
70.1	MODESTO		LIMESTONE	0.6	342.0	
69.5	MODESTO		SHALE	5.8	342.6	
63.7	MODESTO		LIMESTONE	1.1	348.4	
62.6	MODESTO		SHALE	83.5	349.5	
-20.9	MODESTO		COAL	0.8	433.0	
-21.7	MODESTO		SHALE	126.6	433.8	
-148.3	MODESTO		SANDY SHALE	29.6	560.4	
-177.9	MODESTO		BLACK SHALE	2.8	590.0	
-180.7	MODESTO		SHALE	16.9	592.8	
-197.6	MODESTO	PIASA	LIMESTONE	4.3	609.7	
-201.9	MODESTO		SHALE	3.2	614.0	
-205.1	CARBONDALE	DANVILLE	COAL	2.9	617.2	
-208.0	CARBONDALE		SHALE	4.8	620.1	
-212.8	CARBONDALE	BANKSTON FORK	LIMESTONE	8.7	624.9	
-221.5	CARBONDALE	ENERGY	GRAY SHALE	18.3	633.6	
-239.8	CARBONDALE	ENERGY	SHALE	52.7	651.9	
-292.5	CARBONDALE	ENERGY	GRAY SHALE	7.4	704.6	
-299.9	CARBONDALE	HERRIN	COAL	6.9	712.0	
-306.8	CARBONDALE		UNDERCLAY	1.1	718.9	
-307.9	CARBONDALE		SHALE	35.1	720.0	
-343.0	CARBONDALE	BRIAR HILL	COAL	0.9	755.1	
-343.9	CARBONDALE		SHALE	10.1	756.0	
-354.0	CARBONDALE	ST. DAVID	LIMESTONE	0.9	766.1	
-354.9	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	767.0	
-357.9	CARBONDALE	SPRINGFIELD	COAL	4.3	770.0	
-362.2	CARBONDALE		SHALE	15.7	774.3	

MAPID: 08100055000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** NW SW NW NE
QUADRANGLE: INA **LONGITUDE:** -88.976131 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.166784 **DATE COLLECTED:** 0 / 0 / 1921
SURFACE ELEVATION (FT.): 406.2 **LOGGED (FT.):** 739.0 **LOG TYPE:**
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-293.8	CARBONDALE	HERRIN	COAL	-	700.0	
-327.8	CARBONDALE	SPRINGFIELD	COAL	-	734.0	

MAPID: 08100055000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** NW SW NW NE
QUADRANGLE: INA **LONGITUDE:** -88.976131 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.166784 **DATE COLLECTED:** 12 / 0 / 1921
SURFACE ELEVATION (FT.): 420.0 **LOGGED (FT.):** 738.3 **LOG TYPE:** Multiple log types
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT: 4,1,4

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
420.0			UNCONSOLIDATED	58.0	0.0	
362.0			ROCK	83.5	58.0	
278.5			COAL	0.5	141.5	CORE BEGINS
278.0			ROCK	104.5	142.0	
173.5			COAL	0.5	246.5	
173.0			ROCK	14.5	247.0	
158.5			COAL	0.5	261.5	
158.0			ROCK	145.0	262.0	
13.0			COAL	0.5	407.0	
12.5			ROCK	188.0	407.5	
-175.5			COAL	0.3	595.5	SH PTG .01'
-175.8			ROCK	50.2	595.8	
-226.0			BLACK SHALE	54.4	646.0	
-280.4	CARBONDALE	HERRIN	COAL	7.7	700.4	BLUE BAND .04'. NO CORE
-288.1	CARBONDALE		UNDERCLAY	1.5	708.1	
-289.6	CARBONDALE		SHALE	8.8	709.6	
-298.4	CARBONDALE		COAL	0.8	718.4	
-299.3	CARBONDALE		BLACK SHALE	10.7	719.3	
-310.0	CARBONDALE		BLUE LIMESTONE	1.0	730.0	
-311.0	CARBONDALE		BLACK SHALE	3.3	731.0	CORE ENDS
-314.3	CARBONDALE	SPRINGFIELD	COAL	4.0	734.3	
-318.3	CARBONDALE		UNDERCLAY	0.7	738.3	

MAPID: 08100056000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: INA **LONGITUDE:** -88.973275 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.159033 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 418.1 **LOGGED (FT.):** 690.0 **LOG TYPE:**
SOURCE: NASON CC 9 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-261.9	CARBONDALE	HERRIN	COAL	7.0	680.0	

MAPID: 08100056000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** SE NW SE
QUADRANGLE: INA **LONGITUDE:** -88.973275 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.159033 **DATE COLLECTED:** 4 / 15 / 1918
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 689.4 **LOG TYPE:** Drillers Log
SOURCE: W. H. GUILFOYLE **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
418.0			UNCONSOLIDATED	73.0	0.0	
345.0			ROCK	169.0	73.0	
176.0			COAL	1.5	242.0	DIRTY
174.5			ROCK	161.5	243.5	
13.0			COAL	1.0	405.0	
12.0			ROCK	138.0	406.0	
-126.0			COAL	1.0	544.0	DIRTY
-127.0			ROCK	95.0	545.0	
-222.0			SHALE	39.8	640.0	SOAP SHALE
-261.8	CARBONDALE	HERRIN	COAL	7.0	679.8	
-268.8	CARBONDALE		UNDERCLAY	0.6	686.8	
-269.3	CARBONDALE		ROCK	2.0	687.3	

MAPID: 08100057000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW SW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.976143 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.158566 **DATE COLLECTED:** 0 / 0 / 1909
SURFACE ELEVATION (FT.): 417.8 **LOGGED (FT.):** 690.0 **LOG TYPE:**
SOURCE: BG MUDDYCS0002 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-261.2	CARBONDALE	HERRIN	COAL	-	679.0	

MAPID: 08100057000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** SW SW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.976143 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.158566 **DATE COLLECTED:** 0 / 0 / 1909
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 683.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL SYN **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
418.0			UNCONSOLIDATED	64.0	0.0	
354.0			ROCK	174.0	64.0	
180.0			COAL	0.5	238.0	
179.5			ROCK	166.5	238.5	
13.0			COAL	0.5	405.0	
12.5			ROCK	181.2	405.5	
-168.7			COAL	1.2	586.7	
-169.8			ROCK	55.2	587.8	
-225.0			BLACK SHALE	34.0	643.0	
-259.0	CARBONDALE	HERRIN	COAL	6.6	677.0	AVG THICKNESS.COAL REPRD 5.16\ALSO.08

MAPID: 08101170000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 22 **QUARTERS/FOOTAGES:** 330' N line, 330' E line
QUADRANGLE: INA **LONGITUDE:** -88.968735 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.168203 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 431.0 **LOGGED (FT.):** 2386.0 **LOG TYPE:** Electric Log
SOURCE: KEWANEE OIL & GAS **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-489.0	CARBONDALE	COLCHESTER	COAL	-	920.0	
-1955.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2386.0	

MAPID: 08124956000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 22

QUARTERS/FOOTAGES: SW SE SE

QUADRANGLE: INA

LONGITUDE: -88.973509

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.292306

DATE COLLECTED: 8 / 20 / 1987

SURFACE ELEVATION (FT.): 416.1

LOGGED (FT.): 760.3

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL211

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
416.1	PLEISTOCENE		CLAY	54.0	0.0
362.1	PLEISTOCENE		SAND	19.0	54.0
343.1	BOND		SANDY SHALE	6.0	73.0
337.1	BOND		GRAY SHALE	10.8	79.0
326.3	BOND		SANDSTONE	8.2	89.8
318.1	BOND		GRAY SHALE	7.5	98.0
310.6	BOND		SANDSTONE	27.2	105.5
283.4	BOND		SANDY SHALE	38.3	132.7
245.1	BOND		GRAY SHALE	32.2	171.0
212.9	BOND	CARTHAGE	LIMESTONE	6.1	203.2
206.8	MODESTO		BLACK SHALE	3.7	209.3
203.1	MODESTO		SANDY SHALE	3.2	213.0
199.9	MODESTO		GRAY SHALE	13.8	216.2
186.1	MODESTO		SANDY SHALE	4.8	230.0
181.3	MODESTO	NEW HAVEN	COAL	0.8	234.8
180.5	MODESTO		SANDY SHALE	14.4	235.6
166.1	MODESTO	WOMAC	COAL	0.7	250.0
165.4	MODESTO		GRAY SHALE	8.3	250.7
157.1	MODESTO		SANDY SHALE	3.5	259.0
153.6	MODESTO		GRAY SHALE	30.2	262.5
123.4	MODESTO		BLACK SHALE	3.3	292.7
120.1	MODESTO		SANDY SHALE	29.0	296.0
91.1	MODESTO		GRAY SHALE	75.2	325.0
15.9	MODESTO	CHAPEL	COAL	1.0	400.2
14.9	MODESTO		SANDY SHALE	116.6	401.2
-101.7	MODESTO		GRAY SHALE	17.7	517.8
-119.4	MODESTO		SANDSTONE	4.0	535.5
-123.4	MODESTO		GRAY SHALE	21.9	539.5
-145.3	MODESTO		BLACK SHALE	3.4	561.4
-148.7	MODESTO		GRAY SHALE	4.0	564.8
-152.7	MODESTO		SANDSTONE	7.0	568.8
-159.7	MODESTO	PIASA	LIMESTONE	4.8	575.8
-164.5	MODESTO		BLACK SHALE	3.1	580.6
-167.6	CARBONDALE	DANVILLE	COAL	1.6	583.7
-169.2	CARBONDALE		SANDY SHALE	7.6	585.3
-176.8	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	592.9
-182.6	CARBONDALE	ENERGY	SANDSTONE	7.6	598.7
-190.2	CARBONDALE	ENERGY	GRAY SHALE	11.6	606.3
-201.8	CARBONDALE	ENERGY	GRAY SHALE	53.6	617.9

-255.4	CARBONDALE	HERRIN	COAL	6.1	671.5
-261.5	CARBONDALE		UNDERCLAY	6.6	677.6
-268.1	CARBONDALE		SANDSTONE	15.1	684.2
-283.2	CARBONDALE		GRAY SHALE	13.5	699.3
-296.7	CARBONDALE	BRIAR HILL	COAL	0.9	712.8
-297.6	CARBONDALE		GRAY SHALE	9.1	713.7
-306.7	CARBONDALE	ST. DAVID	LIMESTONE	1.5	722.8
-308.2	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	724.3
-310.5	CARBONDALE	DYKERSBURG	GRAY SHALE	2.6	726.6
-313.1	CARBONDALE	SPRINGFIELD	COAL	3.7	729.2
-316.8	CARBONDALE		UNDERCLAY	1.9	732.9
-318.7	CARBONDALE		SANDY SHALE	25.5	734.8

MAPID: 08190024000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 22 QUARTERS/FOOTAGES: SE SE SE

QUADRANGLE: INA LONGITUDE: -88.967654 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.15473 DATE COLLECTED: 9 / 26 / 1988

SURFACE ELEVATION (FT.): 418.1 LOGGED (FT.): 750.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL295 WELL TYPE: Coal Test

COMMENT: PERMIT 274; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
418.1	PLEISTOCENE		CLAY	44.2	0.0	
373.9	BOND		GRAY SHALE	12.6	44.2	
361.3	BOND		SANDY SHALE	2.5	56.8	
358.8	BOND		GRAY SHALE	26.6	59.3	
332.2	BOND		SANDY SHALE	4.5	85.9	
327.7	BOND		GRAY SHALE	2.1	90.4	
325.6	BOND		SHALY SANDSTONE	10.5	92.5	GRAY
315.1	BOND		DARK GRAY SHALE	3.0	103.0	
312.1	BOND		GRAY SHALE	2.0	106.0	
310.1	BOND		SANDSTONE	17.7	108.0	GRAY
292.4	BOND		SANDY SHALE	10.0	125.7	
282.4	BOND		DARK GRAY SHALE	2.9	135.7	
279.5	BOND		SANDY SHALE	2.5	138.6	
277.0	BOND		GRAY SHALE	7.9	141.1	
269.1	BOND		SHALY SANDSTONE	9.2	149.0	GRAY
259.9	BOND		GRAY SHALE	37.2	158.2	
222.7	BOND	CARTHAGE	LIMESTONE	5.7	195.4	
217.0	MODESTO		BLACK SHALE	4.3	201.1	
212.7	MODESTO		GREEN SHALE	23.1	205.4	
189.6	MODESTO	NEW HAVEN	COAL	0.4	228.5	
189.2	MODESTO		SHALE WITH LIMESTONE	2.4	228.9	
186.8	MODESTO		SANDY SHALE	6.5	231.3	
180.3	MODESTO		GRAY SHALE	6.6	237.8	
173.7	MODESTO		SHALY SANDSTONE	5.9	244.4	GRAY
167.8	MODESTO		GRAY SHALE	33.2	250.3	
134.6	MODESTO		BLACK SHALE	4.4	283.5	
130.2	MODESTO		LIMESTONE	0.9	287.9	
129.3	MODESTO		GRAY SHALE	9.2	288.8	
120.1	MODESTO		SHALE WITH LIMESTONE	11.3	298.0	
108.8	MODESTO		SANDY SHALE	10.9	309.3	
97.9	MODESTO		GRAY SHALE	10.6	320.2	
87.3	MODESTO		SANDY SHALE	16.8	330.8	
70.5	MODESTO		GRAY SHALE	30.3	347.6	
40.2	MODESTO		DARK GRAY SHALE	11.7	377.9	
28.5	MODESTO		SANDY SHALE	2.2	389.6	
26.3	MODESTO	CHAPEL	COAL	0.7	391.8	
25.6	MODESTO		SHALE WITH LIMESTONE	10.5	392.5	
15.1	MODESTO		GRAY SHALE	17.0	403.0	
-1.9	MODESTO		SHALY SANDSTONE	11.0	420.0	

-12.9	MODESTO		SANDY SHALE	74.0	431.0	
-86.9	MODESTO		CALCAREOUS SHALE	14.1	505.0	
-101.0	MODESTO		GRAY SHALE	7.4	519.1	
-108.4	MODESTO		DARK GRAY SHALE	2.8	526.5	
-111.2	MODESTO		SANDY SHALE	4.1	529.3	
-115.3	MODESTO		GRAY SHALE	7.8	533.4	
-123.1	MODESTO		SANDY SHALE	1.8	541.2	
-124.9	MODESTO		DARK GRAY SHALE	11.2	543.0	
-136.1	MODESTO		SANDY SHALE	3.3	554.2	
-139.4	MODESTO		BLACK SHALE	3.5	557.5	
-142.9	CARBONDALE	DANVILLE	COAL	0.2	561.0	
-143.1	CARBONDALE		UNDERCLAY	2.1	561.2	
-145.2	CARBONDALE		GRAY SHALE	12.4	563.3	
-157.6	CARBONDALE		DARK GRAY SHALE	5.6	575.7	
-163.2	CARBONDALE		GRAY SHALE	7.0	581.3	
-170.2	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	588.3	TAN
-176.3	CARBONDALE	ENERGY	SANDSTONE	6.4	594.4	GRAY
-182.7	CARBONDALE	ENERGY	SANDY SHALE	46.6	600.8	
-229.3	CARBONDALE	ENERGY	GRAY SHALE	18.0	647.4	
-247.3	CARBONDALE	HERRIN	COAL	1.7	665.4	
-249.1	CARBONDALE	HERRIN	GRAY SHALE	0.0	667.2	
-249.1	CARBONDALE	HERRIN	COAL	4.6	667.2	
-253.7	CARBONDALE	HERRIN	GRAY SHALE	0.1	671.8	
-253.8	CARBONDALE	HERRIN	COAL	0.1	671.9	
-253.9	CARBONDALE		UNDERCLAY	2.3	672.0	GREEN
-256.2	CARBONDALE		SHALE WITH LIMESTONE	4.2	674.3	
-260.4	CARBONDALE		GRAY SHALE	2.3	678.5	
-262.7	CARBONDALE		SANDSTONE	3.3	680.8	GRAY
-266.0	CARBONDALE		GRAY SHALE	24.4	684.1	
-290.4	CARBONDALE	BRIAR HILL	COAL	1.4	708.5	
-291.8	CARBONDALE		UNDERCLAY	2.0	709.9	GREEN
-293.8	CARBONDALE		GRAY SHALE	8.1	711.9	
-301.9	CARBONDALE	ST. DAVID	LIMESTONE	2.9	720.0	
-304.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	722.9	
-308.0	CARBONDALE	SPRINGFIELD	COAL	3.4	726.1	
-311.4	CARBONDALE		GRAY SHALE	1.5	729.5	
-312.9	CARBONDALE		SHALE WITH LIMESTONE	3.0	731.0	
-315.9	CARBONDALE		SANDSTONE	8.0	734.0	GRAY
-323.9	CARBONDALE		SANDY SHALE	8.0	742.0	

MAPID: 08190025000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 22 QUARTERS/FOOTAGES: SE NE SE

QUADRANGLE: INA LONGITUDE: -88.968492 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.158547 DATE COLLECTED: 10 / 3 / 1988

SURFACE ELEVATION (FT.): 424.2 LOGGED (FT.): 755.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL297 WELL TYPE: Coal Test

COMMENT: PERMIT 274; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
424.2	PLEISTOCENE		CLAY	35.1	0.0	BROWN
389.1	BOND		GRAY SHALE	9.2	35.1	
379.9	BOND		BLACK SHALE	1.7	44.3	
378.2	BOND		GRAY SHALE	31.9	46.0	
346.3	BOND		SANDY SHALE	21.2	77.9	
325.1	BOND		SANDSTONE	36.6	99.1	10GPM WATER; GRAY
288.5	BOND		COAL	0.6	135.7	
287.9	BOND		SANDY SHALE	24.5	136.3	
263.4	BOND		SANDY SHALE	5.2	160.8	
258.2	BOND		SANDY SHALE	25.9	166.0	
232.3	BOND		GRAY SHALE	13.7	191.9	
218.6	BOND	CARTHAGE	LIMESTONE	6.4	205.6	GRAY
212.2	MODESTO		BLACK SHALE	4.3	212.0	
207.9	MODESTO		GRAY SHALE	29.2	216.3	
178.7	MODESTO		SANDY SHALE	7.2	245.5	
171.5	MODESTO		SHALE WITH LIMESTONE	3.5	252.7	
168.0	MODESTO		SANDSTONE	4.1	256.2	GRAY
163.9	MODESTO		SANDY SHALE	34.7	260.3	
129.2	MODESTO		BLACK SHALE	3.7	295.0	
125.5	MODESTO		SANDY SHALE	5.5	298.7	
120.0	MODESTO	CARLINVILLE	LIMESTONE	16.4	304.2	
103.6	MODESTO		SANDY SHALE	43.4	320.6	
60.2	MODESTO		GRAY SHALE	39.0	364.0	
21.2	MODESTO		CALCAREOUS SHALE	5.3	403.0	
15.9	MODESTO		GRAY SHALE	9.7	408.3	
6.2	MODESTO		LIMESTONE	3.0	418.0	GRAY
3.2	MODESTO		SANDY SHALE	103.0	421.0	
-99.8	MODESTO		GRAY SHALE	14.7	524.0	
-114.5	MODESTO		SANDY SHALE	3.3	538.7	
-117.8	MODESTO		GRAY SHALE	23.0	542.0	
-140.8	MODESTO		BLACK SHALE	4.8	565.0	
-145.6	MODESTO		GRAY SHALE	7.5	569.8	
-153.1	MODESTO	PIASA	LIMESTONE	2.3	577.3	TAN
-155.4	MODESTO		GREEN SHALE	5.9	579.6	
-161.3	CARBONDALE		SANDY SHALE	7.7	585.5	
-169.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.8	593.2	
-175.8	CARBONDALE	ENERGY	SHALY SANDSTONE	11.8	600.0	GRAY
-187.6	CARBONDALE	ENERGY	SANDY SHALE	39.2	611.8	
-226.8	CARBONDALE	ENERGY	GRAY SHALE	16.7	651.0	

-243.5	CARBONDALE	ENERGY	DARK GRAY SHALE	0.1	667.7	
-243.6	CARBONDALE	HERRIN	COAL	4.4	667.8	
-247.9	CARBONDALE	HERRIN	BLACK SHALE	0.0	672.1	
-248.0	CARBONDALE	HERRIN	COAL	0.2	672.2	
-248.2	CARBONDALE	HERRIN	BLACK SHALE	0.1	672.4	
-248.2	CARBONDALE	HERRIN	COAL	0.5	672.4	
-248.7	CARBONDALE	HERRIN	FUSAIN	0.0	672.9	
-248.8	CARBONDALE	HERRIN	COAL	0.2	673.0	
-249.0	CARBONDALE	HERRIN	DARK GRAY SHALE	0.0	673.2	
-249.0	CARBONDALE	HERRIN	COAL	0.6	673.2	
-249.6	CARBONDALE		UNDERCLAY	2.2	673.8	
-251.7	CARBONDALE	HIGGINSVILLE	LIMESTONE	9.3	675.9	
-261.0	CARBONDALE		SANDSTONE	12.1	685.2	GRAY
-273.1	CARBONDALE		GRAY SHALE	16.5	697.3	
-289.6	CARBONDALE	BRIAR HILL	COAL	0.7	713.8	
-290.3	CARBONDALE		SANDY SHALE	5.2	714.5	
-295.5	CARBONDALE		GRAY SHALE	7.6	719.7	
-303.1	CARBONDALE	ST. DAVID	LIMESTONE	0.7	727.3	
-303.8	CARBONDALE	TURNER MINE	BLACK SHALE	2.9	728.0	
-306.7	CARBONDALE	SPRINGFIELD	COAL	3.4	730.9	
-310.1	CARBONDALE		UNDERCLAY	2.7	734.3	
-312.8	CARBONDALE		SANDY SHALE	18.0	737.0	

MAPID: 08100058000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 23 **QUARTERS/FOOTAGES:** SE SE SE
QUADRANGLE: INA **LONGITUDE:** -88.95034 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.155198 **DATE COLLECTED:** 0 / 0 / 1930
SURFACE ELEVATION (FT.): 411.3 **LOGGED (FT.):** 2241.0 **LOG TYPE:**
SOURCE: NASON CC 1 **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN	COMMENT
-220.7	CARBONDALE	HERRIN	COAL	-	632.0	
-252.7	CARBONDALE	SPRINGFIELD	COAL	-	664.0	

MAPID: 08100101000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 23

QUARTERS/FOOTAGES: SE SE SW SE

QUADRANGLE: INA

LONGITUDE: -88.954353

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.154792

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 412.3

LOGGED (FT.): 637.0

LOG TYPE:

SOURCE: PEABODY 7

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-214.7	CARBONDALE	HERRIN	COAL	5.8	627.0	

MAPID: 08100101000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 23

QUARTERS/FOOTAGES: SE SE SW SE

QUADRANGLE: INA

LONGITUDE: -88.954353

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.154792

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 412.0

LOGGED (FT.): 637.0

LOG TYPE: Drillers Log

SOURCE: PEABODY C C

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.0			UNCONSOLIDATED	18.0	0.0	
394.0			ROCK	191.3	18.0	
202.7			COAL	1.5	209.3	
201.2			ROCK	30.2	210.8	
171.0			COAL	1.5	241.0	
169.5			ROCK	120.2	242.5	
49.3			COAL	0.3	362.7	"WITH LIME"
49.0			ROCK	162.0	363.0	
-113.0			COAL	1.0	525.0	
-114.0			ROCK	45.0	526.0	
-159.0			SHALE	55.9	571.0	
-214.9	CARBONDALE	HERRIN	COAL	5.8	626.9	
-220.8	CARBONDALE		UNDERCLAY	4.3	632.8	

MAPID: 08100200000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 23

QUARTERS/FOOTAGES: SE SE NW

QUADRANGLE: INA

LONGITUDE: -88.959489

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.162652

DATE COLLECTED:

SURFACE ELEVATION (FT.): 413.0

LOGGED (FT.): 696.0

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-160.0	CARBONDALE	BANKSTON FORK	LIMESTONE	15.0	573.0	UPPER BENCH
-175.0	CARBONDALE	BANKSTON FORK	GRAY SHALE	10.0	588.0	SHALE PARTING
-185.0	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	598.0	LOWER BENCH
-195.0	CARBONDALE	ENERGY	SANDSTONE	15.0	608.0	
-210.0	CARBONDALE	ENERGY	SILTY SHALE	65.0	623.0	
-275.0	CARBONDALE	HERRIN	COAL	8.0	688.0	

MAPID: 08123808000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 23

QUARTERS/FOOTAGES: 330' N line, 330' W line of SW

QUADRANGLE: INA

LONGITUDE: -88.966394

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.160892

DATE COLLECTED:

SURFACE ELEVATION (FT.): 431.0

LOGGED (FT.): 4452.0

LOG TYPE: Electric Log

SOURCE: BLACK HAWK RES. CORP.

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-468.0	CARBONDALE	COLCHESTER	COAL	-	899.0	
-1955.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2386.0	
-3919.0	DEVONIAN	UPPER DEVONIAN S	UNCLASSIFIED	-	4350.0	TOP OF NEW ALBANY
-3923.0	DEVONIAN	GRASSY CREEK	UNCLASSIFIED	-	4354.0	
-4021.0	DEVONIAN	BASE UPPER DEVON	UNCLASSIFIED	-	4452.0	BASE OF NEW ALBANY

MAPID: 08190023000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 23

QUARTERS/FOOTAGES: SE NW SW

QUADRANGLE: INA

LONGITUDE: -88.963094

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.158105

DATE COLLECTED: 8 / 26 / 1987

SURFACE ELEVATION (FT.): 417.5

LOGGED (FT.): 740.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL214

WELL TYPE: Coal Test

COMMENT: PERMIT 274; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
417.5	PLEISTOCENE		SANDY CLAY	30.0	0.0
387.5	BOND		SANDSTONE	13.0	30.0
374.5	BOND		BLACK SHALE	2.0	43.0
372.5	BOND	FLAT CREEK	COAL	0.9	45.0
371.6	BOND		GRAY SHALE	5.6	45.9
366.0	BOND		SANDY SHALE	32.5	51.5
333.5	BOND		SANDSTONE	13.0	84.0
320.5	BOND		SANDSTONE	27.4	97.0
293.1	BOND		GRAY SHALE	14.3	124.4
278.8	BOND		SANDY SHALE	11.0	138.7
267.8	BOND		SANDSTONE	8.3	149.7
259.5	BOND		SANDY SHALE	33.0	158.0
226.5	BOND		GRAY SHALE	2.5	191.0
224.0	BOND		CALCAREOUS SHALE	4.5	193.5
219.5	BOND	CARTHAGE	LIMESTONE	5.0	198.0
214.5	MODESTO		BLACK SHALE	4.3	203.0
210.2	MODESTO		SANDY SHALE	63.7	207.3
146.5	MODESTO		GRAY SHALE	11.9	271.0
134.6	MODESTO		BLACK SHALE	3.2	282.9
131.4	MODESTO		SANDY SHALE	84.9	286.1
46.5	MODESTO		GRAY SHALE	17.1	371.0
29.4	MODESTO		SANDY SHALE	24.9	388.1
4.5	MODESTO		SHALY SANDSTONE	92.9	413.0
-88.4	MODESTO		GRAY SHALE	9.8	505.9
-98.2	MODESTO		CALCAREOUS SHALE	39.3	515.7
-137.5	MODESTO		BLACK SHALE	2.8	555.0
-140.3	MODESTO		CALCAREOUS SHALE	7.0	557.8
-147.3	MODESTO	PIASA	LIMESTONE	3.5	564.8
-150.8	MODESTO		CALCAREOUS SHALE	13.7	568.3
-164.5	CARBONDALE	BANKSTON FORK	LIMESTONE	5.9	582.0
-170.4	CARBONDALE	ENERGY	SANDSTONE	42.1	587.9
-212.5	CARBONDALE	ENERGY	GRAY SHALE	28.6	630.0
-241.1	CARBONDALE	HERRIN	COAL	4.2	658.6
-245.3	CARBONDALE	HERRIN	FUSAIN	0.2	662.8
-245.5	CARBONDALE	HERRIN	COAL	1.7	663.0
-247.2	CARBONDALE	HERRIN	GRAY SHALE	0.1	664.7
-247.3	CARBONDALE	HERRIN	COAL	0.1	664.8
-247.4	CARBONDALE		UNDERCLAY	4.3	664.9
-251.6	CARBONDALE		SHALE WITH LIMESTONE	5.9	669.1

-257.6	CARBONDALE		SANDSTONE	10.4	675.1
-268.0	CARBONDALE		GRAY SHALE	17.0	685.5
-285.0	CARBONDALE	BRIAR HILL	COAL	1.3	702.5
-286.3	CARBONDALE		GRAY SHALE	2.0	703.8
-288.3	CARBONDALE	TURNER MINE	BLACK SHALE	12.5	705.8
-300.8	CARBONDALE	SPRINGFIELD	COAL	3.7	718.3
-304.5	CARBONDALE		UNDERCLAY	1.3	722.0
-305.8	CARBONDALE		SANDSTONE	16.7	723.3

MAPID: 08100059000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.938528 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.161069 **DATE COLLECTED:** 0 / 0 / 1931
SURFACE ELEVATION (FT.): 416.8 **LOGGED (FT.):** 2928.0 **LOG TYPE:**
SOURCE: PHILLIPS P0001 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN COMMENT
-248.2	CARBONDALE	HERRIN	COAL	3.0	665.0

MAPID: 08100059000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.938528 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.161069 **DATE COLLECTED:** 0 / 0 / 1931
SURFACE ELEVATION (FT.): 400.0 **LOGGED (FT.):** 995.0 **LOG TYPE:** Drillers Log
SOURCE: PHILLIPS PETROLEUM CO. **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN COMMENT
400.0			UNCONSOLIDATED	25.0	0.0
375.0			ROCK	85.0	25.0
290.0			COAL	2.0	110.0
288.0			ROCK	508.0	112.0
-220.0			BLACK SHALE	45.0	620.0
-265.0			COAL	3.0	665.0
-268.0			ROCK	327.0	668.0

MAPID: 08100060000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** NE NE SE
QUADRANGLE: INA **LONGITUDE:** -88.931456 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.161305 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 399.2 **LOGGED (FT.):** 1685.0 **LOG TYPE:**
SOURCE: BG MUDDYCS0001 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-241.8	CARBONDALE	HERRIN	COAL	7.0	641.0	

MAPID: 08100061000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE SE SE SW
QUADRANGLE: INA **LONGITUDE:** -88.940295 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.1551 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 413.6 **LOGGED (FT.):** 643.0 **LOG TYPE:**
SOURCE: PEABODY 5 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-219.4	CARBONDALE	HERRIN	COAL	6.3	633.0	

MAPID: 08100061000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** SE SE SE SW
QUADRANGLE: INA **LONGITUDE:** -88.940295 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.1551 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 414.0 **LOGGED (FT.):** 643.0 **LOG TYPE:** Drillers Log
SOURCE: PEABODY C C **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
414.0			UNCONSOLIDATED	48.0	0.0	
366.0			ROCK	45.5	48.0	
320.5			COAL	0.5	93.5	
320.0			ROCK	137.0	94.0	
183.0			COAL	1.5	231.0	
181.5			ROCK	132.5	232.5	
49.0			COAL	1.0	365.0	
48.0			ROCK	157.5	366.0	
-109.5			COAL	0.5	523.5	
-110.0			ROCK	76.0	524.0	
-186.0			SHALE	32.6	600.0	SOAPY
-218.6	CARBONDALE	HERRIN	COAL	6.3	632.6	
-224.8	CARBONDALE		UNDERCLAY	1.0	638.8	
-225.8	CARBONDALE		ROCK	3.2	639.8	

MAPID: 08101239000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 24 **QUARTERS/FOOTAGES:** SW SW SW
QUADRANGLE: INA **LONGITUDE:** -88.947689 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.155238 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 399.0 **LOGGED (FT.):** 2336.0 **LOG TYPE:** Electric Log
SOURCE: CALVERT DRILLING, INC. **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-284.0	CARBONDALE	SPRINGFIELD	COAL	-	683.0	
-443.0	CARBONDALE	COLCHESTER	COAL	-	842.0	
-1937.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2336.0	

MAPID: 08101239000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 24 QUARTERS/FOOTAGES: SW SW SW

QUADRANGLE: INA LONGITUDE: -88.947689 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.155238 DATE COLLECTED:

SURFACE ELEVATION (FT.): 399.0 LOGGED (FT.): 626.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-127.0	MODESTO	PIASA	LIMESTONE	6.0	526.0
-133.0	MODESTO		GRAY SHALE	5.0	532.0
-138.0	CARBONDALE	DANVILLE	COAL	2.0	537.0
-140.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	16.0	539.0
-156.0	CARBONDALE	ENERGY	SILTY SHALE	65.0	555.0
-221.0	CARBONDALE	HERRIN	COAL	6.0	620.0

MAPID: 08190036000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 24 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.940725

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.15471

DATE COLLECTED: 6 / 16 / 1988

SURFACE ELEVATION (FT.): 412.3 LOGGED (FT.): 740.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL274

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.3	PLEISTOCENE		UNCONSOLIDATED	58.0	0.0	
354.3	BOND		SANDSTONE	44.5	58.0	
309.8	BOND		SHALE	25.5	102.5	
284.3	BOND		SANDY SHALE	3.0	128.0	
281.3	BOND		SHALE	45.2	131.0	
236.1	BOND	CARTHAGE	LIMESTONE	5.6	176.2	
230.5	MODESTO		BLACK SHALE	3.7	181.8	
226.8	MODESTO		SHALE	25.0	185.5	
201.8	MODESTO	NEW HAVEN	COAL	0.6	210.5	
201.2	MODESTO		SHALE	35.7	211.1	
165.5	MODESTO	WOMAC	COAL	1.2	246.8	
164.3	MODESTO		SHALE	289.2	248.0	
-124.9	MODESTO		BLACK SHALE	2.4	537.2	
-127.3	MODESTO		SANDY SHALE	7.9	539.6	
-135.2	CARBONDALE	DANVILLE	COAL	2.0	547.5	
-137.2	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	549.5	
-141.2	CARBONDALE		SHALE	16.5	553.5	
-157.7	CARBONDALE		SANDY SHALE	10.0	570.0	
-167.7	CARBONDALE	CONANT	LIMESTONE	3.0	580.0	
-170.7	CARBONDALE	ENERGY	GRAY SHALE	56.5	583.0	
-227.2	CARBONDALE	ENERGY	NO RECORD	1.0	639.5	LOST CORE
-228.2	CARBONDALE	ENERGY	GRAY SHALE	8.4	640.5	
-236.7	CARBONDALE	HERRIN	COAL	4.5	649.0	
-241.2	CARBONDALE	HERRIN	BLACK SHALE	0.1	653.5	
-241.3	CARBONDALE	HERRIN	COAL	1.3	653.6	
-242.6	CARBONDALE	HERRIN	UNDERCLAY	0.3	654.9	
-242.8	CARBONDALE		SHALE	44.7	655.1	
-287.5	CARBONDALE		BLACK SHALE	0.7	699.8	
-288.2	CARBONDALE	BRIAR HILL	COAL	1.5	700.5	
-289.7	CARBONDALE	ST. DAVID	LIMESTONE	2.0	702.0	
-291.7	CARBONDALE		SHALE	3.5	704.0	
-295.2	CARBONDALE	TURNER MINE	BLACK SHALE	0.6	707.5	
-295.8	CARBONDALE	SPRINGFIELD	COAL	4.0	708.1	
-299.8	CARBONDALE		UNDERCLAY	2.9	712.1	
-302.7	CARBONDALE		SHALE	25.0	715.0	

MAPID: 08101211000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 25 QUARTERS/FOOTAGES: SW SW NE

QUADRANGLE: INA LONGITUDE: -88.938681

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.148251

DATE COLLECTED:

SURFACE ELEVATION (FT.): 396.0

LOGGED (FT.): 642.5

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-146.0	MODESTO	PIASA	LIMESTONE	5.0	542.0
-151.0	MODESTO		SHALE	13.0	547.0
-164.0	CARBONDALE	DANVILLE	COAL	1.0	560.0
-165.0	CARBONDALE	ENERGY	SANDSTONE	15.0	561.0
-180.0	CARBONDALE	ENERGY	GRAY SHALE	60.0	576.0
-241.0	CARBONDALE	HERRIN	COAL	5.5	637.0

MAPID: 08190028000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 25 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.947172 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.148797 DATE COLLECTED: 7 / 24 / 1989

SURFACE ELEVATION (FT.): 412.9 LOGGED (FT.): 721.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 89RL324 WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.9	PLEISTOCENE		UNCONSOLIDATED	65.0	0.0
347.9	BOND		GRAY SHALE	6.0	65.0
341.9	BOND		SANDSTONE	18.0	71.0
323.9	BOND		GRAY SHALE	23.0	89.0
300.9	BOND		SANDSTONE	2.0	112.0
298.9	BOND		SANDY SHALE	2.0	114.0
296.9	BOND		SANDSTONE	2.5	116.0
294.4	BOND		GRAY SHALE	39.5	118.5
254.9	BOND	CARTHAGE	LIMESTONE	7.5	158.0
247.4	MODESTO		BLACK SHALE	3.5	165.5
243.9	MODESTO		GRAY SHALE	80.0	169.0
163.9	MODESTO		BLACK SHALE	3.0	249.0
160.9	MODESTO		GRAY SHALE	13.0	252.0
147.9	MODESTO		SANDSTONE	7.0	265.0
140.9	MODESTO		GRAY SHALE	91.0	272.0
49.9	MODESTO	CHAPEL	COAL	0.5	363.0
49.4	MODESTO		GRAY SHALE	20.0	363.5
29.4	MODESTO		SANDSTONE	10.0	383.5
19.4	MODESTO		GRAY SHALE	21.0	393.5
-1.6	MODESTO		BLACK SHALE	5.0	414.5
-6.6	MODESTO		GRAY SHALE	67.5	419.5
-74.1	MODESTO		BLACK SHALE	11.5	487.0
-85.6	MODESTO		GRAY SHALE	21.5	498.5
-107.1	MODESTO		BLACK SHALE	2.5	520.0
-109.6	MODESTO		GRAY SHALE	12.5	522.5
-122.1	MODESTO	PIASA	LIMESTONE	3.5	535.0
-125.6	MODESTO		BLACK SHALE	1.5	538.5
-127.1	CARBONDALE		GRAY SHALE	3.5	540.0
-130.6	CARBONDALE		SANDSTONE	4.0	543.5
-134.6	CARBONDALE		GRAY SHALE	5.5	547.5
-140.1	CARBONDALE		SANDSTONE	6.0	553.0
-146.1	CARBONDALE		SANDY SHALE	1.5	559.0
-147.6	CARBONDALE		SANDSTONE	1.5	560.5
-149.1	CARBONDALE		GRAY SHALE	1.0	562.0
-150.1	CARBONDALE	BANKSTON FORK	LIMESTONE	1.0	563.0
-151.1	CARBONDALE		GRAY SHALE	3.0	564.0
-154.1	CARBONDALE	ENERGY	SANDSTONE	3.0	567.0
-157.1	CARBONDALE	ENERGY	SANDY SHALE	32.5	570.0
-189.6	CARBONDALE	ENERGY	GRAY SHALE	30.4	602.5

-220.0	CARBONDALE	HERRIN	COAL	5.8	632.9
-225.9	CARBONDALE	HERRIN	SHALE	0.2	638.8
-226.1	CARBONDALE	HERRIN	COAL	0.0	639.0
-226.1	CARBONDALE	HERRIN	UNDERCLAY	3.0	639.0
-229.1	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.0	642.0
-231.1	CARBONDALE		GRAY SHALE	33.5	644.0
-264.6	CARBONDALE	BRIAR HILL	COAL	1.0	677.5
-265.6	CARBONDALE		GRAY SHALE	10.5	678.5
-276.1	CARBONDALE	ST. DAVID	LIMESTONE	2.5	689.0
-278.6	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	691.5
-281.6	CARBONDALE	SPRINGFIELD	COAL	3.5	694.5
-285.1	CARBONDALE		BLACK SHALE	2.0	698.0
-287.1	CARBONDALE		GRAY SHALE	11.0	700.0
-298.1	CARBONDALE		SANDSTONE	10.0	711.0

MAPID: 08190032000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 25 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.939418

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.143873

DATE COLLECTED: 8 / 27 / 1988

SURFACE ELEVATION (FT.): 412.5 LOGGED (FT.): 763.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL287

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.5	PLEISTOCENE		UNCONSOLIDATED	56.0	0.0
356.5	BOND		SANDSTONE	56.6	56.0
299.9	BOND		SANDY SHALE	65.4	112.6
234.5	BOND	CARTHAGE	LIMESTONE	7.8	178.0
226.7	MODESTO		BLACK SHALE	3.2	185.8
223.5	MODESTO		GRAY SHALE	83.5	189.0
140.0	MODESTO		BLACK SHALE	2.5	272.5
137.5	MODESTO		SANDY SHALE	35.0	275.0
102.5	MODESTO		GRAY SHALE	80.3	310.0
22.2	MODESTO	CHAPEL	COAL	1.3	390.3
20.9	MODESTO		GRAY SHALE	20.7	391.6
0.2	MODESTO		SANDY SHALE	79.1	412.3
-78.9	MODESTO		GRAY SHALE	32.4	491.4
-111.3	MODESTO	PIASA	LIMESTONE	3.4	523.8
-114.7	MODESTO		GRAY SHALE	20.8	527.2
-135.5	CARBONDALE		BLACK SHALE	1.5	548.0
-137.0	CARBONDALE		GRAY SHALE	9.5	549.5
-146.5	CARBONDALE		SANDY SHALE	7.3	559.0
-153.8	CARBONDALE	BANKSTON FORK	LIMESTONE	4.7	566.3
-158.5	CARBONDALE		GRAY SHALE	3.8	571.0
-162.3	CARBONDALE	ANVIL ROCK	SANDSTONE	5.2	574.8
-167.5	CARBONDALE	ANVIL ROCK	GRAY SHALE	5.1	580.0
-172.6	CARBONDALE	ANVIL ROCK	SANDSTONE	13.5	585.1
-186.1	CARBONDALE		GRAY SHALE	5.7	598.6
-191.8	CARBONDALE		BLACK SHALE	1.7	604.3
-193.5	CARBONDALE	ENERGY	GRAY SHALE	55.6	606.0
-249.1	CARBONDALE	HERRIN	COAL	5.9	661.6
-254.9	CARBONDALE	HERRIN	GRAY SHALE	0.1	667.4
-255.1	CARBONDALE	HERRIN	COAL	0.2	667.6
-255.3	CARBONDALE		UNDERCLAY	3.6	667.8
-258.8	CARBONDALE		SANDSTONE	11.6	671.3
-270.4	CARBONDALE		GRAY SHALE	19.4	682.9
-289.8	CARBONDALE		LIMESTONE	6.5	702.3
-296.3	CARBONDALE	BRIAR HILL	COAL	1.2	708.8
-297.5	CARBONDALE		GRAY SHALE	10.1	710.0
-307.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.1	720.1
-309.7	CARBONDALE	DYKERSBURG	GRAY SHALE	3.7	722.2
-313.4	CARBONDALE	SPRINGFIELD	COAL	3.8	725.9
-317.2	CARBONDALE		GRAY SHALE	9.2	729.7

-326.4 CARBONDALE

SANDY SHALE

24.1 738.9

MAPID: 08100082000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:**
QUADRANGLE: INA **LONGITUDE:** -88.958429 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.147092 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 663.0 **LOG TYPE:**
SOURCE: ILL CCC 8 **WELL TYPE:** Coal Test
COMMENT: EXACT LOCATION UNCERTAIN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
-238.0	CARBONDALE	HERRIN	COAL	7.2	650.0	

MAPID: 08100082000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:**
QUADRANGLE: INA **LONGITUDE:** -88.958429 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.147092 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 412.0 **LOGGED (FT.):** 663.0 **LOG TYPE:** Drillers Log
SOURCE: ILL COAL & COKE CORP **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
412.0			UNCONSOLIDATED	36.0	0.0	
376.0			ROCK	176.5	36.0	
199.5			COAL	0.5	212.5	
199.0			ROCK	40.5	213.0	
158.5			COAL	2.0	253.5	
156.5			ROCK	115.5	255.5	
41.0			COAL	1.2	371.0	
39.8			ROCK	161.8	372.2	
-122.0			COAL	1.0	534.0	
-123.0			ROCK	25.0	535.0	
-148.0			COAL	0.7	560.0	
-148.7			ROCK	39.3	560.7	
-188.0			SHALE	49.7	600.0	DARK,SANDY
-237.7	CARBONDALE	HERRIN	COAL	7.2	649.7	
-244.8	CARBONDALE		UNDERCLAY	3.2	656.8	
-248.0	CARBONDALE		ROCK	3.0	660.0	

MAPID: 08101097000C **VERSION:** 1 **PROJECT:** J JOHNSON
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** 330' N line, 330' E line of SW
QUADRANGLE: INA **LONGITUDE:** -88.959589 **GEOLOGIST:** J JOHNSON
CONFIDENTIAL: N **LATITUDE:** 38.146192 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 415.0 **LOGGED (FT.):** 2414.0 **LOG TYPE:** Electric Log
SOURCE: REDWINE, NASH ETAL **WELL TYPE:** Oil and Gas Test
COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-460.0	CARBONDALE	COLCHESTER	COAL	-	875.0
-1999.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2414.0

MAPID: 08101098000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 26 **QUARTERS/FOOTAGES:** NW NW SE
QUADRANGLE: INA **LONGITUDE:** -88.957296 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.146171 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 406.0 **LOGGED (FT.):** 640.5 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-154.0	MODESTO	PIASA	LIMESTONE	5.0	560.0
-159.0	MODESTO		GRAY SHALE	4.0	565.0
-163.0	CARBONDALE	DANVILLE	COAL	2.0	569.0
-165.0	CARBONDALE	ENERGY	GRAY SHALE	64.0	571.0
-229.0	CARBONDALE	HERRIN	COAL	5.5	635.0

MAPID: 08124957000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 26

QUARTERS/FOOTAGES: SW NW NW

QUADRANGLE: INA

LONGITUDE: -88.966146

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.151038

DATE COLLECTED:

SURFACE ELEVATION (FT.): 415.0

LOGGED (FT.): 743.6

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 8215121

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
415.0			UNKNOWN	630.0	0.0	NO CORE
-215.0	CARBONDALE	ENERGY	SILTSTONE	38.3	630.0	
-253.3	CARBONDALE	ENERGY	SHALE	0.9	668.3	
-254.2	CARBONDALE	HERRIN	COAL	6.3	669.2	
-260.5	CARBONDALE		UNDERCLAY	1.8	675.5	
-262.3	CARBONDALE	HIGGINSVILLE	LIMESTONE	7.5	677.3	
-269.8	CARBONDALE		SILTSTONE	1.2	684.8	
-271.0	CARBONDALE		SANDSTONE	6.2	686.0	
-277.2	CARBONDALE		SILTSTONE	7.3	692.2	
-284.5	CARBONDALE		SHALE	12.7	699.5	
-297.3	CARBONDALE	BRIAR HILL	COAL	1.0	712.3	
-298.3	CARBONDALE		UNDERCLAY	0.6	713.3	
-298.9	CARBONDALE		LIMESTONE	0.8	713.9	
-299.7	CARBONDALE		SHALE	10.0	714.7	
-309.7	CARBONDALE	ST. DAVID	LIMESTONE	0.8	724.7	
-310.5	CARBONDALE	ST. DAVID	SHALE	1.2	725.5	
-311.7	CARBONDALE	ST. DAVID	LIMESTONE	2.0	726.7	
-313.7	CARBONDALE		SHALE	0.2	728.7	
-313.9	CARBONDALE	SPRINGFIELD	COAL	2.8	728.9	
-316.7	CARBONDALE		UNDERCLAY	5.1	731.7	
-321.8	CARBONDALE		SILTSTONE	6.8	736.8	

MAPID: 08190035000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 26 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.958465 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.146927 DATE COLLECTED: 6 / 13 / 1988

SURFACE ELEVATION (FT.): 409.1 LOGGED (FT.): 740.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL272 WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
409.1	PLEISTOCENE		CLAY	26.0	0.0	
383.1	PLEISTOCENE		SAND	10.0	26.0	
373.1	BOND		SANDSTONE	15.0	36.0	
358.1	BOND		SHALE	3.0	51.0	
355.1	BOND		SANDSTONE	41.0	54.0	
314.1	BOND		LIMESTONE	1.0	95.0	
313.1	BOND		BLACK SHALE	1.0	96.0	
312.1	BOND		SHALE	2.0	97.0	
310.1	BOND		COAL	1.0	99.0	
309.1	BOND		SHALE	15.0	100.0	
294.1	BOND		SILTY SHALE	20.0	115.0	
274.1	BOND		SHALE	43.5	135.0	
230.6	BOND	CARTHAGE	LIMESTONE	6.5	178.5	
224.1	MODESTO		BLACK SHALE	3.9	185.0	
220.2	MODESTO		SHALE	21.1	188.9	
199.1	MODESTO	NEW HAVEN	COAL	1.2	210.0	
197.9	MODESTO		SHALE	41.8	211.2	
156.1	MODESTO	WOMAC	COAL	2.2	253.0	
153.9	MODESTO		SHALE WITH LIMESTONE	39.8	255.2	
114.1	MODESTO		SHALE	75.0	295.0	
39.1	MODESTO	CHAPEL	COAL	3.0	370.0	
36.1	MODESTO		SHALE	15.0	373.0	
21.1	MODESTO		SILTY SHALE	117.0	388.0	
-95.9	MODESTO	LAKE CREEK	COAL	1.0	505.0	
-96.9	MODESTO		LIMESTONE	2.0	506.0	
-98.9	MODESTO		SHALE	10.2	508.0	
-109.1	MODESTO		SANDY SHALE	6.8	518.2	
-115.9	MODESTO		LIMESTONE	0.5	525.0	
-116.4	MODESTO		SHALE	6.0	525.5	
-122.4	MODESTO		BLACK SHALE	1.8	531.5	
-124.2	MODESTO		SANDY SHALE	12.7	533.3	
-136.9	MODESTO		NO RECORD	1.2	546.0	LOST CORE
-138.1	MODESTO	PIASA	LIMESTONE	4.3	547.2	
-142.4	MODESTO		SHALE	4.5	551.5	
-146.9	CARBONDALE	DANVILLE	COAL	2.0	556.0	
-148.9	CARBONDALE		SHALE	4.8	558.0	
-153.7	CARBONDALE	ENERGY	SANDY SHALE	10.2	562.8	
-163.9	CARBONDALE	ENERGY	GRAY SHALE	73.4	573.0	
-237.3	CARBONDALE	HERRIN	COAL	6.2	646.4	

-243.5	CARBONDALE	HERRIN	GRAY SHALE	0.1	652.6
-243.6	CARBONDALE	HERRIN	COAL	0.1	652.7
-243.7	CARBONDALE		UNDERCLAY	2.1	652.8
-245.8	CARBONDALE		SILTSTONE	2.3	654.9
-248.1	CARBONDALE		SHALE	18.3	657.2
-266.4	CARBONDALE		SANDY SHALE	13.5	675.5
-279.9	CARBONDALE	BRIAR HILL	COAL	1.0	689.0
-280.9	CARBONDALE		UNDERCLAY	1.0	690.0
-281.9	CARBONDALE		SHALE	11.0	691.0
-292.9	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	702.0
-295.4	CARBONDALE	SPRINGFIELD	COAL	4.6	704.5
-300.0	CARBONDALE		UNDERCLAY	1.9	709.1
-301.9	CARBONDALE		SHALE	29.0	711.0

MAPID: 08190039000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 26 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.958437

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.150651

DATE COLLECTED: 9 / 8 / 1987

SURFACE ELEVATION (FT.): 413.2 LOGGED (FT.): 740.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL221

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
413.2	PLEISTOCENE		CLAY	30.0	0.0
383.2	PLEISTOCENE		SAND	3.0	30.0
380.2	PLEISTOCENE		CLAY	2.0	33.0
378.2	BOND		SHALE	35.0	35.0
343.2	BOND		SANDSTONE	35.0	70.0
308.2	BOND		GRAY SHALE	79.5	105.0
228.7	BOND	CARTHAGE	LIMESTONE	5.0	184.5
223.7	MODESTO		BLACK SHALE	4.4	189.5
219.3	MODESTO		GRAY SHALE	21.3	193.9
198.0	MODESTO		COAL	0.8	215.2
197.2	MODESTO		GRAY SHALE	39.5	216.0
157.7	MODESTO		COAL	2.0	255.5
155.7	MODESTO		GRAY SHALE	11.3	257.5
144.4	MODESTO		SHALE W/ LIME NODULES	36.5	268.8
107.9	MODESTO		GRAY SHALE	74.7	305.3
33.2	MODESTO		SANDY SHALE	128.5	380.0
-95.3	MODESTO		GRAY SHALE	5.0	508.5
-100.3	MODESTO		SANDY SHALE	4.5	513.5
-104.8	MODESTO		GRAY SHALE	22.5	518.0
-127.3	MODESTO		BLACK SHALE	3.5	540.5
-130.8	MODESTO		SANDSTONE	5.8	544.0
-136.6	MODESTO	PIASA	LIMESTONE	4.1	549.8
-140.7	MODESTO		SANDSTONE	2.7	553.9
-143.4	CARBONDALE	DANVILLE	COAL	1.4	556.6
-144.8	CARBONDALE	BANKSTON FORK	LIMESTONE	2.5	558.0
-147.3	CARBONDALE		BLACK SHALE	4.7	560.5
-152.0	CARBONDALE	ENERGY	SHALY SANDSTONE	47.8	565.2
-199.8	CARBONDALE	ENERGY	SANDY SHALE	19.0	613.0
-218.8	CARBONDALE	ENERGY	GRAY SHALE	12.0	632.0
-230.8	CARBONDALE	ENERGY	SANDY SHALE	5.6	644.0
-236.4	CARBONDALE	HERRIN	COAL	6.0	649.6
-242.3	CARBONDALE	HERRIN	GRAY SHALE	0.1	655.5
-242.4	CARBONDALE	HERRIN	COAL	0.2	655.6
-242.5	CARBONDALE		UNDERCLAY	2.9	655.7
-245.4	CARBONDALE		SHALE	9.5	658.6
-254.9	CARBONDALE		SANDY SHALE	27.3	668.1
-282.2	CARBONDALE	BRIAR HILL	COAL	1.2	695.4
-283.4	CARBONDALE		GRAY SHALE	10.4	696.6
-293.8	CARBONDALE	ST. DAVID	LIMESTONE	1.0	707.0

-294.8	CARBONDALE	TURNER MINE	BLACK SHALE	3.1	708.0
-297.9	CARBONDALE	SPRINGFIELD	COAL	3.9	711.1
-301.8	CARBONDALE		GRAY SHALE	25.0	715.0

MAPID: 08190040000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 26 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.962023

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.143225

DATE COLLECTED: 8 / 24 / 1987

SURFACE ELEVATION (FT.): 412.1 LOGGED (FT.): 740.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL213

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.1	PLEISTOCENE		CLAY	35.0	0.0
377.1	PLEISTOCENE		SAND	6.0	35.0
371.1	PLEISTOCENE		CLAY	6.0	41.0
365.1	BOND		SANDY SHALE	27.3	47.0
337.8	BOND		SANDSTONE	30.9	74.3
306.9	BOND		GRAY SHALE	4.4	105.2
302.5	BOND		COAL	0.5	109.6
302.0	BOND		SANDY SHALE	11.9	110.1
290.1	BOND		SANDSTONE	23.0	122.0
267.1	BOND		SANDY SHALE	39.0	145.0
228.1	BOND	CARTHAGE	LIMESTONE	6.0	184.0
222.1	MODESTO		BLACK SHALE	4.2	190.0
217.9	MODESTO		GRAY SHALE	29.3	194.2
188.6	MODESTO		SANDSTONE	14.5	223.5
174.1	MODESTO		SANDY SHALE	18.0	238.0
156.1	MODESTO	WOMAC	COAL	1.3	256.0
154.8	MODESTO		UNDERCLAY	4.2	257.3
150.6	MODESTO		GRAY SHALE	21.9	261.5
128.7	MODESTO		SANDSTONE	19.6	283.4
109.1	MODESTO		SANDY SHALE	39.5	303.0
69.6	MODESTO		GRAY SHALE	36.4	342.5
33.2	MODESTO	CHAPEL	COAL	0.5	378.9
32.7	MODESTO		UNDERCLAY	2.6	379.4
30.1	MODESTO		GRAY SHALE	10.0	382.0
20.1	MODESTO		SANDSTONE	24.0	392.0
-3.9	MODESTO		SANDY SHALE	81.7	416.0
-85.6	MODESTO		SHALE W/ LIME NODULES	23.3	497.7
-108.9	MODESTO		GRAY SHALE	8.2	521.0
-117.1	MODESTO	PIASA	LIMESTONE	0.8	529.2
-117.9	MODESTO		GRAY SHALE	9.9	530.0
-127.8	MODESTO		BLACK SHALE	2.5	539.9
-130.3	CARBONDALE	DANVILLE	COAL	0.6	542.4
-130.9	CARBONDALE		UNDERCLAY	2.5	543.0
-133.4	CARBONDALE		SHALE W/ LIME NODULES	4.0	545.5
-137.4	CARBONDALE		GRAY SHALE	9.0	549.5
-146.4	CARBONDALE		SANDSTONE	4.9	558.5
-151.3	CARBONDALE		GRAY SHALE	6.1	563.4
-157.4	CARBONDALE	ENERGY	SANDSTONE	14.5	569.5
-171.9	CARBONDALE	ENERGY	SANDY SHALE	14.9	584.0

-186.8	CARBONDALE	ENERGY	SANDSTONE	5.3	598.9
-192.1	CARBONDALE	ENERGY	SANDY SHALE	49.5	604.2
-241.6	CARBONDALE	ENERGY	GRAY SHALE	7.5	653.7
-249.1	CARBONDALE	HERRIN	COAL	6.1	661.2
-255.2	CARBONDALE	HERRIN	GRAY SHALE	0.1	667.3
-255.3	CARBONDALE	HERRIN	COAL	0.2	667.4
-255.5	CARBONDALE		UNDERCLAY	2.4	667.6
-257.8	CARBONDALE		SANDSTONE	11.9	669.9
-269.7	CARBONDALE		GRAY SHALE	23.1	681.8
-292.8	CARBONDALE	BRIAR HILL	COAL	1.1	704.9
-293.9	CARBONDALE		GRAY SHALE	9.4	706.0
-303.3	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	715.4
-305.8	CARBONDALE	DYKERSBURG	GRAY SHALE	3.1	717.9
-308.9	CARBONDALE	SPRINGFIELD	COAL	4.0	721.0
-312.9	CARBONDALE		GRAY SHALE	15.0	725.0

MAPID: 08190042000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 26 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.960983

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.14904

DATE COLLECTED: 9 / 22 / 1994

SURFACE ELEVATION (FT.): 412.0 LOGGED (FT.): 663.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO COC-82

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.0	PLEISTOCENE		UNCONSOLIDATED	36.0	0.0
376.0	BOND		SANDSTONE	53.0	36.0
323.0	BOND		BLACK SHALE	1.0	89.0
322.0	BOND		SHALE	90.0	90.0
232.0	BOND	CARTHAGE	LIMESTONE	5.5	180.0
226.5	MODESTO		BLACK SHALE	5.0	185.5
221.5	MODESTO		SHALE	21.5	190.5
200.0	MODESTO		BLACK SHALE	0.5	212.0
199.5	MODESTO	NEW HAVEN	COAL	0.5	212.5
199.0	MODESTO		UNDERCLAY	1.5	213.0
197.5	MODESTO		SHALE	39.0	214.5
158.5	MODESTO	WOMAC	COAL	2.0	253.5
156.5	MODESTO		UNDERCLAY	1.5	255.5
155.0	MODESTO		SANDY SHALE	66.0	257.0
89.0	MODESTO		DARK SHALE	40.0	323.0
49.0	MODESTO		BLACK SHALE	8.0	363.0
41.0	MODESTO	CHAPEL	COAL	1.2	371.0
39.8	MODESTO		UNDERCLAY	1.8	372.2
38.0	MODESTO		SHALE	9.0	374.0
29.0	MODESTO		SANDY SHALE	120.0	383.0
-91.0	MODESTO		SHALE	30.0	503.0
-121.0	MODESTO		BLACK SHALE	1.0	533.0
-122.0	MODESTO	DEGRAFF	COAL	1.0	534.0
-123.0	MODESTO		UNDERCLAY	5.0	535.0
-128.0	MODESTO		SANDSTONE	7.0	540.0
-135.0	MODESTO		GREEN SHALE	3.0	547.0
-138.0	MODESTO	PIASA	LIMESTONE	4.0	550.0
-142.0	MODESTO		SHALE	6.0	554.0
-148.0	CARBONDALE	DANVILLE	COAL	0.4	560.0
-148.4	CARBONDALE		UNDERCLAY	1.6	560.4
-150.0	CARBONDALE		SHALE	7.0	562.0
-157.0	CARBONDALE	ENERGY	SANDSTONE	6.0	569.0
-163.0	CARBONDALE	ENERGY	SHALE	7.0	575.0
-170.0	CARBONDALE	ENERGY	SANDY SHALE	67.7	582.0
-237.7	CARBONDALE	HERRIN	COAL	7.2	649.7
-244.8	CARBONDALE		UNDERCLAY	3.2	656.8
-248.0	CARBONDALE		SHALE	3.0	660.0

MAPID: 08100797000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 27 QUARTERS/FOOTAGES: SW SE NE

QUADRANGLE: INA LONGITUDE: -88.970972 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.148076 DATE COLLECTED:

SURFACE ELEVATION (FT.): 417.0 LOGGED (FT.): 2431.0 LOG TYPE: Electric Log

SOURCE: MARTIN, R. B. & IL OIL WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-321.0	CARBONDALE	SPRINGFIELD	COAL	-	738.0
-483.0	CARBONDALE	COLCHESTER	COAL	-	900.0
-2014.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2431.0

MAPID: 08100797000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 27 QUARTERS/FOOTAGES: SW SE NE

QUADRANGLE: INA LONGITUDE: -88.970972 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.148076 DATE COLLECTED:

SURFACE ELEVATION (FT.): 417.0 LOGGED (FT.): 691.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-163.0	MODESTO	PIASA	LIMESTONE	5.0	580.0
-168.0	CARBONDALE	DANVILLE	COAL	1.0	585.0
-169.0	CARBONDALE		GRAY SHALE	5.0	586.0
-174.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	591.0
-180.0	CARBONDALE	ENERGY	GRAY SHALE	81.0	597.0
-267.0	CARBONDALE	HERRIN	COAL	7.0	684.0

MAPID: 08124958000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 27

QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: INA

LONGITUDE: -88.97461

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.143443

DATE COLLECTED: 8 / 17 / 1987

SURFACE ELEVATION (FT.): 411.0

LOGGED (FT.): 780.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL207

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
411.0	PLEISTOCENE		CLAY	43.0	0.0
368.0	PLEISTOCENE		SAND	3.0	43.0
365.0	BOND		SANDSTONE	18.0	46.0
347.0	BOND		SANDY SHALE	26.3	64.0
320.7	BOND		SANDSTONE	53.6	90.3
267.1	BOND		COAL	1.1	143.9
266.0	BOND		UNDERCLAY	2.3	145.0
263.7	BOND		SANDY SHALE	43.0	147.3
220.7	BOND		GRAY SHALE	14.1	190.3
206.6	BOND		CALCAREOUS SHALE	2.6	204.4
204.0	BOND	CARTHAGE	LIMESTONE	6.0	207.0
198.0	MODESTO		BLACK SHALE	4.5	213.0
193.5	MODESTO		GRAY SHALE	19.9	217.5
173.6	MODESTO	NEW HAVEN	COAL	0.8	237.4
172.8	MODESTO		UNDERCLAY	1.2	238.2
171.6	MODESTO		SANDY SHALE	21.2	239.4
150.4	MODESTO		SANDSTONE	6.6	260.6
143.8	MODESTO		SANDY SHALE	11.0	267.2
132.8	MODESTO		CALCAREOUS SHALE	17.8	278.2
115.0	MODESTO		GRAY SHALE	14.2	296.0
100.8	MODESTO		COAL	0.8	310.2
100.0	MODESTO		SANDSTONE	8.0	311.0
92.0	MODESTO		SANDY SHALE	69.3	319.0
22.7	MODESTO		GRAY SHALE	15.3	388.3
7.4	MODESTO		BLACK SHALE	1.5	403.6
5.9	MODESTO		GRAY SHALE	2.4	405.1
3.5	MODESTO	CHAPEL	COAL	0.9	407.5
2.6	MODESTO		SANDSTONE	3.9	408.4
-1.3	MODESTO		SANDY SHALE	65.7	412.3
-67.0	MODESTO		GRAY SHALE	55.0	478.0
-122.0	MODESTO	POND CREEK	COAL	1.0	533.0
-123.0	MODESTO		GRAY SHALE	21.8	534.0
-144.8	MODESTO		BLACK SHALE	2.2	555.8
-147.0	MODESTO	DEGRAFF	COAL	1.0	558.0
-148.0	MODESTO		UNDERCLAY	0.5	559.0
-148.5	MODESTO		CALCAREOUS SHALE	4.0	559.5
-152.5	MODESTO		SANDY SHALE	8.4	563.5
-160.9	MODESTO		SANDSTONE	5.5	571.9
-166.4	MODESTO		CLAYSTONE	1.6	577.4

-168.0	MODESTO	PIASA	LIMESTONE	4.0	579.0
-172.0	MODESTO		GRAY SHALE	5.7	583.0
-177.7	CARBONDALE	DANVILLE	COAL	2.3	588.7
-180.0	CARBONDALE		SANDY SHALE	4.2	591.0
-184.2	CARBONDALE		SANDSTONE	5.8	595.2
-190.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.6	601.0
-196.6	CARBONDALE	ENERGY	SANDSTONE	19.7	607.6
-216.3	CARBONDALE	ENERGY	SANDY SHALE	34.3	627.3
-250.6	CARBONDALE	ENERGY	GRAY SHALE	21.8	661.6
-272.4	CARBONDALE	HERRIN	COAL	0.1	683.4
-272.5	CARBONDALE	HERRIN	GRAY SHALE	0.1	683.5
-272.6	CARBONDALE	HERRIN	COAL	6.6	683.6
-279.2	CARBONDALE		UNDERCLAY	3.6	690.2
-282.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	6.5	693.8
-289.3	CARBONDALE		SANDY SHALE	2.1	700.3
-291.4	CARBONDALE		SANDSTONE	18.1	702.4
-309.5	CARBONDALE		GRAY SHALE	7.9	720.5
-317.4	CARBONDALE	BRIAR HILL	COAL	1.1	728.4
-318.5	CARBONDALE		GRAY SHALE	5.5	729.5
-324.0	CARBONDALE		GRAY SHALE	4.8	735.0
-328.8	CARBONDALE	ST. DAVID	LIMESTONE	1.2	739.8
-330.0	CARBONDALE	TURNER MINE	BLACK SHALE	2.6	741.0
-332.6	CARBONDALE	SPRINGFIELD	COAL	4.2	743.6
-336.8	CARBONDALE		UNDERCLAY	1.9	747.8
-338.7	CARBONDALE		SANDY SHALE	4.0	749.7
-342.7	CARBONDALE		SANDSTONE	2.8	753.7
-345.5	CARBONDALE		SANDY SHALE	23.5	756.5

MAPID: 08124959000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 27

QUARTERS/FOOTAGES: NE NW NW

QUADRANGLE: INA

LONGITUDE: -88.981194

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.15437

DATE COLLECTED: 10 / 16 / 1987

SURFACE ELEVATION (FT.): 410.2

LOGGED (FT.): 769.9

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL241

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
410.2			UNKNOWN	7.6	0.0	NO ROCK RECOVERED (WATER)
402.6	PLEISTOCENE		CLAY	51.4	7.6	
351.2	BOND		SHALE	27.5	59.0	
323.7	BOND		SANDSTONE	46.5	86.5	
277.2	BOND		SHALE	8.0	133.0	
269.2	BOND		COAL	1.0	141.0	
268.2	BOND		SHALE	73.5	142.0	
194.7	BOND	CARTHAGE	LIMESTONE	6.0	215.5	
188.7	MODESTO		BLACK SHALE	4.0	221.5	
184.7	MODESTO		SHALE	21.5	225.5	
163.2	MODESTO	NEW HAVEN	COAL	1.0	247.0	
162.2	MODESTO		SHALE	21.0	248.0	
141.2	MODESTO	WOMAC	COAL	1.0	269.0	
140.2	MODESTO		SHALE	29.5	270.0	
110.7	MODESTO		BLACK SHALE	2.7	299.5	
108.0	MODESTO		SHALE	107.2	302.2	
0.8	MODESTO	CHAPEL	COAL	1.4	409.4	
-0.6	MODESTO		SHALE	128.7	410.8	
-129.3	MODESTO		SHALE WITH LIMESTONE	31.5	539.5	
-160.8	MODESTO		BLACK SHALE	2.8	571.0	
-163.6	MODESTO		SHALE WITH LIMESTONE	9.7	573.8	
-173.3	MODESTO	PIASA	LIMESTONE	6.5	583.5	
-179.8			SHALE	11.2	590.0	
-191.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.8	601.2	TAN
-197.8	CARBONDALE	ENERGY	SHALE	75.0	608.0	
-272.8	CARBONDALE	ENERGY	GRAY SHALE	2.4	683.0	
-275.2	CARBONDALE	HERRIN	COAL	6.7	685.4	
-281.9	CARBONDALE		UNDERCLAY	3.8	692.1	
-285.7	CARBONDALE		SHALE WITH LIMESTONE	29.0	695.9	
-314.7	CARBONDALE	BRIAR HILL	COAL	1.0	724.9	
-315.7	CARBONDALE		SHALE	13.0	725.9	
-328.7	CARBONDALE	TURNER MINE	BLACK SHALE	2.0	738.9	
-330.7	CARBONDALE	SPRINGFIELD	COAL	3.9	740.9	
-334.6	CARBONDALE		SHALE WITH LIMESTONE	25.1	744.8	

MAPID: 0812496000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 27

QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: INA

LONGITUDE: -88.978354

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.148736

DATE COLLECTED: 7 / 24 / 1988

SURFACE ELEVATION (FT.): 412.3

LOGGED (FT.): 799.6

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO

88RL280R

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.3	PLEISTOCENE		UNCONSOLIDATED	13.0	0.0
399.3	PLEISTOCENE		CLAY	4.0	13.0
395.3	PLEISTOCENE		UNKNOWN	33.0	17.0
362.3	PLEISTOCENE		CLAY	14.0	50.0
348.3	PLEISTOCENE		SAND	6.0	64.0
342.3	BOND		SANDSTONE	16.0	70.0
326.3	BOND		GRAY SHALE	20.0	86.0
306.3	BOND		SANDSTONE	12.0	106.0
294.3	BOND		SHALE	12.0	118.0
282.3	BOND		SANDSTONE	28.2	130.0
254.1	BOND		LIMESTONE	2.8	158.2
251.3	BOND		COAL	2.5	161.0
248.8	BOND		CLAYSTONE	1.3	163.5
247.5	BOND		SANDY SHALE	3.2	164.8
244.3	BOND		SHALE	67.3	168.0
177.0	BOND	CARTHAGE	LIMESTONE	6.1	235.3
170.9	MODESTO		BLACK SHALE	3.8	241.4
167.1	MODESTO		SHALE	49.8	245.2
117.3	MODESTO	WOMAC	COAL	1.0	295.0
116.3	MODESTO		SHALE WITH LIMESTONE	24.0	296.0
92.3	MODESTO		BLACK SHALE	3.2	320.0
89.1	MODESTO		SHALE	103.2	323.2
-14.1	MODESTO		BLACK SHALE	1.6	426.4
-15.7	MODESTO		SHALE	3.3	428.0
-19.0	MODESTO	CHAPEL	COAL	0.7	431.3
-19.7	MODESTO		SHALE	16.5	432.0
-36.2	MODESTO		LIMESTONE	1.5	448.5
-37.7	MODESTO		SHALE	109.0	450.0
-146.7	MODESTO		COAL	1.0	559.0
-147.7	MODESTO		SHALE	11.0	560.0
-158.7	MODESTO		SHALE WITH LIMESTONE	11.0	571.0
-169.7	MODESTO		BLACK SHALE	2.0	582.0
-171.7	MODESTO		SHALE	2.2	584.0
-173.9	MODESTO		SANDSTONE	0.8	586.2
-174.7	MODESTO		SHALE	12.0	587.0
-186.7	MODESTO		SANDSTONE	3.0	599.0
-189.7	MODESTO	PIASA	LIMESTONE	3.0	602.0
-192.7	MODESTO		SHALE	7.4	605.0
-200.1	CARBONDALE	DANVILLE	COAL	1.6	612.4

-201.7	CARBONDALE		SHALE	6.5	614.0
-208.2	CARBONDALE	BANKSTON FORK	LIMESTONE	7.5	620.5
-215.7	CARBONDALE	ENERGY	SANDY SHALE	18.0	628.0
-233.7	CARBONDALE	ENERGY	SHALE	61.5	646.0
-295.2	CARBONDALE	ENERGY	GRAY SHALE	4.3	707.5
-299.5	CARBONDALE	HERRIN	COAL	6.6	711.8
-306.2	CARBONDALE		GRAY SHALE	1.8	718.5
-308.0	CARBONDALE		SHALE	1.3	720.3
-309.3	CARBONDALE		SHALE WITH LIMESTONE	5.0	721.6
-314.3	CARBONDALE		SANDY SHALE	23.5	726.6
-337.8	CARBONDALE	BRIAR HILL	COAL	0.9	750.1
-338.7	CARBONDALE		SHALE	9.6	751.0
-348.3	CARBONDALE	ST. DAVID	LIMESTONE	1.0	760.6
-349.3	CARBONDALE	TURNER MINE	BLACK SHALE	3.6	761.6
-352.9	CARBONDALE	SPRINGFIELD	COAL	3.4	765.2
-356.3	CARBONDALE		UNDERCLAY	1.2	768.6
-357.5	CARBONDALE		SHALE	29.8	769.8

MAPID: 08124961000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 28 QUARTERS/FOOTAGES: NW NW NW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.004077 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.153894 DATE COLLECTED:

SURFACE ELEVATION (FT.): 408.0 LOGGED (FT.): 743.2 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 771594 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
408.0	PLEISTOCENE		CLAY	12.3	0.0	
395.7	BOND		SILTY SHALE	9.2	12.3	
386.5	BOND		SANDY SHALE	50.5	21.5	
336.0	BOND		SANDSTONE	99.3	72.0	
236.7	BOND		SANDY SHALE	43.9	171.3	
192.8	BOND	CARTHAGE	LIMESTONE	4.9	215.2	GRAY
187.9	MODESTO		SANDY SHALE	48.1	220.1	
139.8	MODESTO		COAL	0.9	268.2	
138.9	MODESTO		SANDY SHALE	308.1	269.1	
-169.2	MODESTO	PIASA	LIMESTONE	3.5	577.2	
-172.7			SANDY SHALE	12.6	580.7	
-185.3	CARBONDALE	BANKSTON FORK	LIMESTONE	6.1	593.3	TAN
-191.4	CARBONDALE	ENERGY	GRAY SHALE	81.8	599.4	
-273.2	CARBONDALE	HERRIN	COAL	7.6	681.2	
-280.8	CARBONDALE		UNDERCLAY	2.1	688.8	
-282.9	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.0	690.9	
-283.9	CARBONDALE		GRAY SHALE	26.3	691.9	
-310.2	CARBONDALE		BLACK SHALE	0.7	718.2	
-310.9	CARBONDALE	BRIAR HILL	COAL	0.2	718.9	
-311.1	CARBONDALE		DARK SHALE	9.6	719.1	
-320.7	CARBONDALE		SHALE WITH LIMESTONE	1.9	728.7	
-322.6	CARBONDALE	ST. DAVID	LIMESTONE	1.3	730.6	
-323.9	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	731.9	
-326.4	CARBONDALE	SPRINGFIELD	COAL	3.8	734.4	
-330.2	CARBONDALE		UNDERCLAY	5.0	738.2	

MAPID: 08124962000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 28

QUARTERS/FOOTAGES: SW SE SE

QUADRANGLE: INA

LONGITUDE: -88.990113

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.147025

DATE COLLECTED: 9 / 10 / 1987

SURFACE ELEVATION (FT.): 410.5

LOGGED (FT.): 720.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL218R

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
410.5			UNKNOWN	13.5	0.0	NO RECOVERY (WATER)
397.0	PLEISTOCENE		CLAY	40.5	13.5	
356.5	BOND		SHALE	33.8	54.0	
322.7	BOND		SHALE	53.8	87.8	
268.9	BOND		SANDY SHALE	81.2	141.6	
187.7	BOND	CARTHAGE	LIMESTONE	6.7	222.8	
181.0	MODESTO		BLACK SHALE	4.1	229.5	
176.9	MODESTO		SHALE	17.2	233.6	
159.7	MODESTO	NEW HAVEN	COAL	0.7	250.8	
159.0	MODESTO		SHALE	33.3	251.5	
125.7	MODESTO		COAL	0.7	284.8	
125.0	MODESTO		SHALE	5.5	285.5	
119.5	MODESTO		LIMESTONE	0.9	291.0	
118.6	MODESTO		SHALE	6.9	291.9	
111.7	MODESTO		LIMESTONE	1.7	298.8	
110.0	MODESTO		BLACK SHALE	4.3	300.5	
105.7	MODESTO		SILTY SHALE	35.2	304.8	
70.5	MODESTO		SHALE	69.6	340.0	
0.9	MODESTO		BLACK SHALE	0.4	409.6	
0.5	MODESTO		SHALE	3.1	410.0	
-2.6	MODESTO	CHAPEL	COAL	0.8	413.1	
-3.4	MODESTO		SHALE	156.6	413.9	
-160.0	MODESTO		BLACK SHALE	3.5	570.5	
-163.5	MODESTO	PIASA	LIMESTONE	2.0	574.0	
-165.5	MODESTO	PIASA	SHALE	2.0	576.0	
-167.5	MODESTO	PIASA	LIMESTONE	2.5	578.0	
-170.0	MODESTO		SILTY SHALE	19.9	580.5	
-189.9	MODESTO		BLACK SHALE	2.0	600.4	
-191.9	CARBONDALE	DANVILLE	COAL	1.1	602.4	
-193.0	CARBONDALE		SHALE	4.8	603.5	
-197.8	CARBONDALE	BANKSTON FORK	LIMESTONE	7.7	608.3	
-205.5	CARBONDALE	ENERGY	SANDY SHALE	36.8	616.0	
-242.3	CARBONDALE	ENERGY	SHALE	42.1	652.8	
-284.4	CARBONDALE	ENERGY	GRAY SHALE	6.4	694.9	
-290.8	CARBONDALE	HERRIN	COAL	6.9	701.3	
-297.7	CARBONDALE		UNDERCLAY	0.3	708.2	
-298.0	CARBONDALE		SILTY SHALE	3.0	708.5	
-301.0	CARBONDALE		SHALE	8.5	711.5	

MAPID: 08100062000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 29 QUARTERS/FOOTAGES: NW SW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.013178

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.144659

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 407.0

LOGGED (FT.): 668.0

LOG TYPE:

SOURCE: INLAND STEEL0002

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-252.0	CARBONDALE	HERRIN	COAL	7.8	659.0	

MAPID: 08100062000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 29 QUARTERS/FOOTAGES: NW SW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.013178

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.144659

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 407.0

LOGGED (FT.): 668.0

LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
407.0			UNCONSOLIDATED	21.5	0.0	
385.5			ROCK	75.7	21.5	
309.8			COAL	0.5	97.2	
309.3			ROCK	106.6	97.7	
202.7			COAL	0.3	204.3	
202.3			ROCK	30.8	204.7	
171.5			COAL	0.8	235.5	
170.7			ROCK	125.7	236.3	
45.0			COAL	0.5	362.0	
44.5			ROCK	159.8	362.5	
-115.3			COAL	0.6	522.3	
-115.8			ROCK	30.4	522.8	
-146.2			COAL	2.1	553.2	
-148.3			ROCK	11.7	555.3	
-160.0			SHALE	92.0	567.0	
-252.0	CARBONDALE	HERRIN	COAL	7.8	659.0	BLUE BAND .04'
-259.8	CARBONDALE		UNDERCLAY	0.8	666.8	
-260.6	CARBONDALE		ROCK	0.3	667.6	

MAPID: 08100162000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 29 QUARTERS/FOOTAGES: SE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.006728 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.148762 DATE COLLECTED:

SURFACE ELEVATION (FT.): 419.0 LOGGED (FT.): 2455.0 LOG TYPE: Electric Log

SOURCE: PALACINE OIL CO WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-326.0	CARBONDALE	SPRINGFIELD	COAL	-	745.0	
-496.0	CARBONDALE	COLCHESTER	COAL	-	915.0	
-2036.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2455.0	

MAPID: 08100162000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 29 QUARTERS/FOOTAGES: SE NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.006728 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.148762 DATE COLLECTED:

SURFACE ELEVATION (FT.): 419.0 LOGGED (FT.): 693.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-171.0	MODESTO	PIASA	LIMESTONE	10.0	590.0	
-181.0	CARBONDALE	ENERGY	SILTY SHALE	85.0	600.0	
-266.0	CARBONDALE	HERRIN	COAL	8.0	685.0	

MAPID: 08100063000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: SE SE NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.02832 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.143751 DATE COLLECTED: 0 / 0 / 1912

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 741.0 LOG TYPE: Drillers Log

SOURCE: BIG MUDDY COAL SYN WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
451.0			UNCONSOLIDATED	19.0	0.0	
432.0			SHALE	238.3	19.0	
193.7			COAL	0.5	257.3	"DIRTY"
193.2			ROCK	33.0	257.8	
160.2			COAL	0.4	290.8	
159.7			ROCK	125.2	291.3	
34.5			COAL	0.6	416.5	SHALEY
33.9			ROCK	180.4	417.1	
-146.5			COAL	1.3	597.5	
-147.8			ROCK	14.0	598.8	
-161.8			COAL	1.3	612.8	
-163.0			ROCK	86.0	614.0	
-249.0			SHALE	27.8	700.0	DARK, SANDY
-276.8	CARBONDALE	HERRIN	COAL	8.6	727.8	
-285.3	CARBONDALE		UNDERCLAY	2.7	736.3	
-288.0	CARBONDALE		ROCK	2.0	739.0	

MAPID: 08100063000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: SE SE NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.02832 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.143751 DATE COLLECTED:

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 736.6 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-154.0	MODESTO	PIASA	LIMESTONE	5.0	604.0	
-159.0	MODESTO		SHALE	3.7	609.0	
-162.7	CARBONDALE	DANVILLE	COAL	1.3	612.7	
-164.0	CARBONDALE		CLAYSTONE	5.0	614.0	
-169.0	CARBONDALE	BANKSTON FORK	LIMESTONE	12.0	619.0	
-181.0	CARBONDALE	ENERGY	SANDSTONE	11.0	631.0	
-192.0	CARBONDALE	ENERGY	SILTY SHALE	18.0	642.0	
-210.0	CARBONDALE	ENERGY	DARK GRAY SHALE	28.0	660.0	
-238.0	CARBONDALE	ENERGY	SILTY SHALE	5.8	688.0	
-278.0	CARBONDALE	HERRIN	COAL	8.6	728.0	

MAPID: 08100063000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: SE SE NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.02832 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.143751 DATE COLLECTED: 0 / 0 / 1912

SURFACE ELEVATION (FT.): 450.5 LOGGED (FT.): 741.0 LOG TYPE:

SOURCE: BG MUDDYCS WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-277.5	CARBONDALE	HERRIN	COAL	8.6	728.0	

MAPID: 08100064000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: NW SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.035835 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.142406 DATE COLLECTED: 0 / 0 / 1909

SURFACE ELEVATION (FT.): 441.2 LOGGED (FT.): 721.0 LOG TYPE:

SOURCE: BG MUDDYCS0002 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-269.8	CARBONDALE	HERRIN	COAL	9.4	711.0	

MAPID: 08100064000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: NW SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.035835 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.142406 DATE COLLECTED: 2 / 0 / 1909

SURFACE ELEVATION (FT.): 441.0 LOGGED (FT.): 720.5 LOG TYPE: Drillers Log

SOURCE: BIG MUDDY COAL SYN WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
441.0			UNCONSOLIDATED	10.0	0.0
431.0			ROCK	233.0	10.0
198.0			COAL	0.5	243.0
197.5			ROCK	30.5	243.5
167.0			COAL	0.8	274.0
166.2			ROCK	129.5	274.8
36.7			COAL	0.3	404.3
36.3			ROCK	138.6	404.7
-102.3			COAL	0.2	543.3
-102.4			ROCK	38.6	543.4
-141.0			COAL	1.4	582.0 LS BAND .25'
-142.4			ROCK	12.6	583.4
-155.0			COAL	1.5	596.0
-156.5			ROCK	62.5	597.5
-219.0			SHALE	50.5	660.0 SANDY
-269.5	CARBONDALE	HERRIN	COAL	9.4	710.5
-278.9	CARBONDALE		SHALE	0.5	719.9

MAPID: 08190022000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 30 QUARTERS/FOOTAGES: NW SE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.034949 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.142003 DATE COLLECTED:

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 720.5 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 09BM11 WELL TYPE: Coal Test

COMMENT: PERMIT 281; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
451.0	PLEISTOCENE		CLAY	10.0	0.0	YELLOW
441.0	BOND		SHALE	10.0	10.0	
431.0	BOND		SANDY SHALE	18.0	20.0	
413.0	BOND		DARK SHALE	30.0	38.0	
383.0	BOND		SANDY DARK SHALE	20.0	68.0	
363.0	BOND		SHALY SANDSTONE	18.0	88.0	
345.0	BOND		SANDY SHALE	33.0	106.0	
312.0	BOND		DARK SHALE	19.0	139.0	
293.0	BOND		SHALE	7.0	158.0	
286.0	BOND		SANDY SHALE	52.0	165.0	
234.0	BOND	CARTHAGE	LIMESTONE	7.5	217.0	
226.5	MODESTO		BLACK SHALE	3.5	224.5	
223.0	MODESTO		DARK SHALE	15.0	228.0	
208.0	MODESTO	NEW HAVEN	COAL	0.5	243.0	
207.5	MODESTO		DARK SHALE	2.5	243.5	
205.0	MODESTO		BLUE SHALE	6.0	246.0	
199.0	MODESTO		SANDY SHALE	22.0	252.0	
177.0	MODESTO	WOMAC	COAL	0.8	274.0	
176.2	MODESTO		GRAY SHALE	16.2	274.8	
160.0	MODESTO		BLUE SHALE	6.5	291.0	LIMY
153.5	MODESTO		BLACK SHALE	1.5	297.5	
152.0	MODESTO		BLUE SHALE	19.0	299.0	
133.0	MODESTO		SANDY SHALE	28.0	318.0	
105.0	MODESTO		SANDY DARK SHALE	28.0	346.0	
77.0	MODESTO		DARK SHALE	28.5	374.0	
48.5	MODESTO		BLACK SHALE	1.8	402.5	
46.7	MODESTO	CHAPEL	COAL	0.3	404.3	
46.3	MODESTO		GRAY SHALE	1.3	404.7	
45.0	MODESTO		SANDY SHALE	23.0	406.0	
22.0	MODESTO		SANDSTONE	4.0	429.0	
18.0	MODESTO		SANDY SHALE	2.0	433.0	
16.0	MODESTO		SHALY SANDSTONE	11.0	435.0	
5.0	MODESTO		DARK SHALE	11.0	446.0	
-6.0	MODESTO		SANDY SHALE	25.0	457.0	
-31.0	MODESTO		BLUE SHALE	21.0	482.0	SANDY
-52.0	MODESTO		DARK SHALE	20.0	503.0	
-72.0	MODESTO		BLUE SHALE	17.0	523.0	SANDY
-89.0	MODESTO		SHALE WITH LIMESTONE	3.3	540.0	
-92.3	MODESTO	POND CREEK	COAL	0.2	543.3	

-92.4	MODESTO		BLUE SHALE	3.6	543.4
-96.0	MODESTO		SHALY SANDSTONE	9.0	547.0
-105.0	MODESTO		SANDY SHALE	26.0	556.0
-131.0	MODESTO	DEGRAFF	COAL	1.0	582.0
-132.0	MODESTO	PIASA	LIMESTONE	0.2	583.0
-132.2	MODESTO		COAL	0.2	583.2
-132.3	MODESTO		DARK SHALE	12.7	583.3
-145.0	CARBONDALE	DANVILLE	COAL	1.5	596.0
-146.5	CARBONDALE		GRAY SHALE	0.5	597.5
-147.0	CARBONDALE		BLUE SHALE	5.0	598.0
-152.0	CARBONDALE	BANKSTON FORK	LIMESTONE	0.7	603.0
-152.7	CARBONDALE	BANKSTON FORK	BLUE SHALE	1.3	603.7
-154.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	605.0
-162.0	CARBONDALE	ENERGY	SANDY SHALE	97.5	613.0
-259.5	CARBONDALE	HERRIN	COAL	9.5	710.5
-269.0	CARBONDALE		GRAY SHALE	0.5	720.0

MAPID: 08100065000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 31 QUARTERS/FOOTAGES: SW NW NW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.031935

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.13098

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 423.9 LOGGED (FT.): 706.0

LOG TYPE:

SOURCE: INLAND STEEL 4

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-270.1	CARBONDALE	HERRIN	COAL	10.5	694.0

MAPID: 08100065000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 31

QUARTERS/FOOTAGES: SW NW NW SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.031935

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.13098

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 424.0

LOGGED (FT.): 706.0

LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO.

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
424.0			UNCONSOLIDATED	16.0	0.0	
408.0			ROCK	84.5	16.0	
323.5			COAL	0.8	100.5	
322.7			ROCK	102.2	101.3	
220.5			COAL	0.5	203.5	
220.0			ROCK	167.0	204.0	
53.0			COAL	0.9	371.0	
52.1			ROCK	155.7	371.9	
-103.6			COAL	0.8	527.6	
-104.4			ROCK	32.3	528.4	
-136.7			COAL	2.2	560.7	
-138.8			ROCK	21.2	562.8	
-160.0			SHALE	110.0	584.0	SANDY
-270.0	CARBONDALE	HERRIN	COAL	10.5	694.0	BLUE BAND .06'
-280.5	CARBONDALE		UNDERCLAY	1.5	704.5	

MAPID: 08101352000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 31

QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: WALTONVILLE

LONGITUDE: -89.024479

GEOLOGIST: J JOHNSON

CONFIDENTIAL: N

LATITUDE: 38.127852

DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0

LOGGED (FT.): 2457.0

LOG TYPE: Electric Log

SOURCE: TEXAS COMPANY, THE

WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-284.0	CARBONDALE	SPRINGFIELD	COAL	-	725.0	
-457.0	CARBONDALE	COLCHESTER	COAL	-	898.0	
-2016.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2457.0	

MAPID: 08101352000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 31 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.024479

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.127852

DATE COLLECTED:

SURFACE ELEVATION (FT.): 441.0

LOGGED (FT.): 699.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-141.0	MODESTO	PIASA	LIMESTONE	7.0	582.0
-148.0	MODESTO		GRAY SHALE	6.0	589.0
-154.0	CARBONDALE	DANVILLE	COAL	1.0	595.0
-155.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	15.0	596.0
-170.0	CARBONDALE	ENERGY	SILTY SHALE	79.0	611.0
-249.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	9.0	690.0

MAPID: 08190021000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 31 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: WALTONVILLE LONGITUDE: -89.032384 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.131772 DATE COLLECTED:

SURFACE ELEVATION (FT.): 423.9 LOGGED (FT.): 706.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 181S32 WELL TYPE: Coal Test

COMMENT: PERMIT 281; REND LAKE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
423.9	PLEISTOCENE		CLAY	16.0	0.0
407.9	BOND		GRAY SHALE	11.0	16.0
396.9	BOND		SANDY SHALE	8.0	27.0
388.9	BOND		BLUE SHALE	6.0	35.0
382.9	BOND		SANDSTONE	2.0	41.0
380.9	BOND		BLUE SHALE	10.0	43.0
370.9	BOND		SANDSTONE	47.5	53.0
323.4	BOND	FLAT CREEK	COAL	0.8	100.5
322.6	BOND		UNDERCLAY	1.7	101.3
320.9	BOND		SHALE WITH LIMESTONE	17.0	103.0
303.9	BOND		SANDY SHALE	41.0	120.0
262.9	BOND		BLUE SHALE	11.0	161.0
251.9	BOND		SANDY SHALE	4.0	172.0
247.9	BOND	CARTHAGE	LIMESTONE	10.0	176.0
237.9	MODESTO		BLUE SHALE	14.0	186.0
223.9	MODESTO		SANDY SHALE	3.5	200.0
220.4	MODESTO	WOMAC	COAL	0.5	203.5
219.9	MODESTO		DARK SHALE	5.0	204.0
214.9	MODESTO		BLUE SHALE	55.0	209.0
159.9	MODESTO		BLACK SHALE	8.0	264.0
151.9	MODESTO		GRAY SHALE	11.0	272.0
140.9	MODESTO		SANDSTONE	22.0	283.0
118.9	MODESTO		SANDY SHALE	10.0	305.0
108.9	MODESTO		BLUE SHALE	56.0	315.0
52.9	MODESTO	CHAPEL	COAL	0.9	371.0
52.0	MODESTO		UNDERCLAY	2.1	371.9
49.9	MODESTO		SHALE WITH LIMESTONE	2.0	374.0
47.9	MODESTO		LIMESTONE	5.0	376.0
42.9	MODESTO		BLUE SHALE	19.0	381.0
23.9	MODESTO		SANDY SHALE	10.0	400.0
13.9	MODESTO		BLUE SHALE	91.0	410.0
-77.1	MODESTO		SHALE WITH LIMESTONE	8.0	501.0
-85.1	MODESTO		SANDY SHALE	10.0	509.0
-95.1	MODESTO		DARK SHALE	8.6	519.0
-103.7	MODESTO	DEGRAFF	COAL	0.8	527.6
-104.5	MODESTO		UNDERCLAY	2.6	528.4
-107.1	MODESTO		RED SHALE	7.0	531.0
-114.1	MODESTO		BLUE SHALE	2.0	538.0
-116.1	MODESTO	PIASA	LIMESTONE	3.0	540.0

-119.1	MODESTO		SANDSTONE	3.0	543.0
-122.1	MODESTO		SHALE	9.0	546.0
-131.1	MODESTO		SHALE WITH LIMESTONE	3.0	555.0
-134.1	MODESTO		BLACK SHALE	2.7	558.0
-136.8	CARBONDALE	DANVILLE	COAL	2.2	560.7
-138.9	CARBONDALE		UNDERCLAY	2.2	562.8
-141.1	CARBONDALE	ENERGY	GRAY SHALE	10.0	565.0
-151.1	CARBONDALE	ENERGY	SHALE WITH LIMESTONE	9.0	575.0
-160.1	CARBONDALE	ENERGY	SANDY SHALE	110.0	584.0
-270.1	CARBONDALE	HERRIN	COAL	10.5	694.0
-280.6	CARBONDALE		UNDERCLAY	1.5	704.5

MAPID: 08100066000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 32 QUARTERS/FOOTAGES: SW NW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013298 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.134666 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 408.0 LOGGED (FT.): 652.0 LOG TYPE: Drillers Log

SOURCE: INLAND STEEL CO. WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
408.0			UNCONSOLIDATED	9.0	0.0	
399.0			ROCK	169.0	9.0	
230.0			COAL	0.4	178.0	
229.6			ROCK	31.1	178.4	
198.5			COAL	0.5	209.5	
198.0			ROCK	133.0	210.0	
65.0			COAL	0.8	343.0	SHALY
64.2			ROCK	150.7	343.8	
-86.5			COAL	0.7	494.5	
-87.2			ROCK	62.8	495.2	
-150.0			SHALE	85.2	558.0	SANDY
-235.2	CARBONDALE	HERRIN	COAL	8.1	643.2	BLUE BAND .06'
-243.2	CARBONDALE		UNDERCLAY	0.8	651.2	

MAPID: 08100066000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 32 QUARTERS/FOOTAGES: SW NW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013298

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.134666

DATE COLLECTED:

SURFACE ELEVATION (FT.): 408.0

LOGGED (FT.): 651.1

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-93.3	MODESTO		SILTY SHALE	80.0	501.3	
-173.3	CARBONDALE	DANVILLE	COAL	0.7	581.3	
-174.0	CARBONDALE		SHALE & SANDSTONE	53.0	582.0	
-227.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	635.0	
-235.0	CARBONDALE	HERRIN	COAL	8.1	643.0	

MAPID: 08100066000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 32 QUARTERS/FOOTAGES: SW NW SW NE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013298

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.134666

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 408.2

LOGGED (FT.): 652.0

LOG TYPE:

SOURCE: INLAND STEEL 1

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-234.8	CARBONDALE	HERRIN	COAL	8.1	643.0	

MAPID: 08124963000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 32 QUARTERS/FOOTAGES: NW SW SE

QUADRANGLE: WALTONVILLE LONGITUDE: -89.013819 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.134676 DATE COLLECTED:

SURFACE ELEVATION (FT.): 408.2 LOGGED (FT.): 652.2 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 18PC23 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
408.2	PLEISTOCENE		CLAY	9.0	0.0
399.2			SANDSTONE	98.0	9.0
301.2	BOND		GRAY SHALE	14.0	107.0
287.2	BOND		SANDY SHALE	2.0	121.0
285.2	BOND		SHALE	19.0	123.0
266.2	BOND		GRAY SHALE	4.0	142.0
262.2	BOND	CARTHAGE	LIMESTONE	7.0	146.0
255.2	MODESTO		BLACK SHALE	4.0	153.0
251.2	MODESTO		GRAY SHALE	21.0	157.0
230.2	MODESTO	NEW HAVEN	COAL	0.4	178.0
229.8	MODESTO		GRAY SHALE	31.1	178.4
198.7	MODESTO	WOMAC	COAL	0.5	209.5
198.2	MODESTO		GRAY SHALE	15.0	210.0
183.2	MODESTO		BLACK SHALE	6.0	225.0
177.2	MODESTO	CARLINVILLE	LIMESTONE	1.0	231.0
176.2	MODESTO		GRAY SHALE	13.0	232.0
163.2	MODESTO		SHALE WITH LIMESTONE	12.0	245.0
151.2	MODESTO		GRAY SHALE	3.0	257.0
148.2	MODESTO		SANDY SHALE	2.0	260.0
146.2	MODESTO		SANDSTONE	11.0	262.0
135.2	MODESTO		SANDY SHALE	39.0	273.0
96.2	MODESTO		GRAY SHALE	29.0	312.0
67.2	MODESTO		DARK SHALE	2.0	341.0
65.2	MODESTO	CHAPEL	COAL	0.8	343.0
64.4	MODESTO		UNDERCLAY	2.2	343.8
62.2	MODESTO		GRAY SHALE	4.0	346.0
58.2	MODESTO		SANDY SHALE	65.0	350.0
-6.8	MODESTO		SHALE	58.0	415.0
-64.8	MODESTO		SANDY SHALE	18.0	473.0
-82.8	MODESTO		DARK SHALE	3.5	491.0
-86.3	MODESTO	DEGRAFF	COAL	0.7	494.5
-87.0			UNDERCLAY	3.8	495.2
-90.8			GREEN SHALE	11.0	499.0
-101.8			SHALE	12.0	510.0
-113.8			SANDY SHALE	24.0	522.0
-137.8			SANDSTONE	4.0	546.0
-141.8	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	550.0
-149.8	CARBONDALE	ENERGY	SANDY SHALE	84.7	558.0
-234.5	CARBONDALE	ENERGY	GRAY SHALE	0.5	642.7

-235.0	CARBONDALE	HERRIN	COAL	8.1	643.2
-243.1	CARBONDALE		UNDERCLAY	0.9	651.3

MAPID: 08100067000C	VERSION: 1	PROJECT: BLM
COUNTY: JEFFERSON	TWP/RNG: 4S 2E	SECTION: 33
QUADRANGLE: INA	LONGITUDE: -88.995555	QUARTERS/FOOTAGES: 1280' N line, 2800' E line
CONFIDENTIAL: N	LATITUDE: 38.136185	GEOLOGIST: BARGH,M
SURFACE ELEVATION (FT.): 400.0	LOGGED (FT.): 660.0	DATE COLLECTED: 4 / 29 / 1918
SOURCE: NASON CC		LOG TYPE: Drillers Log
COMMENT:		WELL TYPE: Coal Test

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
400.0			UNCONSOLIDATED	13.0	0.0	
387.0			ROCK	75.0	13.0	
312.0			COAL	0.4	88.0	
311.6			ROCK	109.6	88.4	
202.0			COAL	0.8	198.0	
201.2			ROCK	42.2	198.8	
159.0			COAL	1.0	241.0	
158.0			ROCK	14.0	242.0	
144.0			COAL	0.7	256.0	
143.3			ROCK	267.3	256.7	
-124.0			COAL	0.8	524.0	
-124.8			ROCK	18.2	524.8	
-143.0			COAL	0.8	543.0	
-143.8			ROCK	10.2	543.8	
-154.0			COAL	2.0	554.0	
-156.0			ROCK	69.0	556.0	
-225.0			SHALE	25.0	625.0	SANDY
-250.0	CARBONDALE	HERRIN	COAL	6.8	650.0	
-256.8	CARBONDALE		UNDERCLAY	2.8	656.8	
-259.6	CARBONDALE		ROCK	0.5	659.6	

MAPID: 08100067000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 33 QUARTERS/FOOTAGES: 1280' N line, 2800' E line

QUADRANGLE: INA LONGITUDE: -88.995555

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.136185

DATE COLLECTED:

SURFACE ELEVATION (FT.): 400.0

LOGGED (FT.): 656.8

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-145.0	MODESTO	PIASA	LIMESTONE	4.0	545.0
-149.0	MODESTO		DARK GRAY SHALE	5.0	549.0
-154.0	CARBONDALE	DANVILLE	COAL	2.0	554.0
-156.0	CARBONDALE		CLAYSTONE	2.0	556.0
-158.0	CARBONDALE	ENERGY	SANDSTONE	9.0	558.0
-167.0	CARBONDALE	ENERGY	CALCAREOUS SHALE	4.0	567.0
-171.0	CARBONDALE	ENERGY	SANDSTONE	22.0	571.0
-193.0	CARBONDALE	ENERGY	SHALE & SANDSTONE	57.0	593.0
-250.0	CARBONDALE	HERRIN	COAL	6.8	650.0

MAPID: 08100067000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 33 QUARTERS/FOOTAGES: 1280' N line, 2800' E line

QUADRANGLE: INA LONGITUDE: -88.995555

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.136185

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 399.9

LOGGED (FT.): 660.0

LOG TYPE:

SOURCE: NASON CC 11

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-250.1	CARBONDALE	HERRIN	COAL	6.8	650.0

MAPID: 08124964000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 33

QUARTERS/FOOTAGES: NE NE NE

QUADRANGLE: INA

LONGITUDE: -88.986533

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.138249

DATE COLLECTED: 8 / 10 / 1988

SURFACE ELEVATION (FT.): 412.8

LOGGED (FT.): 730.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO

88RL281R

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.8			UNKNOWN	12.0	0.0	NO CORE (WATER)
400.8	PLEISTOCENE		CLAY	24.0	12.0	
376.8	PLEISTOCENE		SAND	38.0	36.0	
338.8	BOND		GRAY SHALE	16.0	74.0	
322.8	BOND		SANDSTONE	14.0	90.0	
308.8	BOND		SHALE	2.5	104.0	
306.3	BOND		LIMESTONE	1.0	106.5	
305.3	BOND		BLACK SHALE	0.7	107.5	
304.6	BOND		SANDY SHALE	2.8	108.2	
301.8	BOND		LIMESTONE	1.0	111.0	
300.8	BOND		SHALE	2.2	112.0	
298.6	BOND		BLACK SHALE	1.6	114.2	
297.0	BOND		SANDSTONE	22.7	115.8	
274.3	BOND	WITT	COAL	0.5	138.5	
273.8	BOND		SHALE	11.2	139.0	
262.6	BOND	FLAT CREEK	COAL	1.3	150.2	
261.3	BOND		SHALE	71.3	151.5	
190.0	BOND	CARTHAGE	LIMESTONE	4.2	222.8	
185.8	MODESTO		BLACK SHALE	6.0	227.0	
179.8	MODESTO		SHALE	51.0	233.0	
128.8	MODESTO	WOMAC	COAL	1.9	284.0	
126.9	MODESTO		SHALE	9.1	285.9	
117.8	MODESTO	CARLINVILLE	LIMESTONE	1.2	295.0	
116.6	MODESTO	CARLINVILLE	SHALE	1.8	296.2	
114.8	MODESTO	CARLINVILLE	LIMESTONE	2.5	298.0	
112.3	MODESTO		BLACK SHALE	3.5	300.5	
108.8	MODESTO		SHALE	108.8	304.0	
0.0	MODESTO		BLACK SHALE	1.7	412.8	
-1.7	MODESTO		SHALE	2.9	414.5	
-4.6	MODESTO	CHAPEL	COAL	0.8	417.4	
-5.4	MODESTO		SHALE	119.3	418.2	
-124.7	MODESTO		SHALE WITH LIMESTONE	21.9	537.5	
-146.6	MODESTO		BLACK SHALE	2.6	559.4	
-149.2	MODESTO		SANDY SHALE	4.0	562.0	
-153.2	MODESTO		SHALE	12.0	566.0	
-165.2	MODESTO	PIASA	LIMESTONE	6.1	578.0	
-171.3	MODESTO		BLACK SHALE	0.9	584.1	
-172.2	MODESTO		SHALE	2.4	585.0	
-174.6	CARBONDALE	DANVILLE	COAL	2.1	587.4	

-176.7	CARBONDALE		SHALE	4.5	589.5
-181.2	CARBONDALE		SILTY SHALE	3.0	594.0
-184.2	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	597.0
-192.2	CARBONDALE	ENERGY	SANDY SHALE	35.0	605.0
-227.2	CARBONDALE	ENERGY	SHALE	50.9	640.0
-278.1	CARBONDALE	ENERGY	SHALE	0.9	690.9
-279.0	CARBONDALE	ENERGY	COAL	0.0	691.8
-279.0	CARBONDALE	ENERGY	GRAY SHALE	1.0	691.8
-280.0	CARBONDALE	ENERGY	GRAY SHALE	0.0	692.8
-280.0	CARBONDALE	HERRIN	COAL	6.3	692.8
-286.4	CARBONDALE		GRAY SHALE	0.1	699.2
-286.4	CARBONDALE		COAL	0.9	699.2
-287.3	CARBONDALE		GRAY SHALE	0.7	700.1
-288.0	CARBONDALE		GREEN SHALE	2.5	700.8
-290.5	CARBONDALE		SILTY SHALE	11.6	703.3
-302.1	CARBONDALE		SHALE	15.1	714.9

MAPID: 08100068000C **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 34 **QUARTERS/FOOTAGES:** 1600' N line, 2325' E line
QUADRANGLE: INA **LONGITUDE:** -88.97577 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.135417 **DATE COLLECTED:** 4 / 11 / 1918
SURFACE ELEVATION (FT.): 408.0 **LOGGED (FT.):** 691.0 **LOG TYPE:** Drillers Log
SOURCE: NASON CC **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	UNIT OVERBURDEN COMMENT
408.0			UNCONSOLIDATED	56.5	0.0
351.5			ROCK	61.5	56.5
290.0			COAL	1.0	118.0
289.0			ROCK	104.5	119.0
184.5			COAL	0.8	223.5
183.7			ROCK	37.5	224.3
146.2			COAL	1.3	261.8
145.0			ROCK	128.0	263.0
17.0			COAL	1.4	391.0
15.6			ROCK	155.1	392.4
-139.5			COAL	0.8	547.5
-140.3			ROCK	29.7	548.3
-170.0			COAL	1.5	578.0
-171.5			ROCK	50.5	579.5
-222.0			SHALE	45.0	630.0 SANDY
-267.0			BLACK SHALE	5.5	675.0
-272.5	CARBONDALE	HERRIN	COAL	7.0	680.5
-279.5	CARBONDALE		UNDERCLAY	2.4	687.5
-281.9	CARBONDALE		ROCK	1.1	689.9

MAPID: 08100068000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 34 QUARTERS/FOOTAGES: 1600' N line, 2325' E line

QUADRANGLE: INA LONGITUDE: -88.97577 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.135417 DATE COLLECTED:

SURFACE ELEVATION (FT.): 407.0 LOGGED (FT.): 687.0 LOG TYPE: Drillers Log

SOURCE: WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-165.0	MODESTO	PIASA	LIMESTONE	5.0	572.0
-170.0	MODESTO		DARK GRAY SHALE	6.0	577.0
-176.0	CARBONDALE	DANVILLE	COAL	1.5	583.0
-177.5	CARBONDALE		CLAYSTONE	2.5	584.5
-180.0	CARBONDALE	ANNA	BLACK SHALE	5.5	587.0
-185.5	CARBONDALE	ENERGY	SHALE & SANDSTONE	17.0	592.5
-202.5	CARBONDALE	ENERGY	SILTY SHALE	5.0	609.5
-207.5	CARBONDALE	ENERGY	SANDSTONE	20.0	614.5
-227.5	CARBONDALE	ENERGY	SILTY SHALE	45.0	634.5
-273.0	CARBONDALE	HERRIN	COAL	7.0	680.0

MAPID: 08100068000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 34 QUARTERS/FOOTAGES: 1600' N line, 2325' E line

QUADRANGLE: INA LONGITUDE: -88.97577 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.135417 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 407.6 LOGGED (FT.): 691.0 LOG TYPE:

SOURCE: NASON CC 10 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-273.4	CARBONDALE	HERRIN	COAL	7.0	681.0

MAPID: 08124965000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 34 QUARTERS/FOOTAGES: SE SE NE

QUADRANGLE: INA LONGITUDE: -88.96786 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.134431 DATE COLLECTED: 8 / 14 / 1987

SURFACE ELEVATION (FT.): 405.8 LOGGED (FT.): 733.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL208 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
405.8	PLEISTOCENE		CLAY	61.7	0.0	
344.1	BOND		SANDSTONE	18.4	61.7	
325.7	BOND		GRAY SHALE	3.3	80.1	
322.4	BOND		SANDSTONE	14.7	83.4	
307.8	BOND		LIMESTONE	1.5	98.0	
306.3	BOND		SANDSTONE	4.6	99.5	
301.8	BOND	FLAT CREEK	COAL	2.5	104.0	
299.3	BOND		UNDERCLAY	2.4	106.5	
296.9	BOND		GRAY SHALE	15.6	108.9	
281.3	BOND		UNKNOWN	3.7	124.5	
277.6	BOND		SHALY SANDSTONE	2.0	128.2	INTERBEDDED
275.6	BOND		SANDSTONE	0.8	130.2	GRAY
274.8	BOND		SHALY SANDSTONE	1.0	131.0	INTERBEDDED
273.8	BOND		SANDSTONE	2.0	132.0	GRAY
271.8	BOND		DARK GRAY SHALE	53.2	134.0	
218.6	BOND	CARTHAGE	LIMESTONE	5.0	187.2	GRAY
213.5	MODESTO		BLACK SHALE	4.8	192.3	
208.8	MODESTO		DARK GRAY SHALE	17.7	197.0	
191.1	MODESTO	NEW HAVEN	COAL	1.3	214.7	
189.8	MODESTO		UNDERCLAY	1.6	216.0	
188.2	MODESTO		GRAY SHALE	9.8	217.6	
178.5	MODESTO		SHALY SANDSTONE	7.7	227.3	INTERBEDDED
170.7	MODESTO		GRAY SHALE	16.5	235.1	
154.2	MODESTO	WOMAC	COAL	1.7	251.6	
152.5	MODESTO		UNDERCLAY	2.0	253.3	
150.5	MODESTO		GRAY SHALE	8.1	255.3	
142.4	MODESTO		CLAYSTONE	10.0	263.4	
132.4	MODESTO		GRAY SHALE	9.8	273.4	
122.7	MODESTO		BLACK SHALE	0.3	283.1	
122.4	MODESTO		GRAY SHALE	4.9	283.4	
117.5	MODESTO		BLACK SHALE	0.1	288.3	
117.4	MODESTO		COAL	0.1	288.4	
117.3	MODESTO		BLACK SHALE	0.1	288.5	
117.2	MODESTO		GRAY SHALE	3.0	288.6	
114.2	MODESTO		SANDSTONE	1.0	291.6	GRAY
113.2	MODESTO		SHALY SANDSTONE	6.7	292.6	INTERBEDDED
106.5	MODESTO		SANDSTONE	2.7	299.3	GRAY
103.8	MODESTO		GRAY SHALE	68.4	302.0	
35.4	MODESTO		GRAY SHALE	0.7	370.4	

34.7	MODESTO		BLACK SHALE	3.8	371.1	
30.9	MODESTO	CHAPEL	COAL	0.9	374.9	
30.0	MODESTO		UNDERCLAY	3.0	375.8	
27.0	MODESTO		GRAY SHALE	22.2	378.8	
4.8	MODESTO		LIMESTONE	0.5	401.0	GRAY
4.3	MODESTO		GRAY SHALE	2.5	401.5	
1.8	MODESTO		SHALY SANDSTONE	3.7	404.0	INTERBEDDED
-1.9	MODESTO		GRAY SHALE	95.3	407.7	
-97.2	MODESTO		BLACK SHALE	5.9	503.0	
-103.1	MODESTO		CLAYSTONE	1.2	508.9	
-104.3	MODESTO		LIMESTONE	3.0	510.1	GREEN
-107.2	MODESTO		GRAY SHALE	6.4	513.0	
-113.6	MODESTO		SANDSTONE	1.2	519.4	GRAY
-114.8	MODESTO		GRAY SHALE	3.3	520.6	
-118.1	MODESTO		DARK GRAY SHALE	8.9	523.9	
-127.0	MODESTO		BLACK SHALE	1.0	532.8	
-128.0	MODESTO	POND CREEK	COAL	0.6	533.8	
-128.7	MODESTO		UNDERCLAY	2.2	534.5	
-130.9	MODESTO		GRAY SHALE	8.8	536.7	
-139.7	MODESTO		SANDSTONE	7.5	545.5	GRAY
-147.1	MODESTO		CLAYSTONE	0.8	552.9	
-147.9	MODESTO	PIASA	LIMESTONE	5.6	553.7	GRAY
-153.5	MODESTO		GRAY SHALE	3.5	559.3	
-157.0	CARBONDALE	DANVILLE	COAL	2.3	562.8	
-159.3	CARBONDALE		CALCAREOUS SHALE	7.3	565.1	
-166.6	CARBONDALE	ENERGY	SANDSTONE	1.4	572.4	GRAY
-168.1	CARBONDALE	ENERGY	SANDSTONE/SHALE	0.7	573.9	INTERBEDDED
-168.7	CARBONDALE	ENERGY	SANDY SHALE	0.4	574.5	
-169.1	CARBONDALE	ENERGY	SHALY SANDSTONE	2.2	574.9	INTERBEDDED
-171.4	CARBONDALE	ENERGY	SANDSTONE	0.4	577.2	GRAY
-171.7	CARBONDALE	ENERGY	SHALY SANDSTONE	0.3	577.5	INTERBEDDED
-172.0	CARBONDALE	ENERGY	CLAYSTONE	5.7	577.8	
-177.7	CARBONDALE	ENERGY	SHALY SANDSTONE	32.4	583.5	INTERBEDDED
-210.1	CARBONDALE	ENERGY	SANDSTONE	4.6	615.9	GRAY
-214.7	CARBONDALE	ENERGY	SHALY SANDSTONE	11.7	620.5	INTERBEDDED
-226.4	CARBONDALE	ENERGY	GRAY SHALE	27.5	632.2	
-253.9	CARBONDALE	HERRIN	COAL	1.7	659.7	
-255.5	CARBONDALE	HERRIN	GRAY SHALE	0.0	661.3	
-255.6	CARBONDALE	HERRIN	COAL	4.7	661.4	
-260.3	CARBONDALE	HERRIN	GRAY SHALE	0.1	666.1	
-260.4	CARBONDALE	HERRIN	COAL	0.5	666.2	
-260.8	CARBONDALE		UNDERCLAY	1.8	666.6	
-262.6	CARBONDALE		SANDSTONE	7.6	668.4	GREEN
-270.2	CARBONDALE		DARK GRAY SHALE	25.4	676.0	
-295.6	CARBONDALE	BRIAR HILL	COAL	0.9	701.4	
-296.5	CARBONDALE		BLACK SHALE	11.3	702.3	
-307.8	CARBONDALE	ST. DAVID	LIMESTONE	1.3	713.6	GRAY
-309.1	CARBONDALE	TURNER MINE	BLACK SHALE	2.7	714.9	

-311.8	CARBONDALE	SPRINGFIELD	COAL	3.9	717.6	
-315.7	CARBONDALE		UNDERCLAY	2.7	721.5	
-318.4	CARBONDALE		SHALY SANDSTONE	8.8	724.2	INTERBEDDED

MAPID: 08124966000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 34 QUARTERS/FOOTAGES: NW SE SE

QUADRANGLE: INA LONGITUDE: -88.971811 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.128619 DATE COLLECTED: 9 / 5 / 1988

SURFACE ELEVATION (FT.): 412.3 LOGGED (FT.): 753.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATED COAL CO. 88RL290 WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
412.3			UNKNOWN	10.0	0.0	NO CORE (WATER)
402.3	PLEISTOCENE		CLAY	14.0	10.0	
388.3	PLEISTOCENE		SAND	8.0	24.0	
380.3	PLEISTOCENE		SAND & GRAVEL	9.0	32.0	
371.3	PLEISTOCENE		CLAY	9.0	41.0	
362.3	PLEISTOCENE		SAND	12.0	50.0	
350.3	PLEISTOCENE		SAND & GRAVEL	6.3	62.0	
344.0	BOND		SANDSTONE	37.7	68.3	
306.3	BOND		GRAY SHALE	18.0	106.0	
288.3	BOND		SANDY SHALE	9.5	124.0	
278.8	BOND		GRAY SHALE	54.2	133.5	
224.6	BOND	CARTHAGE	LIMESTONE	5.3	187.7	
219.3	MODESTO		BLACK SHALE	4.4	193.0	
214.9	MODESTO		GRAY SHALE	34.2	197.4	
180.7	MODESTO		SANDY SHALE	28.4	231.6	
152.3	MODESTO		GRAY SHALE	1.9	260.0	
150.4	MODESTO		SANDY SHALE	46.3	261.9	
104.1	MODESTO		GRAY SHALE	64.1	308.2	
40.0	MODESTO		BLACK SHALE	2.7	372.3	
37.3	MODESTO		GRAY SHALE	3.0	375.0	
34.3	MODESTO	CHAPEL	COAL	1.0	378.0	
33.3	MODESTO		UNDERCLAY	1.7	379.0	
31.6	MODESTO		SANDY SHALE	4.1	380.7	
27.5	MODESTO		GRAY SHALE	15.2	384.8	
12.3	MODESTO		SANDY SHALE	56.0	400.0	
-43.7	MODESTO		GRAY SHALE	9.0	456.0	
-52.7	MODESTO		SANDY SHALE	38.7	465.0	
-91.4	MODESTO		GRAY SHALE	3.9	503.7	
-95.3	MODESTO		LIMESTONE	3.4	507.6	
-98.7	MODESTO		GRAY SHALE	10.8	511.0	
-109.5	MODESTO		GRAY SHALE	7.0	521.8	
-116.5	MODESTO		BLACK SHALE	2.3	528.8	
-118.8	MODESTO		GRAY SHALE	1.4	531.1	
-120.2	MODESTO		GRAY SHALE	8.6	532.5	
-128.8	MODESTO		DARK GRAY SHALE	11.1	541.1	
-139.9	MODESTO	PIASA	LIMESTONE	4.6	552.2	
-144.5	MODESTO		BLACK SHALE	2.0	556.8	
-146.5	MODESTO		DARK GRAY SHALE	3.5	558.8	
-150.0	CARBONDALE	DANVILLE	COAL	3.0	562.3	

-153.0	CARBONDALE		UNDERCLAY	3.2	565.3
-156.2	CARBONDALE	ENERGY	GRAY SHALE	14.5	568.5
-170.7	CARBONDALE	ENERGY	GRAY SHALE	12.9	583.0
-183.6	CARBONDALE	ENERGY	SANDSTONE	28.1	595.9
-211.7	CARBONDALE	ENERGY	GRAY SHALE	26.0	624.0
-237.7	CARBONDALE	ENERGY	SILTY SHALE	11.3	650.0
-249.0	CARBONDALE	ENERGY	GRAY SHALE	0.1	661.3
-249.0	CARBONDALE	HERRIN	COAL	6.2	661.3
-255.3	CARBONDALE	HERRIN	DARK GRAY SHALE	0.2	667.6
-255.4	CARBONDALE	HERRIN	COAL	0.5	667.7
-255.9	CARBONDALE		UNDERCLAY	3.6	668.2
-259.5	CARBONDALE		SANDY SHALE	8.2	671.8
-267.7	CARBONDALE		GRAY SHALE	19.4	680.0
-287.1	CARBONDALE	BRIAR HILL	COAL	1.6	699.4
-288.7	CARBONDALE		GRAY SHALE	9.7	701.0
-298.4	CARBONDALE	ST. DAVID	LIMESTONE	2.0	710.7
-300.4	CARBONDALE	TURNER MINE	BLACK SHALE	3.2	712.7
-303.6	CARBONDALE	SPRINGFIELD	COAL	4.1	715.9
-307.7	CARBONDALE		UNDERCLAY	1.5	720.0
-309.2	CARBONDALE		SANDY SHALE	3.8	721.5
-313.0	CARBONDALE		GRAY SHALE	27.7	725.3

MAPID: 08124967000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 34

QUARTERS/FOOTAGES: NW NW SE

QUADRANGLE: INA

LONGITUDE: -88.976111

GEOLOGIST: NORTH

CONFIDENTIAL: N

LATITUDE: 38.13231

DATE COLLECTED: 7 / 1 / 1989

SURFACE ELEVATION (FT.): 414.1

LOGGED (FT.): 725.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 89RL316R

WELL TYPE: Coal Test

COMMENT: PERMIT 43; REND LAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
414.1			UNKNOWN	11.0	0.0	UNKNOWN NO CORE (WATER)
403.1	PLEISTOCENE		CLAY	32.0	11.0	
371.1	PLEISTOCENE		GRAVEL	1.0	43.0	
370.1	PLEISTOCENE		CLAY	21.0	44.0	
349.1	PLEISTOCENE		GRAVEL	7.0	65.0	
342.1	BOND		SANDSTONE	33.0	72.0	
309.1	BOND		GRAY SHALE	3.0	105.0	
306.1	BOND		SANDSTONE	19.5	108.0	
286.6	BOND		GRAY SHALE	76.0	127.5	
210.6	BOND	CARTHAGE	LIMESTONE	6.0	203.5	
204.6	MODESTO		BLACK SHALE	5.5	209.5	
199.1	MODESTO		GRAY SHALE	48.2	215.0	
150.9	MODESTO		SANDY SHALE	2.0	263.2	
148.9	MODESTO	WOMAC	COAL	1.0	265.2	
147.9	MODESTO		GRAY SHALE	14.5	266.2	
133.4	MODESTO		BLACK SHALE	4.3	280.7	
129.1	MODESTO		SANDY SHALE	7.0	285.0	
122.1	MODESTO		GRAY SHALE	8.2	292.0	
113.9	MODESTO		SANDY SHALE	3.0	300.2	
110.9	MODESTO		GRAY SHALE	10.8	303.2	
100.1	MODESTO		SANDY SHALE	10.2	314.0	
89.9	MODESTO		GRAY SHALE	68.8	324.2	
21.1	MODESTO		BLACK SHALE	1.0	393.0	
20.1	MODESTO		GRAY SHALE	4.0	394.0	
16.1	MODESTO	CHAPEL	COAL	1.0	398.0	
15.1	MODESTO		GRAY SHALE	28.0	399.0	
-12.9	MODESTO		SANDY SHALE	22.0	427.0	
-34.9	MODESTO		GRAY SHALE	98.5	449.0	
-133.4	MODESTO		BLACK SHALE	2.5	547.5	
-135.9	MODESTO		GRAY SHALE	21.0	550.0	
-156.9	MODESTO	PIASA	LIMESTONE	5.0	571.0	
-161.9	MODESTO		BLACK SHALE	2.5	576.0	
-164.4	MODESTO		GRAY SHALE	2.5	578.5	
-166.9	CARBONDALE	DANVILLE	COAL	2.0	581.0	
-168.9	CARBONDALE		GRAY SHALE	7.5	583.0	
-176.4	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	590.5	
-182.4	CARBONDALE	ENERGY	GRAY SHALE	6.0	596.5	
-188.4	CARBONDALE	ENERGY	SANDSTONE	2.0	602.5	GRAY
-190.4	CARBONDALE	ENERGY	SANDY SHALE	3.0	604.5	

-193.4	CARBONDALE	ENERGY	GRAY SHALE	1.0	607.5	
-194.4	CARBONDALE	ENERGY	SANDY SHALE	5.0	608.5	
-199.4	CARBONDALE	ENERGY	GRAY SHALE	6.5	613.5	
-205.9	CARBONDALE	ENERGY	SANDY SHALE	1.5	620.0	
-207.4	CARBONDALE	ENERGY	SANDSTONE	6.5	621.5	GRAY
-213.9	CARBONDALE	ENERGY	GRAY SHALE	2.0	628.0	
-215.9	CARBONDALE	ENERGY	SANDY SHALE	8.0	630.0	
-223.9	CARBONDALE	ENERGY	GRAY SHALE	20.0	638.0	
-243.9	CARBONDALE	ENERGY	SANDY SHALE	3.0	658.0	
-246.9	CARBONDALE	ENERGY	GRAY SHALE	15.5	661.0	
-262.4	CARBONDALE	ENERGY	SANDY SHALE	1.0	676.5	
-263.4	CARBONDALE	ENERGY	GRAY SHALE	4.6	677.5	
-268.0	CARBONDALE	HERRIN	COAL	6.1	682.1	
-274.1	CARBONDALE	HERRIN	GRAY SHALE	0.1	688.2	
-274.2	CARBONDALE	HERRIN	COAL	0.7	688.3	
-274.9	CARBONDALE		GRAY SHALE	5.5	689.0	
-280.4	CARBONDALE	HIGGINSVILLE	LIMESTONE	2.5	694.5	
-282.9	CARBONDALE		GRAY SHALE	28.0	697.0	

MAPID: 08190041000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 34 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.967712 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.139817 DATE COLLECTED: 8 / 13 / 1987

SURFACE ELEVATION (FT.): 414.8 LOGGED (FT.): 760.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 87RL206 WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
414.8	PLEISTOCENE		UNCONSOLIDATED	67.0	0.0
347.8	BOND		SANDSTONE	45.5	67.0
302.3	BOND		LIMESTONE	2.5	112.5
299.8	BOND		COAL	0.8	115.0
299.0	BOND		UNDERCLAY	2.8	115.8
296.2	BOND		GRAY SHALE	9.1	118.6
287.1	BOND		LIMESTONE	0.8	127.7
286.3	BOND		GRAY SHALE	5.0	128.5
281.3	BOND		SANDSTONE	23.5	133.5
257.8	BOND		GRAY SHALE	38.0	157.0
219.8	BOND	CARTHAGE	LIMESTONE	6.5	195.0
213.3	MODESTO		BLACK SHALE	4.7	201.5
208.6	MODESTO		SANDY SHALE	8.2	206.2
200.4	MODESTO		GRAY SHALE	11.4	214.4
189.0	MODESTO	NEW HAVEN	COAL	0.7	225.8
188.3	MODESTO		UNDERCLAY	0.8	226.5
187.5	MODESTO		GRAY SHALE	9.2	227.3
178.3	MODESTO		SANDSTONE	15.0	236.5
163.3	MODESTO		SANDY SHALE	11.8	251.5
151.5	MODESTO		GRAY SHALE	6.7	263.3
144.8	MODESTO	WOMAC	COAL	2.1	270.0
142.7	MODESTO		UNDERCLAY	3.6	272.1
139.1	MODESTO		SHALE W/ LIME NODULES	6.2	275.7
132.9	MODESTO		SANDY SHALE	7.6	281.9
125.3	MODESTO		COAL	0.5	289.5
124.8	MODESTO		SANDY SHALE	17.0	290.0
107.8	MODESTO		SANDSTONE	7.0	307.0
100.8	MODESTO		SANDY SHALE	31.1	314.0
69.8	MODESTO		GRAY SHALE	16.8	345.0
52.9	MODESTO		SANDY SHALE	21.3	361.9
31.6	MODESTO		BLACK SHALE	4.3	383.2
27.3	MODESTO		GRAY SHALE	4.0	387.5
23.3	MODESTO	CHAPEL	COAL	1.3	391.5
22.0	MODESTO		UNDERCLAY	2.4	392.8
19.6	MODESTO		SANDY SHALE	25.9	395.2
-6.3	MODESTO		SANDSTONE	8.9	421.1
-15.2	MODESTO		SANDY SHALE	101.5	430.0
-116.7	MODESTO		GRAY SHALE	17.5	531.5
-134.2	MODESTO		BLACK SHALE	2.5	549.0

-136.7	MODESTO	DEGRAFF	COAL	0.5	551.5
-137.2	MODESTO		UNDERCLAY	2.7	552.0
-139.9	MODESTO		SHALE W/ LIME NODULES	6.3	554.7
-146.2	MODESTO		SANDY SHALE	2.0	561.0
-148.2	MODESTO		CLAYSTONE	3.0	563.0
-151.2	MODESTO	PIASA	LIMESTONE	6.0	566.0
-157.2	MODESTO		GRAY SHALE	3.0	572.0
-160.2	CARBONDALE	DANVILLE	COAL	2.5	575.0
-162.7	CARBONDALE	ENERGY	SANDY SHALE	6.0	577.5
-168.7	CARBONDALE	ENERGY	SANDSTONE	8.5	583.5
-177.2	CARBONDALE	ENERGY	SHALY SANDSTONE	57.6	592.0
-234.8	CARBONDALE	ENERGY	GRAY SHALE	20.1	649.6
-254.9	CARBONDALE	HERRIN	COAL	6.0	669.7
-260.9	CARBONDALE	HERRIN	SHALE	0.1	675.7
-261.0	CARBONDALE	HERRIN	COAL	0.3	675.8
-261.3	CARBONDALE		UNDERCLAY	2.3	676.1
-263.6	CARBONDALE		SANDSTONE	6.1	678.4
-269.7	CARBONDALE		SANDY SHALE	21.5	684.5
-291.2	CARBONDALE		GRAY SHALE	8.5	706.0
-299.7	CARBONDALE	BRIAR HILL	COAL	0.9	714.5
-300.6	CARBONDALE		GRAY SHALE	10.6	715.4
-311.2	CARBONDALE	ST. DAVID	LIMESTONE	1.0	726.0
-312.2	CARBONDALE	TURNER MINE	BLACK SHALE	3.5	727.0
-315.7	CARBONDALE	SPRINGFIELD	COAL	4.5	730.5
-320.2	CARBONDALE		UNDERCLAY	1.5	735.0
-321.7	CARBONDALE		SANDSTONE	23.5	736.5

MAPID: 08100069000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW NW NE
QUADRANGLE: INA **LONGITUDE:** -88.957952 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.136624 **DATE COLLECTED:** 0 / 0 / 1909
SURFACE ELEVATION (FT.): 407.1 **LOGGED (FT.):** 657.0 **LOG TYPE:**
SOURCE: BG MUDDYCS 1 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-241.9	CARBONDALE	HERRIN	COAL	6.5	649.0

MAPID: 08100069000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** SW SW NW NE
QUADRANGLE: INA **LONGITUDE:** -88.957952 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.136624 **DATE COLLECTED:** 6 / 7 / 1909
SURFACE ELEVATION (FT.): 407.0 **LOGGED (FT.):** 657.0 **LOG TYPE:** Drillers Log
SOURCE: BIG MUDDY COAL SYN **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
407.0			UNCONSOLIDATED	55.0	0.0	
352.0			ROCK	146.0	55.0	
206.0			COAL	0.2	201.0	
205.8			ROCK	41.8	201.2	
164.0			COAL	1.3	243.0	
162.7			ROCK	120.7	244.3	
42.0			COAL	1.0	365.0	
41.0			ROCK	160.3	366.0	
-119.3			COAL	0.6	526.3	
-119.9			ROCK	24.1	526.9	
-144.0			COAL	2.0	551.0	
-146.0			ROCK	72.0	553.0	
-218.0			SHALE	24.3	625.0	SANDY
-242.3	CARBONDALE	HERRIN	COAL	6.5	649.3	
-248.8	CARBONDALE		ROCK	1.3	655.8	

MAPID: 08100083000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 35 **QUARTERS/FOOTAGES:** NE NE NE SW
QUADRANGLE: INA **LONGITUDE:** -88.959129 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.13208 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 406.2 **LOGGED (FT.):** 653.0 **LOG TYPE:**
SOURCE: ILL CCC 6 **WELL TYPE:** Coal Test
COMMENT: EXACT LOCATION UNCERTAIN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-236.8	CARBONDALE	HERRIN	COAL	6.5	643.0	

MAPID: 08100083000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 2E

SECTION: 35

QUARTERS/FOOTAGES: NE NE NE SW

QUADRANGLE: INA

LONGITUDE: -88.959129

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.13208

DATE COLLECTED: 3 / 0 / 1918

SURFACE ELEVATION (FT.): 406.0

LOGGED (FT.): 653.2

LOG TYPE: Drillers Log

SOURCE: ILL COKE & COKE CORP

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
406.0			UNCONSOLIDATED	81.0	0.0	
325.0			ROCK	93.5	81.0	
231.5			COAL	0.5	174.5	
231.0			ROCK	24.0	175.0	
207.0			COAL	0.6	199.0	
206.4			ROCK	36.4	199.6	
170.0			COAL	1.8	236.0	
168.2			ROCK	122.2	237.8	
46.0			COAL	1.0	360.0	
45.0			ROCK	155.0	361.0	
-110.0			COAL	0.6	516.0	
-110.6			ROCK	30.4	516.6	
-141.0			COAL	2.2	547.0	
-143.2			ROCK	33.8	549.2	
-177.0			SHALE	56.3	583.0	SANDY
-233.3			BLACK SHALE	3.7	639.3	
-237.0	CARBONDALE	HERRIN	COAL	6.5	643.0	
-243.5	CARBONDALE		UNDERCLAY	2.7	649.5	
-246.2	CARBONDALE		ROCK	1.0	652.2	

MAPID: 08101067000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES: SW SW NE

QUADRANGLE: INA LONGITUDE: -88.957406 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.133441 DATE COLLECTED:

SURFACE ELEVATION (FT.): 395.0 LOGGED (FT.): 654.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-147.0	MODESTO	PIASA	LIMESTONE	5.0	542.0
-152.0	MODESTO		GRAY SHALE	4.0	547.0
-156.0	CARBONDALE	DANVILLE	COAL	2.0	551.0
-158.0	CARBONDALE		SHALE & SANDSTONE	7.0	553.0
-165.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	15.0	560.0
-180.0	CARBONDALE	ENERGY	SILTY SHALE	74.0	575.0
-253.0	CARBONDALE	HERRIN	COAL WITH SHALE PARTINGS	6.0	648.0

MAPID: 08101130000C VERSION: 1

PROJECT: J JOHNSON

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.950563 GEOLOGIST: J JOHNSON

CONFIDENTIAL: N LATITUDE: 38.138842 DATE COLLECTED:

SURFACE ELEVATION (FT.): 396.0 LOGGED (FT.): 2449.0 LOG TYPE: Electric Log

SOURCE: STRICKLAND, FRANK L. WELL TYPE: Oil and Gas Test

COMMENT: COLLECTED FOR JOEL JOHNSONS MS THESIS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-296.0	CARBONDALE	SPRINGFIELD	COAL	-	692.0
-450.0	CARBONDALE	COLCHESTER	COAL	-	846.0
-2053.0	MISSISSIPPIAN	BEECH CREEK	UNCLASSIFIED	-	2449.0

MAPID: 08190029000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.95826 GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.134693 DATE COLLECTED: 7 / 17 / 1989

SURFACE ELEVATION (FT.): 414.9 LOGGED (FT.): 764.0 LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 89RL323 WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
414.9	PLEISTOCENE		UNCONSOLIDATED	72.0	0.0
342.9	BOND		SANDSTONE	18.0	72.0
324.9	BOND		GRAY SHALE	1.5	90.0
323.4	BOND		SANDSTONE	19.5	91.5
303.9	BOND		GRAY SHALE	2.0	111.0
301.9	BOND		SANDY SHALE	2.0	113.0
299.9	BOND		GRAY SHALE	12.0	115.0
287.9	BOND		SANDY SHALE	5.0	127.0
282.9	BOND		GRAY SHALE	9.0	132.0
273.9	BOND		SANDY SHALE	2.0	141.0
271.9	BOND		GRAY SHALE	45.5	143.0
226.4	BOND	CARTHAGE	LIMESTONE	7.5	188.5
218.9	MODESTO		BLACK SHALE	4.0	196.0
214.9	MODESTO		SANDY SHALE	3.0	200.0
211.9	MODESTO		GRAY SHALE	7.0	203.0
204.9	MODESTO		SANDY SHALE	3.0	210.0
201.9	MODESTO		GRAY SHALE	11.0	213.0
190.9	MODESTO		SANDY SHALE	7.0	224.0
183.9	MODESTO		GRAY SHALE	26.5	231.0
157.4	MODESTO		SANDY SHALE	4.5	257.5
152.9	MODESTO		GRAY SHALE	16.0	262.0
136.9	MODESTO		SANDY SHALE	3.0	278.0
133.9	MODESTO		GRAY SHALE	4.0	281.0
129.9	MODESTO		SANDY SHALE	13.0	285.0
116.9	MODESTO		GRAY SHALE	4.0	298.0
112.9	MODESTO		LIMESTONE	1.5	302.0
111.4	MODESTO		SANDY SHALE	5.5	303.5
105.9	MODESTO		GRAY SHALE	2.0	309.0
103.9	MODESTO		SANDY SHALE	19.5	311.0
84.4	MODESTO		GRAY SHALE	49.0	330.5
35.4	MODESTO		BLACK SHALE	1.0	379.5
34.4	MODESTO		GRAY SHALE	1.5	380.5
32.9	MODESTO	CHAPEL	COAL	1.0	382.0
31.9	MODESTO		SANDY SHALE	14.0	383.0
17.9	MODESTO		GRAY SHALE	5.5	397.0
12.4	MODESTO		SANDY SHALE	2.5	402.5
9.9	MODESTO		SANDSTONE	4.0	405.0
5.9	MODESTO		GRAY SHALE	1.5	409.0
4.4	MODESTO		SANDSTONE	3.5	410.5

0.9	MODESTO		LIMESTONE	2.0	414.0
-1.1	MODESTO		SANDY SHALE	6.0	416.0
-7.1	MODESTO		SANDSTONE	2.0	422.0
-9.1	MODESTO		SANDY SHALE	46.0	424.0
-55.1	MODESTO		GRAY SHALE	4.5	470.0
-59.6	MODESTO		SANDY SHALE	10.0	474.5
-69.6	MODESTO		GRAY SHALE	3.5	484.5
-73.1	MODESTO		SANDY SHALE	1.0	488.0
-74.1	MODESTO		GRAY SHALE	3.0	489.0
-77.1	MODESTO		SANDY SHALE	10.0	492.0
-87.1	MODESTO		GRAY SHALE	17.0	502.0
-104.1	MODESTO		SANDSTONE	3.0	519.0
-107.1	MODESTO		GRAY SHALE	20.0	522.0
-127.1	MODESTO		BLACK SHALE	2.0	542.0
-129.1	MODESTO		GRAY SHALE	11.0	544.0
-140.1	MODESTO		SANDY SHALE	4.0	555.0
-144.1	MODESTO		GRAY SHALE	1.5	559.0
-145.6	MODESTO	PIASA	LIMESTONE	4.5	560.5
-150.1	MODESTO		GRAY SHALE	6.0	565.0
-156.1	CARBONDALE	DANVILLE	COAL	1.0	571.0
-157.1	CARBONDALE		GRAY SHALE	10.5	572.0
-167.6	CARBONDALE		SANDY SHALE	2.5	582.5
-170.1	CARBONDALE		GRAY SHALE	5.0	585.0
-175.1	CARBONDALE	ENERGY	SANDSTONE	4.0	590.0
-179.1	CARBONDALE	ENERGY	SANDY SHALE	56.9	594.0
-236.0	CARBONDALE	ENERGY	GRAY SHALE	14.9	650.9
-250.9	CARBONDALE	HERRIN	COAL	6.3	665.8
-257.2	CARBONDALE	HERRIN	SHALE	0.1	672.1
-257.3	CARBONDALE	HERRIN	COAL	0.3	672.2
-257.6	CARBONDALE		UNDERCLAY	1.4	672.5
-259.0	CARBONDALE		GRAY SHALE	2.1	673.9
-261.1	CARBONDALE		SANDY SHALE	5.0	676.0
-266.1	CARBONDALE		GRAY SHALE	37.5	681.0
-303.6	CARBONDALE	ST. DAVID	LIMESTONE	2.0	718.5
-305.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.5	720.5
-308.1	CARBONDALE	SPRINGFIELD	COAL	4.0	723.0
-312.1	CARBONDALE		GRAY SHALE	2.0	727.0
-314.1	CARBONDALE		LIMESTONE	2.0	729.0
-316.1	CARBONDALE		GRAY SHALE	2.0	731.0
-318.1	CARBONDALE		SANDSTONE	3.0	733.0
-321.1	CARBONDALE		SANDY SHALE	5.0	736.0
-326.1	CARBONDALE		GRAY SHALE	4.0	741.0
-330.1	CARBONDALE		SANDSTONE	19.0	745.0

MAPID: 08190030000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.966098

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.131243

DATE COLLECTED: 6 / 20 / 1989

SURFACE ELEVATION (FT.): 415.0 LOGGED (FT.): 759.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL314

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
415.0	PLEISTOCENE		UNCONSOLIDATED	67.0	0.0
348.0	BOND		SANDSTONE	45.5	67.0
302.5	BOND		GRAY SHALE	14.5	112.5
288.0	BOND		SANDY SHALE	66.0	127.0
222.0	BOND	CARTHAGE	LIMESTONE	6.0	193.0
216.0	MODESTO		BLACK SHALE	5.0	199.0
211.0	MODESTO		SANDY SHALE	3.0	204.0
208.0	MODESTO		GRAY SHALE	7.0	207.0
201.0	MODESTO		SANDY SHALE	41.0	214.0
160.0	MODESTO		GRAY SHALE	9.0	255.0
151.0	MODESTO		SANDY SHALE	2.0	264.0
149.0	MODESTO	WOMAC	COAL	1.0	266.0
148.0	MODESTO		GRAY SHALE	2.5	267.0
145.5	MODESTO		SANDSTONE	7.5	269.5
138.0	MODESTO		GRAY SHALE	3.0	277.0
135.0	MODESTO		SANDY SHALE	103.5	280.0
31.5	MODESTO	CHAPEL	COAL	1.0	383.5
30.5	MODESTO		SANDY SHALE	24.5	384.5
6.0	MODESTO		SANDSTONE	9.0	409.0
-3.0	MODESTO		SANDY SHALE	93.5	418.0
-96.5	MODESTO		GRAY SHALE	6.5	511.5
-103.0	MODESTO		SANDY SHALE	3.7	518.0
-106.7	MODESTO		GRAY SHALE	16.8	521.7
-123.5	MODESTO		BLACK SHALE	3.5	538.5
-127.0	MODESTO		GRAY SHALE	2.0	542.0
-129.0	MODESTO		SANDY SHALE	12.0	544.0
-141.0	MODESTO		BLACK SHALE	2.0	556.0
-143.0	MODESTO		GRAY SHALE	4.0	558.0
-147.0	MODESTO	PIASA	LIMESTONE	5.0	562.0
-152.0	MODESTO		GRAY SHALE	5.5	567.0
-157.5	CARBONDALE	DANVILLE	COAL	2.0	572.5
-159.5	CARBONDALE		GRAY SHALE	8.5	574.5
-168.0	CARBONDALE	ENERGY	SANDY SHALE	9.5	583.0
-177.5	CARBONDALE	ENERGY	SANDSTONE	2.5	592.5
-180.0	CARBONDALE	ENERGY	SANDY SHALE	4.0	595.0
-184.0	CARBONDALE	ENERGY	SANDSTONE	9.0	599.0
-193.0	CARBONDALE	ENERGY	SANDY SHALE	20.0	608.0
-213.0	CARBONDALE	ENERGY	SANDSTONE	10.0	628.0
-223.0	CARBONDALE	ENERGY	GRAY SHALE	9.0	638.0

-232.0	CARBONDALE	ENERGY	SANDY SHALE	9.0	647.0
-241.0	CARBONDALE	ENERGY	GRAY SHALE	3.0	656.0
-244.0	CARBONDALE	ENERGY	SANDY SHALE	13.6	659.0
-257.6	CARBONDALE	ENERGY	COAL	6.2	672.6
-263.8	CARBONDALE	HERRIN	SHALE	0.2	678.8
-263.9	CARBONDALE	HERRIN	COAL	0.3	678.9
-264.3	CARBONDALE		UNDERCLAY	1.8	679.3
-266.0	CARBONDALE		SANDSTONE	2.0	681.0
-268.0	CARBONDALE		SANDY SHALE	4.0	683.0
-272.0	CARBONDALE		GRAY SHALE	25.0	687.0
-297.0	CARBONDALE	BRIAR HILL	COAL	1.0	712.0
-298.0	CARBONDALE		GRAY SHALE	13.0	713.0
-311.0	CARBONDALE	TURNER MINE	BLACK SHALE	1.2	726.0
-312.2	CARBONDALE	TURNER MINE	GRAY SHALE	0.8	727.2
-313.0	CARBONDALE	TURNER MINE	BLACK SHALE	1.2	728.0
-314.2	CARBONDALE	SPRINGFIELD	COAL	3.8	729.2
-318.0	CARBONDALE		GRAY SHALE	26.0	733.0

MAPID: 08190034000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.960078

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.128589

DATE COLLECTED: 7 / 14 / 1988

SURFACE ELEVATION (FT.): 413.2 LOGGED (FT.): 740.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL279

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
413.2	PLEISTOCENE		UNCONSOLIDATED	80.0	0.0
333.2	BOND		SANDSTONE	21.0	80.0
312.2	BOND		LIMESTONE	5.0	101.0
307.2	BOND		BLACK SHALE	2.0	106.0
305.2	BOND		SHALE	74.5	108.0
230.7	BOND	CARTHAGE	LIMESTONE	6.2	182.5
224.5	MODESTO		BLACK SHALE	4.5	188.7
220.0	MODESTO		SANDY SHALE	70.8	193.2
149.2	MODESTO		BLACK SHALE	2.7	264.0
146.5	MODESTO		SILTY SHALE	14.3	266.7
132.2	MODESTO		SHALE	93.0	281.0
39.2	MODESTO		BLACK SHALE	1.9	374.0
37.3	MODESTO		SHALE	3.1	375.9
34.2	MODESTO	CHAPEL	COAL	1.3	379.0
32.9	MODESTO		UNDERCLAY	1.7	380.3
31.2	MODESTO		SHALE	128.0	382.0
-96.8	MODESTO	LAKE CREEK	COAL	1.7	510.0
-98.5	MODESTO		SHALE	23.2	511.7
-121.7	MODESTO		BLACK SHALE	1.7	534.9
-123.4	MODESTO		SHALE	1.5	536.6
-124.9	MODESTO	DEGRAFF	COAL	1.5	538.1
-126.4	MODESTO		SHALE	18.4	539.6
-144.8	MODESTO	PIASA	LIMESTONE	4.1	558.0
-148.9	MODESTO		BLACK SHALE	4.7	562.1
-153.6	CARBONDALE	DANVILLE	COAL	1.2	566.8
-154.8	CARBONDALE		SHALE	9.2	568.0
-164.0	CARBONDALE	ENERGY	SANDSTONE	5.8	577.2
-169.8	CARBONDALE	ENERGY	SHALE	7.0	583.0
-176.8	CARBONDALE	ENERGY	SANDSTONE	7.5	590.0
-184.3	CARBONDALE	ENERGY	GRAY SHALE	67.2	597.5
-251.5	CARBONDALE	HERRIN	COAL	6.4	664.7
-257.9	CARBONDALE		UNDERCLAY	1.5	671.1
-259.4	CARBONDALE		SHALE	32.7	672.6
-292.1	CARBONDALE	BRIAR HILL	COAL	0.8	705.3
-292.9	CARBONDALE		SHALE	10.4	706.1
-303.3	CARBONDALE	ST. DAVID	LIMESTONE	1.3	716.5
-304.6	CARBONDALE	TURNER MINE	BLACK SHALE	2.2	717.8
-306.8	CARBONDALE	DYKERSBURG	SHALE	1.0	720.0
-307.8	CARBONDALE	SPRINGFIELD	COAL	3.5	721.0

-311.3	CARBONDALE	UNDERCLAY	1.5	724.5
-312.8	CARBONDALE	SHALE	14.0	726.0

MAPID: 08190037000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.964645

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.139507

DATE COLLECTED: 6 / 9 / 1988

SURFACE ELEVATION (FT.): 409.5 LOGGED (FT.): 760.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL271

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
409.5	PLEISTOCENE		UNCONSOLIDATED	55.0	0.0
354.5	BOND		LIMESTONE	6.0	55.0
348.5	BOND		SANDSTONE	25.0	61.0
323.5	BOND		LIMESTONE	2.0	86.0
321.5	BOND		SANDSTONE	20.0	88.0
301.5	BOND		COAL	1.0	108.0
300.5	BOND		BLACK SHALE	2.0	109.0
298.5	BOND		SHALE	18.0	111.0
280.5	BOND		SANDSTONE	5.0	129.0
275.5	BOND		SILTSTONE	2.0	134.0
273.5	BOND		SANDSTONE	22.0	136.0
251.5	BOND		SHALE	34.0	158.0
217.5	BOND	CARTHAGE	LIMESTONE	6.0	192.0
211.5	MODESTO		BLACK SHALE	4.5	198.0
207.0	MODESTO		LIMESTONE	0.5	202.5
206.5	MODESTO		SHALE	19.0	203.0
187.5	MODESTO	WOMAC	COAL	1.0	222.0
186.5	MODESTO		SHALE	38.0	223.0
148.5	MODESTO		COAL	1.8	261.0
146.7	MODESTO		SHALE	45.2	262.8
101.5	MODESTO		LIMESTONE	3.0	308.0
98.5	MODESTO		SHALE	72.0	311.0
26.5	MODESTO		LIMESTONE	1.0	383.0
25.5	MODESTO		SHALE	3.3	384.0
22.2	MODESTO	CHAPEL	COAL	1.7	387.3
20.5	MODESTO		SHALE	129.0	389.0
-108.5	MODESTO		SILTSTONE	5.9	518.0
-114.4	MODESTO		SHALE	20.6	523.9
-135.0	MODESTO		BLACK SHALE	2.5	544.5
-137.5	MODESTO		SHALE	15.0	547.0
-152.5	MODESTO	PIASA	LIMESTONE	3.4	562.0
-155.9	MODESTO		SHALE	4.6	565.4
-160.5	CARBONDALE	DANVILLE	COAL	3.0	570.0
-163.5	CARBONDALE		SHALE	5.5	573.0
-169.0	CARBONDALE		SANDSTONE	66.5	578.5
-235.5	CARBONDALE	ENERGY	GRAY SHALE	21.6	645.0
-257.1	CARBONDALE	HERRIN	COAL	6.0	666.6
-263.1	CARBONDALE	HERRIN	SHALE	0.1	672.6
-263.2	CARBONDALE	HERRIN	COAL	0.3	672.7

-263.5	CARBONDALE		SILTSTONE	2.5	673.0	GREEN-GRAY
-266.1	CARBONDALE		SILTSTONE	2.4	675.6	
-268.5	CARBONDALE		CLAYSTONE	2.2	678.0	
-270.7	CARBONDALE		SILTY SHALE	16.8	680.2	
-287.5	CARBONDALE		SHALE	15.0	697.0	
-302.5	CARBONDALE	BRIAR HILL	COAL	1.0	712.0	
-303.5	CARBONDALE		SILTY SHALE	10.6	713.0	
-314.1	CARBONDALE	ST. DAVID	LIMESTONE	0.5	723.6	
-314.6	CARBONDALE	TURNER MINE	BLACK SHALE	4.4	724.1	
-319.0	CARBONDALE	SPRINGFIELD	COAL	3.9	728.5	
-322.9	CARBONDALE		SILTSTONE	0.7	732.4	
-323.6	CARBONDALE		SHALE	26.9	733.1	

MAPID: 08190038000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 35 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.949553

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.139781

DATE COLLECTED: 6 / 5 / 1988

SURFACE ELEVATION (FT.): 413.4 LOGGED (FT.): 730.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL270

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
413.4	PLEISTOCENE		UNCONSOLIDATED	22.4	0.0
391.0	PLEISTOCENE		CLAY	5.9	22.4
385.1	PLEISTOCENE		CLAY	20.0	28.3
365.1	PLEISTOCENE		SAND	8.2	48.3
356.9	PLEISTOCENE		GRAVEL	11.5	56.5
345.4	BOND		SHALE	3.6	68.0
341.8	BOND		SANDSTONE	18.4	71.6
323.4	BOND		LIMESTONE	2.5	90.0
320.9	BOND		SHALE	3.5	92.5
317.4	BOND		COAL	2.0	96.0
315.4	BOND		SHALE	81.0	98.0
234.4	BOND	CARTHAGE	LIMESTONE	5.2	179.0
229.2	MODESTO		BLACK SHALE	4.8	184.2
224.4	MODESTO		SHALE	76.0	189.0
148.4	MODESTO		BLACK SHALE	4.2	265.0
144.2	MODESTO		SANDY SHALE	30.8	269.2
113.4	MODESTO		SHALE	70.4	300.0
43.0	MODESTO		BLACK SHALE	2.6	370.4
40.4	MODESTO		SHALE	2.0	373.0
38.4	MODESTO	CHAPEL	COAL	1.3	375.0
37.1	MODESTO		SHALE	25.7	376.3
11.4	MODESTO		SILTY SHALE	80.0	402.0
-68.6	MODESTO		SHALE	41.0	482.0
-109.6	MODESTO		BLACK SHALE	4.3	523.0
-113.9	MODESTO		SHALE	20.7	527.3
-134.6	MODESTO	PIASA	LIMESTONE	4.0	548.0
-138.6	MODESTO		SHALE	4.0	552.0
-142.6	MODESTO		BLACK SHALE	1.3	556.0
-143.9	CARBONDALE	DANVILLE	COAL	1.2	557.3
-145.1	CARBONDALE	ENERGY	SILTY SHALE	9.5	558.5
-154.6	CARBONDALE	ENERGY	SANDY SHALE	7.0	568.0
-161.6	CARBONDALE	ENERGY	SHALE WITH LIMESTONE	13.0	575.0
-174.6	CARBONDALE	ENERGY	SILTY SHALE	47.0	588.0
-221.6	CARBONDALE	ENERGY	GRAY SHALE	6.7	635.0
-228.3	CARBONDALE	ENERGY	CORE LOSS	2.2	641.7
-230.5	CARBONDALE	ENERGY	GRAY SHALE	9.9	643.9
-240.4	CARBONDALE	HERRIN	COAL	6.2	653.8
-246.5	CARBONDALE		UNDERCLAY	1.1	659.9
-247.6	CARBONDALE		SHALE	32.0	661.0

-279.6	CARBONDALE	BRIAR HILL	COAL	1.2	693.0
-280.8	CARBONDALE		SHALE	5.8	694.2
-286.6	CARBONDALE		SANDY SHALE	4.0	700.0
-290.6	CARBONDALE	ST. DAVID	LIMESTONE	2.0	704.0
-292.6	CARBONDALE	TURNER MINE	BLACK SHALE	4.5	706.0
-297.1	CARBONDALE	SPRINGFIELD	COAL	2.5	710.5
-299.6	CARBONDALE		SHALE	15.8	713.0
-315.4	CARBONDALE		LIMESTONE	1.2	728.8

MAPID: 08100084000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 2E **SECTION:** 36 **QUARTERS/FOOTAGES:** NE NW
QUADRANGLE: INA **LONGITUDE:** -88.94241 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.138057 **DATE COLLECTED:** 0 / 0 / 1918
SURFACE ELEVATION (FT.): 390.0 **LOGGED (FT.):** 663.0 **LOG TYPE:**
SOURCE: NO COMPANY 32 **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-261.0	CARBONDALE	HERRIN	COAL	6.3	651.0

MAPID: 08100084000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 36 QUARTERS/FOOTAGES: NE NW

QUADRANGLE: INA LONGITUDE: -88.94241 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.138057 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 394.0 LOGGED (FT.): 663.0 LOG TYPE: Drillers Log

SOURCE: GEO. THRELKELD WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
394.0			UNCONSOLIDATED	52.0	0.0	
342.0			ROCK	50.0	52.0	
292.0			COAL	0.6	102.0	
291.4			ROCK	107.4	102.6	
184.0			COAL	0.8	210.0	
183.2			ROCK	10.1	210.8	
173.1			COAL	0.3	220.9	
172.7			ROCK	155.7	221.3	
17.0			COAL	0.8	377.0	
16.2			ROCK	159.0	377.8	
-142.8			COAL	0.8	536.8	
-143.6			ROCK	30.4	537.6	
-174.0			COAL	2.3	568.0	
-176.3			ROCK	29.7	570.3	
-206.0			SHALE	51.0	600.0	
-257.0	CARBONDALE	HERRIN	COAL	6.4	651.0	
-263.4			UNDERCLAY	2.6	657.4	
-266.0			ROCK	0.0	660.0	

MAPID: 08100796000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 36 QUARTERS/FOOTAGES: SE SW NE

QUADRANGLE: INA LONGITUDE: -88.936597 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.133603 DATE COLLECTED:

SURFACE ELEVATION (FT.): 411.0 LOGGED (FT.): 678.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-179.0	MODESTO	PIASA	LIMESTONE	6.0	590.0
-185.0	MODESTO		GRAY SHALE	7.0	596.0
-192.0	CARBONDALE	DANVILLE	COAL	2.0	603.0
-194.0	CARBONDALE		SHALE & SANDSTONE	19.0	605.0
-213.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	20.0	624.0
-233.0	CARBONDALE	BRERETON	LIMESTONE	4.0	644.0
-237.0	CARBONDALE	ANNA	BLACK SHALE	2.0	648.0
-239.0	CARBONDALE	ENERGY	GRAY SHALE	40.0	650.0
-261.0	CARBONDALE	HERRIN	COAL	6.0	672.0

MAPID: 08190027000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 36 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.945099 GEOLOGIST: NORTH
 CONFIDENTIAL: N LATITUDE: 38.134868 DATE COLLECTED: 8 / 10 / 1989
 SURFACE ELEVATION (FT.): 413.6 LOGGED (FT.): 765.0 LOG TYPE: Drillers Log
 SOURCE: CONSOLIDATION COAL CO 88RL331 WELL TYPE: Coal Test
 COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
413.6	PLEISTOCENE		UNCONSOLIDATED	67.0	0.0
346.6	BOND		SANDSTONE	49.0	67.0
297.6	BOND		GRAY SHALE	75.0	116.0
222.6	BOND	CARTHAGE	LIMESTONE	8.0	191.0
214.6	MODESTO		BLACK SHALE	4.0	199.0
210.6	MODESTO		GRAY SHALE	22.0	203.0
188.6	MODESTO	NEW HAVEN	COAL	1.0	225.0
187.6	MODESTO		GRAY SHALE	195.0	226.0
-7.4	MODESTO		SANDSTONE	11.0	421.0
-18.4	MODESTO		GRAY SHALE	97.0	432.0
-115.4	MODESTO		LIMESTONE	2.0	529.0
-117.4	MODESTO		GRAY SHALE	23.0	531.0
-140.4	MODESTO		BLACK SHALE	3.5	554.0
-143.9	MODESTO		GRAY SHALE	16.5	557.5
-160.4	MODESTO	PIASA	LIMESTONE	6.0	574.0
-166.4	MODESTO		BLACK SHALE	1.0	580.0
-167.4	MODESTO		GRAY SHALE	2.5	581.0
-169.9	CARBONDALE	DANVILLE	COAL	2.0	583.5
-171.9	CARBONDALE		GRAY SHALE	12.5	585.5
-184.4	CARBONDALE	ANVIL ROCK	SANDSTONE	4.5	598.0
-188.9	CARBONDALE	BRERETON	LIMESTONE	2.5	602.5
-191.4	CARBONDALE		GRAY SHALE	6.5	605.0
-197.9	CARBONDALE	ANNA	BLACK SHALE	2.0	611.5
-199.9	CARBONDALE	ENERGY	SANDY SHALE	36.8	613.5
-236.7	CARBONDALE	ENERGY	GRAY SHALE	20.8	650.3
-257.4	CARBONDALE	HERRIN	COAL	6.0	671.0
-263.4	CARBONDALE	HERRIN	SHALE	0.1	677.0
-263.5	CARBONDALE	HERRIN	COAL	0.2	677.1
-263.7	CARBONDALE		UNDERCLAY	3.9	677.3
-267.5	CARBONDALE		GRAY SHALE	1.3	681.1
-268.8	CARBONDALE		SANDSTONE	4.1	682.4
-272.9	CARBONDALE		GRAY SHALE	26.5	686.5
-299.4	CARBONDALE		SANDY SHALE	1.0	713.0
-300.4	CARBONDALE	BRIAR HILL	COAL	1.0	714.0
-301.4	CARBONDALE		GRAY SHALE	13.5	715.0
-314.9	CARBONDALE	TURNER MINE	BLACK SHALE	3.0	728.5
-317.9	CARBONDALE	SPRINGFIELD	COAL	4.0	731.5
-321.9	CARBONDALE		GRAY SHALE	29.5	735.5

MAPID: 08190031000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 2E SECTION: 36 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.949258

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.128502

DATE COLLECTED: 9 / 1 / 1988

SURFACE ELEVATION (FT.): 412.9 LOGGED (FT.): 763.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL289

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV#7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
412.9	PLEISTOCENE		UNCONSOLIDATED	43.5	0.0
369.4	BOND		SANDSTONE	71.3	43.5
298.1	BOND		LIMESTONE	1.2	114.8
296.9	BOND		SHALE	80.4	116.0
216.5	BOND	CARTHAGE	LIMESTONE	5.6	196.4
210.9	MODESTO		BLACK SHALE	4.5	202.0
206.4	MODESTO		SHALE	66.6	206.5
139.8	MODESTO		BLACK SHALE	3.8	273.1
136.0	MODESTO		SANDY SHALE	12.1	276.9
123.9	MODESTO		GRAY SHALE	91.8	289.0
32.1	MODESTO		BLACK SHALE	1.2	380.8
30.9	MODESTO		GRAY SHALE	3.5	382.0
27.4	MODESTO	CHAPEL	COAL	0.5	385.5
26.9	MODESTO		UNDERCLAY	2.0	386.0
24.9	MODESTO		LIMESTONE	2.0	388.0
22.9	MODESTO		GRAY SHALE	12.0	390.0
10.9	MODESTO		SANDY SHALE	30.9	402.0
-20.0	MODESTO		GRAY SHALE	112.9	432.9
-132.9	MODESTO		BLACK SHALE	2.2	545.8
-135.1	MODESTO		GRAY SHALE	21.8	548.0
-156.9	MODESTO	PIASA	LIMESTONE	3.2	569.8
-160.1	MODESTO		GRAY SHALE	5.5	573.0
-165.6	CARBONDALE	DANVILLE	COAL	1.5	578.5
-167.1	CARBONDALE		GRAY SHALE	17.0	580.0
-184.1	CARBONDALE	BANKSTON FORK	LIMESTONE	2.8	597.0
-186.9	CARBONDALE		SANDY SHALE	5.0	599.8
-191.9	CARBONDALE		BLACK SHALE	3.1	604.8
-195.0	CARBONDALE	ENERGY	GRAY SHALE	62.5	607.9
-257.5	CARBONDALE	ENERGY	COAL	0.1	670.4
-257.5	CARBONDALE	ENERGY	GRAY SHALE	1.9	670.4
-259.4	CARBONDALE	HERRIN	COAL	5.9	672.3
-265.2	CARBONDALE	HERRIN	GRAY SHALE	0.1	678.1
-265.3	CARBONDALE	HERRIN	COAL	0.5	678.2
-265.8	CARBONDALE		UNDERCLAY	2.0	678.7
-267.8	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.1	680.7
-268.9	CARBONDALE		GRAY SHALE	25.2	681.8
-294.1	CARBONDALE	BRIAR HILL	COAL	1.0	707.0
-295.1	CARBONDALE		GRAY SHALE	12.8	708.0
-307.9	CARBONDALE	ST. DAVID	LIMESTONE	0.6	720.8

-308.5	CARBONDALE	TURNER MINE	BLACK SHALE	3.1	721.4
-311.6	CARBONDALE	SPRINGFIELD	COAL	4.5	724.5
-316.1	CARBONDALE		UNDERCLAY	2.6	729.0
-318.7	CARBONDALE		LIMESTONE	1.4	731.6
-320.1	CARBONDALE		GRAY SHALE	30.0	733.0

MAPID: 08101226000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' N line, 990' W line of NE NW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.86182 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.213585 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 447.0 **LOGGED (FT.):** 2825.0 **LOG TYPE:**
SOURCE: STRICKLAND, FRANK L. **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-293.0	CARBONDALE	HERRIN	COAL	5.0	740.0	
-341.0	CARBONDALE	BRIAR HILL	COAL	-	788.0	
-365.0	CARBONDALE	SPRINGFIELD	COAL	5.0	812.0	BLACK SHALE & LIMESTONE ROOF
-449.0	CARBONDALE	HOUCHIN CREEK	COAL	-	896.0	

MAPID: 08101619000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 3 **QUARTERS/FOOTAGES:** 630' N line, 330' E line
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.852947 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.212693 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 492.0 **LOGGED (FT.):** 796.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-235.0	MODESTO	PIASA	LIMESTONE	4.0	727.0	
-239.0	MODESTO		GRAY SHALE	5.0	731.0	
-244.0	CARBONDALE	DANVILLE	COAL	1.0	736.0	
-245.0	CARBONDALE		SHALE & SANDSTONE	18.0	737.0	
-263.0	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	5.0	755.0	
-268.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	12.0	760.0	
-280.0	CARBONDALE	ENERGY	GRAY SHALE	25.0	772.0	
-300.0	CARBONDALE	HERRIN	COAL	4.0	792.0	

MAPID: 08101228000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: INA **LONGITUDE:** -88.906822 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.199337 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 439.0 **LOGGED (FT.):** 2460.0 **LOG TYPE:**
SOURCE: PRUETT T M **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-335.0	CARBONDALE	HERRIN	COAL	6.0	774.0	
-391.0	CARBONDALE	BRIAR HILL	COAL	-	830.0	
-411.0	CARBONDALE	SPRINGFIELD	COAL	4.0	850.0	BLACK SHALE & LIMESTONE ROOF
-491.0	CARBONDALE	HOUCHIN CREEK	COAL	-	930.0	

MAPID: 08101228000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 5 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: INA **LONGITUDE:** -88.906822 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.199337 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 439.0 **LOGGED (FT.):** 777.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-289.0	MODESTO	PIASA	LIMESTONE	7.0	728.0	
-296.0	CARBONDALE		SHALE & SANDSTONE	11.0	735.0	
-307.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	746.0	
-313.0	CARBONDALE	ENERGY	GRAY SHALE	20.0	752.0	
-333.0	CARBONDALE	HERRIN	COAL	5.0	772.0	

MAPID: 08100088000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 7 **QUARTERS/FOOTAGES:** SE SW SW
QUADRANGLE: INA **LONGITUDE:** -88.925942 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.184901 **DATE COLLECTED:** 0 / 0 / 1916
SURFACE ELEVATION (FT.): 405.0 **LOGGED (FT.):** 710.0 **LOG TYPE:**
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-296.0	CARBONDALE	HERRIN	COAL	7.2	701.0	

MAPID: 08100813000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: INA LONGITUDE: -88.928837 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.197298 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 3000.0 LOG TYPE:

SOURCE: ROBINSON EDWARD T WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-315.0	CARBONDALE	HERRIN	COAL	6.0	740.0	
-363.0	CARBONDALE	BRIAR HILL	COAL	-	788.0	
-385.0	CARBONDALE	SPRINGFIELD	COAL	4.0	810.0	BLACK SHALE & LIMESTONE ROOF
-469.0	CARBONDALE	HOUCHIN CREEK	COAL	-	894.0	

MAPID: 08100813000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 7 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: INA LONGITUDE: -88.928837 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.197298 DATE COLLECTED:

SURFACE ELEVATION (FT.): 425.0 LOGGED (FT.): 744.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-245.0	MODESTO	PIASA	LIMESTONE	5.0	670.0	
-250.0	MODESTO		SHALE & SANDSTONE	15.0	675.0	
-265.0	CARBONDALE	DANVILLE	COAL	5.0	690.0	
-270.0	CARBONDALE		GRAY SHALE	3.0	695.0	
-273.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	698.0	UPPER BENCH
-279.0	CARBONDALE	BANKSTON FORK	SHALE	3.0	704.0	SHALE PARTING
-282.0	CARBONDALE	BANKSTON FORK	LIMESTONE	4.0	707.0	LOWER BENCH
-286.0	CARBONDALE	ENERGY	GRAY SHALE	2.2	711.0	
-288.2	CARBONDALE	ENERGY	SANDSTONE	3.9	713.2	
-292.1	CARBONDALE	ENERGY	GRAY SHALE	31.0	717.1	
-311.0	CARBONDALE	HERRIN	COAL	8.0	736.0	

MAPID: 08100500000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 10 QUARTERS/FOOTAGES: 334' N line, 330' E line of NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.862067 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.19888 DATE COLLECTED:

SURFACE ELEVATION (FT.): 447.0 LOGGED (FT.): 2943.0 LOG TYPE:

SOURCE: RUWALDT, E. J. DRILLING WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-307.0	CARBONDALE	HERRIN	COAL	6.0	754.0	
-355.0	CARBONDALE	BRIAR HILL	COAL	-	802.0	
-380.0	CARBONDALE	SPRINGFIELD	COAL	3.0	827.0	BLACK SHALE & LIMESTONE ROOF
-463.0	CARBONDALE	HOUCHIN CREEK	COAL	-	910.0	

MAPID: 08100500000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 10 QUARTERS/FOOTAGES: 334' N line, 330' E line of NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.862067 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.19888 DATE COLLECTED:

SURFACE ELEVATION (FT.): 447.0 LOGGED (FT.): 759.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-235.0	MODESTO	PIASA	LIMESTONE	5.0	682.0	
-240.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	687.0	
-246.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	23.0	693.0	
-269.0	CARBONDALE	ENERGY	GRAY SHALE	36.0	716.0	
-305.0	CARBONDALE	HERRIN	COAL	7.0	752.0	

MAPID: 08101701000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 15 QUARTERS/FOOTAGES: 330' S line, 300' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.853232

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.171479

DATE COLLECTED:

SURFACE ELEVATION (FT.): 508.0

LOGGED (FT.): 877.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-345.8	CARBONDALE	ANNA	BLACK SHALE	0.2	853.8
-346.0	CARBONDALE	ENERGY	GRAY SHALE	18.0	854.0
-364.0	CARBONDALE	HERRIN	COAL	5.0	872.0
-416.0	CARBONDALE	BRIAR HILL	COAL	0.0	924.0
-290.8	CARBONDALE		GRAY SHALE	35.0	798.8
-442.0	CARBONDALE	SPRINGFIELD	BLACK SHALE & LIMESTONE	5.0	950.0
-499.0	CARBONDALE	HOUCHIN CREEK	COAL	0.0	1007.0
-325.8	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	833.8
-330.8	CARBONDALE	LAWSON	CALCAREOUS SHALE	15.0	838.8
-365.0	CARBONDALE	HERRIN	COAL	4.0	873.0

MAPID: 08100071000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 16 QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: INA LONGITUDE: -88.881266

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.170976

DATE COLLECTED: 0 / 0 / 1923

SURFACE ELEVATION (FT.): 483.4

LOGGED (FT.): 793.0

LOG TYPE:

SOURCE: AB MILLNER 0001

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-301.6	CARBONDALE	HERRIN	COAL	5.0	785.0

MAPID: 08100071000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 16

QUARTERS/FOOTAGES: SE SE SW

QUADRANGLE: INA

LONGITUDE: -88.881266

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.170976

DATE COLLECTED: 1 / 0 / 1923

SURFACE ELEVATION (FT.): 483.0

LOGGED (FT.): 792.8

LOG TYPE: Drillers Log

SOURCE: E. W. BROOKS

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
483.0			UNCONSOLIDATED	17.6	0.0	
465.4			ROCK	37.9	17.6	
427.5			COAL	0.5	55.5	
427.0			ROCK	56.0	56.0	
371.0			COAL	1.0	112.0	
370.0			ROCK	54.0	113.0	
316.0			COAL	1.0	167.0	
315.0			ROCK	12.0	168.0	
303.0			COAL	1.0	180.0	
302.0			ROCK	153.7	181.0	
148.3			COAL	0.3	334.7	
148.0			ROCK	193.0	335.0	
-45.0			COAL	1.0	528.0	
-46.0			ROCK	170.7	529.0	
-216.7			COAL	0.9	699.7	
-217.6			ROCK	17.4	700.6	
-235.0			COAL	1.0	718.0	
-236.0			ROCK	34.0	719.0	
-270.0			LIMESTONE	10.0	753.0	
-280.0			SHALE	16.7	763.0	SANDY
-296.7			LIMESTONE	4.6	779.7	
-301.3			BLACK SHALE	0.2	784.3	
-301.5	CARBONDALE	HERRIN	COAL	5.0	784.5	
-306.5	CARBONDALE		UNDERCLAY	2.5	789.5	
-309.0	CARBONDALE		ROCK	0.8	792.0	

MAPID: 08100072000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 16

QUARTERS/FOOTAGES: NE NW NE

QUADRANGLE: INA

LONGITUDE: -88.876342

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.183848

DATE COLLECTED: 0 / 0 / 1928

SURFACE ELEVATION (FT.): 448.0

LOGGED (FT.): 2028.0

LOG TYPE:

SOURCE: LIST 0001

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-325.0	CARBONDALE	HERRIN	COAL	8.0	773.0	

MAPID: 08100812000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** 330' S line, 330' E line of NW
QUADRANGLE: INA **LONGITUDE:** -88.881123 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.178228 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 463.0 **LOGGED (FT.):** 3084.0 **LOG TYPE:**
SOURCE: CHERRY, KIDD & BARRON **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-329.0	CARBONDALE	HERRIN	COAL	5.0	792.0	
-363.0	CARBONDALE	BRIAR HILL	COAL	-	826.0	
-392.0	CARBONDALE	SPRINGFIELD	COAL	5.0	855.0	BLACK SHALE & LIMESTONE ROOF
-469.0	CARBONDALE	HOUCHIN CREEK	COAL	-	932.0	

MAPID: 08102802000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 16 **QUARTERS/FOOTAGES:** NW NE NW
QUADRANGLE: INA **LONGITUDE:** -88.88341 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.183557 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 452.0 **LOGGED (FT.):** 796.3 **LOG TYPE:** Survey Core Study
SOURCE: CONSOLIDATION C.C. IN-5 **WELL TYPE:** Coal Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-333.3	CARBONDALE	BRERETON	LIMESTONE	3.6	785.3	
-336.9	CARBONDALE	ANNA	BLACK SHALE	1.1	788.9	
-338.0	CARBONDALE	HERRIN	COAL	6.3	790.0	

MAPID: 08100965000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 17 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: INA **LONGITUDE:** -88.890634 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.170623 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 438.0 **LOGGED (FT.):** 2986.0 **LOG TYPE:**
SOURCE: ADAMS, WALTER **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-326.0	CARBONDALE	HERRIN	COAL	6.0	764.0	
-366.0	CARBONDALE	BRIAR HILL	COAL	-	804.0	
-392.0	CARBONDALE	SPRINGFIELD	COAL	3.0	830.0	SHALE & SILTSTONE ROOF
-470.0	CARBONDALE	HOUCHIN CREEK	COAL	-	908.0	

MAPID: 08100965000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 17 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.890634

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.170623

DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0

LOGGED (FT.): 768.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-257.0	MODESTO	PIASA	LIMESTONE	5.0	695.0
-262.0	MODESTO		SILTY SHALE	11.0	700.0
-273.0	CARBONDALE	DANVILLE	COAL	4.0	711.0
-277.0	CARBONDALE		SHALE	9.0	715.0
-286.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	724.0
-293.0	CARBONDALE		SHALE	11.0	731.0
-304.0	CARBONDALE	BRERETON	CALCAREOUS SHALE	7.0	742.0
-311.0	CARBONDALE	ENERGY	GRAY SHALE	14.0	749.0
-325.0	CARBONDALE	HERRIN	COAL	5.0	763.0

MAPID: 08100073000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 19 QUARTERS/FOOTAGES: SW NW SE

QUADRANGLE: INA LONGITUDE: -88.917962

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.159277

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 423.2

LOGGED (FT.): 710.0

LOG TYPE:

SOURCE: PEABODY 1

WELL TYPE: Coal Test

COMMENT: SURFACE ELEVATION UNCERTAIN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-235.8	CARBONDALE	HERRIN	COAL	5.8	659.0
-284.8	CARBONDALE	SPRINGFIELD	COAL	1.0	708.0

MAPID: 08100073000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 19

QUARTERS/FOOTAGES: SW NW SE

QUADRANGLE: INA

LONGITUDE: -88.917962

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.159277

DATE COLLECTED: 1 / 0 / 1918

SURFACE ELEVATION (FT.): 423.0

LOGGED (FT.): 709.7

LOG TYPE: Drillers Log

SOURCE: PEABODY C C

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
423.0			UNCONSOLIDATED	24.0	0.0
399.0			ROCK	390.0	24.0
9.0			COAL	0.8	414.0
8.2			ROCK	158.7	414.8
-150.5			COAL	1.0	573.5
-151.5			ROCK	55.0	574.5
-206.5			SHALE	15.5	629.5
-222.0			BLACK SHALE	13.5	645.0
-235.5	CARBONDALE	HERRIN	COAL	5.8	658.5
-241.3	CARBONDALE		UNDERCLAY	3.0	664.3
-244.3	CARBONDALE		ROCK	40.5	667.3
-284.8	CARBONDALE		COAL	1.0	707.8
-285.8	CARBONDALE		ROCK	0.8	708.8

MAPID: 08101072000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 19

QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SW

QUADRANGLE: INA

LONGITUDE: -88.923613

GEOLOGIST: HOPKINS

CONFIDENTIAL: N

LATITUDE: 38.155653

DATE COLLECTED:

SURFACE ELEVATION (FT.): 407.0

LOGGED (FT.): 3264.0

LOG TYPE:

SOURCE: KEYSTONE OIL CO

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-241.0	CARBONDALE	HERRIN	COAL	4.0	648.0
-290.0	CARBONDALE	BRIAR HILL	COAL	-	697.0
-312.0	CARBONDALE	SPRINGFIELD	COAL	4.0	719.0
-391.0	CARBONDALE	HOUCHIN CREEK	COAL	-	798.0

BLACK SHALE & LIMESTONE ROOF

MAPID: 08101229000C **VERSION:** 1 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 19 **QUARTERS/FOOTAGES:** 330' N line, 330' W line
QUADRANGLE: INA **LONGITUDE:** -88.929208 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.168344 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 410.0 **LOGGED (FT.):** 669.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-182.0	MODESTO	PIASA	LIMESTONE	6.0	592.0	
-188.0	CARBONDALE		SHALE & SANDSTONE	25.0	598.0	
-213.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	623.0	
-218.0	CARBONDALE	ENERGY	GRAY SHALE	37.0	628.0	
-254.0	CARBONDALE	HERRIN	COAL	5.0	664.0	

MAPID: 08101003000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: INA **LONGITUDE:** -88.907268 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.155672 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 3030.0 **LOG TYPE:**
SOURCE: NAT'L. ASSOC. PETRO. CO. **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-303.0	CARBONDALE	HERRIN	COAL	6.0	754.0	
-354.0	CARBONDALE	BRIAR HILL	COAL	-	805.0	
-376.0	CARBONDALE	SPRINGFIELD	COAL	4.0	827.0	BLACK SHALE & LIMESTONE ROOF
-455.0	CARBONDALE	HOUCHIN CREEK	COAL	-	906.0	

MAPID: 08101003000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 20 **QUARTERS/FOOTAGES:** 330' S line, 330' W line
QUADRANGLE: INA **LONGITUDE:** -88.907268 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.155672 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 451.0 **LOGGED (FT.):** 755.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-229.0	MODESTO	PIASA	LIMESTONE	4.0	680.0	
-233.0	CARBONDALE		SHALE & SANDSTONE	23.0	684.0	
-256.0	CARBONDALE	BANKSTON FORK	LIMESTONE	6.0	707.0	
-262.0	CARBONDALE	ANNA	BLACK SHALE	3.0	713.0	
-265.0	CARBONDALE	ENERGY	GRAY SHALE	35.0	716.0	
-299.0	CARBONDALE	HERRIN	COAL	5.0	750.0	

MAPID: 08100074000C **VERSION:** 1 **PROJECT:** CIRC 24
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE SE SW
QUADRANGLE: INA **LONGITUDE:** -88.881499 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.158151 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 471.2 **LOGGED (FT.):** 766.0 **LOG TYPE:**
SOURCE: AB MILLNER 0002 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-287.8	CARBONDALE	HERRIN	COAL	5.5	759.0	

MAPID: 08100074000C **VERSION:** 2 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 21 **QUARTERS/FOOTAGES:** NE SE SW
QUADRANGLE: INA **LONGITUDE:** -88.881499 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.158151 **DATE COLLECTED:** 0 / 0 / 1923
SURFACE ELEVATION (FT.): 471.0 **LOGGED (FT.):** 766.5 **LOG TYPE:** Drillers Log
SOURCE: E. W. BROOKS **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
471.0			UNCONSOLIDATED	23.3	0.0	
447.7			ROCK	646.5	23.3	
-198.8			COAL	0.8	669.8	
-199.7			ROCK	22.3	670.7	
-222.0			COAL	1.0	693.0	
-223.0			ROCK	42.0	694.0	
-265.0			SHALE	23.4	736.0	SANDY,DARK
-288.4	CARBONDALE	HERRIN	COAL	5.5	759.4	
-293.8	CARBONDALE		CLAYSTONE & SHALE	1.6	764.8	

MAPID: 08100810000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 23 **QUARTERS/FOOTAGES:** 339' N line, 1003' E line
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.837038 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.169805 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 467.0 **LOGGED (FT.):** 3187.0 **LOG TYPE:**
SOURCE: SHELL OIL COMPANY **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-318.0	CARBONDALE	HERRIN	COAL	5.0	785.0	
-366.0	CARBONDALE	BRIAR HILL	COAL	-	833.0	
-397.0	CARBONDALE	SPRINGFIELD	COAL	4.0	864.0	BLACK SHALE & LIMESTONE ROOF
-476.0	CARBONDALE	HOUCHIN CREEK	COAL	-	943.0	

MAPID: 08100810000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 23 QUARTERS/FOOTAGES: 339' N line, 1003' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.837038

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.169805

DATE COLLECTED:

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 792.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-248.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	715.0	
-253.0	CARBONDALE		SHALE & SANDSTONE	56.0	720.0	
-309.0	CARBONDALE	BRERETON	LIMESTONE	6.0	776.0	
-315.0	CARBONDALE	ANNA	BLACK SHALE	4.0	782.0	
-319.0	CARBONDALE	HERRIN	COAL	6.0	786.0	

MAPID: 08101099000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 24 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.818731

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.156504

DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0 LOGGED (FT.): 3207.0

LOG TYPE:

SOURCE: SKILES OIL CORP

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-311.0	CARBONDALE	HERRIN	COAL	4.0	776.0	
-390.0	CARBONDALE	SPRINGFIELD	COAL	5.0	855.0	BLACK SHALE & LIMESTONE ROOF
-457.0	CARBONDALE	HOUCHIN CREEK	COAL	-	922.0	

MAPID: 081255A0004F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 26 QUARTERS/FOOTAGES: SE SW SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.849207

GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.142208

DATE COLLECTED: 0 / 0 / 1949

SURFACE ELEVATION (FT.): 450.0 LOGGED (FT.): 2.8

LOG TYPE: Measured section

SOURCE: FLD NOTES-WILLIAMS

WELL TYPE: Outcrop

COMMENT: FROM WORTHEN REPT. VIII. NOT SEEN

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
450.0			UNCONSOLIDATED	-	0.0	
-			SHALE	1.5		
-			COAL	1.3		MINED IN THIS AREA
-			UNDERCLAY	-		

MAPID: 08102803000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 29 QUARTERS/FOOTAGES: SW NE NE

QUADRANGLE: INA LONGITUDE: -88.893353 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.152286 DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0 LOGGED (FT.): 680.5 LOG TYPE: Survey Core Study

SOURCE: CONSOLIDATION C.C. IN-2 WELL TYPE: Coal Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-212.8	CARBONDALE	BANKSTON FORK	LIMESTONE	5.5	650.8
-218.3	CARBONDALE	ENERGY	GRAY SHALE	12.8	656.3
-231.0	CARBONDALE	ENERGY	GRAY SHALE	3.3	669.0
-234.3	CARBONDALE	ENERGY	LIMESTONE/UNDERCLAY	1.4	672.3
-235.7	CARBONDALE	ENERGY	GRAY SHALE	1.3	673.7
-237.0	CARBONDALE	HERRIN	COAL	5.5	675.0

MAPID: 08100089000C VERSION: 1

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 30 QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: INA LONGITUDE: -88.915474 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.141093 DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 420.0 LOGGED (FT.): 702.0 LOG TYPE:

SOURCE: NO COMPANY 1 WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-226.0	CARBONDALE	HERRIN	COAL	4.8	646.0

MAPID: 08100089000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 30

QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: INA

LONGITUDE: -88.915474

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.141093

DATE COLLECTED: 0 / 0 / 1918

SURFACE ELEVATION (FT.): 420.0

LOGGED (FT.): 701.8

LOG TYPE: Drillers Log

SOURCE: J. BRENNAN, DRILLER

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
420.0			UNCONSOLIDATED	20.3	0.0	
399.7			ROCK	95.2	20.3	
304.5			COAL	0.3	115.5	BONY
304.2			ROCK	285.2	115.8	
19.0			COAL	0.8	401.0	
18.2			ROCK	163.2	401.8	
-145.0			COAL	1.0	565.0	
-146.0			ROCK	16.9	566.0	
-162.9			COAL	1.8	582.9	
-164.7			ROCK	20.3	584.7	
-185.0			LIMESTONE	9.5	605.0	
-194.5			BLACK SHALE	10.5	614.5	
-205.0			SHALE	21.0	625.0	
-226.0			COAL	4.8	646.0	
-230.8			UNDERCLAY	1.1	650.8	
-231.9			ROCK	49.9	651.9	

MAPID: 08101231000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON

TWP/RNG: 4S 3E

SECTION: 30

QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA

LONGITUDE: -88.90959

GEOLOGIST: HOPKINS

CONFIDENTIAL: N

LATITUDE: 38.153828

DATE COLLECTED:

SURFACE ELEVATION (FT.): 407.0

LOGGED (FT.): 2853.0

LOG TYPE:

SOURCE: REDWINE NASH ETAL

WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-240.0	CARBONDALE	HERRIN	COAL	4.0	647.0	
-296.0	CARBONDALE	BRIAR HILL	COAL	-	703.0	
-316.0	CARBONDALE	SPRINGFIELD	COAL	4.0	723.0	BLACK SHALE & LIMESTONE ROOF
-395.0	CARBONDALE	HOUCHIN CREEK	COAL	-	802.0	

MAPID: 08101231000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 30 QUARTERS/FOOTAGES: 330' N line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.90959 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.153828 DATE COLLECTED:

SURFACE ELEVATION (FT.): 407.0 LOGGED (FT.): 648.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-160.0	MODESTO	PIASA	LIMESTONE	5.0	567.0	
-165.0	MODESTO		SHALE	7.0	572.0	
-172.0	CARBONDALE	DANVILLE	COAL	3.0	579.0	
-175.0	CARBONDALE		SHALE & SANDSTONE	20.0	582.0	
-195.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	602.0	
-200.0	CARBONDALE	ENERGY	GRAY SHALE	36.0	607.0	
-236.0	CARBONDALE	HERRIN	COAL	5.0	643.0	

MAPID: 08101017000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: INA LONGITUDE: -88.90971 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.126555 DATE COLLECTED:

SURFACE ELEVATION (FT.): 429.0 LOGGED (FT.): 2953.0 LOG TYPE:

SOURCE: REDWINE NASH ETAL WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-248.0	CARBONDALE	HERRIN	COAL	5.0	677.0	
-291.0	CARBONDALE	BRIAR HILL	COAL	-	720.0	
-314.0	CARBONDALE	SPRINGFIELD	COAL	3.0	743.0	BLACK SHALE & LIMESTONE ROOF
-391.0	CARBONDALE	HOUCHIN CREEK	COAL	-	820.0	

MAPID: 08101017000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 31 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: INA

LONGITUDE: -88.90971

GEOLOGIST:

CONFIDENTIAL: N

LATITUDE: 38.126555

DATE COLLECTED:

SURFACE ELEVATION (FT.): 429.0

LOGGED (FT.): 682.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-169.0	MODESTO	PIASA	LIMESTONE	5.0	598.0
-174.0	MODESTO		SHALE	7.0	603.0
-181.0	CARBONDALE	DANVILLE	COAL	3.0	610.0
-184.0	CARBONDALE		SILTY SHALE	19.0	613.0
-203.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	632.0
-210.0	CARBONDALE	BRERETON	SANDSTONE	5.0	639.0
-215.0	CARBONDALE	ANNA	BLACK SHALE	2.0	644.0
-217.0	CARBONDALE	ENERGY	GRAY SHALE	30.0	646.0
-248.0	CARBONDALE	HERRIN	COAL	5.0	677.0

MAPID: 08190033000C VERSION: 1

PROJECT: LUMP

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 31 QUARTERS/FOOTAGES:

QUADRANGLE: INA LONGITUDE: -88.930484

GEOLOGIST: NORTH

CONFIDENTIAL: N LATITUDE: 38.152153

DATE COLLECTED: 8 / 22 / 1988

SURFACE ELEVATION (FT.): 411.8 LOGGED (FT.): 743.0

LOG TYPE: Drillers Log

SOURCE: CONSOLIDATION COAL CO 88RL285

WELL TYPE: Coal Test

COMMENT: PERMIT #43 REV #7 RENDLAKE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
411.8	PLEISTOCENE		UNCONSOLIDATED	60.0	0.0
351.8	BOND		SANDSTONE	56.4	60.0
295.4	BOND		GRAY SHALE	12.5	116.4
282.9	BOND		SANDY SHALE	16.7	128.9
266.2	BOND		GRAY SHALE	40.9	145.6
225.3	BOND	CARTHAGE	LIMESTONE	7.7	186.5
217.6	MODESTO		BLACK SHALE	3.8	194.2
213.8	MODESTO		GRAY SHALE	36.5	198.0
177.3	MODESTO		SANDY SHALE	22.7	234.5
154.6	MODESTO		GRAY SHALE	19.3	257.2
135.3	MODESTO		BLACK SHALE	2.5	276.5
132.8	MODESTO		SANDY SHALE	80.2	279.0
52.6	MODESTO		GRAY SHALE	47.2	359.2
5.4	MODESTO		SANDSTONE	23.6	406.4
-18.2	MODESTO		SANDY SHALE	82.2	430.0
-100.4	MODESTO		GRAY SHALE	12.8	512.2
-113.2	MODESTO		LIMESTONE	2.9	525.0
-116.1	MODESTO		GRAY SHALE	24.0	527.9
-140.1	MODESTO		BLACK SHALE	2.7	551.9
-142.8	MODESTO		GRAY SHALE	10.1	554.6
-152.9	MODESTO	PIASA	LIMESTONE	3.1	564.7
-156.0	MODESTO		GRAY SHALE	3.8	567.8
-159.8	MODESTO		BLACK SHALE	1.6	571.6
-161.4	CARBONDALE	DANVILLE	COAL	1.1	573.2
-162.5	CARBONDALE		GRAY SHALE	5.7	574.3
-168.2	CARBONDALE		SANDSTONE	2.2	580.0
-170.4	CARBONDALE		GRAY SHALE	5.8	582.2
-176.2	CARBONDALE		SANDSTONE	7.9	588.0
-184.1	CARBONDALE	BANKSTON FORK	LIMESTONE	3.8	595.9
-187.9	CARBONDALE		GRAY SHALE	6.3	599.7
-194.2	CARBONDALE	ENERGY	SANDSTONE	13.2	606.0
-207.4	CARBONDALE	ENERGY	SANDY SHALE	13.6	619.2
-221.0	CARBONDALE	ENERGY	GRAY SHALE	12.6	632.8
-233.6	CARBONDALE	HERRIN	COAL	5.7	645.4
-239.2	CARBONDALE		UNDERCLAY	1.9	651.0
-241.2	CARBONDALE	HIGGINSVILLE	LIMESTONE	1.9	653.0
-243.1	CARBONDALE		SANDY SHALE	7.3	654.9
-250.4	CARBONDALE		GRAY SHALE	33.9	662.2
-284.3	CARBONDALE	BRIAR HILL	COAL	0.9	696.1

-285.2	CARBONDALE		GRAY SHALE	14.4	697.0
-299.6	CARBONDALE	ST. DAVID	LIMESTONE	1.5	711.4
-301.1	CARBONDALE	TURNER MINE	BLACK SHALE	3.1	712.9
-304.2	CARBONDALE	SPRINGFIELD	COAL	3.4	716.0
-307.6	CARBONDALE		UNDERCLAY	3.0	719.4
-310.6	CARBONDALE		SANDY SHALE	20.6	722.4

MAPID: 08100412000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: INA **LONGITUDE:** -88.891387 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.126824 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 3033.0 **LOG TYPE:**
SOURCE: NATIONAL PETROLEUM CORP. **WELL TYPE:**
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-242.0	CARBONDALE	HERRIN	COAL	5.0	660.0	
-318.0	CARBONDALE	SPRINGFIELD	COAL	4.0	736.0	BLACK SHALE & LIMESTONE ROOF
-388.0	CARBONDALE	HOUCHIN CREEK	COAL	-	806.0	

MAPID: 08100412000C **VERSION:** 2 **PROJECT:** ROOF STUDY
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 32 **QUARTERS/FOOTAGES:** 330' S line, 330' E line
QUADRANGLE: INA **LONGITUDE:** -88.891387 **GEOLOGIST:**
CONFIDENTIAL: N **LATITUDE:** 38.126824 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 418.0 **LOGGED (FT.):** 665.0 **LOG TYPE:** Electric Log
SOURCE: **WELL TYPE:** Oil and Gas Test
COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-166.0	MODESTO	PIASA	LIMESTONE	8.0	584.0	
-174.0	MODESTO		SHALE	7.0	592.0	
-181.0	CARBONDALE	DANVILLE	COAL	4.0	599.0	
-185.0	CARBONDALE		SHALE & SANDSTONE	19.0	603.0	
-204.0	CARBONDALE	BANKSTON FORK	LIMESTONE	8.0	622.0	
-212.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	30.0	630.0	
-242.0	CARBONDALE	HERRIN	COAL	5.0	660.0	

MAPID: 08100809000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 33 QUARTERS/FOOTAGES: 330' S line, 355' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.872767 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.127138 DATE COLLECTED:

SURFACE ELEVATION (FT.): 426.0 LOGGED (FT.): 2993.0 LOG TYPE:

SOURCE: FREEMAN, M & WILLIAMS, J WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-256.0	CARBONDALE	HERRIN	COAL	4.0	682.0	
-306.0	CARBONDALE	BRIAR HILL	COAL	-	732.0	
-334.0	CARBONDALE	SPRINGFIELD	COAL	4.0	760.0	BLACK SHALE & LIMESTONE ROOF
-404.0	CARBONDALE	HOUCHIN CREEK	COAL	-	830.0	

MAPID: 08100809000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 33 QUARTERS/FOOTAGES: 330' S line, 355' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.872767 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.127138 DATE COLLECTED:

SURFACE ELEVATION (FT.): 426.0 LOGGED (FT.): 687.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-178.0	MODESTO	PIASA	LIMESTONE	5.0	604.0	
-183.0	CARBONDALE		SHALE & SANDSTONE	28.0	609.0	
-211.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	637.0	
-218.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	36.0	644.0	
-254.0	CARBONDALE	ANNA	BLACK SHALE	2.0	680.0	
-256.0	CARBONDALE	HERRIN	COAL	5.0	682.0	

MAPID: 08100413000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 35 QUARTERS/FOOTAGES: 660' S line, 330' W line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.851446 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.128406 DATE COLLECTED:

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 3122.0 LOG TYPE:

SOURCE: YINGLING & HAYS WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-300.0	CARBONDALE	HERRIN	COAL	4.0	751.0	
-355.0	CARBONDALE	BRIAR HILL	COAL	-	806.0	
-388.0	CARBONDALE	SPRINGFIELD	COAL	4.0	839.0	BLACK SHALE & LIMESTONE ROOF
-439.0	CARBONDALE	HOUCHIN CREEK	COAL	-	890.0	

MAPID: 08100413000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 35 QUARTERS/FOOTAGES: 660' S line, 330' W line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.851446 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.128406 DATE COLLECTED:

SURFACE ELEVATION (FT.): 451.0 LOGGED (FT.): 749.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-219.0	MODESTO	PIASA	LIMESTONE	7.0	670.0	
-226.0	CARBONDALE	DANVILLE	COAL	3.0	677.0	
-229.0	CARBONDALE		LIMESTONE	25.0	680.0	
-254.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	705.0	
-259.0	CARBONDALE		SHALE & SANDSTONE	26.0	710.0	
-285.0	CARBONDALE	ANNA	BLACK SHALE	5.0	736.0	
-286.0	CARBONDALE	HERRIN	COAL	12.0	737.0	

MAPID: 08123811000C VERSION: 1

PROJECT: NCRDS98

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 35 QUARTERS/FOOTAGES: SE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.847099 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.13409 DATE COLLECTED: 9 / 21 / 1981

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 890.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #96 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
467.0			UNCLASSIFIED	783.0	0.0	
-316.0	CARBONDALE	BRERETON	LIMESTONE	8.8	783.0	
-324.8	CARBONDALE	ANNA	SHALE	0.9	791.8	BLACK
-325.6	CARBONDALE	HERRIN	COAL	5.6	792.6	
-331.2	CARBONDALE		UNDERCLAY	3.8	798.2	
-335.0	CARBONDALE		SILTSTONE	1.0	802.0	
-336.0	CARBONDALE		UNCLASSIFIED	70.0	803.0	
-406.0	CARBONDALE	DYKERSBURG	SHALE	3.2	873.0	DARK
-409.2	CARBONDALE	DYKERSBURG	SHALE	4.5	876.2	
-413.7	CARBONDALE	SPRINGFIELD	COAL	5.5	880.7	
-419.2	CARBONDALE		UNDERCLAY	1.8	886.2	
-421.0	CARBONDALE		SILTSTONE	2.0	888.0	

MAPID: 08100474000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 36 QUARTERS/FOOTAGES: 990' N line, 1650' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.821305 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.138309 DATE COLLECTED:

SURFACE ELEVATION (FT.): 471.0 LOGGED (FT.): 3237.0 LOG TYPE:

SOURCE: DEEP ROCK OIL CORP WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-337.0	CARBONDALE	HERRIN	COAL	6.0	808.0	
-393.0	CARBONDALE	BRIAR HILL	COAL	-	864.0	
-426.0	CARBONDALE	SPRINGFIELD	COAL	5.0	897.0	BLACK SHALE & LIMESTONE ROOF
-483.0	CARBONDALE	HOUCHIN CREEK	COAL	-	954.0	

MAPID: 08100474000C VERSION: 2

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 3E SECTION: 36 QUARTERS/FOOTAGES: 990' N line, 1650' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.821305 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.138309 DATE COLLECTED: 5 / 0 / 1943

SURFACE ELEVATION (FT.): 472.0 LOGGED (FT.): 923.0 LOG TYPE: Multiple log types

SOURCE: DEEP ROCK OIL CORP WELL TYPE: Oil and Gas Test

COMMENT: 4,1. COAL DIV. CONTROL WELL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
472.0			UNKNOWN	160.0	0.0	
312.0			SHALE	16.0	160.0	CORE BEGINS
296.0			SANDSTONE	4.0	176.0	
292.0			LIMESTONE	1.0	180.0	
291.0			BLACK SHALE	1.0	181.0	
290.0			COAL	4.0	182.0	
286.0			UNDERCLAY	2.0	186.0	
284.0			ROCK	101.0	188.0	
183.0			COAL WITH SHALE	1.0	289.0	COAL AND SHALE MIXED
182.0			ROCK	37.0	290.0	
145.0			COAL	1.0	327.0	
144.0			ROCK	222.0	328.0	
-78.0			COAL	1.0	550.0	
-79.0			ROCK	174.0	551.0	
-253.0			COAL	1.0	725.0	
-254.0			ROCK	13.0	726.0	
-267.0			COAL WITH SHALE	1.0	739.0	COAL AND SHALE MIXED
-268.0			ROCK	34.0	740.0	
-302.0			SANDSTONE	9.0	774.0	
-311.0			SHALE	30.0	783.0	
-341.0			BLACK SHALE	1.0	813.0	
-342.0	CARBONDALE	HERRIN	COAL	4.0	814.0	CORRELATIONS BY WILSON, PULLENS ET AL
-346.0	CARBONDALE		UNDERCLAY	6.0	818.0	
-352.0	CARBONDALE		ROCK	48.0	824.0	
-400.0	CARBONDALE		COAL	1.0	872.0	
-401.0	CARBONDALE		ROCK	1.0	873.0	
-402.0	CARBONDALE		SANDSTONE	7.0	874.0	
-409.0	CARBONDALE		SHALE	14.0	881.0	
-423.0	CARBONDALE		LIMESTONE	2.0	895.0	
-425.0	CARBONDALE		BLACK SHALE	6.0	897.0	
-431.0	CARBONDALE	SPRINGFIELD	COAL	3.0	903.0	
-434.0	CARBONDALE		UNDERCLAY	1.0	906.0	
-435.0	CARBONDALE		ROCK	16.0	907.0	

MAPID: 08100474000C **VERSION:** 3 **PROJECT:** CONTROL
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** 990' N line, 1650' E line
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.821305 **GEOLOGIST:** HINES
CONFIDENTIAL: N **LATITUDE:** 38.138309 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): **LOGGED (FT.):** 3237.0 **LOG TYPE:** Survey Sample Study
SOURCE: DEEP ROCK OIL CORP **WELL TYPE:** Oil and Gas Test
COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			NO RECORD	0.0	0.0	

MAPID: 08123812000C **VERSION:** 1 **PROJECT:** NCRDS98
COUNTY: JEFFERSON **TWP/RNG:** 4S 3E **SECTION:** 36 **QUARTERS/FOOTAGES:** SW SW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.833952 **GEOLOGIST:** C.KOROSE
CONFIDENTIAL: N **LATITUDE:** 38.128159 **DATE COLLECTED:** 9 / 20 / 1981
SURFACE ELEVATION (FT.): 469.0 **LOGGED (FT.):** 877.0 **LOG TYPE:** Other Core Study
SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #95 **WELL TYPE:** Coal Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
469.0			UNCLASSIFIED	761.0	0.0	
-292.0	CARBONDALE		LIMESTONE	4.4	761.0	
-296.4	CARBONDALE		SHALE	1.3	765.4	
-297.8	CARBONDALE	BRERETON	LIMESTONE	4.2	766.8	
-301.9	CARBONDALE	ANNA	SHALE	0.3	770.9	BLACK
-302.3	CARBONDALE	HERRIN	COAL	5.7	771.3	
-307.9	CARBONDALE		UNDERCLAY	1.3	776.9	
-309.3	CARBONDALE		SHALE	3.8	778.3	
-313.0	CARBONDALE		UNCLASSIFIED	68.0	782.0	
-381.0	CARBONDALE		SHALE	7.5	850.0	
-388.5	CARBONDALE	ST. DAVID	LIMESTONE	1.2	857.5	
-389.7	CARBONDALE	TURNER MINE	SILTY SHALE	4.5	858.7	
-394.2	CARBONDALE	DYKERSBURG	SILTY SHALE	2.7	863.2	
-396.8	CARBONDALE	SPRINGFIELD	COAL	6.3	865.8	
-403.2	CARBONDALE		UNDERCLAY	1.8	872.2	
-405.0	CARBONDALE		SILTSTONE	3.0	874.0	

MAPID: 08100447000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 1 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.716643 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.199301 DATE COLLECTED:

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 5245.0 LOG TYPE:

SOURCE: ECHOLS GEORGE H WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-390.0	CARBONDALE	DANVILLE	COAL	-	857.0
-394.0	CARBONDALE	SS BELOW NO. 7	SANDSTONE/SILTSTONE	10.0	861.0
-409.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	876.0
-423.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	18.0	890.0
-456.0	CARBONDALE	HERRIN	COAL	4.0	923.0
-478.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	17.0	945.0
-507.0	CARBONDALE	BRIAR HILL	COAL	-	974.0
-510.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	10.0	977.0
-560.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	21.0	1027.0
-635.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1102.0

MAPID: 08100447000C VERSION: 2

PROJECT: CONTROL

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 1 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.716643 GEOLOGIST: HINES

CONFIDENTIAL: N LATITUDE: 38.199301 DATE COLLECTED:

SURFACE ELEVATION (FT.): LOGGED (FT.): 3364.0 LOG TYPE: Survey Sample Study

SOURCE: ECHOLS GEORGE H WELL TYPE: Oil and Gas Test

COMMENT: OILWELLS LOGGED BY COAL SECT-LOGS IN GRU

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			NO RECORD	0.0	0.0

MAPID: 0810160000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 1 QUARTERS/FOOTAGES: 345' N line, 336' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.704646

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.211665

DATE COLLECTED:

SURFACE ELEVATION (FT.): 438.0

LOGGED (FT.): 890.5

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-388.0	MODESTO	PIASA	LIMESTONE	8.0	826.0	
-396.0	MODESTO		SILTY SHALE	6.0	834.0	
-402.0	CARBONDALE	DANVILLE	COAL	4.0	840.0	
-406.0	CARBONDALE		SANDSTONE	18.0	844.0	
-424.0	CARBONDALE	ALLENBY	COAL	2.5	862.0	
-426.5	CARBONDALE		GRAY SHALE	4.0	864.5	
-430.5	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	868.5	
-437.5	CARBONDALE	BRERETON	LIMESTONE AND SANDSTONE	1.0	875.5	
-438.5	CARBONDALE	ANNA	BLACK SHALE	2.0	876.5	
-440.5	CARBONDALE	ENERGY	GRAY SHALE	6.0	878.5	
-446.5	CARBONDALE	HERRIN	COAL	6.0	884.5	

MAPID: 08100996000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 2 QUARTERS/FOOTAGES: NE SW SE

QUADRANGLE: DAHLGREN LONGITUDE: -88.728192

GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.201251

DATE COLLECTED:

SURFACE ELEVATION (FT.): 465.0

LOGGED (FT.): 3375.0

LOG TYPE:

SOURCE: GULF REFINING CO.

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-465.0	CARBONDALE	HERRIN	COAL	6.0	930.0	
-515.0	CARBONDALE	BRIAR HILL	COAL	-	980.0	
-543.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1008.0	BLACK SHALE ROOF
-631.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1096.0	

MAPID: 08100083001M **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW NW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.756343 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.207811 **DATE COLLECTED:** 0 / 0 / 1967
SURFACE ELEVATION (FT.): 450.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FLD NOTES-MURRAY-BELLE RIVE MINE **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
450.0			UNKNOWN	0.0	0.0	

MAPID: 08100808000C **VERSION:** 1 **PROJECT:** CIRC 431
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 330' S line, 330' W line of SE NE
QUADRANGLE: DAHLGREN **LONGITUDE:** -88.744164 **GEOLOGIST:** HOPKINS
CONFIDENTIAL: N **LATITUDE:** 38.206796 **DATE COLLECTED:**
SURFACE ELEVATION (FT.): 491.0 **LOGGED (FT.):** 3467.0 **LOG TYPE:**
SOURCE: KINGWOOD OIL CO **WELL TYPE:** Oil and Gas Test
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-421.0	CARBONDALE	DANVILLE	COAL	-	912.0	
-441.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	932.0	
-453.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	12.0	944.0	
-482.0	CARBONDALE	HERRIN	COAL	-	973.0	
-496.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	6.0	987.0	
-519.0	CARBONDALE	BRIAR HILL	COAL	-	1010.0	
-527.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	18.0	1018.0	
-559.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1050.0	BLACK SHALE ROOF
-571.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	24.0	1062.0	
-652.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1143.0	

MAPID: 081255A0006F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** NW SW NW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.757446 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.208751 **DATE COLLECTED:** 8 / 0 / 1949
SURFACE ELEVATION (FT.): 470.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FLD NOTES-WILLIAMS **WELL TYPE:** Strip Mine
COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
470.0			UNKNOWN	0.0	0.0	

MAPID: 081255A0005F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** SW NE NW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.753372 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.21058 **DATE COLLECTED:** 0 / 0 / 1938
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 4.7 **LOG TYPE:** Measured section
SOURCE: FLD NOTES-WANLESS **WELL TYPE:** Outcrop
COMMENT: DOWNSTREAM FROM OLD STRIP MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-			COAL	0.7	
-			ROCK	4.0	

MAPID: 08190045000C **VERSION:** 1 **PROJECT:** AVAIL
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 1' S line, 660' E line of NE SW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.752102 **GEOLOGIST:** LAWSON
CONFIDENTIAL: N **LATITUDE:** 38.202218 **DATE COLLECTED:** 9 / 17 / 1963
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 38.0 **LOG TYPE:** Drillers Log
SOURCE: AYRSHIRE 1001 **WELL TYPE:** Coal Test
COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	17.0	0.0
473.0	MATTOON		ROCK	14.0	17.0
459.0	MATTOON	OPDYKE	COAL	2.3	31.0
456.7	MATTOON		ROCK	4.7	33.3

MAPID: 08190046000C **VERSION:** 1 **PROJECT:** AVAIL
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 3 **QUARTERS/FOOTAGES:** 660' N line, 495' W line of NW SE
QUADRANGLE: DAHLGREN **LONGITUDE:** -88.748094 **GEOLOGIST:** LAWSON
CONFIDENTIAL: N **LATITUDE:** 38.204083 **DATE COLLECTED:** 9 / 17 / 1963
SURFACE ELEVATION (FT.): 490.0 **LOGGED (FT.):** 47.0 **LOG TYPE:** Drillers Log
SOURCE: AYRSHIRE 1002 **WELL TYPE:** Coal Test
COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
490.0	PLEISTOCENE		UNCONSOLIDATED	16.0	0.0
474.0	MATTOON		ROCK	26.3	16.0
447.7	MATTOON	OPDYKE	COAL	2.3	42.3
445.4	MATTOON		ROCK	2.4	44.6

MAPID: 08190047000C VERSION: 1

PROJECT: AVAIL

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 4 QUARTERS/FOOTAGES: 150' S line, 390' W line of NW SE

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.766476

GEOLOGIST: LAWSON

CONFIDENTIAL: N

LATITUDE: 38.202746

DATE COLLECTED: 9 / 18 / 1963

SURFACE ELEVATION (FT.): 505.0

LOGGED (FT.): 33.0

LOG TYPE: Drillers Log

SOURCE: AYRSHIRE 1003

WELL TYPE: Coal Test

COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
505.0	PLEISTOCENE		UNCONSOLIDATED	15.0	0.0
490.0	MATTOON		ROCK	14.0	15.0
476.0	MATTOON	OPDYKE	COAL	2.0	29.0
474.0	MATTOON		ROCK	2.0	31.0

MAPID: 08190048000C VERSION: 1

PROJECT: AVAIL

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 4 QUARTERS/FOOTAGES: 1' S line, 660' E line of SW NE

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.765511

GEOLOGIST: LAWSON

CONFIDENTIAL: N

LATITUDE: 38.206095

DATE COLLECTED: 9 / 17 / 1963

SURFACE ELEVATION (FT.): 485.0

LOGGED (FT.): 31.0

LOG TYPE: Drillers Log

SOURCE: AYRSHIRE 1004

WELL TYPE: Coal Test

COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
485.0	PLEISTOCENE		UNCONSOLIDATED	23.5	0.0
461.5	MATTOON		ROCK	3.0	23.5
458.5	MATTOON	OPDYKE	COAL	1.8	26.5
456.7	MATTOON		ROCK	2.7	28.3

MAPID: 08100075000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.778209 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.201534 DATE COLLECTED: 12 / 0 / 1905

SURFACE ELEVATION (FT.): 497.0 LOGGED (FT.): 937.0 LOG TYPE: Drillers Log

SOURCE: MOORES PRAIRIE COAL ASSOC WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
497.0			UNCONSOLIDATED	16.5	0.0	
480.5			COAL	1.5	16.5	
479.0			ROCK	39.6	18.0	
439.4			COAL	1.8	57.6	
437.7			ROCK	110.6	59.3	
327.1			COAL	0.1	169.9	
327.0			ROCK	16.6	170.0	
310.4			COAL	0.4	186.6	
310.0			ROCK	78.8	187.0	
231.2			COAL	1.2	265.8	
230.0			ROCK	222.0	267.0	
8.0			COAL	0.5	489.0	
7.5			ROCK	183.4	489.5	
-175.9			COAL	0.8	672.9	
-176.8			ROCK	16.2	673.8	
-193.0			COAL	0.3	690.0	
-193.3			ROCK	151.0	690.3	
-344.3			COAL	0.8	841.3	
-345.2			ROCK	28.8	842.2	
-374.0			COAL	1.7	871.0	SH PTG .16'
-375.8			ROCK	34.2	872.8	
-410.0			BLACK SHALE	1.0	907.0	
-411.0			BLACK SHALE	16.8	908.0	
-427.8			COAL	0.3	924.8	
-428.0			SHALE	2.0	925.0	
-430.0			LIMESTONE	2.0	927.0	
-432.0			BLACK SHALE	1.8	929.0	
-433.8	CARBONDALE	HERRIN	COAL	4.7	930.8	
-438.5	CARBONDALE		SHALE	1.5	935.5	

MAPID: 08100075000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.778209

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.201534

DATE COLLECTED:

SURFACE ELEVATION (FT.): 497.0

LOGGED (FT.): 934.7

LOG TYPE: Drillers Log

SOURCE:

WELL TYPE: Coal Test

COMMENT: POOR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-364.0	MODESTO	PIASA	LIMESTONE	4.5	861.0	
-368.5	MODESTO		GRAY SHALE	9.5	865.5	
-378.0	CARBONDALE	DANVILLE	COAL	1.8	875.0	
-379.8	CARBONDALE		CALCAREOUS SHALE	3.0	876.8	
-382.8	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	2.0	879.8	UPPER BENCH
-384.8	CARBONDALE	BANKSTON FORK	CALCAREOUS SHALE	3.0	881.8	SHALE PARTING
-387.8	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	884.8	LOWER BENCH
-398.8	CARBONDALE	LAWSON	SHALE & SANDSTONE	18.0	895.8	
-431.9	CARBONDALE	LAWSON	GRAY SHALE	16.5	928.9	
-416.8	CARBONDALE	JAMESTOWN	COAL	0.3	913.8	
-417.0	CARBONDALE		CARBONACEOUS SHALE	1.1	914.0	
-418.1	CARBONDALE	BRERETON	LIMESTONE	2.0	915.1	
-420.1	CARBONDALE	ANNA	BLACK SHALE	1.8	917.1	
-421.9	CARBONDALE	ENERGY	BLACK SHALE	10.0	918.9	
-433.0	CARBONDALE	HERRIN	COAL	4.7	930.0	

MAPID: 08100075000C VERSION: 3

PROJECT: CIRC 24

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.778209

GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.201534

DATE COLLECTED: 0 / 0 / 1905

SURFACE ELEVATION (FT.): 497.5

LOGGED (FT.): 937.0

LOG TYPE:

SOURCE: MOORES PCA0001

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-433.5	CARBONDALE	HERRIN	COAL	4.7	931.0	

MAPID: 08100075000C VERSION: 4

PROJECT: NCRDS87

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: NE SE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.778209

GEOLOGIST: WEIBEL

CONFIDENTIAL: N LATITUDE: 38.201534

DATE COLLECTED: 12 / 0 / 1905

SURFACE ELEVATION (FT.): 497.5

LOGGED (FT.): 937.0

LOG TYPE: Drillers Log

SOURCE: MOORE'S PRAIRIE COAL ASS'N

WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
497.5			UNCONSOLIDATED	16.5	0.0
481.0	BOND		COAL	1.5	16.5
479.5	BOND		SHALE	39.6	18.0
439.9	BOND		COAL	1.8	57.6
438.2	BOND		SHALE	41.7	59.3
396.5	BOND		SANDSTONE	1.0	101.0
395.5	BOND		SHALE	15.0	102.0
380.5	BOND		SANDSTONE	3.0	117.0
377.5	BOND		SHALE	49.9	120.0
327.6	BOND		COAL	0.1	169.9
327.5	BOND		SHALE	1.0	170.0
326.5	BOND		SANDSTONE	3.0	171.0
323.5	BOND		SHALE	12.6	174.0
310.9	BOND		COAL	0.4	186.6
310.5	BOND		SHALE & SANDSTONE	43.0	187.0
267.5	BOND		SHALE	35.8	230.0
231.7	BOND		COAL	1.2	265.8
230.5	BOND		SHALE	10.0	267.0
220.5	BOND		LIMESTONE	1.0	277.0
219.5	BOND		SHALE	47.0	278.0
172.5	BOND		SHALE & SANDSTONE	36.0	325.0
136.5	BOND		SANDSTONE	76.5	361.0
60.0	BOND		CONGLOMERATE	1.5	437.5
58.5	BOND		LIMESTONE	1.0	439.0
57.5	BOND		BLACK SHALE	1.0	440.0
56.5	BOND	CARTHAGE	LIMESTONE	10.5	441.0
46.0	MODESTO		BLACK SHALE	3.0	451.5
43.0	MODESTO		SHALE & SANDSTONE	3.5	454.5
39.5	MODESTO		SANDSTONE	7.0	458.0
32.5	MODESTO		SHALE	24.0	465.0
8.5	MODESTO		COAL	0.5	489.0
8.0	MODESTO		SHALE	82.5	489.5
-74.5	MODESTO		BLACK SHALE	3.0	572.0
-77.5	MODESTO		SHALE	96.0	575.0
-173.5	MODESTO		BLACK SHALE	1.9	671.0
-175.4	MODESTO		COAL	0.8	672.9
-176.3	MODESTO		SHALE	16.3	673.8
-192.5	MODESTO		COAL	0.3	690.0
-192.8	MODESTO		UNDERCLAY	1.7	690.3

-194.5	MODESTO		SHALE & SANDSTONE	69.0	692.0
-263.5	MODESTO		SHALE	39.0	761.0
-302.5	MODESTO		BLACK SHALE	9.0	800.0
-311.5	MODESTO		SHALE	1.0	809.0
-312.5	MODESTO		CONGLOMERATE	0.5	810.0
-313.0	MODESTO		SHALE	2.5	810.5
-315.5	MODESTO		SHALE & SANDSTONE	9.0	813.0
-324.5	MODESTO		SHALE	18.7	822.0
-343.2	MODESTO		BLACK SHALE	0.7	840.7
-343.8	MODESTO		COAL	0.8	841.3
-344.7	MODESTO		UNDERCLAY	3.8	842.2
-348.5	MODESTO		SANDSTONE	2.0	846.0
-350.5	MODESTO		SHALE	9.0	848.0
-359.5	MODESTO	PIASA	LIMESTONE	4.5	857.0
-364.0	MODESTO		SHALE	9.5	861.5
-373.5	CARBONDALE	DANVILLE	COAL WITH SHALE PARTINGS	1.8	871.0
-375.3	CARBONDALE		SANDSTONE	3.3	872.8
-378.5	CARBONDALE		SHALE & SANDSTONE	12.0	876.0
-390.5	CARBONDALE		SHALE	8.0	888.0
-398.5	CARBONDALE	BANKSTON FORK	LIMESTONE	11.0	896.0
-409.5	CARBONDALE		BLACK SHALE	1.0	907.0
-410.5	CARBONDALE		SHALE	16.5	908.0
-427.0	CARBONDALE		BLACK SHALE	0.3	924.5
-427.3	CARBONDALE		COAL	0.3	924.8
-427.5	CARBONDALE		BLACK SHALE	0.8	925.0
-428.3	CARBONDALE		SHALE	0.3	925.8
-428.5	CARBONDALE		BLACK SHALE	1.0	926.0
-429.5	CARBONDALE	BRERETON	LIMESTONE	2.0	927.0
-431.5	CARBONDALE	ANNA	BLACK SHALE	1.8	929.0
-433.3	CARBONDALE	HERRIN	COAL	4.7	930.8
-438.0	CARBONDALE		SHALE	1.5	935.5

MAPID: 081255A0007F **VERSION:** 1 **PROJECT:** BLM
COUNTY: JEFFERSON **TWP/RNG:** 4S 4E **SECTION:** 5 **QUARTERS/FOOTAGES:** NW SE NW
QUADRANGLE: SPRING GARDEN **LONGITUDE:** -88.789436 **GEOLOGIST:** BARGH,M
CONFIDENTIAL: N **LATITUDE:** 38.209251 **DATE COLLECTED:** 0 / 0 / 1949
SURFACE ELEVATION (FT.): 480.0 **LOGGED (FT.):** 0.0 **LOG TYPE:**
SOURCE: FLD NOTES-WILLIAMS **WELL TYPE:** Strip Mine
COMMENT: MANY ABD WATER-FILLED STR. PITS IN QUAD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT	OVERBURDEN	COMMENT
480.0			UNKNOWN	0.0	0.0	

MAPID: 08190049000C VERSION: 1

PROJECT: AVAIL

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: 1' S line, 330' E line of NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.787194 GEOLOGIST: LAWSON

CONFIDENTIAL: N LATITUDE: 38.210201 DATE COLLECTED: 10 / 3 / 1963

SURFACE ELEVATION (FT.): 505.0 LOGGED (FT.): 43.0 LOG TYPE: Drillers Log

SOURCE: AYRSHIRE 1005 WELL TYPE: Coal Test

COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
505.0	PLEISTOCENE		UNCONSOLIDATED	14.0	0.0
491.0	MATTOON		ROCK	24.8	14.0
466.2	MATTOON	BELLE RIVE	COAL	1.8	38.8
464.3	MATTOON		ROCK	2.3	40.7

MAPID: 08190050000C VERSION: 1

PROJECT: AVAIL

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 5 QUARTERS/FOOTAGES: 660' S line, 330' E line of NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.787166 GEOLOGIST: LAWSON

CONFIDENTIAL: N LATITUDE: 38.21202 DATE COLLECTED: 10 / 3 / 1963

SURFACE ELEVATION (FT.): 500.0 LOGGED (FT.): 35.0 LOG TYPE: Drillers Log

SOURCE: AYRSHIRE 1006 WELL TYPE: Coal Test

COMMENT: BELLE RIVE AREA BOX44

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
500.0	PLEISTOCENE		UNCONSOLIDATED	12.5	0.0
487.5	MATTOON		ROCK	18.3	12.5
469.2	MATTOON	BELLE RIVE	COAL	1.5	30.8
467.7	MATTOON		ROCK	2.7	32.3

MAPID: 08100860000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 8 QUARTERS/FOOTAGES: NE NE SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.778304 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.190375 DATE COLLECTED:

SURFACE ELEVATION (FT.): 485.0 LOGGED (FT.): 3302.0 LOG TYPE:

SOURCE: SHENDAL DEAN WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-359.0	CARBONDALE	DANVILLE	COAL	-	844.0	
-365.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	850.0	
-377.0	CARBONDALE	ANVIL ROCK	SILTSTONE	10.0	862.0	
-415.0	CARBONDALE	HERRIN	COAL	4.0	900.0	
-429.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	26.0	914.0	
-473.0	CARBONDALE	BRIAR HILL	COAL	-	958.0	
-475.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	7.0	960.0	
-498.0	CARBONDALE	SPRINGFIELD	COAL	4.0	983.0	BLACK SHALE & LIMESTONE ROOF
-531.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SILTSTONE	45.0	1016.0	
-598.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1083.0	

MAPID: 08100091701M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 10 QUARTERS/FOOTAGES:

QUADRANGLE: DAHLGREN LONGITUDE: -88.749795 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.191248 DATE COLLECTED: 4 / 8 / 1971

SURFACE ELEVATION (FT.): LOGGED (FT.): 27.8 LOG TYPE:

SOURCE: MINE NOTES-SMITH, EADS C C WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			UNCONSOLIDATED	25.0	0.0	
-			ROCK	0.8		
-	MATTOON	OPDYKE	COAL	2.0		SH PTG .75'
-	MATTOON		UNDERCLAY	-		

MAPID: 08100091700M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 10 QUARTERS/FOOTAGES: SW NW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.757564 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.195748 DATE COLLECTED: 3 / 22 / 1971

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 24.1 LOG TYPE:

SOURCE: EADS C C WELL TYPE: Strip Mine

COMMENT: OTHER FLD NOTES AVAILABLE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	22.0		
-	MATTOON	OPDYKE	COAL	2.1		
-	MATTOON		ROCK	-		

MAPID: 08100091702M VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 10 QUARTERS/FOOTAGES: SW NW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.757564 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.195748 DATE COLLECTED: 0 / 0 / 1971

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 24.0 LOG TYPE:

SOURCE: FLD NOTES-W. SMITH, EADS C C WELL TYPE: Strip Mine

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-			ROCK	22.0		
-	MATTOON	OPDYKE	COAL	2.0		
-			ROCK	-		

MAPID: 08100861000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.723903 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.185054 DATE COLLECTED:

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 3373.0 LOG TYPE:

SOURCE: SKILES OIL CORP WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-407.0	CARBONDALE	DANVILLE	COAL	-	887.0	
-418.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	8.0	898.0	
-428.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	908.0	
-444.0	CARBONDALE	ANVIL ROCK	SILTSTONE	6.0	924.0	
-470.0	CARBONDALE	HERRIN	COAL	3.0	950.0	
-490.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	10.0	970.0	
-525.0	CARBONDALE	CANTON	SILTSTONE	6.0	1005.0	
-544.0	CARBONDALE	SPRINGFIELD	COAL	3.0	1024.0	BLACK SHALE & LIMESTONE ROOF
-562.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SILTSTONE	20.0	1042.0	
-640.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1120.0	

MAPID: 08100861000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 11 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.723903 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.185054 DATE COLLECTED:

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 939.5 LOG TYPE:

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-377.0	MODESTO	PIASA	LIMESTONE	6.0	857.0	
-383.0	MODESTO		SHALE & SANDSTONE	20.0	863.0	
-403.0	CARBONDALE	DANVILLE	COAL	3.5	883.0	
-406.5	CARBONDALE		SHALE	2.0	886.5	
-408.5	CARBONDALE	ALLENBY	COAL	1.0	888.5	
-409.5	CARBONDALE		SHALE & SANDSTONE	8.0	889.5	
-417.5	CARBONDALE	BANKSTON FORK	LIMESTONE	10.0	897.5	
-427.5	CARBONDALE	LAWSON	SHALE & SANDSTONE	14.0	907.5	
-441.5	CARBONDALE		SHALE	6.0	921.5	
-447.5	CARBONDALE	BRERETON	LIMESTONE	6.0	927.5	
-453.5	CARBONDALE	ANNA	BLACK SHALE	2.0	933.5	
-455.5	CARBONDALE	HERRIN	COAL	4.0	935.5	

MAPID: 08100862000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 12 QUARTERS/FOOTAGES: 330' S line, 330' E line of NE SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.714401 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.1884 DATE COLLECTED:

SURFACE ELEVATION (FT.): 488.0 LOGGED (FT.): 3402.0 LOG TYPE:

SOURCE: SUPERIOR OIL COMPANY WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-386.0	CARBONDALE	DANVILLE	COAL	-	874.0	
-402.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	10.0	890.0	
-424.0	CARBONDALE	ANVIL ROCK	SILTSTONE & SHALE	15.0	912.0	
-452.0	CARBONDALE	HERRIN	COAL	4.0	940.0	
-472.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	12.0	960.0	
-498.0	CARBONDALE	BRIAR HILL	COAL	-	986.0	
-505.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	4.0	993.0	
-526.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1014.0	BLACK SHALE & LIMESTONE ROOF
-540.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	16.0	1028.0	
-621.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1109.0	

MAPID: 08100806000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 14 QUARTERS/FOOTAGES: 330' S line, 330' W line of SE SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.735356 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.170518 DATE COLLECTED:

SURFACE ELEVATION (FT.): 511.0 LOGGED (FT.): 3494.0 LOG TYPE:

SOURCE: KINGWOOD OIL CO WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-367.0	CARBONDALE	DANVILLE	COAL	-	878.0	
-377.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	888.0	
-387.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	898.0	
-399.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	12.0	910.0	
-431.0	CARBONDALE	HERRIN	COAL	4.0	942.0	
-443.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	20.0	954.0	
-477.0	CARBONDALE	BRIAR HILL	COAL	-	988.0	
-482.0	CARBONDALE	CANTON	SILTSTONE	7.0	993.0	
-505.0	CARBONDALE	SPRINGFIELD	COAL	5.0	1016.0	BLACK SHALE & LIMESTONE ROOF
-599.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1110.0	

MAPID: 08100415000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 15 QUARTERS/FOOTAGES: 660' N line, 330' E line of NW SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.755616 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.174776 DATE COLLECTED:

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 3395.0 LOG TYPE:

SOURCE: LEDBETTER H E WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-377.0	CARBONDALE	DANVILLE	COAL	-	886.0	
-387.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	896.0	
-396.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	10.0	905.0	
-437.0	CARBONDALE	HERRIN	COAL	4.0	946.0	
-447.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	34.0	956.0	
-497.0	CARBONDALE	BRIAR HILL	COAL	-	1006.0	
-499.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	8.0	1008.0	
-523.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1032.0	BLACK SHALE & LIMESTONE ROOF
-537.0	CARBONDALE	SS BELOW NO. 5	SILTSTONE & SHALE	18.0	1046.0	
-621.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1130.0	

MAPID: 08100863000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 16 QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.769323 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.175697 DATE COLLECTED:

SURFACE ELEVATION (FT.): 491.0 LOGGED (FT.): 3308.0 LOG TYPE:

SOURCE: FOX, PETER BREWING WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-349.0	CARBONDALE	DANVILLE	COAL	-	840.0	
-359.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	6.0	850.0	
-372.0	CARBONDALE	ANVIL ROCK	SILTSTONE	9.0	863.0	
-412.0	CARBONDALE	HERRIN	COAL	4.0	903.0	
-419.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	20.0	910.0	
-459.0	CARBONDALE	BRIAR HILL	COAL	-	950.0	
-466.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	8.0	957.0	
-487.0	CARBONDALE	SPRINGFIELD	COAL	5.0	978.0	BLACK SHALE & LIMESTONE ROOF
-514.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SHALE	9.0	1005.0	
-686.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1177.0	

MAPID: 08100863000C VERSION: 2

PROJECT: ISGS

COUNTY: JEFFERSON

TWP/RNG: 4S 4E

SECTION: 16

QUARTERS/FOOTAGES: NE NE SW

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.769323

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.175697

DATE COLLECTED:

SURFACE ELEVATION (FT.): 491.0

LOGGED (FT.): 908.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-411.0	CARBONDALE	HERRIN	COAL	6.0	902.0	

MAPID: 08100864000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON

TWP/RNG: 4S 4E

SECTION: 18

QUARTERS/FOOTAGES: 330' S line, 330' W line of SE

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.804167

GEOLOGIST: HOPKINS

CONFIDENTIAL: N

LATITUDE: 38.170665

DATE COLLECTED:

SURFACE ELEVATION (FT.): 456.0

LOGGED (FT.): 3216.0

LOG TYPE:

SOURCE: SKILES OIL CORP

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-286.0	CARBONDALE	DANVILLE	COAL	-	742.0	
-292.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	13.0	748.0	
-310.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	766.0	
-351.0	CARBONDALE	HERRIN	COAL	-	807.0	
-357.0	CARBONDALE	VERMILIONVILLE	SILTSTONE	7.0	813.0	
-394.0	CARBONDALE	BRIAR HILL	COAL	-	850.0	
-398.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	6.0	854.0	
-422.0	CARBONDALE	SPRINGFIELD	COAL	4.0	878.0	BLACK SHALE & LIMESTONE ROOF
-434.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SILTSTONE	23.0	890.0	
-516.0	CARBONDALE	HOUCHIN CREEK	COAL	-	972.0	

MAPID: 08100865000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 19 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.813968 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.159932 DATE COLLECTED:

SURFACE ELEVATION (FT.): 461.0 LOGGED (FT.): 3175.0 LOG TYPE:

SOURCE: MCGRAW & HUGHES WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-254.0	CARBONDALE	DANVILLE	COAL	-	715.0	
-255.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	716.0	
-279.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	740.0	
-317.0	CARBONDALE	HERRIN	COAL	4.0	778.0	
-327.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	15.0	788.0	
-369.0	CARBONDALE	BRIAR HILL	COAL	-	830.0	
-371.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	12.0	832.0	
-402.0	CARBONDALE	SPRINGFIELD	COAL	6.0	863.0	BLACK SHALE & LIMESTONE ROOF
-444.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	4.0	905.0	
-457.0	CARBONDALE	HOUCHIN CREEK	COAL	-	918.0	

MAPID: 08100865000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 19 QUARTERS/FOOTAGES: SW NW SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.813968 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.159932 DATE COLLECTED:

SURFACE ELEVATION (FT.): 461.0 LOGGED (FT.): 786.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-242.0	MODESTO	PIASA	LIMESTONE AND SANDSTONE	5.0	703.0	
-247.0	MODESTO		SHALE	7.0	708.0	
-254.0	CARBONDALE	DANVILLE	COAL	5.0	715.0	
-259.0	CARBONDALE		SILTY SHALE	5.5	720.0	
-264.5	CARBONDALE	ALLENBY	COAL	1.5	725.5	
-266.0	CARBONDALE		CLAYSTONE	4.0	727.0	
-270.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.0	731.0	
-275.0	CARBONDALE	LAWSON	SILTY SHALE	2.1	736.0	
-277.1	CARBONDALE	BRERETON	LIMESTONE	3.0	738.1	
-280.1	CARBONDALE	ANNA	BLACK SHALE	1.5	741.1	
-281.6	CARBONDALE	ENERGY	GRAY SHALE	2.0	742.6	
-321.0	CARBONDALE	HERRIN	COAL	4.0	782.0	

MAPID: 08100804000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 21 QUARTERS/FOOTAGES: 330' S line, 470' E line of SW SE

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.765385

GEOLOGIST: HOPKINS

CONFIDENTIAL: N

LATITUDE: 38.155582

DATE COLLECTED:

SURFACE ELEVATION (FT.): 491.0

LOGGED (FT.): 3303.0

LOG TYPE:

SOURCE: GEORGE & WRATHER OIL

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-359.0	CARBONDALE	DANVILLE	COAL	-	850.0	
-371.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	4.0	862.0	
-381.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	872.0	
-425.0	CARBONDALE	HERRIN	COAL	4.0	916.0	
-432.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	13.0	923.0	
-466.0	CARBONDALE	BRIAR HILL	COAL	-	957.0	
-481.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	11.0	972.0	
-507.0	CARBONDALE	SPRINGFIELD	COAL	4.0	998.0	BLACK SHALE & LIMESTONE ROOF
-518.0	CARBONDALE	SS BELOW NO. 5	CALCAREOUS SANDSTONE	6.0	1009.0	
-599.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1090.0	

MAPID: 08101470000C VERSION: 1

PROJECT: ISGS

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 21 QUARTERS/FOOTAGES: 330' N line, 330' W line

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.776436

GEOLOGIST: C TREWORYG

CONFIDENTIAL: N

LATITUDE: 38.168473

DATE COLLECTED:

SURFACE ELEVATION (FT.): 516.0

LOGGED (FT.): 925.0

LOG TYPE: Electric Log

SOURCE:

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-350.0	CARBONDALE	DANVILLE	COAL	2.5	866.0	
-403.0	CARBONDALE	HERRIN	COAL	6.0	919.0	

MAPID: 08101475000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 22 QUARTERS/FOOTAGES: SE SW SE

QUADRANGLE: DAHLGREN LONGITUDE: -88.746692 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.155715 DATE COLLECTED:

SURFACE ELEVATION (FT.): 502.0 LOGGED (FT.): 947.0 LOG TYPE:

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
-356.0	MODESTO	PIASA	LIMESTONE	5.0	858.0
-361.0	MODESTO		SHALE	5.0	863.0
-366.0	CARBONDALE	DANVILLE	COAL	4.0	868.0
-370.0	CARBONDALE		CLAYSTONE	7.0	872.0
-377.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	879.0
-387.0	CARBONDALE	CONANT	LIMESTONE	2.0	889.0
-389.0	CARBONDALE	JAMESTOWN	COAL	2.0	891.0
-391.0	CARBONDALE		GRAY SHALE	7.0	893.0
-398.0	CARBONDALE	BRERETON	LIMESTONE AND SANDSTONE	4.5	900.0
-402.5	CARBONDALE	ANNA	BLACK SHALE	1.5	904.5
-404.0	CARBONDALE	ENERGY	GRAY SHALE	3.0	906.0
-440.0	CARBONDALE	HERRIN	COAL	5.0	942.0

MAPID: 08123644000C VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 22 QUARTERS/FOOTAGES: 1441' S line, 129' W line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.758627 GEOLOGIST: BARGH,M

CONFIDENTIAL: N LATITUDE: 38.158581 DATE COLLECTED: 3 / 30 / 1979

SURFACE ELEVATION (FT.): 470.0 LOGGED (FT.): 27.0 LOG TYPE: Drillers Log

SOURCE: C. KOHNEN, DRILLER WELL TYPE: Water Well

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
470.0			UNCONSOLIDATED	16.0	0.0
454.0			COAL	5.0	16.0
449.0			SHALE	6.0	21.0
443.0			LIMESTONE	-	27.0

MAPID: 08100803000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 24 QUARTERS/FOOTAGES: 330' S line, 330' E line of NW SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.719349 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.159334 DATE COLLECTED:

SURFACE ELEVATION (FT.): 531.0 LOGGED (FT.): 3469.0 LOG TYPE:

SOURCE: ASHLAND OIL&REF. CO. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-381.0	CARBONDALE	DANVILLE	COAL	-	912.0	
-393.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	924.0	
-405.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	936.0	
-415.0	CARBONDALE	ANVIL ROCK	SANDSTONE/SHALE	15.0	946.0	
-454.0	CARBONDALE	HERRIN	COAL	3.0	985.0	
-465.0	CARBONDALE	VERMILIONVILLE	SILTSTONE	7.0	996.0	
-495.0	CARBONDALE	BRIAR HILL	COAL	-	1026.0	
-507.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	4.0	1038.0	
-526.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1057.0	BLACK SHALE & LIMESTONE ROOF
-613.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1144.0	

MAPID: 08102551000C VERSION: 1

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 24 QUARTERS/FOOTAGES: NW NE SE

QUADRANGLE: DAHLGREN LONGITUDE: -88.707674 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.160831 DATE COLLECTED:

SURFACE ELEVATION (FT.): 530.0 LOGGED (FT.): 980.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: FAIR DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-367.0	MODESTO	PIASA	LIMESTONE	4.0	897.0	
-371.0	MODESTO		SHALE & SANDSTONE	14.0	901.0	
-385.0	CARBONDALE	DANVILLE	COAL	5.0	915.0	
-390.0	CARBONDALE		SILTY SHALE	5.0	920.0	
-395.0	CARBONDALE	ALLENBY	COAL	2.0	925.0	
-397.0	CARBONDALE		SHALE	10.0	927.0	
-407.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	13.0	937.0	
-420.0	CARBONDALE	CONANT	LIMESTONE	2.0	950.0	
-422.0	CARBONDALE	JAMESTOWN	COAL	2.0	952.0	
-424.0	CARBONDALE		GRAY SHALE	3.0	954.0	
-427.0	CARBONDALE	BRERETON	LIMESTONE	4.0	957.0	
-431.0	CARBONDALE	ANNA	BLACK SHALE	2.0	961.0	
-440.0	CARBONDALE	HERRIN	COAL	10.0	970.0	

MAPID: 08100866000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 25 QUARTERS/FOOTAGES: SE SE NW

QUADRANGLE: DAHLGREN LONGITUDE: -88.714807 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.148158 DATE COLLECTED:

SURFACE ELEVATION (FT.): 529.0 LOGGED (FT.): 3382.0 LOG TYPE:

SOURCE: SUPERIOR OIL COMPANY WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-371.0	CARBONDALE	DANVILLE	COAL	-	900.0	
-377.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	906.0	
-397.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	926.0	
-411.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	12.0	940.0	
-441.0	CARBONDALE	HERRIN	COAL	5.0	970.0	
-458.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	17.0	987.0	
-493.0	CARBONDALE	BRIAR HILL	COAL	-	1022.0	
-501.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	6.0	1030.0	
-519.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1048.0	BLACK SHALE & LIMESTONE ROOF
-601.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1130.0	

MAPID: 08100866000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 25 QUARTERS/FOOTAGES: SE SE NW

QUADRANGLE: DAHLGREN LONGITUDE: -88.714807 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.148158 DATE COLLECTED:

SURFACE ELEVATION (FT.): 529.0 LOGGED (FT.): 973.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-353.0	MODESTO	PIASA	LIMESTONE	7.0	882.0	
-360.0	MODESTO		GRAY SHALE	10.0	889.0	
-370.0	CARBONDALE	DANVILLE	COAL	4.0	899.0	
-374.0	CARBONDALE		SHALE & SANDSTONE	8.0	903.0	
-382.0	CARBONDALE	ALLENBY	COAL	2.0	911.0	
-384.0	CARBONDALE		SHALE	2.0	913.0	
-386.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	10.0	915.0	
-396.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	21.0	925.0	
-417.0	CARBONDALE	JAMESTOWN	COAL	1.0	946.0	
-418.0	CARBONDALE	BRERETON	LIMESTONE	6.0	947.0	
-424.0	CARBONDALE	ANNA	BLACK SHALE	2.0	953.0	
-439.0	CARBONDALE	HERRIN	COAL	5.0	968.0	

MAPID: 08100867000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 26 QUARTERS/FOOTAGES: 330' N line, 330' W line of SE NW

QUADRANGLE: DAHLGREN LONGITUDE: -88.735396 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.150295 DATE COLLECTED:

SURFACE ELEVATION (FT.): 522.0 LOGGED (FT.): 3380.0 LOG TYPE:

SOURCE: DUNCAN, N. V., EST. OF WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-360.0	CARBONDALE	DANVILLE	COAL	-	882.0	
-382.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	904.0	
-426.0	CARBONDALE	HERRIN	COAL	3.0	948.0	
-440.0	CARBONDALE	VERMILIONVILLE	SANDSTONE/SHALE	15.0	962.0	
-473.0	CARBONDALE	BRIAR HILL	COAL	-	995.0	
-503.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1025.0	SHALE & SILTSTONE ROOF
-588.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1110.0	

MAPID: 08123813000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 27 QUARTERS/FOOTAGES: SW SE

QUADRANGLE: DAHLGREN LONGITUDE: -88.749561 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.143757 DATE COLLECTED: 8 / 19 / 1981

SURFACE ELEVATION (FT.): 488.0 LOGGED (FT.): 995.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #69 WELL TYPE: Coal Test

COMMENT: 538080 N, 380310 E

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
488.0			UNCLASSIFIED	897.0	0.0	
-409.0	CARBONDALE	BRERETON	LIMESTONE	2.7	897.0	
-411.7	CARBONDALE	ANNA	BLACK SHALE	1.3	899.7	
-413.0	CARBONDALE	ENERGY	SHALE	2.7	901.0	
-415.7	CARBONDALE	HERRIN	COAL	5.6	903.7	
-421.3	CARBONDALE		UNDERCLAY	3.5	909.3	
-424.8	CARBONDALE		SILTSTONE	0.5	912.8	
-425.3	CARBONDALE		UNCLASSIFIED	65.7	913.3	
-491.0	CARBONDALE		SHALE	1.7	979.0	DARK
-492.7	CARBONDALE	ST. DAVID	LIMESTONE	0.6	980.7	
-493.3	CARBONDALE	DYKERSBURG	SHALE	2.2	981.3	DARK
-495.4	CARBONDALE	SPRINGFIELD	COAL	4.7	983.4	
-500.1	CARBONDALE		UNDERCLAY	6.9	988.1	
-507.0				0.0	995.0	

MAPID: 081255A0008F VERSION: 1

PROJECT: BLM

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 27 QUARTERS/FOOTAGES: NW

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.754688

GEOLOGIST: BARGH,M

CONFIDENTIAL: N

LATITUDE: 38.151032

DATE COLLECTED: 0 / 0 / 1938

SURFACE ELEVATION (FT.): 480.0

LOGGED (FT.): 17.3

LOG TYPE: Measured section

SOURCE: FLD NOTES-LESTER

WELL TYPE: Outcrop

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.) UNIT OVERBURDEN	COMMENT
-			ROCK	9.7	
-			COAL	0.2	MANY ABD WATER-FILLED STR. PITS IN QUAD
-			UNKNOWN	1.0	
-			COAL	0.3	
-			ROCK	0.5	
-			COAL	0.7	
-			ROCK	5.0	
-			UNKNOWN	2.0	
-			ROCK	1.0	

MAPID: 08123047000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 28 QUARTERS/FOOTAGES: 1320' N line, 2600' E line

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.768382 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.151379 DATE COLLECTED: 9 / 25 / 1976

SURFACE ELEVATION (FT.): 491.0 LOGGED (FT.): 1000.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY EN-25 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
491.0			UNCLASSIFIED	828.0	0.0	
-337.0	MODESTO	PIASA	LIMESTONE	4.0	828.0	
-341.0	MODESTO		SHALE	11.0	832.0	
-352.0	CARBONDALE	DANVILLE	COAL	1.0	843.0	
-353.0	CARBONDALE		SHALE	21.0	844.0	
-374.0	CARBONDALE	BANKSTON FORK	LIMESTONE	7.0	865.0	
-381.0	CARBONDALE		SHALE	25.0	872.0	
-406.0	CARBONDALE		GRAY SHALE	1.4	897.0	BLACK BEGIN CORE
-407.4	CARBONDALE	CONANT	LIMESTONE	0.4	898.4	
-407.8	CARBONDALE	JAMESTOWN	COAL	0.7	898.8	
-408.5	CARBONDALE		BLACK SHALE	1.4	899.5	
-409.9	CARBONDALE	BRERETON	LIMESTONE	4.6	900.9	
-414.5	CARBONDALE	ANNA	BLACK SHALE	1.5	905.5	
-416.0	CARBONDALE	HERRIN	COAL	5.6	907.0	
-421.6	CARBONDALE		UNDERCLAY	3.6	912.6	
-425.2	CARBONDALE		SANDSTONE	4.8	916.2	
-430.0	CARBONDALE		SHALE	37.0	921.0	NOT CORED
-467.0	CARBONDALE	BRIAR HILL	COAL	1.5	958.0	NOT CORED
-468.5	CARBONDALE		SHALE	22.5	959.5	NOT CORED
-491.0	CARBONDALE		BLACK SHALE	3.2	982.0	BEGIN CORE
-494.2	CARBONDALE	ST. DAVID	LIMESTONE	0.4	985.2	
-494.5	CARBONDALE		GRAY SHALE	0.3	985.5	DARK
-494.9	CARBONDALE		GRAY SHALE	1.0	985.9	LIGHT
-495.9	CARBONDALE		BLACK SHALE	3.3	986.9	
-499.2	CARBONDALE	SPRINGFIELD	COAL	4.6	990.2	
-503.8	CARBONDALE		UNDERCLAY	1.7	994.8	
-505.5	CARBONDALE		SANDSTONE	3.5	996.5	

MAPID: 08123814000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 28 QUARTERS/FOOTAGES: SW SE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.76875 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.143027 DATE COLLECTED: 8 / 7 / 1981

SURFACE ELEVATION (FT.): 480.0 LOGGED (FT.): 988.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #67 WELL TYPE: Coal Test

COMMENT: 537830 N, 374790 E

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
480.0			UNCLASSIFIED	887.0	0.0	
-407.0	CARBONDALE		BLACK SHALE	1.1	887.0	
-408.1	CARBONDALE	BRERETON	LIMESTONE	5.9	888.1	
-414.0	CARBONDALE		LIMESTONE & SHALE	3.7	894.0	
-417.7	CARBONDALE	HERRIN	COAL	5.8	897.7	
-423.4	CARBONDALE		UNDERCLAY	2.9	903.4	
-426.3	CARBONDALE		UNCLASSIFIED	66.7	906.3	
-493.0	CARBONDALE	ST. DAVID	LIMESTONE	1.2	973.0	
-494.2	CARBONDALE	DYKERSBURG	SHALE	2.8	974.2	DARK
-497.0	CARBONDALE	SPRINGFIELD	COAL	4.8	977.0	
-501.8	CARBONDALE		SHALE	6.3	981.8	
-508.0				0.0	988.0	

MAPID: 08100868000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 30 QUARTERS/FOOTAGES: 330' N line, 330' E line of NE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.80676 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.15429 DATE COLLECTED:

SURFACE ELEVATION (FT.): 522.0 LOGGED (FT.): 3272.0 LOG TYPE:

SOURCE: CALVERT DRILLING, INC. WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-258.0	CARBONDALE	DANVILLE	COAL	-	780.0	
-271.0	CARBONDALE	SS BELOW NO. 7	CALCAREOUS SANDSTONE	5.0	793.0	
-280.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	802.0	
-285.0	CARBONDALE	ANVIL ROCK	SILTSTONE	8.0	807.0	
-320.0	CARBONDALE	HERRIN	COAL	4.0	842.0	
-368.0	CARBONDALE	BRIAR HILL	COAL	-	890.0	
-371.0	CARBONDALE	CANTON	SANDSTONE/SHALE	11.0	893.0	
-396.0	CARBONDALE	SPRINGFIELD	COAL	3.0	918.0	BLACK SHALE & LIMESTONE ROOF
-408.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SHALE	15.0	930.0	
-485.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1007.0	

MAPID: 08100801000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 31 QUARTERS/FOOTAGES: 330' N line, 330' W line of NE NE

QUADRANGLE: SPRING GARDEN

LONGITUDE: -88.800347

GEOLOGIST: HOPKINS

CONFIDENTIAL: N

LATITUDE: 38.139693

DATE COLLECTED:

SURFACE ELEVATION (FT.): 509.0

LOGGED (FT.): 3289.0

LOG TYPE:

SOURCE: TEXAS COMPANY, THE

WELL TYPE: Oil and Gas Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-273.0	CARBONDALE	DANVILLE	COAL	-	782.0	
-288.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	797.0	
-301.0	CARBONDALE	ANVIL ROCK	CALCAREOUS SANDSTONE	6.0	810.0	
-341.0	CARBONDALE	HERRIN	COAL	4.0	850.0	
-348.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	28.0	857.0	
-391.0	CARBONDALE	BRIAR HILL	COAL	-	900.0	
-398.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	23.0	907.0	
-433.0	CARBONDALE	SPRINGFIELD	COAL	4.0	942.0	BLACK SHALE & LIMESTONE ROOF
-453.0	CARBONDALE	SS BELOW NO. 5	SANDSTONE/SHALE	54.0	962.0	
-509.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1018.0	

MAPID: 08123048000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 32 QUARTERS/FOOTAGES: NW NW NW NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.796588 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.140451 DATE COLLECTED: 9 / 23 / 1976

SURFACE ELEVATION (FT.): 524.0 LOGGED (FT.): 969.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY EN-24 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
524.0			UNCLASSIFIED	785.0	0.0	
-261.0	MODESTO	PIASA	LIMESTONE	3.0	785.0	
-264.0	MODESTO		SHALE	12.0	788.0	
-276.0	CARBONDALE	DANVILLE	COAL	2.0	800.0	
-278.0	CARBONDALE		SHALE	22.0	802.0	
-300.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	824.0	
-303.0	CARBONDALE		UNCLASSIFIED	25.0	827.0	LOG NOTES "SHALEY LIMESTONE"
-328.0	CARBONDALE		GRAY SHALE	2.0	852.0	LIGHT BEGIN CORE
-330.0	CARBONDALE		GRAY SHALE	4.4	854.0	DARK
-334.4	CARBONDALE	CONANT	LIMESTONE	0.4	858.4	
-334.8	CARBONDALE	JAMESTOWN	COAL	1.2	858.8	
-336.0	CARBONDALE		GRAY SHALE	1.8	860.0	LIGHT
-337.8	CARBONDALE	BRERETON	LIMESTONE	5.6	861.8	
-343.5	CARBONDALE	ANNA	BLACK SHALE	1.5	867.5	
-345.0	CARBONDALE	HERRIN	COAL	4.6	869.0	
-349.5	CARBONDALE		UNDERCLAY	3.8	873.5	
-353.4	CARBONDALE		SANDY SILTSTONE	5.1	877.4	
-358.4	CARBONDALE		SHALE	41.6	882.4	NOT CORED
-400.0	CARBONDALE	BRIAR HILL	COAL	1.0	924.0	
-401.0	CARBONDALE		SHALE	12.0	925.0	NOT CORED
-413.0	CARBONDALE		SANDSTONE	13.4	937.0	BEGIN CORE
-426.4	CARBONDALE	TURNER MINE	BLACK SHALE	2.3	950.4	LOG NOTES ONLY "BLACK" HERE
-428.6	CARBONDALE	DYKERSBURG	GRAY SHALE	5.4	952.6	DARK
-434.0	CARBONDALE	SPRINGFIELD	COAL	5.1	958.0	
-439.1	CARBONDALE		UNDERCLAY	1.7	963.1	
-440.8	CARBONDALE		SILTSTONE	4.3	964.8	

MAPID: 08123815000C VERSION: 1

PROJECT: NCRDS98

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 32 QUARTERS/FOOTAGES: SE NE

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.779436 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.133377 DATE COLLECTED: 9 / 2 / 1981

SURFACE ELEVATION (FT.): 467.0 LOGGED (FT.): 968.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #80 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
467.0			UNCLASSIFIED	820.0	0.0	
-353.0	CARBONDALE		SANDSTONE	1.0	820.0	
-354.0	CARBONDALE		SHALE	3.0	821.0	
-357.0	CARBONDALE	BANKSTON FORK	LIMESTONE	5.8	824.0	
-362.8	CARBONDALE		SHALE	32.2	829.8	
-395.0	CARBONDALE		SHALE	4.0	862.0	BLACK
-399.0	CARBONDALE	BRERETON	LIMESTONE	6.0	866.0	
-405.0	CARBONDALE	HERRIN	COAL	5.8	872.0	
-410.8	CARBONDALE		UNDERCLAY	5.2	877.8	
-416.0	CARBONDALE		UNCLASSIFIED	68.0	883.0	
-484.0	CARBONDALE	ST. DAVID	LIMESTONE	1.0	951.0	
-485.0	CARBONDALE	TURNER MINE	SILTY SHALE	4.2	952.0	
-489.2	CARBONDALE	SPRINGFIELD	COAL	4.4	956.2	
-493.6	CARBONDALE		UNDERCLAY	7.4	960.6	

MAPID: 08123816000C VERSION: 1

PROJECT: NCRDS98

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 32 QUARTERS/FOOTAGES: SE SW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.792188 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.126573 DATE COLLECTED: 9 / 16 / 1981

SURFACE ELEVATION (FT.): 483.0 LOGGED (FT.): 942.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #92 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
483.0			UNCLASSIFIED	841.0	0.0	
-358.0	CARBONDALE		SHALE	4.0	841.0	DARK
-362.0	CARBONDALE		SHALE	1.4	845.0	
-363.4	CARBONDALE	HERRIN	COAL	11.6	846.4	
-375.0	CARBONDALE		UNCLASSIFIED	66.0	858.0	
-441.0	CARBONDALE	ST. DAVID	LIMESTONE	1.4	924.0	
-442.4	CARBONDALE	TURNER MINE	SHALE	2.6	925.4	BLACK
-445.0	CARBONDALE	DYKERSBURG	DARK SHALE	1.0	928.0	
-446.0	CARBONDALE	DYKERSBURG	SHALE	1.5	929.0	
-447.5	CARBONDALE	SPRINGFIELD	COAL	4.9	930.5	
-452.4	CARBONDALE		UNDERCLAY	6.6	935.4	
-459.0	CARBONDALE		SILTSTONE	0.0	942.0	

MAPID: 08100798000C VERSION: 1

PROJECT: CIRC 431

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.742661 GEOLOGIST: HOPKINS

CONFIDENTIAL: N LATITUDE: 38.126526 DATE COLLECTED:

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 3407.0 LOG TYPE:

SOURCE: BAYER, KENNETH M. WELL TYPE:

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-353.0	CARBONDALE	DANVILLE	COAL	-	862.0	
-378.0	CARBONDALE	BANKSTON FORK	LIMESTONE	-	887.0	
-421.0	CARBONDALE	HERRIN	COAL	5.0	930.0	
-445.0	CARBONDALE	VERMILIONVILLE	CALCAREOUS SANDSTONE	8.0	954.0	
-474.0	CARBONDALE	BRIAR HILL	COAL	-	983.0	
-481.0	CARBONDALE	CANTON	CALCAREOUS SANDSTONE	8.0	990.0	
-501.0	CARBONDALE	SPRINGFIELD	COAL	4.0	1010.0	BLACK SHALE & LIMESTONE ROOF
-581.0	CARBONDALE	HOUCHIN CREEK	COAL	-	1090.0	

MAPID: 08100798000C VERSION: 2

PROJECT: ROOF STUDY

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 34 QUARTERS/FOOTAGES: 330' S line, 330' E line

QUADRANGLE: DAHLGREN LONGITUDE: -88.742661 GEOLOGIST:

CONFIDENTIAL: N LATITUDE: 38.126526 DATE COLLECTED:

SURFACE ELEVATION (FT.): 509.0 LOGGED (FT.): 927.0 LOG TYPE: Electric Log

SOURCE: WELL TYPE: Oil and Gas Test

COMMENT: GOOD DESCRIPTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
-338.0	MODESTO	PIASA	LIMESTONE	6.0	847.0	
-344.0	MODESTO		GRAY SHALE	9.0	853.0	
-353.0	CARBONDALE	DANVILLE	COAL	1.5	862.0	
-354.5	CARBONDALE		SHALE	2.0	863.5	
-356.5	CARBONDALE	ALLENBY	COAL	1.5	865.5	
-358.0	CARBONDALE		CLAYSTONE & SHALE	5.0	867.0	
-363.0	CARBONDALE	BANKSTON FORK	LIMESTONE W/ SHALE	12.0	872.0	
-375.0	CARBONDALE	LAWSON	SHALE & SANDSTONE	20.0	884.0	
-395.0	CARBONDALE		SILTY SHALE	18.0	904.0	
-413.0	CARBONDALE	BRERETON	LIMESTONE AND SANDSTONE	8.0	922.0	
-421.0	CARBONDALE	ANNA	BLACK SHALE	4.0	930.0	
-409.0	CARBONDALE	HERRIN	COAL	9.0	918.0	

MAPID: 08123817000C VERSION: 1

PROJECT: NCRDS98

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 34 QUARTERS/FOOTAGES: SE NW

QUADRANGLE: SPRING GARDEN LONGITUDE: -88.750789 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.133346 DATE COLLECTED: 9 / 19 / 1981

SURFACE ELEVATION (FT.): 493.0 LOGGED (FT.): 1002.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #93 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
493.0			UNCLASSIFIED	904.0	0.0	
-411.0	CARBONDALE	BRERETON	LIMESTONE	2.4	904.0	
-413.4	CARBONDALE	ANNA	SHALE	1.8	906.4	DARK
-415.2	CARBONDALE	ENERGY	SHALE	4.6	908.2	
-419.8	CARBONDALE	HERRIN	COAL	5.8	912.8	
-425.6	CARBONDALE		UNDERCLAY	4.3	918.6	
-429.8	CARBONDALE		UNCLASSIFIED	62.2	922.8	
-492.0	CARBONDALE		SHALE	1.5	985.0	DARK
-493.5	CARBONDALE	ST. DAVID	LIMESTONE	2.8	986.5	
-496.3	CARBONDALE	DYKERSBURG	SILTY SHALE	4.4	989.3	
-500.8	CARBONDALE	SPRINGFIELD	COAL	4.6	993.8	
-505.3	CARBONDALE		UNDERCLAY	3.7	998.3	

MAPID: 08123044000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 35 QUARTERS/FOOTAGES: NW NW NE

QUADRANGLE: DAHLGREN LONGITUDE: -88.731112 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.140032 DATE COLLECTED: 8 / 27 / 1976

SURFACE ELEVATION (FT.): 519.0 LOGGED (FT.): 1032.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY EN-13 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
519.0			UNCLASSIFIED	859.0	0.0	
-340.0	MODESTO	PIASA	LIMESTONE	4.0	859.0	
-344.0	MODESTO		SHALE	13.0	863.0	
-357.0	CARBONDALE	DANVILLE	COAL	2.0	876.0	
-359.0	CARBONDALE		SHALE	23.0	878.0	
-382.0	CARBONDALE	BANKSTON FORK	LIMESTONE	3.0	901.0	
-385.0	CARBONDALE		SHALE	26.0	904.0	
-411.0	CARBONDALE		SANDY SHALE	4.0	930.0	BEGIN CORE
-415.0	CARBONDALE	JAMESTOWN	BLACK SHALE	1.6	934.0	VITRAIN LENS
-416.6	CARBONDALE	BRERETON	LIMESTONE	2.7	935.6	
-419.3	CARBONDALE	ANNA	BLACK SHALE	1.8	938.3	
-421.1	CARBONDALE	HERRIN	COAL	5.8	940.1	
-426.8	CARBONDALE		UNDERCLAY	1.9	945.8	
-428.8	CARBONDALE		SILTSTONE	1.8	947.8	
-430.5	CARBONDALE		SHALE	46.5	949.5	NOT CORED
-477.0	CARBONDALE	BRIAR HILL	COAL	1.0	996.0	
-478.0	CARBONDALE		SHALE	11.0	997.0	NOT CORED
-489.0	CARBONDALE		SHALE	5.4	1008.0	BLACK BEGIN CORE
-494.4	CARBONDALE	ST. DAVID	LIMESTONE	1.4	1013.4	
-495.8	CARBONDALE	TURNER MINE	SHALE	0.3	1014.8	DARK
-496.1	CARBONDALE	TURNER MINE	BLACK SHALE	3.9	1015.1	
-500.0	CARBONDALE		COAL	4.6	1019.0	
-504.6	CARBONDALE		UNDERCLAY	3.7	1023.6	
-508.3	CARBONDALE		SILTSTONE	4.8	1027.3	
-513.0				0.0	1032.0	

MAPID: 08123799000C VERSION: 1

PROJECT: NCRDS99

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 35 QUARTERS/FOOTAGES: SE SW

QUADRANGLE: DAHLGREN LONGITUDE: -88.732579 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.128355 DATE COLLECTED: 8 / 8 / 1981

SURFACE ELEVATION (FT.): 504.0 LOGGED (FT.): 1023.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #57 WELL TYPE: Coal Test

COMMENT: 532440 N, 385170 E

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
504.0			UNCLASSIFIED	927.0	0.0
-423.0	CARBONDALE	BRERETON	LIMESTONE	2.3	927.0
-425.3	CARBONDALE	ANNA	BLACK SHALE	2.3	929.3
-427.5	CARBONDALE	HERRIN	COAL	6.8	931.5
-434.3	CARBONDALE		UNDERCLAY	4.8	938.3
-439.0	CARBONDALE		LIMESTONE	2.0	943.0
-441.0	CARBONDALE		UNCLASSIFIED	63.0	945.0
-504.0	CARBONDALE	DYKERSBURG	SHALE	4.7	1008.0
-508.7	CARBONDALE	SPRINGFIELD	COAL	4.8	1012.7
-513.4	CARBONDALE		UNDERCLAY	5.6	1017.4
-519.0				0.0	1023.0

MAPID: 08123818000C VERSION: 1

PROJECT: NCRDS98

COUNTY: JEFFERSON TWP/RNG: 4S 4E SECTION: 36 QUARTERS/FOOTAGES: SW SE

QUADRANGLE: DAHLGREN LONGITUDE: -88.713723 GEOLOGIST: C.KOROSE

CONFIDENTIAL: N LATITUDE: 38.125481 DATE COLLECTED: 9 / 6 / 1981

SURFACE ELEVATION (FT.): 549.0 LOGGED (FT.): 1058.0 LOG TYPE: Other Core Study

SOURCE: TENNESSEE VALLEY AUTHORITY ENCA #82 WELL TYPE: Coal Test

COMMENT:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)	
				UNIT	OVERBURDEN COMMENT
549.0			UNCLASSIFIED	967.0	0.0
-418.0	CARBONDALE	BRERETON	LIMESTONE	4.0	967.0
-422.0	CARBONDALE	ANNA	SILTY SHALE	1.2	971.0
-423.2	CARBONDALE	HERRIN	COAL	5.6	972.2
-428.8	CARBONDALE		UNDERCLAY	0.3	977.8
-429.0	CARBONDALE		UNCLASSIFIED	67.0	978.0
-496.0	CARBONDALE	DYKERSBURG	SHALE	5.8	1045.0
-501.8	CARBONDALE	SPRINGFIELD	COAL	5.0	1050.8
-506.8	CARBONDALE		UNDERCLAY	2.2	1055.8