

08700001000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 15 NENENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 566.0 GEOLOGIST: DATE COLLECTED: 0 / 0/1908
 Drillers Log Producer-Oil and Gas LOGGED (FT.): 530.00
 SOURCE: Reeves W W

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
566.00			UNCLASSIFIED	530.00	0.00	
36.00	BASE OF PENN		UNCLASSIFIED		530.00	

08700001000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 15 NENENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 566.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1908
 Drillers Log Oil and Gas Test LOGGED (FT.): 1560.00
 SOURCE: C. E. GIBSON CO. QUESTIONABLE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
566.00			UNCONSOLIDATED	6.00	0.00	
560.00			ROCK	74.00	6.00	
486.00			SILTSTONE	20.00	80.00	
466.00			SANDSTONE	15.00	100.00	
451.00			BLACK SHALE	4.00	115.00	SOFT
447.00			LIMESTONE	11.00	119.00	
436.00			SILTSTONE	10.00	130.00	
426.00			LIMESTONE	105.00	140.00	
321.00			SILTSTONE	13.00	245.00	
308.00			COAL	6.00	258.00	
302.00			SILTSTONE	36.00	264.00	
266.00			SANDSTONE	27.00	300.00	
239.00			COAL	2.00	327.00	
237.00			SILTSTONE	3.00	329.00	
234.00			SANDSTONE	18.00	332.00	
216.00			COAL	2.00	350.00	
214.00			SILTSTONE	13.00	352.00	
201.00			SANDSTONE	18.00	365.00	
183.00			SILTSTONE	90.00	383.00	
93.00			SANDSTONE	57.00	473.00	BASE OF PA
36.00			LIMESTONE	20.00	530.00	CONGL
16.00			SHALE	20.00	550.00	BLUE MUD
-4.00			LIMESTONE	5.00	570.00	
-9.00			SHALE	50.00	575.00	
-59.00			LIMESTONE	22.00	625.00	
-81.00			SILTSTONE	23.00	647.00	
-104.00			LIMESTONE	30.00	670.00	
-134.00			SILTSTONE	20.00	700.00	
-154.00			LIMESTONE	20.00	720.00	
-174.00			SILTSTONE	25.00	740.00	
-199.00			LIMESTONE	20.00	765.00	
-219.00			ROCK	10.00	785.00	RED
-229.00			SL/SS	155.00	795.00	ALTERNATING
-384.00			SILTSTONE	82.00	950.00	WITH LIMEY SHELLS
-466.00			LIMESTONE	42.00	1032.00	
-508.00			SILTSTONE	16.00	1074.00	
-524.00			LIMESTONE	20.00	1090.00	
-544.00			BLACK SHALE	140.00	1110.00	"PENCIL CAVE"-FRACTURED HARD SLATE
-684.00			SILTSTONE	170.00	1250.00	"DARK SLATE & SHELLS"
-854.00			SANDSTONE	20.00	1420.00	OIL SAND
-874.00			SILTSTONE	5.00	1440.00	
-879.00			LIMESTONE	115.00	1445.00	

08700023000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 3E SECTION: 24 NW 330S 330W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 733.0 GEOLOGIST: DATE COLLECTED: 3 / 0/1941
 Electric Log Producer-Oil and Gas LOGGED (FT.): 615.00
 SOURCE: Jenkins, Gordon T.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
733.00			UNCLASSIFIED	615.00	0.00	
118.00	BASE OF PENN		UNCLASSIFIED		615.00	

08700023000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 3E SECTION: 24 NW 330S 330W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 733.0 GEOLOGIST: BARGH,M DATE COLLECTED: 3 / 0/1941
 Multiple log types Oil and Gas Test LOGGED (FT.): 4250.00
 SOURCE: BENEDUM-TREES OIL CO 1,4,5 SAMPLE STUDY BY RJJ SS#5744 C#239

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
733.00			SANDSTONE	228.00	0.00	HARD
505.00			SHALE	37.00	228.00	
468.00			SANDSTONE	95.00	265.00	HARD
373.00			SH & SS	10.00	360.00	
363.00			SANDSTONE	120.00	370.00	HARD
243.00			SS/SH	50.00	490.00	BROKEN. BASE OF PENNSYLVANIAN
193.00			LS & SS	18.00	540.00	WITH GREEN SHALE
193.00			UNCLASSIFIED	-18.00	558.00	
193.00			SS/LS	22.00	540.00	
171.00			SHALE	38.00	562.00	
171.00			UNCLASSIFIED	18.00	600.00	
115.00			LIMESTONE	42.00	618.00	
115.00			UNCLASSIFIED	-60.00	660.00	
133.00			SHALE	20.00	600.00	
113.00			LIMESTONE	30.00	620.00	
83.00			LIMESTONE	20.00	650.00	HARD, BLACK
63.00			SHALE	25.00	670.00	BLUE
38.00			LIMESTONE	29.00	695.00	
9.00			SHALE	67.00	724.00	
-58.00			SANDSTONE	27.00	791.00	
-85.00			SHALE	0.00	818.00	
-85.00			LIMESTONE	16.00	818.00	SANDY
-101.00			LS W/ SH	29.00	834.00	
-130.00			SHALE	34.00	863.00	
-164.00			LIMESTONE	2.00	897.00	
-166.00			SANDSTONE	19.00	899.00	
-185.00			LS W/ SH	120.00	918.00	
-305.00			SHALE	92.00	1038.00	
-397.00			LIMESTONE	3.00	1130.00	
-400.00			LIMESTONE	6.00	1133.00	HARD
-406.00			SHALE	23.00	1139.00	
-429.00			SH & SS	20.00	1162.00	
-449.00			LS W/ SH	47.00	1182.00	
-449.00			UNCLASSIFIED	103.00	1229.00	
-599.00			SS/SH	16.00	1332.00	
-599.00			UNCLASSIFIED	-119.00	1348.00	
-496.00			LIMESTONE	23.00	1229.00	SANDY
-519.00			SH & SS	78.00	1252.00	
-597.00			SHALE	14.00	1330.00	
-611.00			SANDSTONE	15.00	1344.00	HARD
-626.00			LIMESTONE	18.00	1359.00	
-644.00			LSSHSS	24.00	1377.00	
-668.00			SHALE	66.00	1401.00	
-734.00			SHALE	45.00	1467.00	
-779.00			LIMESTONE	22.00	1512.00	
-801.00			SHALE	33.00	1534.00	
-834.00			SANDSTONE	5.00	1567.00	HARD
-839.00			SANDSTONE	10.00	1572.00	SOFT
-849.00			SANDSTONE	59.00	1582.00	HARD
-908.00			SHALE	56.00	1641.00	
-964.00			LS W/ SH	14.00	1697.00	
-978.00			SS/SH	24.00	1711.00	
-1002.00			SANDSTONE	5.00	1735.00	GAS
-1007.00			SANDSTONE	4.00	1740.00	CORE#1, V CALC, GR TO BR, BL SPECKS, OIL ST
-1007.00			UNCLASSIFIED	103.00	1744.00	
-1114.00			SS/SH	18.00	1847.00	BROKEN
-1114.00			UNCLASSIFIED	-121.00	1865.00	
-1011.00			LIMESTONE	20.00	1744.00	
-1031.00			LS W/ SH	26.00	1764.00	
-1057.00			LIMESTONE	21.00	1790.00	BROKEN
-1078.00			LIMESTONE	38.00	1811.00	HARD
-1116.00			SHALE	3.28	1849.00	CORE. CALC, RED, GREEN, HEMTC CLTES, SS, LS
-1119.30			LIMESTONE	1.00	1852.30	SANDY, CLTC, CALCITE, GREEN SH PARTINGS
-1120.30			SANDSTONE	3.75	1853.30	V CALC. SH & LS PTGS. COLITIC
-1124.00			LIMESTONE	0.66	1857.00	OOLITOC, SANDY, GREEN SH STRKS NEAR TOP
-1124.70			SANDSTONE	3.00	1857.70	SL. CALC, LT GREY GREEN, FINE, DKRD SH PTG
-1124.70			UNCLASSIFIED	3.00	1860.70	
732.80			SILTSTONE	2.30	0.20	CORE #3
732.80			UNCLASSIFIED	1858.20	2.50	
-1127.70			LIMESTONE	14.50	1860.70	SANDY, OOLITIC, CRINORDS, BRYOZOAN, R&G SHP
-1142.20			SANDSTONE	1.20	1875.20	CALC, OOLITIC, GREY, RED, FINE
-1143.40			LIMESTONE	135.00	1876.40	NO CORE
-1278.40			DOL	0.40	2011.40	CORE #4, ARGILL, GRAY, FINE
-1278.80			SHALE	0.30	2011.80	CALC, BRITTLE
-1279.10			LIMESTONE	3.50	2012.10	GREY, PFLY XLINE, STYNLITES, 4"CRSE.XLN ZN
-1282.60			LIMESTONE	5.80	2015.60	OOLITES W/DARK CENTERS. FEW STYOLITES
-1282.60			UNCLASSIFIED	5.80	2021.40	

730.50		LIMESTONE	63.00	2.50	
730.50		UNCLASSIFIED	1955.90	65.50	
-1288.40		LS/CHERT	1010.00	2021.40	INTERBEDDED
-2298.40		SHALE	82.00	3031.40	SANDY
-2380.40		BLACK SHALE	43.00	3113.40	
-2423.40		CALC SH	169.00	3156.40	INTERBEDDED
-2592.40		LS/CHERT	109.00	3325.40	INTERBEDDED
-2701.40		SS/LS	3.00	3434.40	CHERTY
-2704.40		SANDSTONE	12.00	3437.40	
-2716.40		LIMESTONE	14.00	3449.40	SANDY

08700025000C PROJECT: CUSMAP QUADRANGLE: GOREVILLE
COUNTY: JOHNSON 11S - R 3E SECTION: 30 E2W2SWNE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 766.0 GEOLOGIST: DATE COLLECTED: 0 / 0/1939
Survey Sample Study Producer-Oil and Gas LOGGED (FT.): 525.00
SOURCE: Tunnelhill Oil

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
766.00			UNCLASSIFIED	525.00	0.00	
241.00	BASE OF PENN		UNCLASSIFIED		525.00	

08700026000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 3 SESESWSE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 643.0 GEOLOGIST: DATE COLLECTED: 0 / 0/1900
Drillers Log Producer-Oil and Gas LOGGED (FT.): 455.00
SOURCE: Whitnel & Cunningham

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
643.00			UNCLASSIFIED	455.00	0.00	
188.00	BASE OF PENN		UNCLASSIFIED		455.00	

08700026000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 3 SESESWSE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 645.0 GEOLOGIST: BARGH,M DATE COLLECTED:
Oil and Gas Test LOGGED (FT.): 0.00
SOURCE: WHETNEL-CUNNINGHAM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
645.00			CLAYSTONE	29.00	0.00	
616.00			UNKNOWN	171.00	29.00	WHITE
445.00			SANDSTONE	20.00	200.00	SLATE
425.00			SILTSTONE	15.00	220.00	
410.00			SANDSTONE	115.00	235.00	
295.00			SILTSTONE	105.00	350.00	
190.00			SANDSTONE	120.00	455.00	WATER SAND
70.00			LIMESTONE	3.00	575.00	"RED ROCK"
67.00			UNKNOWN	67.00	578.00	RED ROCK
0.00			LIMESTONE	5.00	645.00	
-5.00			ROCK	72.00	650.00	
-77.00			SANDSTONE	70.00	722.00	
-147.00			LIMESTONE	45.00	792.00	
-192.00			ROCK	45.00	837.00	
-237.00			SANDSTONE	10.00	882.00	WATER SAND
-247.00			LS/SL	225.00	892.00	SOME SLATE
-472.00			SL/LS	95.00	1117.00	SOME SHELLS
-567.00			SILTSTONE	25.00	1212.00	
-592.00			LIMESTONE	10.00	1237.00	
-602.00			COAL	60.00	1247.00	
-662.00			SL/LS	20.00	1307.00	
-682.00			SANDSTONE	30.00	1327.00	
-712.00			LIMESTONE	50.00	1357.00	
-762.00			SILTSTONE	60.00	1407.00	
-822.00			LIMESTONE	60.00	1467.00	
-882.00			SILTSTONE	48.00	1527.00	
-930.00			SL/LS	45.00	1575.00	

-975.00 Limestone 48.00 1620.00

08700027000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 16 NESWNE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 610.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1936
 Drillers Log Water Well LOGGED (FT.): 300.00
 SOURCE: LANCASTER & SONS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
610.00			UNCONSOLIDATED	14.00	0.00	
596.00			SANDSTONE	30.00	14.00	
566.00				2.00	44.00	
564.00			SANDSTONE	34.00	46.00	
530.00			SHALE	18.00	80.00	
512.00			SANDSTONE	140.00	98.00	
372.00			SHALE	2.00	238.00	
370.00			LIMESTONE	1.00	240.00	
			SHALE	59.00		

08700028000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 17 2300N 700W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 557.0 GEOLOGIST: DATE COLLECTED: 0 / 0/1917
 Drillers Log Producer-Oil and Gas LOGGED (FT.): 530.00
 SOURCE: Wrightsman Chas

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
557.00			UNCLASSIFIED	530.00	0.00	
27.00	BASE OF PENN		UNCLASSIFIED		530.00	

08700028000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 17 2300N 700W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 577.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1917
 Drillers Log Oil and Gas Test LOGGED (FT.): 2009.00
 SOURCE: FRESHWATER & HITCHCOCK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
577.00			UNCONSOLIDATED	20.00	0.00	
557.00			CLAYSTONE	6.00	20.00	FIRECLAY
551.00			ROCK	26.00	26.00	
525.00			SL/SS	335.00	52.00	ALTERNATING BEDS
190.00			SANDSTONE	125.00	387.00	
65.00			SILTSTONE	10.00	512.00	
55.00			LIMESTONE	10.00	522.00	
45.00			SANDSTONE	35.00	532.00	
10.00			SILTSTONE	15.00	567.00	
-5.00			LIMESTONE	53.00	582.00	
-58.00			ROCK	8.00	635.00	RED
-66.00			LIMESTONE	54.00	643.00	
-120.00			SILTSTONE	7.00	697.00	
-127.00			LIMESTONE	43.00	704.00	
-170.00			ROCK	8.00	747.00	RED
-178.00			SILTSTONE	22.00	755.00	
-200.00			LIMESTONE	25.00	777.00	
-225.00			SILTSTONE	5.00	802.00	
-230.00			LIMESTONE	40.00	807.00	
-270.00			SANDSTONE	40.00	847.00	
-310.00			SILTSTONE	25.00	887.00	SLATE & SHELLS
-335.00			BLACK SHALE	10.00	912.00	
-345.00			LS/SL	235.00	922.00	ALTERNATING BEDS
-580.00			SANDSTONE	6.00	1157.00	
-586.00			SILTSTONE	49.00	1163.00	
-635.00			LIMESTONE	6.00	1212.00	
-641.00			SILTSTONE	49.00	1218.00	SLATE & SHELLS
-690.00			SANDSTONE	3.00	1267.00	
-693.00			SILTSTONE	52.00	1270.00	

-745.00	LIMESTONE	10.00	1322.00	
-755.00	SILTSTONE	15.00	1332.00	
-770.00	SANDSTONE	15.00	1347.00	
-785.00	SILTSTONE	35.00	1362.00	
-820.00	SANDSTONE	15.00	1397.00	
-835.00	LIMESTONE	125.00	1412.00	
-960.00	ROCK	5.00	1537.00	RED
-965.00	SL/LS	345.00	1542.00	ALTERNATING
-1310.00	ROCK	5.00	1887.00	RED
-1315.00	SILTSTONE	10.00	1892.00	SLATE & SHELLS
-1325.00	LIMESTONE	35.00	1902.00	
-1360.00	ROCK	8.00	1937.00	RED
-1368.00	LIMESTONE	52.00	1945.00	SANDY
-1420.00	ROCK	4.00	1997.00	RED
-1424.00	LIMESTONE	8.00	2001.00	

08700059000C PROJECT: CUSMAP QUADRANGLE: GOREVILLE
COUNTY: JOHNSON 11S - R 2E SECTION: 24 SWSW 175N 406E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 766.0 GEOLOGIST: DATE COLLECTED: 4 / 0/1955
Electric Log Producer-Oil and Gas LOGGED (FT.): 590.00
SOURCE: McEndree, Eber

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
766.00			UNCLASSIFIED	590.00	0.00	
176.00	BASE OF PENN		UNCLASSIFIED		590.00	

08700074000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 10 NW 330S 330E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 625.0 GEOLOGIST: DATE COLLECTED: 11 / 0/1955
Electric Log Producer-Oil and Gas LOGGED (FT.): 382.00
SOURCE: Shure Oil Corp.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
625.00			UNCLASSIFIED	382.00	0.00	
243.00	BASE OF PENN		UNCLASSIFIED		382.00	

08700074000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 10 NW 330S 330E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 625.0 GEOLOGIST: BARGH,M DATE COLLECTED: 11 / 0/1955
Multiple log types Oil and Gas Test LOGGED (FT.): 2230.00
SOURCE: SHURE OIL CO. 1,4,5 SAMPLE STUDY BY ATHERTON SS#26163

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
625.00			UNCONSOLIDATED	120.00	0.00	
505.00			SANDSTONE	30.00	120.00	TOP OF PENNSYLVANIAN
505.00			UNCLASSIFIED	-30.00	150.00	
505.00			SANDSTONE	30.00	120.00	SH; TRACE OF COAL
475.00			SANDSTONE	60.00	150.00	FINE, GREY
415.00			SANDSTONE	60.00	210.00	W SH SLIGHTLY CARBONACEOUS
355.00			SANDSTONE	50.00	270.00	LT GREY, FINE
305.00			SANDSTONE	31.00	320.00	BROWN, WHITE QTZ PEBBLES
274.00			LIMESTONE	19.00	351.00	TOP OF MISS
255.00			SHALE	60.00	370.00	WITH SOME LS
195.00			LIMESTONE	37.00	430.00	CHERTY
158.00			SHALE	13.00	467.00	
145.00			LIMESTONE	55.00	480.00	
90.00			SHALE	12.00	535.00	
78.00			LIMESTONE	32.00	547.00	
78.00			UNCLASSIFIED	30.00	579.00	
16.00			SHALE	41.00	609.00	SH, SS, SILTSTONE
-25.00			UNKNOWN	113.00	650.00	
-138.00			UNKNOWN	74.00	763.00	
-212.00			UNKNOWN	148.00	837.00	
-360.00			SHALE	41.00	985.00	
-401.00			LIMESTONE	22.00	1026.00	

-423.00		SS/SLT	100.00	1048.00	
-523.00		LS W/ SH	71.00	1148.00	
-594.00		SS/SH	80.00	1219.00	
-674.00		LS W/ SH	181.00	1299.00	
-855.00		SH & SS	80.00	1480.00	
-935.00		CALC SH	106.00	1560.00	
-1041.00		SANDSTONE	14.00	1666.00	
-1055.00		LIMESTONE	23.00	1680.00	
-1078.00		LS W/ SH	56.00	1703.00	
-1134.00		SS/SH	43.00	1759.00	
-1177.00		LIMESTONE	193.00	1802.00	TOP OF VALMEYER.SH,SS AT TOP
-1370.00		LIMESTONE	0.00	1995.00	

08700075000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 5 NW 990N 990W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 623.0 GEOLOGIST: DATE COLLECTED: 3 / 0/1956
Electric Log Producer-Oil and Gas LOGGED (FT.): 975.00
SOURCE: Farrar, Fletcher F.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
623.00			UNCLASSIFIED	975.00	0.00	
-352.00	BASE OF PENN		UNCLASSIFIED		975.00	

08700075000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
COUNTY: JOHNSON 11S - R 4E SECTION: 5 NW 990N 990W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 623.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1981
Multiple log types Oil and Gas Test LOGGED (FT.): 2333.00
SOURCE: FARRAR OIL CO 1,4,5 S#26387 (STUDY BY R. J. JACOBSON)

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
623.00			UNKNOWN	128.00	0.00	
495.00			SANDSTONE	10.00	128.00	
485.00	SPOON	BIDWELL	COAL	10.00	138.00	SOME SH, SS, CLAY
475.00			SHALE	30.00	148.00	SOME BK, CLAYSTONE, SILTSTONE
445.00			SS/SLT	10.00	178.00	
435.00			SANDSTONE	10.00	188.00	FINE, SH, SOME COAL
425.00			SHALE	10.00	198.00	SOME COAL
415.00			SH & SS	60.00	208.00	
355.00			SS/SH	10.00	268.00	SOME COAL
345.00			SS/SH	30.00	278.00	
315.00			DARK SHALE	10.00	308.00	COAL, SOME LS.
305.00			SANDSTONE	20.00	318.00	FINE, SOME COAL
285.00			SANDSTONE	70.00	338.00	
215.00			SS/SH	10.00	408.00	A LITTLE COAL
205.00			SS/SH	180.00	418.00	
25.00			SS/SH	10.00	598.00	A LITTLE COAL
15.00			SS/SH	70.00	608.00	LT TAN, SS, MED GREY SH
-55.00			SANDSTONE	80.00	678.00	MED GRAINED, WHITE
-135.00			SS/SH	10.00	758.00	SOME COAL
-145.00			SS/SH	60.00	768.00	
-205.00			SANDSTONE	10.00	828.00	
-215.00			SS/SH	30.00	838.00	A LITTLE COAL
-245.00			SS/SH	40.00	868.00	
-285.00			SH & SS	40.00	908.00	SOME COAL
-325.00			SANDSTONE	30.00	948.00	

08700077800M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 8 NENENE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1956
Strip Mine LOGGED (FT.): 47.50
SOURCE: FLD NOTES-SMITH JENNINGS CC MINE. AVERAGE SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNCONSOLIDATED	6.00	0.00	
544.00			SANDSTONE	15.00	6.00	

529.00 SPOON NEW BURNSIDE COAL 3.50 21.00
 SPOON UNDERCLAY
 ROCK 23.00

08700077801M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): Strip Mine GEOLOGIST: BARGH,M DATE COLLECTED: 8 / 8/1956
 LOGGED (FT.): 19.29
 SOURCE: MINE NOTES-SIMON, JENNINGS C C AVERAGED THICKNESSES

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
			UNCONSOLIDATED	5.00	0.00	
			SANDSTONE	5.00	5.00	
			SS/SH	6.00	10.00	
	SPOON	NEW BURNSIDE	COAL	3.29	16.00	
	SPOON		UNDERCLAY			

08700087500M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 NESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 Strip Mine GEOLOGIST: BARGH,M DATE COLLECTED: 6 / 8/1965
 LOGGED (FT.): 6.80
 SOURCE: MINE NOTES-HARRISON HEROD MNG CO. OTHER SAMPLES FROM THIS HIGHWALL

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
550.00			UNCLASSIFIED	0.00	0.00	
550.00			SHALE	4.50		
545.50			SANDSTONE	0.42	4.50	
545.10	ABBOTT	REYNOLDSBURG	COAL	1.46	4.90	BONE LOWEST .04'
543.60			UNDERCLAY	0.42	6.40	

08700087501M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 NWSENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 Strip Mine GEOLOGIST: BARGH DATE COLLECTED: 6 / 0/1965
 LOGGED (FT.): 28.83
 SOURCE: MINE NOTES - HEROD MNG CO.

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
550.00			UNCONSOLIDATED	18.00	0.00	
532.00			SHALE	9.00	18.00	WELL LAMINATED, SILTY
523.00			SILTSTONE	0.12	27.00	
522.90	ABBOTT		COAL	1.29	27.10	BRIGHT, FINE TO MED BANDS
521.60	ABBOTT		UNDERCLAY	0.42	28.40	

08700087502M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 NESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 Measured section Outcrop GEOLOGIST: BARGH,M DATE COLLECTED: 6 / 8/1965
 LOGGED (FT.): 7.82
 SOURCE: HEROD MNG CO. SAMPLED S. END OF PIT

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
550.00			UNCONSOLIDATED	6.00	0.00	
544.00			SANDSTONE	0.42	6.00	YELLOW TO RED STAINED
543.60	ABBOTT	REYNOLDSBURG	COAL	1.40	6.40	
542.20	ABBOTT		UNDERCLAY	0.00	7.80	GRAY

08700089300M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SWSWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1972
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: MINE NOTES-NEW BURNSIDE C C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
	SPOON	NEW BURNSIDE	COAL			

08700089700M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SESESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1969
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: MINE NOTES-JOBE C C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNKNOWN	0.00	0.00	

08700091000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 34 1200S 2700W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 490.0 GEOLOGIST: BARGH,M DATE COLLECTED: 6 / 0/1959
 Drillers Log Water Well LOGGED (FT.): 165.00
 SOURCE: RICHEY, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.00			CLAYSTONE	7.00	0.00	
483.00			SANDSTONE	53.00	7.00	BROWN
430.00			SHALE	20.00	60.00	GRAY
410.00			SANDSTONE	25.00	80.00	HARD, BROWN
385.00			SANDSTONE	60.00	105.00	WHITE

08700094500M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SENESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 4 / 20/1977
 Strip Mine LOGGED (FT.): 29.16
 SOURCE: MINE NOTES-NELSON, E & L MINE OTHER NOTES AVAILABLE ON THIS MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNCONSOLIDATED SANDSTONE		0.00	
			SHALE	6.00		
			COAL	2.00		
			COAL	0.50		
			SANDSTONE	12.00		
	SPOON	NEW BURNSIDE	COAL	2.66		
	SPOON		ROCK	6.00		
	SPOON		COAL			CONCEALED

08700095100M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5
 CONFIDENTIAL: N

SURFACE ELEVATION (FT.): GEOLOGIST: BARGH,M DATE COLLECTED: 4 /20/1977
 Strip Mine LOGGED (FT.): 24.33
 SOURCE: MINE NOTES-OXFORD MNG C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			UNKNOWN	20.00	0.00	
	SPOON	NEW BURNSIDE	COAL	2.50	20.00	SH PTGS .16'
	SPOON		CLAYSTONE	0.50	22.50	
	SPOON	NEW BURNSIDE	COAL	1.33	23.00	LOWER BENCH

08700098000M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 2 /28/1980
 Strip Mine LOGGED (FT.): 28.00
 SOURCE: MINE NOTES-INDUSTRIAL COAL PRODUCERS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNCONSOLIDATED	12.00	0.00	
538.00			SHALE	16.00	12.00	
	SPOON	NEW BURNSIDE	COAL			"SAID TO BE 5'

08700098600M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 NESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH,M DATE COLLECTED: 12 / 2/1978
 Strip Mine LOGGED (FT.): 52.63
 SOURCE: MINE NOTES-JOHN NELSON, ENERGY EXPLOR.CO EST. SECTION N. E. CORNER OF PIT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
540.00			UCLY/SH	20.00	0.00	
520.00			SHALE	30.00	20.00	
490.00			COAL	2.63	50.00	PYRITE PTG .01', .03', .01', .02', '15'
			SHALE			WITH ABUNDANT PLANT DEBRIS

08700098601M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 SWSENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED: 12 / 2/1978
 Strip Mine LOGGED (FT.): 2.33
 SOURCE: MINE NOTES-JOHN NELSON, ENERGY EXPLOR.CO

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SHALE			
			COAL	2.33		PYRITE PTGS .01', .02', .02', .03'
			SHALE			

08700098602M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 SWNESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED: 12 / 2/1978
 Strip Mine LOGGED (FT.): 2.31
 SOURCE: MINE NOTES-JOHN NELSON, ENERGY EXPLOR.CO

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	

SHALE
 COAL 2.31 PYRITE PTGS .02', .01', .02', .02'
 SHALE

08700104000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 3E SECTION: 23 1700S 400E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 697.0 GEOLOGIST: DATE COLLECTED: 7 / 0/1965
 Drillers Log Producer-Oil and Gas LOGGED (FT.): 205.00
 SOURCE: Mitchell & Stanonis

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
697.00			UNCLASSIFIED	205.00	0.00	
492.00	BASE OF PENN		UNCLASSIFIED		205.00	

08700104000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 3E SECTION: 23 1700S 400E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 684.0 GEOLOGIST: BARGH,M DATE COLLECTED: 7 / 1/1965
 Drillers Log Oil and Gas Test LOGGED (FT.): 1676.00
 SOURCE: MITCHELL & STANONIS, INC

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
684.00			UNCONSOLIDATED	25.00	0.00	
659.00			SHALE	3.00	25.00	
656.00			SANDSTONE	163.00	28.00	
493.00			SS/SH	14.00	191.00	
479.00			LIMESTONE	10.00	205.00	SHELLS
469.00			LS & SS	30.00	215.00	
439.00			SANDSTONE	23.00	245.00	HARD
416.00			SHALE	6.00	268.00	
410.00			SANDSTONE	46.00	274.00	WHITE, FINE
364.00			BLACK SHALE	15.00	320.00	
349.00			SANDSTONE	45.00	335.00	WHITE, COARSE
304.00			SS/SH	33.00	380.00	
271.00			SANDSTONE	97.00	413.00	WHITE, HARD
174.00			LIMESTONE	10.00	510.00	
164.00			SHALE	12.00	520.00	
152.00			ROCK	5.00	532.00	"RED ROCK"
147.00			LIMESTONE	8.00	537.00	
139.00			SHALE	35.00	545.00	BLUE, MUDDY, SANDY AT BASE
104.00			LIMESTONE	43.00	580.00	
61.00			SHALE	15.00	623.00	SHALE, RED ROCK
46.00			LIMESTONE	29.00	638.00	HARD
17.00			SANDSTONE	5.00	667.00	
12.00			LIMESTONE	8.00	672.00	
4.00			SHALE	23.00	680.00	
-19.00			LIMESTONE	32.00	703.00	
-51.00			SHALE	10.00	735.00	
-61.00			SANDSTONE	24.00	745.00	
-85.00			SHALE	20.00	769.00	
-105.00			LIMESTONE	11.00	789.00	
-116.00			SHALE	9.00	800.00	
-125.00			LIMESTONE	11.00	809.00	
-136.00			SANDSTONE	6.00	820.00	WATER BEARING
-142.00			CALC SH	17.00	826.00	
-159.00			SANDSTONE	17.00	843.00	
-176.00			SHALE	8.00	860.00	SANDY
-184.00			LIMESTONE	7.00	868.00	BLACK
-191.00			SHALE	10.00	875.00	
-201.00			LIMESTONE	47.00	885.00	SHELLS
-248.00			SHALE	9.00	932.00	
-257.00			SANDSTONE	16.00	941.00	
-273.00			SHALE	8.00	957.00	
-281.00			LIMESTONE	6.00	965.00	
-287.00			SHALE	4.00	971.00	
-291.00			LIMESTONE	70.00	975.00	
-361.00			UNCERTAIN	26.00	1045.00	
-387.00			LIMESTONE	31.00	1071.00	WITH 1 FT SHALE BAND
-418.00			SHALE	98.00	1102.00	
-516.00			SANDSTONE	9.00	1200.00	WHITE, COARSE
-525.00			SHALE	3.00	1209.00	
-528.00			LIMESTONE	15.00	1212.00	
-543.00			SANDSTONE	5.00	1227.00	
-548.00			LIMESTONE	4.00	1232.00	SANDY
-552.00			SANDSTONE	23.00	1236.00	SANDY
-575.00			SANDSTONE	6.00	1259.00	COARSE

-581.00	SANDSTONE	3.00	1265.00	WHITE,FINE
-584.00	LIMESTONE	19.00	1268.00	
-603.00	SHALE	32.00	1287.00	
-635.00	LIMESTONE	27.00	1319.00	
-662.00	SH & SS	43.00	1346.00	
-705.00	SANDSTONE	6.00	1389.00	HARD
-711.00	SHALE	6.00	1395.00	
-717.00	LIMESTONE	19.00	1401.00	HARD
-736.00	LS W/ SH	31.00	1420.00	
-767.00	LIMESTONE	7.00	1451.00	
-774.00	SHALE	22.00	1458.00	SANDY
-796.00	LIMESTONE	7.00	1480.00	
-803.00	SHALE	46.00	1487.00	
-849.00	LIMESTONE	4.00	1533.00	
-853.00	SHALE	39.00	1537.00	
-892.00	SANDSTONE	3.00	1576.00	COARSE
-895.00	SHALE	21.00	1579.00	
-916.00	SANDSTONE	17.00	1600.00	WATER

08700147000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 4 2900N 200W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 610.0 GEOLOGIST: BARGH,M DATE COLLECTED: 6 / 4/1969
Drillers Log Water Well LOGGED (FT.): 71.00
SOURCE: Q. RICHEY, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
610.00			CLAYSTONE	10.00	0.00	
600.00			SANDSTONE	58.00	10.00	
542.00			COAL	2.00	68.00	
540.00			UNDERCLAY	1.00	70.00	

08700151000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 15 NENWNW 200S 200E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 630.0 GEOLOGIST: BARGH,M DATE COLLECTED: 7 / 8/1969
Drillers Log Water Well LOGGED (FT.): 140.00
SOURCE: GREER, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
630.00			CLAYSTONE	34.00	0.00	
630.00			UNCLASSIFIED	106.00	34.00	
490.00			SANDSTONE	106.00	140.00	GRAY TO WHITE

08700152000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 15 1550S 950W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 660.0 GEOLOGIST: BARGH,M DATE COLLECTED: 7 /24/1969
Drillers Log Water Well LOGGED (FT.): 134.00
SOURCE: GREER, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
660.00			CLAYSTONE	32.00	0.00	
628.00			SANDSTONE	102.00	32.00	BROWN

08700153000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 15 NWSW 300S 50W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 610.0 GEOLOGIST: BARGH,M DATE COLLECTED: 7 /24/1969
Drillers Log Water Well LOGGED (FT.): 100.00
SOURCE: GREER, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
610.00			CLAYSTONE	36.00	0.00	
610.00			UNCLASSIFIED	64.00	36.00	
510.00			SANDSTONE	64.00	100.00	BROWN

08700184000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 22 NWNWNWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 650.0 GEOLOGIST: BARGH,M DATE COLLECTED: 8 / 9/1970
 Drillers Log Water Well LOGGED (FT.): 135.00
 SOURCE: SERGENT, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
650.00			UNKNOWN	8.00	0.00	
642.00			UNKNOWN	127.00	8.00	

08700252800M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1972
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: MINE NOTES-KNICKERBOCKER C C MANY SMALL MINES IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
	SPOON	NEW BURNSIDE	COAL			

08700252900M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 2200N 1000E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 620.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1937
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: MINE NOTES-TREECE SLOPE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
620.00			UNKNOWN	45.00	0.00	
575.00	SPOON	BIDWELL	COAL	3.50	45.00	

08700253000M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 4E SECTION: 6 NWNWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 650.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1970
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: MINE NOTES-HOLLY MNG C

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
650.00			UNKNOWN	0.00	0.00	

08700262100M PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 400S 1300E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH DATE COLLECTED: 0 / 0/1973

SOURCE: DEATON C C Strip Mine LOGGED (FT.): 0.00

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
	SPOON	NEW BURNSIDE	COAL		0.00	
	SPOON	NEW BURNSIDE	COAL			

08700421500M PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 SWNESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH M. DATE COLLECTED:
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: TOPO MAP-COZANT MINE FLD NOTES-SEVERAL DRIFT MINES IN AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			UNKNOWN	0.00	0.00	

08700421600M PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 35 SWSENNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1928
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-WHITE WANLESS "COAL REPORTED TO BE 3.5'" 1933

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			COAL SHALE			CANNEL

08720277000C PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 26 NWSWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 680.0 GEOLOGIST: BARGH,M DATE COLLECTED: 10 /26/1973
 Drillers Log Water Well LOGGED (FT.): 250.00
 SOURCE: RICHEY, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
680.00			CLAYSTONE	12.00	0.00	
668.00			SANDSTONE	78.00	12.00	
590.00			SS/SH	160.00	90.00	

08720278000C PROJECT: COGEOMAP QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 23 NENSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 680.0 GEOLOGIST: BARGH DATE COLLECTED: 7 /29/1974
 Water Well LOGGED (FT.): 190.00
 SOURCE: GRIER, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
680.00			CLAYSTONE	20.00	0.00	SANDY
660.00			UNKNOWN	20.00	20.00	
640.00			SANDSTONE	150.00	40.00	

08720317000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 2 NWSWSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 3 /23/1977
 Drillers Log Water Well LOGGED (FT.): 110.00
 SOURCE: KELTON, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			CLAYSTONE	11.00	0.00	
550.00			UNCLASSIFIED	9.00	11.00	
530.00			SANDSTONE	9.00	20.00	SOFT, BROWN
530.00			UNCLASSIFIED	16.00	29.00	
505.00			SHALE	25.00	45.00	
505.00			UNCLASSIFIED	40.00	70.00	
440.00			SANDSTONE	65.00	110.00	GRAY

08720318000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 2 1400N 1750E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 1 / 5/1979
 Drillers Log Water Well LOGGED (FT.): 100.00
 SOURCE: LESTER, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			CLAYSTONE	25.00	0.00	
500.00			UNCLASSIFIED	50.00	25.00	
425.00			SAND	50.00	75.00	
425.00			UNCLASSIFIED	-25.00	125.00	
400.00			SANDSTONE	25.00	100.00	

08720342000C PROJECT: COGEOMAP QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 24 1650N 2310E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 684.0 GEOLOGIST: BARGH DATE COLLECTED: 1 /12/1980
 Oil and Gas Test LOGGED (FT.): 2395.00
 SOURCE: R. L. MITCHELL & W. J. HAMILTON MISS TOPS PICKED BY WEIBEL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
684.00			UNCLASSIFIED	0.00	0.00	
684.00			UNKNOWN	535.00		TOP MISS
149.00			SHALE	51.00	535.00	
98.00			LIMESTONE	169.00	586.00	
98.00			UNCLASSIFIED	-169.00	755.00	
98.00			LIMESTONE	48.00	586.00	
50.00			SHALE	88.00	634.00	
-38.00			LIMESTONE	33.00	722.00	
-71.00			UNKNOWN	200.00	755.00	
-271.00			SANDSTONE	36.00	955.00	
-307.00			LIMESTONE	141.00	991.00	
-307.00			UNCLASSIFIED	-117.00	1132.00	
-331.00			LIMESTONE	0.00	1015.00	
-331.00			UNCLASSIFIED	58.00	1015.00	
-389.00			LIMESTONE	0.00	1073.00	
-389.00			UNCLASSIFIED	59.00	1073.00	
-448.00			SANDSTONE	64.00	1132.00	
-512.00			LIMESTONE	8.00	1196.00	
-520.00			SANDSTONE	103.00	1204.00	
-623.00			LIMESTONE	74.00	1307.00	
-697.00			SANDSTONE	47.00	1381.00	
-744.00			LIMESTONE	120.00	1428.00	
-864.00			SHALE	87.00	1548.00	
-951.00			LIMESTONE	9.00	1635.00	
-960.00			SANDSTONE	94.00	1644.00	
-1054.00			UNKNOWN	36.00	1738.00	QUESTIONABLE
-1090.00			SANDSTONE	65.00	1774.00	
-1155.00			LIMESTONE	94.00	1839.00	
-1249.00			SANDSTONE	36.00	1933.00	QUESTIONABLE
-1285.00			LIMESTONE	0.00	1969.00	QUESTIONABLE

08720343000C PROJECT: CUSMAP QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 16 330N 1650E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 653.0 GEOLOGIST: DATE COLLECTED:
 Electric Log Dry Hole LOGGED (FT.): 440.00
 SOURCE:

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
653.00			UNCLASSIFIED	440.00	0.00	
213.00	BASE OF PENN		UNCLASSIFIED		440.00	

08720343000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS * ALTERNATE DESCRIPTION ON FILE *
 COUNTY: JOHNSON 11S - R 4E SECTION: 16 330N 1650E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 653.0 GEOLOGIST: WEIBEL,CP DATE COLLECTED: 1 /24/1980
 Electric Log Oil and Gas Test LOGGED (FT.): 2075.00
 SOURCE: R.L. MITCHELL & W.J. HAMILTON SAMPLE SET #62375

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
653.00			UNCLASSIFIED	442.00	0.00	
211.00			UNKNOWN	55.00	442.00	TOP MISS
156.00			UNKNOWN	44.00	497.00	
112.00			UNKNOWN	193.00	541.00	
-81.00			UNKNOWN	55.00	734.00	
-136.00			UNKNOWN	143.00	789.00	
-279.00			UNKNOWN	43.00	932.00	
-322.00			UNKNOWN	23.00	975.00	
-345.00			UNKNOWN	80.00	998.00	
-425.00			UNKNOWN	53.00	1078.00	
-478.00			UNKNOWN	98.00	1131.00	
-576.00			UNKNOWN	115.00	1229.00	
-691.00			UNKNOWN	73.00	1344.00	
-764.00			UNKNOWN	104.00	1417.00	BEECH CREEK ABSENT
-764.00			UNCLASSIFIED	2.00	1521.00	
-870.00			UNKNOWN	84.00	1523.00	QUESTIONABLE
-870.00			UNCLASSIFIED	-2.00	1607.00	
-952.00			UNKNOWN	0.00	1605.00	

08720350000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 27 NENENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 640.0 GEOLOGIST: BARGH,M DATE COLLECTED: 2 /27/1980
 Drillers Log Water Well LOGGED (FT.): 500.00
 SOURCE: SERGENT, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
640.00			UNKNOWN	25.00	0.00	
615.00			UNKNOWN	40.00	25.00	
575.00			UNKNOWN	30.00	65.00	
545.00			UNKNOWN	405.00	95.00	

08720353000C PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 4E SECTION: 6 NW 650S 670E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 700.0 GEOLOGIST: BARGH,M DATE COLLECTED: 10 / 9/1979
 Drillers Log Water Well LOGGED (FT.): 335.00
 SOURCE: Q. RICHEY, DRILLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
700.00			CLAYSTONE	7.00	0.00	
693.00			SANDSTONE	13.00	7.00	BROWN

680.00	SHALE	5.00	20.00	BROWN
675.00	COAL	2.50	25.00	
672.50	UCLY/SH	5.00	27.50	
667.50	SHALE	32.50	32.50	BROWN
635.00	SANDSTONE	20.00	65.00	BROWN, HARD
615.00	SH & SS	18.00	85.00	
597.00	COAL	1.50	103.00	
595.50	UCLY/SH	3.00	104.50	
592.50	SANDSTONE	92.00	107.50	BROWN, HARD
500.50	SH & SS	18.00	199.50	
482.50	SANDSTONE	117.50	217.50	WITH SH PTGS

08720395000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 23 2600S 1200W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 710.0 GEOLOGIST: C KOROSE DATE COLLECTED: 10 / 9/1985
Survey Core Study Coal Test LOGGED (FT.): 83.00
SOURCE: COGEMAP C-2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
710.00	PLEISTOCENE		UNCONSOLIDATED	8.00	0.00	
702.00	ABBOTT		SANDSTONE	11.40	8.00	FRIABLE; LIGHT
690.60	ABBOTT		SANDSTONE	1.50	19.40	WHITE
689.10	ABBOTT		SANDSTONE	1.00	20.90	BROWN
688.10	ABBOTT		CORE LOSS	5.70	21.90	
682.40	ABBOTT		SANDSTONE	8.60	27.60	DARKER AT BASE; LIGHT
673.80	ABBOTT		CORE LOSS	6.10	36.20	
667.70	ABBOTT		SANDSTONE	6.70	42.30	CALCAREOUS
661.00	ABBOTT		CORE LOSS	2.20	49.00	
658.80	ABBOTT		SANDSTONE	4.00	51.20	AS ABOVE
654.70	ABBOTT		SHALE	7.10	55.30	BLACK AT BASE; DARK
647.60	ABBOTT		SHALE	6.60	62.40	SILTY; GRAY
641.00	ABBOTT		SHALE	1.30	69.00	AS ABOVE
639.70	ABBOTT		SANDSTONE	2.70	70.30	SILTY; LIGHT
637.00	ABBOTT		SHALE	7.50	73.00	SILTY
629.50	ABBOTT		SANDSTONE	2.50	80.50	SILTY; LIGHT

08720397000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 25 1400S 1250E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 720.0 GEOLOGIST: C KOROSE DATE COLLECTED: 11 / 6/1985
Survey Core Study Coal Test LOGGED (FT.): 151.00
SOURCE: COGEMAP C-3

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
720.00	PLEISTOCENE		UNCONSOLIDATED	11.00	0.00	
709.00	ABBOTT		SANDSTONE	8.25	11.00	GRAY TO PINKISH, WEATHERS TO BROWN
700.70	ABBOTT		CORE LOSS	1.75	19.30	
699.00	ABBOTT		SANDSTONE	6.20	21.00	WITH MAFICS
692.80	ABBOTT		SANDSTONE	1.75	27.20	SHALEY
691.00	ABBOTT		CORE LOSS	5.00	29.00	
686.10	ABBOTT		SANDSTONE	7.05	33.90	PLANT DEBRIS; BROWN
679.00	ABBOTT		SANDSTONE	9.85	41.00	BROWN TO GRAY, AS ABOVE
669.20	ABBOTT		SHALE	1.65	50.80	SILTY; DARK
667.50	ABBOTT		SANDSTONE	8.50	52.50	SHALEY; GRAY
659.00	ABBOTT		SANDSTONE	1.10	61.00	CARBONACEOUS AT BASE
657.90	ABBOTT		SANDSTONE	22.65	62.10	SHALEY TO CLAYEY; BROWN
635.20	ABBOTT		SANDSTONE	14.85	84.80	SHALEY; GRAY
620.40	ABBOTT		SHALE	7.40	99.60	BLACK
613.00	ABBOTT		SANDSTONE	3.85	107.00	SHALEY, COAL STRINGERS AT BASE
609.10	ABBOTT		CORE LOSS	0.15	110.90	
609.00	ABBOTT		SH & SS	13.50	111.00	GRAY
595.50	ABBOTT		SHALE	2.10	124.50	CALCAREOUS
593.40	ABBOTT		SHALE	3.00	126.60	CARBONACEOUS; DARK
590.40	ABBOTT		LIMESTONE	0.50	129.60	DARK
589.90	ABBOTT		SHALE	0.90	130.10	SILTY, HARD, DARK
589.00	ABBOTT		SHALE	8.35	131.00	SILTY AT TOP
580.60	ABBOTT		COAL	1.65	139.40	TUNNEL HILL MEMBER
579.00	ABBOTT		SILTSTONE	7.20	141.00	SHALEY, BIOTURBATED, GRAY
571.80	ABBOTT		SANDSTONE	2.45	148.20	LIGHT
569.30	ABBOTT		CORE LOSS	0.35	150.70	

08720398000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 26 300N 1200E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 740.0 GEOLOGIST: C KOROSE DATE COLLECTED: 11 / 5/1985
 Survey Core Study Coal Test LOGGED (FT.): 80.80
 SOURCE: COGEMAP C-8

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
740.00	PLEISTOCENE		UNCONSOLIDATED	9.00	0.00	
731.00	ABBOTT		SANDSTONE	33.90	9.00	BROWN TO PINKISH GRAY, SIDERITIC
697.10	ABBOTT		SANDSTONE	11.10	42.90	SHALEY; BROWN
685.90	ABBOTT		SHALE	0.90	54.10	GRAY
685.00	ABBOTT		SHALE	12.05	55.00	BLACK, PYRITIC FOSSIL FRAGMENTS
672.90	ABBOTT		CALC SH	5.30	67.10	AS ABOVE
667.60	ABBOTT		SS/SH	8.45	72.40	CARBONACEOUS AT TOP; GRAY

08720399000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 35 150N 2050W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 740.0 GEOLOGIST: C KOROSE DATE COLLECTED: 11 / 4/ 85
 Survey Core Study Coal Test LOGGED (FT.): 110.00
 SOURCE: COGEMAP C-1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
740.00	PLEISTOCENE		UNCONSOLIDATED	14.00	0.00	
726.00	ABBOTT		SANDSTONE	1.40	14.00	
724.60	ABBOTT		SH & SS	2.30	15.40	SOFT, TAN
722.30	ABBOTT		SANDSTONE	2.55	17.70	MASSIVE
719.70	ABBOTT		CORE LOSS	0.25	20.30	
719.50	ABBOTT		SANDSTONE	4.80	20.50	
714.70	ABBOTT		CORE LOSS	5.20	25.30	FRACTURED AT BASE
709.50	ABBOTT		SANDSTONE	3.60	30.50	ABRASION SURFACES; BROWN
705.90	ABBOTT		CORE LOSS	6.40	34.10	
699.50	ABBOTT		SANDSTONE	2.95	40.50	LIGHT
696.60	ABBOTT		SILTSTONE	1.55	43.40	SHALEY; GRAY
695.00	ABBOTT		SANDSTONE	3.85	45.00	MASSIVE
691.20	ABBOTT		SILTSTONE	1.60	48.80	SHALEY; GRAY
689.60	ABBOTT		CORE LOSS	0.05	50.40	
689.50	ABBOTT		SILTSTONE	0.55	50.50	GRAY
688.90	ABBOTT		SANDSTONE	4.20	51.10	SHALEY; LIGHT
684.70	ABBOTT		CORE LOSS	3.05	55.30	
681.70	ABBOTT		SHALE	2.05	58.30	LIMEY; DARK
679.60	ABBOTT		SANDSTONE	0.15	60.40	LIGHT
679.50	ABBOTT		SHALE	2.20	60.50	DARK
677.30	ABBOTT		SANDSTONE	0.30	62.70	LIGHT
677.00	ABBOTT		SILTSTONE	4.25	63.00	DENSE
672.70	ABBOTT		SANDSTONE	3.25	67.30	LIGHT
669.50	ABBOTT		SANDSTONE	6.90	70.50	LIMEY; LIGHT
662.60	ABBOTT		SANDSTONE	0.75	77.40	LIMEY; LIGHT
661.90	ABBOTT		CORE LOSS	2.35	78.10	
659.50	ABBOTT		SANDSTONE	9.75	80.50	VERY LIGHT GRAY TO BUFF
649.70	ABBOTT		CORE LOSS	0.25	90.30	
649.50	ABBOTT		SANDSTONE	1.23	90.50	
648.30	ABBOTT		SANDSTONE	3.17	91.70	SILTY AT TOP
645.10	ABBOTT		SHALE	0.80	94.90	SANDY AT BASE; DARK
644.30	ABBOTT		SANDSTONE	0.55	95.70	SOME COAL INCLUSIONS; LIGHT
643.70	ABBOTT		SHALE	0.20	96.30	SANDY
643.50	ABBOTT		SHALE	1.80	96.50	LIMEY
641.70	ABBOTT		SANDSTONE	1.75	98.30	CLAYEY; GRAY
640.00	ABBOTT		SILTSTONE	0.50	100.00	LIGHT
639.50	ABBOTT		SANDSTONE	1.70	100.50	MASSIVE; LIGHT
637.80	ABBOTT		SHALE	0.80	102.20	SILTY
637.00	ABBOTT		SANDSTONE	1.35	103.00	SILTY
635.60	ABBOTT		SANDSTONE	6.15	104.40	SOME SILT

08720413000C PROJECT: NCRDS99 QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 2E SECTION: 25 900N 1200W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 780.0 GEOLOGIST: C KOROSE DATE COLLECTED: 5 / 28/1988
 Survey Core Study Coal Test LOGGED (FT.): 234.80
 SOURCE: COGEMAP G-2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	

780.00	PLEISTOCENE		UNCONSOLIDATED	14.00	0.00	
766.00	ABBOTT	MURRAY BLUFF	SANDSTONE	12.00	14.00	BROWN
754.00	ABBOTT		SANDSTONE	11.00	26.00	BIOTURBATED
743.00	ABBOTT		SANDSTONE	8.90	37.00	SHALEY, BIOTURBATED
734.10	ABBOTT		COAL	0.30	45.90	
733.80	ABBOTT		UNDERCLAY	12.00	46.20	
721.80	ABBOTT		SILTSTONE	7.80	58.20	GRAY
714.00	ABBOTT		SANDSTONE	56.40	66.00	SILTY, BIOTURBATED, GRAY
657.60	ABBOTT		CLAYSTONE/SILTST	15.20	122.40	OLIVE
642.40	ABBOTT		SILTSTONE	22.40	137.60	COAL STRINGERS NEAR 150. BIOTURBATED
620.00	ABBOTT		SHALE	21.00	160.00	SILTY; DARK
599.00	ABBOTT	REYNOLDSBURG	COAL	1.00	181.00	BRIGHTBANDED
598.00	ABBOTT		UNDERCLAY	1.50	182.00	GRAY
596.50	ABBOTT		SANDSTONE	4.50	183.50	SILTY; GRAY
592.00	ABBOTT		SILTSTONE	0.90	188.00	GRAY
591.10	CASEVILLE	POUNDS	SANDSTONE	45.90	188.90	CLEAN, FRIABLE; LIGHT

08720416000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 2000N 2000E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 595.0 GEOLOGIST: C KOROSE DATE COLLECTED: 7 /25/1986
 Survey Core Study Coal Test LOGGED (FT.): 154.00
 SOURCE: COGEMAP C-7

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
595.00	PLEISTOCENE		UNCONSOLIDATED	10.00	0.00	
585.00			SANDSTONE	35.50	10.00	CLAYEY, LIGHT TO TAN
549.50			SANDSTONE	0.50	45.50	AS ABOVE
549.00			SS/SH	29.60	46.00	COAL PEBBLES AT BASE; GRAY
519.40			SHALE	12.60	75.60	SILTY, BURROWED
506.80	SPOON	DELWOOD	COAL	1.40	88.20	BRIGHT BANDED; GRAY
505.40	SPOON		SH/COAL	1.20	89.60	BRIGHT-BANDED TO DULL
504.20	SPOON		CLAYSTONE/SILTST	0.80	90.80	DARK
503.40	SPOON	DELWOOD	COAL	2.60	91.60	
500.80			UNDERCLAY	6.20	94.20	SILTY; DARK
494.60			SILTSTONE	2.00	100.40	
492.60			SANDSTONE	5.60	102.40	SILTY, RIPPLE MARKS AT 106.0
487.00			SS/SH	46.00	108.00	GRAY

08720417000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 15 2600S 2170E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 620.0 GEOLOGIST: C KOROSE DATE COLLECTED: 8 /15/1986
 Survey Core Study Coal Test LOGGED (FT.): 266.30
 SOURCE: COGEMAP C-6

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
620.00	PLEISTOCENE		UNCONSOLIDATED	14.00	0.00	
606.00	ABBOTT	MURRAY BLUFF	SS/SH	12.00	14.00	RED TO ORANGE
594.00	ABBOTT	MURRAY BLUFF	UNDERCLAY	0.70	26.00	COAL STRINGER
593.30	ABBOTT	MURRAY BLUFF	SS/SH	22.60	26.70	GRAY
570.70	ABBOTT		SHALE	11.90	49.30	OLIVE SHALE MEMBER; SANDY
558.80	ABBOTT		SANDSTONE	8.20	61.20	OLIVE SHALE; GRAY, CLAYEY
550.60	ABBOTT		SHALE	19.20	69.40	OLIVE SHALE MEMBER
531.40	ABBOTT		CLAYSTONE/SILTST	7.00	88.60	OLIVE SHALE MEMBER; DARK
524.40	ABBOTT		SANDSTONE	23.50	95.60	GRAY, OLIVE SHALE MEMBER; BIOTURBATED
500.90	ABBOTT		SANDSTONE	38.20	119.10	OLIVE SHALE MEMBER; SHALEY; GRAY
462.70	ABBOTT		SANDSTONE	7.00	157.30	CARBONACEOUS
455.70	ABBOTT		SS/SH	12.60	164.30	GRAY
443.10	ABBOTT		SHALE	2.80	176.90	VERY CARBONACEOUS AT BASE; BLACK
440.30	ABBOTT		COAL	1.00	179.70	TUNNEL HILL MEMBER; BRIGHT BANDED
439.30	ABBOTT		UNDERCLAY	0.30	180.70	
439.00	ABBOTT		SANDSTONE	85.30	181.00	CLAYEY; LIGHT

08720418000C PROJECT: NCRDS99 QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 25 1925N 1600W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 720.0 GEOLOGIST: C KOROSE DATE COLLECTED: 7 /24/1987
 Survey Core Study Stratigraphic Test LOGGED (FT.): 346.00
 SOURCE: COGEMAP S-4

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
720.00	PLEISTOCENE		UNCONSOLIDATED	26.25	0.00	
693.70	ABBOTT	MURRAY BLUFF	SANDSTONE	8.60	26.30	WITH SOME COAL ZONES; DARK
685.20	ABBOTT	MURRAY BLUFF	SHALE	3.45	34.80	SANDY; GRAY
681.70	ABBOTT	MURRAY BLUFF	SANDSTONE	89.30	38.30	SHALEY; GRAY
592.40	ABBOTT	MURRAY BLUFF	SHALE	0.50	127.60	SANDY, CONGLOMERATE, SIDERITE NODULES
591.90	ABBOTT	MURRAY BLUFF	SS/SH	6.90	128.10	
585.00	ABBOTT		SILTSTONE	103.10	135.00	OLIVE SHALE MEMBER; SOME BURROWING
481.90	ABBOTT		SANDSTONE	3.00	238.10	SILTY, CONGLOMERATE, SIDERITE NODULES
478.90	ABBOTT		SHALE	0.40	241.10	HARD; BLACK
478.50	ABBOTT		SANDSTONE	1.80	241.50	SHALEY, CONGLOMERATIC
476.70	ABBOTT		SANDSTONE	24.60	243.30	LIGHT
452.10	ABBOTT		SANDSTONE	4.60	267.90	SHALEY, CONGLOMERATIC
447.50	ABBOTT		SH & SS	5.00	272.50	
442.50	ABBOTT		SANDSTONE	1.45	277.50	COAL DEBRIS AT BASE; GRAY
441.00	ABBOTT		COAL	0.05	279.00	
441.00	ABBOTT		UNDERCLAY	1.60	279.00	OLIVE
439.40	ABBOTT		SANDSTONE	7.40	280.60	SHALE; LIGHT
432.00	ABBOTT		SH & SS	19.90	288.00	SILTY
412.10	ABBOTT		SHALE	15.85	307.90	COAL STRINGERS; DARK
396.20	ABBOTT	REYNOLDSBURG	COAL	0.55	323.80	BRIGHT-BANDED
395.70	ABBOTT		UNDERCLAY	2.80	324.30	
392.90	ABBOTT		SHALE	6.20	327.10	DARK
386.70	ABBOTT	REYNOLDSBURG	COAL	0.90	333.30	BRIGHT BANDED
385.80	ABBOTT		UNDERCLAY	1.30	334.20	BROWN
384.50	CASEYVILLE		SANDSTONE	10.50	335.50	

08720419000C PROJECT: NCRDS99 QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 3E SECTION: 36 900S 600E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 760.0 GEOLOGIST: C KOROSE DATE COLLECTED: 7 /16/1986
Survey Core Study Coal Test LOGGED (FT.): 247.27
SOURCE: COGEMAP C-5

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
760.00	PLEISTOCENE		UNCONSOLIDATED	16.00	0.00	
744.00	ABBOTT		SANDSTONE	26.10	16.00	CLAYEY, BROWN TO ORANGE, HARD
717.90	ABBOTT		SHALE	7.45	42.10	SILTY
710.40	ABBOTT		SANDSTONE	16.30	49.60	SHALEY; GRAY
694.10	ABBOTT		SHALE	0.15	65.90	DARK
694.00	ABBOTT		SANDSTONE	11.45	66.00	SCATTERED SHALE PARTINGS; LIGHT
682.50	ABBOTT		CLAYSTONE/SILTST	0.40	77.50	GRAY
682.10	ABBOTT		SANDSTONE	48.70	77.90	LIGHT, SHALE PARTINGS
633.40	ABBOTT		SHALE	15.12	126.60	SILTY
618.30	ABBOTT		SANDSTONE	3.08	141.70	SILTY; LIGHT
615.20	ABBOTT		SHALE	0.87	144.80	
614.30	ABBOTT		SANDSTONE	2.25	145.70	SHALEY, BIOTURBATED, GRAY
612.10	ABBOTT		SHALE	17.28	147.90	SILTY;
594.80	ABBOTT		SHALE	0.70	165.20	DARK
594.10	ABBOTT		SHALE	2.33	165.90	PLANT FRAGMENTS; BLACK
591.80	ABBOTT		COAL	1.70	168.20	TUNNEL HILL MEMBER
590.10	ABBOTT		SH/COAL	0.85	169.90	TUNNEL HILL;SOFT,BLACK,CARBONACEOUS
589.30	ABBOTT		UNDERCLAY	2.30	170.70	
587.00	ABBOTT		SHALE	2.55	173.00	SILTY
584.40	ABBOTT		SANDSTONE	3.03	175.60	CLAYEY
581.40	ABBOTT		SILTSTONE	17.39	178.60	SIDERITE BANDS; DARK
564.00	ABBOTT		SILTSTONE	10.00	196.00	OLIVE-GRAY, BURROWS
554.00	ABBOTT		SANDSTONE	3.33	206.00	
550.70	ABBOTT		SILTSTONE	0.45	209.30	PLANT DEBRIS; GRAY
550.20	ABBOTT	REYNOLDSBURG	COAL	0.32	209.80	
549.90			UNDERCLAY	0.32	210.10	
549.60			SILTSTONE	5.90	210.40	SCATTERED PLANT DEBRIS; GRAY
543.70			CLAYSTONE/SILTST	0.95	216.30	
542.70			SHALE	6.85	217.30	SILTY TO SANDY; GRAY
535.90			SANDSTONE	3.25	224.10	LIGHT
532.60			SILTSTONE	19.90	227.40	

08720427000C PROJECT: NCRDS99 QUADRANGLE: LICK CREEK
COUNTY: JOHNSON 11S - R 2E SECTION: 31 800N 2800E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): GEOLOGIST: C KOROSE DATE COLLECTED: 6 /10/1988
Survey Core Study Coal Test LOGGED (FT.): 264.00
SOURCE: COGEMAP L-2

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
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FORMATION	MEMBER	LITHOLOGY	UNIT	THICKNESS (FT.)	OVERBURDEN	COMMENT
PLEISTOCENE		UNCONSOLIDATED		24.00	0.00	
CASEYVILLE	WAYSIDE	SANDSTONE		8.80	24.00	SHALEY; GRAY
CASEYVILLE	WAYSIDE	SHALE		21.20	32.80	
CASEYVILLE	WAYSIDE	SS/SH		4.90	54.00	
CASEYVILLE	WAYSIDE	SANDSTONE		0.40	58.90	VERY FINE; WHITE
MISSISSIPPIA	KINKAID	LS & SH		2.70	59.30	LIGHT
MISSISSIPPIA	KINKAID	SHALE		19.80	62.00	CALCAREOUS, FOSSILS AT BASE
MISSISSIPPIA	KINKAID	LIMESTONE		42.40	81.80	SHALEY AT BASE; LIGHT BROWN
MISSISSIPPIA	KINKAID	SH & SILTSTONE		6.20	124.20	LIMEY
MISSISSIPPIA	KINKAID	CLAYSTONE/SILTST		12.35	130.40	GREEN GRAY TO RED
MISSISSIPPIA	KINKAID	LIMESTONE		57.85	142.80	SHALEY
MISSISSIPPIA	KINKAID	SHALE		16.00	200.60	DARK
MISSISSIPPIA	KINKAID	LIMESTONE		30.20	216.60	SHALEY; LIGHT
MISSISSIPPIA	DEGONIA	SHALE		3.50	246.80	CALCAREOUS; DARK
MISSISSIPPIA	DEGONIA	CLAYSTONE/SILTST		6.70	250.30	
MISSISSIPPIA	DEGONIA	SANDSTONE		7.00	257.00	SILTY

08720443000C PROJECT: NCRDS99 QUADRANGLE: GLENDALE
COUNTY: JOHNSON 12S - R 4E SECTION: 12 2500N 1400W
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 640.0 GEOLOGIST: C KOROSE DATE COLLECTED: 7 / 6/1987
Survey Core Study Coal Test LOGGED (FT.): 206.00
SOURCE: COGEMAP GD-1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	THICKNESS (FT.)	OVERBURDEN	COMMENT
640.00	PLEISTOCENE		UNCONSOLIDATED		11.00	0.00	
629.00	CASEYVILLE		SANDSTONE		6.00	11.00	BROWN
623.00	CASEYVILLE		CLAYSTONE/SILTST		4.50	17.00	SHALEY, RED AND GREEN
618.50	CASEYVILLE		SANDSTONE		3.10	21.50	WHITE TO ORANGE, CLAY CLASTS
615.40	CASEYVILLE		SHALE		4.00	24.60	BIOTURBATED
611.40	CASEYVILLE		SS/SH		17.40	28.60	.17 COAL WITH PYRITE AT BASE
594.00	CASEYVILLE		SANDSTONE		73.90	46.00	GRAY TO TAN, COAL STREAKS, QUARTZ PEBBLE
520.10	CASEYVILLE		SANDSTONE		5.90	119.90	CONGLOMERATE, PLANT DEBRIS
514.20			SHALE		1.50	125.80	DARK
512.70			SANDSTONE		11.55	127.30	SILTY
501.10			SHALE		8.85	138.90	SILTY
492.30	MISSISSIPPIA	KINKAID	LIMESTONE		1.20	147.70	RED TO LIGHT GRAY AT BASE
491.10	MISSISSIPPIA	KINKAID	SHALE		17.80	148.90	CLAYEY, NON-CALCAREOUS
473.30	MISSISSIPPIA	KINKAID	LIMESTONE		1.90	166.70	DARK
471.40	MISSISSIPPIA	KINKAID	CALC SH		37.40	168.60	

08720444000C PROJECT: NCRDS99 QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 23 2600S 1800E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): GEOLOGIST: C KOROSE DATE COLLECTED: 8 / 20/1990
Survey Core Study Stratigraphic Test LOGGED (FT.): 340.00
SOURCE: COGEMAP LT-1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	THICKNESS (FT.)	OVERBURDEN	COMMENT
	PLEISTOCENE		UNCONSOLIDATED		29.00	0.00	
			SANDSTONE		30.30	29.00	SHALEY; GRAY
			SANDSTONE		17.70	59.30	SHALEY, COAL STREAKS AT TOP
			SANDSTONE		10.50	77.00	SHALEY, SOME COAL STREAKS AT TOP
			SILTSTONE		50.90	87.50	BIOTURBATED NEAR BASE
			SANDSTONE		12.10	138.40	
			SHALE		0.20	150.50	SOFT; BLACK
			SS/SH		20.30	150.70	GRAY
			SILTSTONE		8.80	171.00	
			SANDSTONE		42.80	179.80	SHALEY; GRAY
			SANDSTONE		11.60	222.60	CLEAN
			SH & SS		41.30	234.20	
			SHALE		10.60	275.40	SILTY; RED
			SS/SH		54.00	286.00	

087271D0001F PROJECT: BLM QUADRANGLE: LICK CREEK
COUNTY: JOHNSON 11S - R 2E SECTION: 20 SENWSW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1933
Measured section Outcrop LOGGED (FT.): 100.16
SOURCE: FLD NOTES-WANLESS TRAVERSE UP NORTH BRANCH OF RAVINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			ROCK	60.00		
			COAL	0.16		
			ROCK	40.00		

087272C0001F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 3E SECTION: 32 NWNESWSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 650.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1954
 Measured section Underground mine LOGGED (FT.): 1.33
 SOURCE: FLD NOTES-STONEHOUSE ABD DRIFT REPORTED BY WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			COAL	1.33		

087272C0002F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 2E SECTION: 26 NWSENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 750.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 168.50
 SOURCE: FLD NOTES-WANLESS SECTION IN TRIBUTARY OF DUTCHMANS CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			ROCK			
			UNKNOWN	40.00		COVERED
			ROCK	10.00		
	CASEYVILLE		COAL	1.50		ABD MINE. THICKNESS REPORTED BY FARMER
			UNKNOWN	60.00		COVERED
			ROCK	30.00		
			UNKNOWN	25.00		
			ROCK	2.00		

087272C0003F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 2E SECTION: 27 SWSNWSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 630.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 116.36
 SOURCE: FLD NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
630.00			UNCONSOLIDATED		0.00	
			ROCK	32.50		
			COAL	0.79		
			UNDERCLAY	0.83		
			COAL	0.66		SOFT, THIN BEDDED, SHALEY
			ROCK	81.58		

087272C0004F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 3E SECTION: 16 NESENWNE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 460.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 8.00
 SOURCE: FLD NOTES-FULLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	

ROCK
 COAL 0.50
 ROCK 7.50

087272C0005F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 3E SECTION: 32 SW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 680.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-BROKAW "COAL HAS BEEN WORKED"

						THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT

			ROCK			
			COAL			
			SHALE			

087272C0006F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 11S - R 3E SECTION: 32 SWSEW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1939
 Measured section Outcrop LOGGED (FT.): 6.66
 SOURCE: FLD NOTES-FULLER TOPOGRAPHY ALTERED BY INTERSTATE HIGHWAY

						THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT

			ROCK		1.00	
			COAL		2.00	
			ROCK		4.66	

087272C0007F PROJECT: BLM QUADRANGLE: GOREVILLE
 COUNTY: JOHNSON 12S - R 2E SECTION: 4 NWNENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 450.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 66.91
 SOURCE: FLD NOTES-WANLESS N. FLOWING RAVINE

						THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT

450.00			ROCK		1.50	0.00
448.50			COAL		1.75	1.50
446.70			ROCK		50.16	3.30

087272D0001F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 15 SWNESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 570.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 37.16
 SOURCE: FLD NOTES-WANLESS

						THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT

570.00			SANDSTONE		15.00	0.00
555.00			UNKNOWN		3.00	15.00
552.00			SHALE		3.50	18.00
548.50			COAL		83.00	21.50
465.50			UNDERCLAY		1.00	104.50
464.50			SHALE		1.83	105.50
462.70			SANDSTONE		1.00	107.30

LT. GR. STEMS & LEAVES
 BRIGHT, THIN BEDDED
 ROOT IMPRESSIONS
 LT. GR. SILTY TO SANDY
 MASSIVE, Y. GR.

087272D0002F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 NWSEW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-FULLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			UNKNOWN	0.00	0.00	

087272D0003F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 SWSEW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED:
 Measured section Underground mine LOGGED (FT.): 59.53
 SOURCE: FLD NOTES-FULLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			SANDSTONE		0.00	SLUMP BLOCKS
			SHALE	6.00		MED SOFT, GR, IRON CONC
			COAL	3.03		SH PTG .12'
			UNKNOWN	4.00		COVERED
			SHALE	6.00		LT GR.
			UNKNOWN	4.00		
	SPOON	CURLEW	LIMESTONE	2.00		LT BL GR, FOSSIL
			UNKNOWN	1.50		
			SHALE	5.00		SANDY, SS LENTIL
			UNKNOWN	25.00		COAL DUMP NEARBY - MURPHYSBORO?

087272D0004F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 NWSEW 5S 5W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 490.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-STONEHOUSE SEVERAL ABANDONED SHAFTS IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
490.00			UNKNOWN	0.00	0.00	

087272D0005F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 4 SWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED:
 Measured section Outcrop LOGGED (FT.): 67.33
 SOURCE: FLD NOTES-FULLER SECTION DOWN GULLY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			SANDSTONE	25.00	0.00	BR GREY, MASSIVE
525.00			SHALE	9.58	25.00	
515.40			COAL	2.50	34.60	
512.90			UNDERCLAY	1.50	37.10	
511.40			SHALE	8.00	38.60	LT GREY, WELL BEDDED
503.40	SPOON	NEW BURNSIDE	COAL	5.32	46.60	CL PTG .66
498.10			UNDERCLAY	1.50	51.90	MED BL. GR.
496.60			UNKNOWN	3.00	53.40	
493.60			SANDSTONE	2.00	56.40	LT GR.
491.60			SHALE	7.00	58.40	

087272D0006F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SWSWSWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 570.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 28.00
 SOURCE: FLD NOTES-BROKAW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE	12.00		
	SPOON	NEW BURNSIDE	COAL	3.00		(THICKNESS FROM BROKAW,1916)
	SPOON		SHALE	16.00		
	SPOON	BIDWELL	COAL	3.50		

087272D0007F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Roadcut LOGGED (FT.): 19.75
 SOURCE: FLD NOTES-FULLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			SANDSTONE	5.50	0.00	MED. GR, RED STREAKS
544.50			COAL	1.25	5.50	
543.20			CLAYSTONE	3.00	6.80	
540.20			SANDSTONE	2.00	9.80	W. IRON OXIDE
538.20			SHALE	2.00	11.80	SANDY, CONCRETIONS
536.20				4.00	13.80	LT GREY

087272D0008F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Underground mine LOGGED (FT.): 21.16
 SOURCE: FLD NOTES-WANLESS ABANDONED SLOPE MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
580.00			UNCLASSIFIED	0.00	0.00	
580.00			SANDSTONE	14.00		
566.00			SHALE	1.66	14.00	
564.30	SPOON	NEW BURNSIDE	COAL	3.50	15.70	
560.80	SPOON		UNDERCLAY	1.00	19.20	
			SANDSTONE			

087272D0009F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 NESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 510.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Outcrop LOGGED (FT.): 5.50
 SOURCE: FLD NOTES-WELLER OUTCROP IN CREEK BED

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.00			COAL	5.50	0.00	CLAY PTG .5'

087272D0010F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1956
 Measured section Outcrop LOGGED (FT.): 49.58

SOURCE: FLD NOTES-KOSANKE

L.NEW BR.IN CREEK;U.NEW BR.IN PROS.PIT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			SANDSTONE	18.50	0.00	INTERBEDDED WITH 15%
531.50			CONGL	1.50	18.50	SANDY W SS, SH PEBBLES, SOME COAL
530.00			SHALE	1.00	20.00	W CARBON SH STRINGERS
529.00	SPOON	NEW BURNSIDE	COAL	3.00	21.00	RISES SHARPLY (5' IN 75') TO S. BASE OF V
526.00	SPOON	NEW BURNSIDE	UNKNOWN	6.50	24.00	COVERED. SOME SS
519.50	SPOON	NEW BURNSIDE	SHALE	11.50	30.50	GR, SANDY
508.00	SPOON	NEW BURNSIDE	CONGL	2.00	42.00	CONSPIC HEMATITE. SS,SH,CH PEBBLES
506.00	SPOON	NEW BURNSIDE	COAL	1.42	44.00	25% COALY SH INTERLAM.
504.60	SPOON	NEW BURNSIDE	COAL	0.08	45.40	BRIGHT, BLOCKY
504.50	SPOON	NEW BURNSIDE		0.08	45.50	
504.40	SPOON	NEW BURNSIDE		0.12	45.60	
504.30	SPOON	NEW BURNSIDE	COAL	0.08	45.70	
504.20	SPOON	NEW BURNSIDE		0.87	45.80	BASE OF NEW BURNSIDE LOWER CASE
503.30			CLAYSTONE	3.00	46.70	

087272D0011F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 SWSSESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Outcrop LOGGED (FT.): 3.50
 SOURCE: FLD NOTES-WELLER OTHER NOTES IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
	SPOON	NEW BURNSIDE	COAL	3.50		

087272D0012F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 7 100N 990W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-STONEHOUSE "OLD DRIFT MINE"

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			UNKNOWN	0.00	0.00	

087272D0013F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 SWSWNE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-BROKAW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
560.00			UNKNOWN	0.00	0.00	

087272D0014F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 NWNENWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Roadcut LOGGED (FT.): 19.50
 SOURCE: FLD NOTES-WELLER SEVERAL MINES ALONG ROAD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	

SANDSTONE
COAL 2.50 HAS BEEN MINED
SHALE 17.00
COAL

087272D0015F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 8 SWSWSWNE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
Measured section Underground mine LOGGED (FT.): 0.00
SOURCE: FLD NOTES-OSTROM DRIFT MINE

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
600.00			UNKNOWN	0.00	0.00	

087272D0016F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 8 SE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
Measured section Outcrop LOGGED (FT.): 29.00
SOURCE: FLD NOTES-OSTROM COMPOSITE SECTION

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
	SPOON	NEW BURNSIDE	SANDSTONE	4.00		AVERAGE THICKNESS
	SPOON		COAL			
			UNDERCLAY			
			ROCK	20.00		
			COAL	5.00		OUTCROPS AT BASE OF HILL

087272D0017F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 8 SWSWNE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
Measured section Underground mine LOGGED (FT.): 17.00
SOURCE: FLD NOTES-OSTROM OLD DRIFT MINE IN HILLSIDE

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
			SANDSTONE			
			COAL	2.00		
			UNKNOWN	15.00		
			SHALE			CARBONACEOUS W/COAL VEINLET OUTCROP

087272D0018F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 8 NESENE 10N 330E
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1961
Strip Mine LOGGED (FT.): 18.66
SOURCE: FLD NOTES-PARHAM

THICKNESS (FT.)						
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						
600.00			UNCONSOLIDATED	5.00	0.00	
595.00			SANDSTONE	10.00	5.00	
585.00	SPOON	NEW BURNSIDE	COAL	3.00	15.00	AVERAGE THICKNESS
582.00	SPOON		UNDERCLAY	0.66	18.00	

087272D0019F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 NENWSENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1961
 Measured section Outcrop LOGGED (FT.): 13.50
 SOURCE: FLD NOTES-PARHAM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNKNOWN	10.00	0.00	
540.00	SPOON	BIDWELL	COAL	1.00	10.00	SHALEY, ORGANIC
539.00			UNDERCLAY	2.50	11.00	SHALEY

087272D0020F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 9 SWSWNWNE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Underground mine LOGGED (FT.): 28.99
 SOURCE: FLD NOTES-FULLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
580.00			SANDSTONE	8.00	0.00	MASSIVE
572.00			SHALE	0.33	8.00	
571.70			SANDSTONE	0.60	8.30	LARGE
571.10			SHALE	1.50	8.90	
569.60	SPOON	NEW BURNSIDE	COAL	3.16	10.40	
566.40			UNDERCLAY	0.83	13.60	
565.60			UNKNOWN	2.00	14.40	COVERED
563.60			SHALE	5.00	16.40	WITH PLANTS, SOME LEAVES
558.60			BLACK SHALE	0.83	21.40	FIS SHARK TEETH, SCALES, SPORES, COALY
557.70			SHALE	2.75	22.30	THIN SS LENSES
555.00			SHALE	0.25	25.00	DK, SLATY, PLANT TRACES
554.70			SHALE	0.42	25.30	SOFT, GREY
554.30			COAL	1.00	25.70	
553.30			UNDERCLAY	1.50	26.70	

087272D0021F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 9 1600N 2500W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1936
 Measured section Roadcut LOGGED (FT.): 20.41
 SOURCE: FLD NOTES-CADY AVERAGE THICKNESSES

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
600.00			UNCLASSIFIED	0.00	0.00	
600.00			SANDSTONE	2.00		
598.00			SHALE	3.00	2.00	WITH SS LENSES
595.00	SPOON	NEW BURNSIDE	COAL	3.16	5.00	
591.80	SPOON		UNDERCLAY	1.00	8.20	
590.80			UNKNOWN	4.00	9.20	
586.80			SHALE	6.00	13.20	
580.80			COAL	1.25	19.20	
			UNDERCLAY			

087272D0022F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 27 NESESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 460.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1918
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY REPORT ON BLANCHARD OIL SH

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
						SLABBY

SHALE 6.00 HARD, CARBONACEOUS
 SHALE 2.66 .16' COAL IN LOWER .33'.
 UNDERCLAY 5.00

087272D0023F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 34 2800S 3200W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
			COAL			BL. SH OR CANNEL COAL

087272D0024F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 27 SENESEW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 480.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 43.49
 SOURCE: FLD NOTES-WANLESS TRAVERSE DOWN RAVINE

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
480.00			UNCLASSIFIED	0.00	0.00	
480.00			SANDSTONE	2.50		
477.50			SHALE	0.83	2.50	SILTY
476.70			SILTSTONE	0.66	3.30	CANNELOID
476.00	ABBOTT	REYNOLDSBURG	COAL	0.50	4.00	BANDED
475.50				0.00	4.50	W ROOT IMPRESSIONS
475.50			SANDSTONE	1.50	4.50	
474.00			UNKNOWN	3.00	6.00	
471.00			SANDSTONE	1.00	9.00	QUARTZITIC
470.00			UNKNOWN	3.00	10.00	
467.00	CASEYVILLE		SANDSTONE	30.00	13.00	HARD, LT GR.

087272D0025F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 SENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1929
 Measured section Underground mine LOGGED (FT.): 20.00
 SOURCE: FLD NOTES-CADY

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
			SANDSTONE			
			SHALE	20.00		
	ABBOTT		COAL			

087272D0026F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 NWSWNESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Underground mine LOGGED (FT.): 5.00
 SOURCE: FLD NOTES-FULLER

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)	-----					
550.00			UNCLASSIFIED	0.00	0.00	
550.00			SHALE	5.00		COAL FRAGMENTS IN DUMP

087272D0027F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 NESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Underground mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-FULLER MANY ABANDONED DRIFTS IN THIS AREA

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNKNOWN	0.00	0.00	

087272D0028F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 74.33
 SOURCE: FLD NOTES-FULLER INCLUDES DUMP OF OLD MINE DRIFT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			UNCLASSIFIED	0.00	0.00	
			SANDSTONE	20.00		
			SHALE	9.00	20.00	
			UNKNOWN	3.00	29.00	
			SANDSTONE	8.00	32.00	
			UNKNOWN	8.00	40.00	
			SHALE	2.00	48.00	
			UNKNOWN	4.00	50.00	
			SHALE	2.00	54.00	DUMP BEGINS
			COAL	3.00	56.00	REPORTED NOT SEEN
			UNKNOWN	3.00	59.00	
			ROCK	13.33	62.00	

087272D0029F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 SWNWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 530.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
 Measured section Outcrop LOGGED (FT.): 11.00
 SOURCE: FLD NOTES-OSTROM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
530.00			UNCONSOLIDATED	6.00	0.00	
524.00	ABBOTT	REYNOLDSBURG	COAL	2.75	6.00	
521.20			BLACK SHALE	2.25	8.80	

087272D0030F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 SWNWSE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Underground mine LOGGED (FT.): 15.00
 SOURCE: FLD NOTES-WELLER MANY OLD WORKINGS ON N. SIDE OF VALLEY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			BLACK SHALE			
			COAL			
			UNKNOWN	15.00		
			ROCK			CONGLOMERATE

087272D0031F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 32 SENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 530.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Underground mine LOGGED (FT.): 9.25
 SOURCE: FLD NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
530.00			UNCLASSIFIED	0.00	0.00	
530.00			BLACK SHALE	3.00		
527.00			COAL	2.25	3.00	
			UNDERCLAY			REPORTED, NOT SEEN
			UNKNOWN	4.00		
	CASEVILLE		SANDSTONE			"UPPER CONGLOMERATES" CASEVILLE

087272D0032F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 34 NESENWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 525.0 GEOLOGIST: BARGH,M DATE COLLECTED: 11 /18/1981
 Measured section Roadcut LOGGED (FT.): 0.50
 SOURCE: FLD NOTES-JACOBSON

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			ROCK			
			COAL	0.50		
			ROCK			

087272D0033F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 SWSESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 610.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1964
 Strip Mine LOGGED (FT.): 17.66
 SOURCE: MINE NOTES-GLUSKOTER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
610.00			UNCONSOLIDATED	15.00	0.00	
595.00	ABBOTT	REYNOLDSBURG	COAL	2.66	15.00	

087272D0037F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 19 NESESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Roadcut LOGGED (FT.): 2.00
 SOURCE: FLD NOTES-WELLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
550.00			UNCLASSIFIED	0.00	0.00	
550.00			COAL	1.00		
			SANDSTONE			HORIZ.
			SHALE			RED,CROSS-BEDDED,DIP 6 DEGREES S. THICK DK. GR, SLTY. FLOAT

087272D0043F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 11 NWSE 330N 100E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Roadcut LOGGED (FT.): 25.00
 SOURCE: FLD. NOTES-WANLESS

THICKNESS (FT.)						
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ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
	SPOON	CURLEW	SANDSTONE	25.00		MASSIVE, SOME MICA SH INTRBDD

087272D0044F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 13 NENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 680.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD. NOTES-BROKAW

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE			DIP 12 DEGREES N 20 DEGREES W LAMINATED

087272D0045F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 13 SWNENW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 630.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Roadcut LOGGED (FT.): 0.00
 SOURCE: FLD. NOTES-WELLER

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE			MASSIVE

087272D0046F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 14 NWNENE 20S 50W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE BLACK SHALE			MASSIVE LT. GR. DIP SLIGHTLY NW FLOAT ONLY

087272D0047F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 26 NWSESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 650.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
 Measured section Roadcut LOGGED (FT.): 25.00
 SOURCE: FLD. NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
650.00			SANDSTONE	6.00	0.00	RED
644.00			SHALE	15.00	6.00	OLIVE, SANDY
629.00			SANDSTONE	4.00	21.00	

087272D0048F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 35 SESESENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 700.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Roadcut LOGGED (FT.): 53.00

SOURCE: FLD. NOTES-WANLESS

NORTH END OF R. R. TUNNEL

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
700.00			UNCLASSIFIED	0.00	0.00	
700.00			SHALE	20.00		
680.00			SANDSTONE	6.00	20.00	MASSIVE, SLABBY STRUCTURE
674.00			SHALE	22.00	26.00	CARBON STREAKS. GRADES INTO SS
652.00			SHALE	3.00	48.00	BL GR, SILTY, HARD
			SANDSTONE	2.00		MASSIVE, LOOKS LIKE "RED SANDSTONE"

087272D0049F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 3E SECTION: 35 NENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 700.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Roadcut LOGGED (FT.): 0.00
 SOURCE: FLD. NOTES-WANLESS S. END OF TUNNEL. SEQ. 15' HIGHER THAN N

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
700.00			UNCLASSIFIED	0.00	0.00	
700.00			SANDSTONE	26.00		MASSIVE, RED SS BEDS RISING TO 5.
674.00			SHALE	18.00	26.00	BL. GR., IRONSTONE CONC.
656.00			SANDSTONE	0.83	44.00	LT. GR. SOME ROOT IMP. NO COAL
655.20			SANDSTONE	2.00	44.80	GR. POORLY BEDDED
653.20			SANDSTONE	6.00	46.80	MASSIVE W CARBON STRKS
647.20			SANDSTONE	2.00	52.80	SHLY, MICACEOUS,
645.20			SHALE	4.00	54.80	SOFT, BL GR, THIN SS INTERBEDDED.

087272D0050F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 5 600S 1800W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 510.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1960
 Measured section Outcrop LOGGED (FT.): 49.74
 SOURCE: FLD. NOTES-RI214

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
510.00	SPOON	GRANGER	SANDSTONE	18.50	0.00	IRREG INTERBED W 10%-15% SH PTGS
491.50	SPOON		CONGL	1.50	18.50	SS,SH PEBBLES
490.00	SPOON		SHALE	1.00	20.00	GR, SNDY, INTERBED W CARBON SH
489.00	SPOON	NEW BURNSIDE	COAL	3.00	21.00	
486.00	SPOON		UNKNOWN	6.60	24.00	COVERED. SOME SS
479.40	SPOON		SHALE	11.50	30.60	GR, SANDY
467.90	SPOON		CONGL	2.00	42.10	SS, SH, CH PEBBLES, IRON, RED COLOR
465.90	SPOON	BIDWELL	COAL	1.42	44.10	DISCONF. ABOVE. INTERBED W CLY SH
464.50	SPOON	BIDWELL	COAL	0.08	45.50	
464.40	SPOON	BIDWELL	CLAYSTONE	0.08	45.60	
464.30	SPOON	BIDWELL	SHALE	0.12	45.70	COALY
464.20	SPOON	BIDWELL	COAL	0.08	45.80	BRIGHT
464.10	SPOON		SHALE	0.20	45.90	COALY
463.90	SPOON		SHALE	0.66	46.10	COALY, FISSILE
463.30	SPOON		CLAYSTONE	3.00	46.70	LT. GR. SANDY, BASE CONCEALED

087272D0051F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 6 800S 500W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Outcrop LOGGED (FT.): 25.00
 SOURCE: FLD. NOTES-FULLER COAL DRIFT 200' SOUTH

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			SANDSTONE	25.00	0.00	

087272D0052F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 SESESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD. NOTES-BROKAW DEP 26 DEGREES N, 20 DEGREES W

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						

			SANDSTONE			"MOSTLY SHALE COUNTRY"

087272D0053F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 SWNE 1S 50W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
 Measured section Roadcut LOGGED (FT.): 24.75
 SOURCE: FLD NOTES-OSTROM

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						

550.00			SANDSTONE	6.00	0.00	LT BR. MICACEOUS
544.00			SHALE	3.00	6.00	
541.00			SANDSTONE	4.00	9.00	
537.00			SHALE	2.50	13.00	SOFT, WEATHERED
534.50	SPOON	NEW BURNSIDE	COAL	4.00	15.50	
530.50	SPOON		CLAYSTONE & SH	5.25	19.50	

087272D0054F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 8 SESENW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1954
 Measured section Roadcut LOGGED (FT.): 14.00
 SOURCE: FLD. NOTES-OSTROM FROM TOP OF HILL

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						

550.00			SANDSTONE	1.00	0.00	WH TO LT GR. MASSIVE
549.00			SANDSTONE	6.00	1.00	TAN, THIN BEDDED
543.00			SHALE	3.00	7.00	BUFF, LT GREEN GR
540.00			UNKNOWN	1.00	10.00	
539.00			BLACK SHALE	1.50	11.00	V. CARBONACEOUS,
537.50			UNKNOWN	0.50	12.50	
537.00			SHALE	1.00	13.00	LT. GR

087272D0055F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 9 SENENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 550.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-BROKAW

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						

550.00			SH & SS		0.00	BL SH&MASSIVE SS 20-30 DGRS. N 45 DGRS

087272D0056F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 17 SWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 119.00
 SOURCE: FLD. NOTES-WANLESS TRAVERSE UP SUGAR CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
500.00			UNCLASSIFIED	0.00	0.00	
500.00			SHALE	20.00		W SS BEDS DP N
480.00			SANDSTONE	20.00	20.00	NEAR PARKER STA.
460.00			SANDSTONE	15.00	40.00	
445.00			UNKNOWN	3.00	55.00	
442.00			SANDSTONE	6.00	58.00	THIN, FINE GR
436.00			UNKNOWN	30.00	64.00	
406.00			SANDSTONE	25.00	94.00	MASSIVE, RED-GR. BEDS TO 3' THK. DIP N

087272D0057F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 27 SENWNW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 620.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
Measured section Outcrop LOGGED (FT.): 79.00
SOURCE: FLD NOTES-WANLESS R R CUT. CONTINUED ON F272D058

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
620.00			SANDSTONE	10.00	0.00	DIP SLIGHTLY N. MASSIVE
610.00			SANDSTONE	5.00	10.00	INTERBED W BL. GR. SHALE
605.00			SANDSTONE	7.00	15.00	CROSS BEDDED
598.00			SHALE	5.00	22.00	INTERBED W SS.
			SANDSTONE	2.00		BR. GR. MASSIVE
			UNKNOWN	5.00		COVERED
			SANDSTONE	4.00		ATZITIC
			SHALE	2.00		PLASTIC CLAY
			SHALE	1.50		SANDY, IRON CONCRET.
			SANDSTONE	18.00		SOME RIPPLE MARKS
			SANDSTONE	2.50		INTERBED W BL GR SH
			UNKNOWN	3.00		
			SHALE	14.00		W BEDS OF SS RIPPLE MARKED

087272D0058F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
COUNTY: JOHNSON 11S - R 4E SECTION: 27 SENWSW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 530.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
Measured section Outcrop LOGGED (FT.): 149.99
SOURCE: FLD. NOTES-WANLESS CONT. FURTHER S. DOWN RAVINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
530.00			UNCLASSIFIED	0.00	0.00	
530.00			SANDSTONE	3.00		
527.00			SILTSTONE	14.00	3.00	INTERBED W GR. SANDY SH
513.00			UNKNOWN	4.00	17.00	CONCEALED
509.00			SHALE	4.00	21.00	DK BL GR.
505.00			UNKNOWN	10.00	25.00	
			SANDSTONE			RIPPLE MARKED
			SHALE	3.00		BL GR. SOFT THIN BEDDED
			SHALE	1.83		CARBONACEOUS BAND
			SANDSTONE	3.50		RESEMBLING GRINDSTAFF
			SHALE	1.50		BL GR. UPPER 3" COALY
			CLAYSTONE	0.66		
			SILTSTONE	10.00		ALT LAYERS STS & SANDY SH.
			SANDSTONE	2.00		MASSIVE
			UNKNOWN	12.00		
			SANDSTONE	25.00		MASSIVE
			UNKNOWN	6.00		
			SANDSTONE	6.00		
			UNKNOWN	1.50		
			UNDERCLAY	2.00		GRADES INTO SHALE BELOW
			SHALE	15.00		SANDY
			SILTSTONE	4.00		
			UNKNOWN	4.00		
			SANDSTONE	8.00		
			SHALE	3.00		INTERLAM W WHITE SS
			SHALE	2.00		DK BL TO BK. WELL JOINTED
			SANDSTONE	2.00		SLABBY WITH PLANT IMPRESSIONS

087272D0059F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 31 SENESENW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 700.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Outcrop LOGGED (FT.): 110.00
 SOURCE: FLD. NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
700.00			SANDSTONE	2.00	0.00	RED, HARD, DIPS TO S
698.00			SANDSTONE	4.00	2.00	LT GR
694.00			UNKNOWN	10.00	6.00	
684.00			SANDSTONE	8.00	16.00	POSSIBLY SAME AS ABOVE
676.00			SHALE	3.00	24.00	
673.00			SANDSTONE	25.00	27.00	"RED" SS
648.00			UNKNOWN	4.00	52.00	
644.00			SHALE	0.50	56.00	HARD, SANDY
643.50			UNKNOWN	6.00	56.50	
637.50			SHALE	2.50	62.50	GREEN
635.00			UNKNOWN	5.00	65.00	
630.00	ABBOTT	GRINDSTAFF	SANDSTONE	40.00	70.00	MASSIVE BEDS UPTO 2' THICK

087272D0060F PROJECT: BLM QUADRANGLE: LICK CREEK
 COUNTY: JOHNSON 11S - R 2E SECTION: 32 1900N 2200W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 710.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Outcrop LOGGED (FT.): 68.00
 SOURCE: FLD. NOTES-WANLESS SECTION JUST ABOVE F272D031

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
710.00	ABBOTT	GRINDSTAFF	SANDSTONE	50.00	0.00	LT GR. W DULL RED
660.00			SANDSTONE	12.00	50.00	
648.00			SANDSTONE	6.00	62.00	
			SHALE			BL GR. ("TO TOP OF COAL ENTRY")

087272D0061F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 3E SECTION: 2 1450N 1450W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Roadcut LOGGED (FT.): 27.00
 SOURCE: FLD. NOTES-WANLESS R R CUT

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
560.00			SANDSTONE	12.00	0.00	LT GR, MASSIVE, FC PEBBLES ON LOWER 1'
548.00			SANDSTONE	15.00	12.00	UNCONFORM. CONTACT W ABOVE. LENTIC. SH

087272D0062F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 3E SECTION: 3 NWNE 330S 660W
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 570.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1933
 Measured section Roadcut LOGGED (FT.): 10.00
 SOURCE: FLD. NOTES-WANLESS R R TRAVERSE CONT. TO W.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
570.00	CASEVILLE		SANDSTONE	10.00	0.00	MASSIVE, LT. FINE FR. CASEVILLE?

087272D0063F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 4E SECTION: 6 4400N 3100W
 CONFIDENTIAL: N

SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1929
 Measured section Outcrop LOGGED (FT.): 30.00
 SOURCE: FLD. NOTES-CODY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
580.00			UNCLASSIFIED	0.00	0.00	
580.00			SANDSTONE	30.00		MASSIVE, WH, "WELL BELOW TOP OF L. CONG

087272D0065F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 SW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1931
 Measured section Underground mine LOGGED (FT.): 3.50
 SOURCE: FLD NOTES-CADY ABD. BALD HILL MINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
520.00	SPoon	NEW BURNSIDE	UNKNOWN COAL	3.50	0.00	

087272D0066F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 NENSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 530.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1932
 Measured section Outcrop LOGGED (FT.): 43.00
 SOURCE: FLD. NOTES-WANLESS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
	SPoon	WILEY	SANDSTONE	15.00		MASSIVE
			UNCLASSIFIED	15.00	0.00	
515.00			UNKNOWN	10.00	15.00	COVERED
505.00	SPoon	STONEFORT	UNKNOWN	1.00	25.00	
504.00			UNKNOWN	4.00	26.00	
500.00			UNDERCLAY	6.00	30.00	
494.00			LIMESTONE	1.00	36.00	
493.00			CLAYSTONE & SH	5.00	37.00	MOSTLY COVERED
488.00			CLAYSTONE	1.00	42.00	
			UNKNOWN			LARGELY COVERED BELOW

087273C0017F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 3 SWSNENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 4.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			WEATHERS THIN BEDS
			SHALE	2.00		BL GR
			SHALE			SOAPSTONE
			BLACK SHALE	2.00		
			COAL			THIN
			LIMESTONE			
			SHALE			
			COAL	4.00		
			SHALE			

087273C0018F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 34 NENENENE
 CONFIDENTIAL: N

SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH M. DATE COLLECTED: 0 / 0/1926
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY "COAL MINE OR TEST PIT"

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						-----
			SHALE			SANDY
			BLACK SHALE			
			COAL	3.00		CANNEL?

087273C0019F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 2 SWSWSWN
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH M. DATE COLLECTED:
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY ALL UNITS DIP STEEPLY NORTH

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						-----
			ROCK			
			COAL			
			ROCK			

087273C0033F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 12S - R 4E SECTION: 3 SENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 435.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY S. SLOPE. HILL COVERED W CH, SS, SOME LS

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						-----
			SANDSTONE			MISS. "DIP N 10 DEG W 40 DEG MISS. "DIP N 10 DEG W 40 DEG

087273C0034F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 12S - R 4E SECTION: 3 NENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 450.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						-----
			CASEYVILLE			DIP N40W 25

087273C0035F PROJECT: BLM QUADRANGLE: CREAL SPRINGS
 COUNTY: JOHNSON 12S - R 4E SECTION: 3 NWSENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Roadcut LOGGED (FT.): 185.00
 SOURCE: FLD NOTES-CADY

						THICKNESS (FT.)
ELEVATION	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
TOP (FT.)						-----
560.00			CONGL	45.00	0.00	
515.00			UNKNOWN	35.00	45.00	
480.00			SANDSTONE	45.00	80.00	MASSIVE, NON CONGL.
435.00			UNKNOWN	40.00	125.00	
			SANDSTONE	10.00		NON CONGL. FLAGSTONE LIKE

087273C0036F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 12S - R 4E SECTION: 3 SESENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 395.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1931
 Measured section Roadcut LOGGED (FT.): 440.00
 SOURCE: FLD NOTES-HENDRICKS MISSISSIPPIAN ACROSS ROAD

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
395.00	CASEVILLE		CONGL	440.00	0.00	STEEP DIP STRIKE E-W

087273C0046F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 1 SESENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-BROKAW SEE MAP

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			ELEV 550 DIP 3 DEG SE
			SANDSTONE			.9 MI W OF ABOVE, THIN ELEV 650

087273C0047F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 1 NE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 610.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY NOTES AVAILABLE ON 3 RAVINES N. SEC. 1

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			MASSIVE
			SANDSTONE			SLABBY DIP 18 DEG N

087273C0048F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 1 SW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 660.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 60.00
 SOURCE: FLD NOTES-CADY RAVINE W OF WALNUT SCHOOL.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
660.00			SANDSTONE	30.00	0.00	RED, FAULT AT BASE? DEP S
630.00			UNKNOWN	30.00	30.00	LT GR SOAPY
			SHALE			THIN BEDS. SECTION CONT. DOWN CREEK
			SANDSTONE			

087273C0049F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 2 SWNNWSW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NTOES-BROKAW N. SLOPE OF RIDGE 600' N OF ROAD

THICKNESS (FT.)						

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE			DIP 19 DEG N 15 DEG W, DENSE
			SANDSTONE			DIP 8 DEG 45 DEG E, SW CORNER SEC 2

087273C0050F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 2 NENWSE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 620.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 0.25
SOURCE: FLD NOTES-CADY OTHER NOTES ON RAVINES IN SEC. 2.

							THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT	
			SHALE		0.25	COARSE, ARGILL WHITISH, LIKE "SODOM" SH	
			SANDSTONE			MASSIVE, COARSE, FERRUGENOUS	
			SANDSTONE			SLABBY, CURLY SURF. DIP S 20DEG E 2-3 D	

087273C0051F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 2 SWSSEW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 32.00
SOURCE: FLD NOTES-CADY FAULTED AREA? STRIKE VALLEY-MANY NOTES.

							THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT	
560.00			UNCLASSIFIED	0.00	0.00		
560.00			BLACK SHALE	2.00		NEARLY HORIZONTAL AT 630' ELEV	
			SANDSTONE			FINE, PUNKISH	
			SANDSTONE			AT 620' ELEV FRACTURED	
			SHALE			AT 610	
			SANDSTONE	30.00		X BEDDED, FERRUG. DIP S.	

087273C0052F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 2 SENWNW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 440.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 0.00
SOURCE: FLD NOTES-CADY GENERAL NOTES IN RAVINE

							THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT	
440.00			SANDSTONE	0.00	0.00	UPPER X BED. DIP NW 30, THEN SH. LAM	
			SHALE				
			SANDSTONE			SMALL FAULT	
			SHALE			SANDY MICACEOUS	

087273C0053F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 3 NESE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 100.00
SOURCE: FLD NOTES-CADY

							THICKNESS (FT.)
ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT	
520.00			UNCLASSIFIED	0.00	0.00		
520.00			UNKNOWN	5.30		SEVERAL SS & SH SEQUENCES IN NOTES	
			SANDSTONE			STIGMANIAN D	

SHALE		GREEN, ALL DIP N
SANDSTONE	50.00	RED
BLACK SHALE	100.00	
SANDSTONE	25.00	RED
SHALE	50.00	GREY, SOAPY
SANDSTONE	10.00	
SHALE		BK NEAR TOP
SANDSTONE		"A"

087273C0054F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 10 NESENE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
Measured section Outcrop LOGGED (FT.): 0.00
SOURCE: FLD NOTES-BROKAW ALSO CADY FLD NOTES FOR THIS SECTION

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			LAMINATED, DIPS 10 DEG S 40 DEG E
			BLACK SHALE			

087273C0055F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 11 NWNWNW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 560.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 0.00
SOURCE: FLD NOTES-CADY JUNCTION OF RAVINES & DOWNSTREAM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SHALE			
			SANDSTONE			COARSE, GRITTY
			BLACK SHALE			DARK GREEN, DI
			SANDSTONE			STIGMARIAN
			BLACK SHALE			100 YDS BELOW, BEARS S 20 DEG W
			SANDSTONE			.04 COAL. ON SIDE OF STREAM
						DIP 5 DEG S 70 E. DOWNSTREAM

087273C0056F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 11 SESENE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 480.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1939
Measured section Roadcut LOGGED (FT.): 0.00
SOURCE: FLD NOTES-WELLER 2 LOCATIONS, A & B

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SHALE			IN CREEK BED
			SANDSTONE			MASSIVE ABOVE ROAD
			SANDSTONE			X BEDDED. DIP NORTH

087273C0057F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 12 SESENE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 540.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 3.00
SOURCE: FLD NOTES-HENDRICK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			WHITE TO BUFF. POOR BED
			SANDSTONE			FERRUG. STIGMARIA
			SHALE	3.00		SS AT TOP. DIP 3 DEG N 30 DEG W

087273C0058F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 12 NENW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY ALONG BED OF CREEK

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			
			SHALE			EARTHY MUD SH
			BLACK SHALE	3.00		ALMOST SLATE
			SANDSTONE			CONGL. PLANT STEMS, FE PEBBLES
			SANDSTONE			DOWN STREAM. RIPPLE MARKED

087273C0059F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 12 NWNWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
580.00				9.00	0.00	
571.00			SANDSTONE	11.00	9.00	
560.00			SHALE	11.00	20.00	
			SANDSTONE			SLABBY
			SHALE			
			SS/SH	42.00		THIN BEDDED
			SANDSTONE	10.00		THIN BEDDED
			SANDSTONE	21.00		MASSIVE

087273C0060F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 13 NWNWNW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY TRAVERSE DOWN CLIFTY CR ALONG DIP.

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
580.00			SANDSTONE	20.00	0.00	RED

087273C0061F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 14 SENESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-HENDRICKS FAULTED AREA. TRAV. DOWN STREAM

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SHALE			
			SANDSTONE			"FOR 200 PACES"
			SHALE			DIP 5 DEG N. FOLDED & FAULTED
			SANDSTONE			

087273C0062F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 25 SESESE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 620.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			STRIKE N 75 E. DIP 15 DEG N 45 W

087273C0063F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 25 SENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 640.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 44.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
640.00			UNCLASSIFIED	0.00	0.00	
640.00			SANDSTONE	20.00		DIP 3 DEG N 25 W
620.00			SHALE	4.00	20.00	LT BK-GREY
616.00			SANDSTONE	10.00	24.00	
606.00			SHALE	6.00	34.00	LT BLUE-GR
600.00			SANDSTONE	4.00	40.00	CLAYEY

087273C0064F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 26 NENESW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 680.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Measured section Outcrop LOGGED (FT.): 75.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			SANDSTONE			
			SANDSTONE	20.00		
			SANDSTONE	5.00		STIGMARIA. 10" CONGL AT TOP
			SHALE			THIN SS PLIERS
			BLACK SHALE	40.00		
			SANDSTONE	10.00		MASSIVE

087273C0065F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 34 SWNENE
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 570.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	THICKNESS (FT.)		COMMENT
				UNIT	OVERBURDEN	
			COAL			CANNEL

087273C0066F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 35 NW
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 520.0 GEOLOGIST: BARGH,M DATE COLLECTED:
 Strip Mine LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-CADY PIT 1000' SE OF TEST PIT IN SEC 34.

THICKNESS (FT.)						
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ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
520.00			UNKNOWN BLACK SHALE BLACK SHALE COAL BLACK SHALE	22.00	0.00	SANDY UNDER ALL OF SEC 35
				5.00		

087273C0067F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 35 NESWSE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Roadcut LOGGED (FT.): 0.00
SOURCE: FLD NOTES-HENDRICKS SECTION DOWN RAVINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
600.00	CASEYVILLE		CONGL LIMESTONE		0.00	DIP 30 DEG N 60 W THIN BEDDED. ARGILLACEOUS

087273C0068F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 35 NENW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 600.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 70.00
SOURCE: FLD NOTES-CADY RAVINE FROM FALLS N. TO SEC. 26

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE SHALE SS/SH SANDSTONE SANDSTONE SANDSTONE CONGL	30.00 40.00		RED NO OUTCROP THIN X BEDDED THIN BEDDED, RIPPLE MARKED WH. MASSIVE DIP N ELEV 545'

087273C0069F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 36 NWSE
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 580.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 0.00
SOURCE: FLD NOTES-CADY EAST LIMB OF ANTICLINE FAULTS

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE CONGL			SLICKENSIDED CONGL. BELOW FAULT ZONE. ROCKS GREATLY CRUSHED

087273C0070F PROJECT: BLM QUADRANGLE: STONEFORT
COUNTY: JOHNSON 11S - R 4E SECTION: 36 NWSNW
CONFIDENTIAL: N
SURFACE ELEVATION (FT.): 500.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1926
Measured section Outcrop LOGGED (FT.): 0.50
SOURCE: FLD NOTES-CADY MOUTH OF RAVINE

ELEVATION TOP (FT.)	FORMATION	MEMBER	LITHOLOGY	UNIT	OVERBURDEN	COMMENT
			SANDSTONE SHALE			DIP 10 DEG N

SANDSTONE	0.50	FIRECLAY
CONGL		MASSIVE LEDGE
SH & SS		

087273C0082F PROJECT: BLM QUADRANGLE: STONEFORT
 COUNTY: JOHNSON 11S - R 4E SECTION: 25 NENE 1N 660E
 CONFIDENTIAL: N
 SURFACE ELEVATION (FT.): 635.0 GEOLOGIST: BARGH,M DATE COLLECTED: 0 / 0/1916
 Measured section Outcrop LOGGED (FT.): 0.00
 SOURCE: FLD NOTES-HENBEST "MASSIVE CANYON FORMING SS"

 | | | | THICKNESS (FT.)
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