Strat Well PM-5

Gulf Pittsburg - Midway

HOLE NO.

DEPARTMENT OF THE ARMY

DIVISION

INSTALLATION

DRILLING LOG

1. PROJECT

SHEET OF

2. LOCATION (Coordinates or Station) NW NE NW 30 - 32S - 22E

3. DRILLING AGENCY P+M (Gulf Minerals)

4. HOLE NO. (As shown on drawing title and file No.) P+M #5

5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE 830	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	40		L.S. lt gy (N7), wacke stone, calcareous, massive nature, brachs, crinoid stems, bi-valves, other fossil frags, hard pure l.s., sharp lower contact.	3.1'	1	Core in box in reverse order. Verdigris Limestone (logged by John Harris)
	41					
	42					
	43		Shale, dk gy (N3) claystone, hard, fossiliferous, w/ brachs & other fossil frags, calc. nodules up to 1" dia, calc. cement, gradational lower contact which is slightly lighter in color,	5.3'		
	44					
	45					
	46					
	47					
	48					
			Shale, described on next page,	2.9'		
	49					
	50					

30-32-22c

HOLE NO. _____

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4. HOLE NO. (As shown on drawing title and file No.)

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6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED | DEGREES WITH VERTICAL

7. THICKNESS OF OVERBURDEN

8. DEPTH DRILLED INTO ROCK

9. TOTAL DEPTH OF HOLE

10. SIZE AND TYPE OF BIT

11. DATUM FOR ELEVATION SHOWN (TBM or MSL)

12. MANUFACTURER'S DESIGNATION OF DRILL

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14. TOTAL NO. CORE BOXES

15. ELEV. GROUND WATER

16. DATE HOLE: STARTED | COMPLETED

17. ELEV. TOP OF HOLE

18. TOTAL CORE RECOVERY FOR BORING (%)

19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	50		Shale Hgy(N7), mudstone, silty, micaceous, small plant frags, thinly laminated, sharp contacts.	2.9'	2	
	51		Coal blk(N1), banded, mod. bright, calc in fracs, sulfate bloom, sharp contacts	.8'		Croweburg?
	52		Mudstone Hgy(N7), slightly silty, no evidence of bedding, abundant finely disseminated pyrite xtals, clay ironstone concretions 1" dia, and brown staining, soft & crumbled, sharp lower contact. calc. cement.	4.7'		(Underclay)
	53					
	54					
	55					
	56					
	57		Shale, dkgy(N3), claystone, hard, thin horizontal laminae, fossiliferous zones with brachs & crinoid frags, calc cement, calc concretions up to 1/2" dia., lenticular, sharp lower contact.	3.5'		
	58					
	59					
	60					

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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	60		Shale, same as above		3	high angle, erosional contact with coal.
			Ls, H gy(N7), wackestone, calc, brach's, crinoids, sharp, erosional lower contact.	.3'		
	61		Coal blk(N1), hard, banded, mod bright, large calc concretions 1" dia, sulfate bloom, sharp contacts	1.4'		Fleming?
	62		Mudstone, H gy(N7), silty, calc cement, small brachs, brown stains, plant frags, grad. lower contact.	.8'		(Underclay)
	63		Shale med H gy(N6), mudstone, slightly silty, micaceous, few small pyrite nodules (.1"), and clay ironstone nodules 1/2" dia, small brown stains, gradational lower contact.	3.3'		
	64					
	65					
	66		Shale med dk gy (N4) micaceous, soft, claystone, lower portion calc, with fossil frags, clay ironstone concretions & authigenic siderite xtals, sharp lower contact.	3.6'		
	67					
	68					
	69		Coal - blk(N1), banded, mod. bright, crushed by sulfate bloom, sharp contacts.	.4'		Unnamed Coal?
	70					

ORM 57 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (FM _____)

PROJECT _____ HOLE NO. _____

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16. DATE HOLE: STARTED | COMPLETED
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	70		Mudstone – med lt gy (N6), soft, blocky frac,, abundant plant frags, some authigenic siderite xtals (sand sized) & clay ironstone nodules (½" dia.) & gradational contacts;	1.8'	4	(Underclay)
	71					
	72		Shale med gy (N5), claystone, soft, micaceous, non-fossiliferous, small amt. organic debris, gradational contacts, lighter overall color.	2.2'		
	73					
	74		Shale dk gy (N3), clay stone, micaceous, thin horizontal lams, zones with abundant pyritized fossils, brachs, molluscs, crinoid stems, calc. cement & small calc. nodules, also small pyrite nodules, (< ¼" dia.) sharp lower contact	3.2'		
	75					
	76					
	77					
	78		Coal, blk (N1), hard, banded, mod. bright, sulfate bloom, calc. in fracs. upper 1" muddy, sharp contacts.	2'		Mineral? 12' core missing 80'-92'
	79					
	80		Mudstone – described on next page.	3.8'		(Underclay)

ENG FORM 1836 1 JUN 57 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE

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17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	92		Mudstone, H gy(N7), slightly silty, micaceous, soft, blocky fracture, abundant plant frags, no evidence of bedding. gradational lower contact.	3.8'	5	(Underclay) 12' of Core Missing 80'-92'
	93					
	94					
	95					
	96		Shale lt gy(N7) mudstone, slightly silty, micaceous, soft, non-fossiliferous, few clay ironstone bands 1" thick, clay ironstone concretions, 1" dia., gradational lower contact.			
	97					
	98			12.2'		
	99					
	100					
	101					
	102					

ENG FORM 1836 (TRANSLUCENT) 1 JUN 77 (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE

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	101		Shale same as above		6	
	102					
	103			12.2'		
	104					
	105					
	106					
	107					
	108		Shale, dk gy(N3), mudstone, few fossil frags, calc. nodules, clay ironstone concretions. Sharp lower cont.	.6'		
	109		L.S., M gy(N7), wackestone, abundant brachs + other fossil frags, lower .2' shaly, sharp upper & lower contacts.	.7'		
	110		Coal blk(N1), hard, banded, mod bright, calc, gyp, Sulfate bloom, sharp contacts.	.8'		Scammon?

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	110		Coal, same as above	.8'	7	Scammon?
	111		Mudstone, H gy(N7) slightly silty, micaceous, hard, blocky fracture, no evidence of bedding, abundant plant frags, clay ironstone conc. up to 1" dia, brown stains, sulfate bloom, gradational lower contact.	4.4'		(Underclay)
	112					
	113					
	114					
	115		Shale, med H gy(N6)↓ to lt gy(N7)↑. mudstone, micaceous, thin horizontal laminae, few small plant frags. few sand size authigenic siderite xtals, gradational lower contact	6.1'		
	116					
	117					
	118					
	119					
	120					

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	120		Shale, same as above.	6.1'	8	
	121		Silt-shale – alternating med gy(N5) & lt gy(N7) laminae, lt gy lams silty, qtz-micaceous comp. wavy bedded, soft sediment deformation, abundant elongate pyrite nodules with concentric brn stains, few small plant frags, upper 2' burrowed. gradational lower contact.			Chelsea S.S.
	122					
	123					
	124					
	125			13.6'		
	126					
	127					
	128					
	129					
	130					

HOLE NO. _____

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	130		Silt-shale- Same as above		9	
	131					
	132			13.6'		
	133					
	134					
	135		Shale med brownish gy (5YR 5/1), claystone, micaceous, hard, thin horizontal laminae, thin clay ironstone bands, finely disseminated pyrite, non-fossiliferous, sharp lower contact, uniform color, composition + texture.	19'		
	136					
	137					
	138					
	139					
	140					

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			Measurement off, there is 10' of Core in this box.		10	
	140		Shale, same as above			
	141					
	142					
	143					
	144			19'		
	145					
	146					
	147					
	148					
	149					

ENG FORM 1 JUN 57 1838 (TRANSLUCENT) OUS EDITIONS ARE OBSOLETE

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	148				11	
			Shale med. dk gy (N4) same as above			
	149			19'		
	150					
	151		Shale dk gy (N3), clay st., micaceous, thin horizontal laminae, few crinoid stems + brachs, calc. cement + small calc. nodules 1/2" dia., upper contact marked by brn. clay ironstone band in which fossils are preserved. Sharp lower contact.	2.4'		
	152					
	153		Coal blk (N1), banded, mod. bright, hard, calc, gyp + sulfate bloom, sharp contacts.	.8'		Tebo?
	154		Siltstone, med ltgy (N6) mod. hard, blocky fracture, no evidence of bedding, abundant plant frags, appears uniform in color in comp. gradational lower contact.			(Underclay)
	155			2.3'		
	156					
	157					

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			N.C.R, mudstone crumbled, only 9' core		12	
	157		Siltstone, same as above			(Underclay)
	158					
	159					
	160			123'		
	161					
	162					
	163					
	164					
	165		Siltshale - on next page	4'		
	166					

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	166		Silt-shale very lt gy (N8) qtz-micaceous comp, ripple x-laminations, burrowed, few sand sized authigenic siderite xtals, small amt. calcareous cement sharp lower contact	4'	13	
	167					
	168					
	169		Shale med gy (N5), mudstone, micaceous, soft, lt gy (N7) laminae increasing ↑, lt lams, silty, small plant frags, bedding appears disturbed in lower portion, may be burrowed, cone in cone structure near top poorly developed, calcareous cement laminations still preserved in this zone. gradational, arbitrary lower contact, upper portion has abundance of authigenic siderite xtals.	6.3'		calcareous zone w/cone in cone from 170.8'-169.8'.
	170					
	171					
	172					
	173					
	174					
	175		Shale - on next page,	6.1'		
	176					

ENG FORM 1836 (TRANSLUCENT) 1 JUN 57 PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-1-1801) PROJECT _____ HOLE NO. _____

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DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	176		Shale dk gy(N3), claystone, micaceous, hard, brittle, thin horizontal laminae,		14	
	177		few thin clay ironstone bands, 1/4" thick, small calcareous nodules			
	178		1/2" dia., finely disseminated pyrite xtals., few pyritized plant frags + burrows	6.1'		
	179		along bedding surf, sharp lower contact.			
	180					
	181		Coal blk (N1), banded, mod bright, calc, gyp + sulfate bloom, .25' dk gy shale parting with calcareous nodules, smut on top contacts, sharp	smut .25 .2		Weir-Pittsburg
	182		Mudstone, lt gy(N7) silty, soft, blocky frac, crumbled,			
	183		No evidence of bedding, abundant plant frags, gradational lower contact.			(Underclay)
	184			2.4'		
	185					
	186					

HOLE NO. _____

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DIVISION _____

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DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVERBURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	186		Shale lt gy (N7), mudstone, silty, micaceous, lenticular bedded, non-fossiliferous abundant authgenic siderite xtals, (sand sized), small brn. stains, gradational lower contact.		15	
	187					
	188					
	189			6.7'		
	190					
	191					
	192					
	193		Shale on next page			
	194			5.6'		
	195					
	196					

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1401) PREVIOUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY
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INSTALLATION _____

DRILLING LOG

	1. PROJECT	SHEET OF
	2. LOCATION (Coordinates or Station)	
	3. DRILLING AGENCY	
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
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10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	196		Shale, med dk gy(N4), claystone, soft, thin horizontal laminae, few small plant frags., abundant clay ironstone bands & concretions (1" thk) authigenic siderite xtals (fine sand size) and sulfate bloom, finely disseminated pyrite xtals, gradational lower contact.	5.6'	16	
	197					
	198					
	199					
		XXX	Shale, med dk gy(N4)↓ to med gy(N5)↑, mudstone micaceous, with lt. gy silty laminae increasing ↑, lenticular bedded, few small crinoid frags, small plant frags, few very thin clay ironstone bands, few authigenic siderite xtals, gradational lower contact.	5.8'		
	200					
	201					
		XXX				
	202					
	203					
		XXX				
	204					
	205					
			Shale on next page	7.9'		
	206					

HOLE NO. _____

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DIVISION _____
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DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title and file No.)
5. NAME OF DRILLER
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED | DEGREES WITH VERTICAL
7. THICKNESS OF OVER-BURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED
14. TOTAL NO. CORE BOXES
15. ELEV. GROUND WATER
16. DATE HOLE: STARTED | COMPLETED
17. ELEV. TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING (%)
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	206		Shale - dkgy(N3) ↓ to med dkgy(N4) ↑, claystone, micaceous, small pyritized burrows along bedding planes, finely disseminated pyrite xtals., few small pyrite nodules, (½" dia.), clay ironstone bands up to ½" thick. Sharp lower contact w/ coal.	7.9'	17	
	207					
	208					
	209					
	210					
	211					
	212					
	213		Coal blk(N1), banded, mod. bright, calc, gyp, sulfate bloom & pyrite infracs, sharp contacts.	.3'		B. J. coal "A"
	214		Mudstone med ltgy(N6), slightly silty, soft, blocky frac, abundant plant frags, few authigenic siderite xtals; gradational lower contact.	2.4'		(Underclay)
	215					
	216		Shale, on next page	5.3'		

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS E... IE OLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY
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DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title and file No.)
5. NAME OF DRILLER
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED | DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED
14. TOTAL NO. CORE BOXES
15. ELEV. GROUND WATER
16. DATE HOLE: STARTED | COMPLETED
17. ELEV. TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING (%)
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	216		Shale dk gy (N3), claystone, micaceous, hard-brittle, thin Horizontal laminae, few thin (1") clay ironstone bands, non-fossiliferous, sharp lower contact	5.3'	18	
	217					
	218					
	219					
	220					
	221		Shale med dk gy (N4), mudstone, calcareous, brachs, crinoid stems etc, small calcareous nodules 1/4" dia., sharp lower contact.	.3'		B.J. "B" Coal horizon
	222		Mudstone med lt gy (N6), slightly silty, soft, conch-blocky frac., abundant plants & root frags, gradational lower contact. abundant sulfate bloom.	2.1'		(Underclay) N.C.
	223					
	224		Siltstone, described on page 20.	18'		Upper Blue Jacket S.S.
	225					
	226					

ENG FORM 1836 1 JUN 69 (TRANSLUCENT) REVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

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DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL		

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	226		Siltstone — described on next page		19	May be very fine S.S.
	227					
	228					Upper Bluejacket S.S.
	229			18'		
	230					
	231					
	232					
	233					
	234					
	235					
	236					

ENG FORM 1836 (TRANSLUCENT) (EM 1110-3-1801) PREVIOUS EDIT OBSOLETE

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY
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INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL	7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK / 9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER / 16. DATE HOLE: STARTED / COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					20	
	236					
	237		Siltstone ltgy(N7) with alternating ltgy & dk cross laminae. Interbedded siltstone & mudstone, flaser bedded, qtz micaceous comp., few reddish brn. stains. Sharp contacts between individual cycles, non-fossiliferous, sharp lower contact (few authigenic siderite xtals)	18'		May be very fine gr. S.S,
	238					
	239					
	240		Shale dkgy(N3), clay stone, micaceous, hard & brittle, thin horiz. laminae, brown clay ironstone bands 2"-4" thick, finely disseminated pyrite xtals, sharp lower contact.	2.4'		
	241		Shale, dk brownish gy (5YR 3/1) ↓ to ltgy(N7) ↑, silty, fossiliferous w/ brachs, crinoid stems & other fossil frags, sharp lower contact w/ coal.	1'		More organic material in lower .3'.
	242					
	243		Coal blk(N1), banded, mod. bright, hard, gyp, calc, & pyrite in fracs, sharp contacts.	.35'		B.J. Coal "C"
	244		Mudstone med ltgy(N6) slightly silty, micaceous, soft, blocky frac. abundant plant frags. finely disseminated pyrite, gradational lower contact.	.9'		(Underclay)
	245					

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

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DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL			

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	245		Mudstone med Hgy(N6) slightly silty, micaceous, hard, blocky frac., abundant bioturbation,		21	
	246		few small crinoidstems, calc. cement, authigenic siderite xtals & small pyrite nodules, gradational lower contact	2.5'		
	247					
	248		Shale dk gy(N3)↓, grading to med gy (N5)↑, mudstone, silty, micaceous, lenticular bedded with silty laminae increasing ↑ some soft sediment deformation in silty zones, few thin clay ironstone bands, authigenic siderite xtals & pyrite xtals, some small dk brown Fe oxide stains. gradational lower contact.			
	249					
	250			6'		
	251					
	252					
	253		Siltstone, med gy(N5), qtz-micaceous comp. extensively burrowed, bedding destroyed, few crinoid stems & frags, gradational lower contact.	2.6'		
	254					
	255					

HOLE NO. _____

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DRILLING LOG

1. PROJECT | SHEET OF
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5. NAME OF DRILLER
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7. THICKNESS OF OVER-BURDEN
8. DEPTH DRILLED INTO ROCK
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16. DATE HOLE: STARTED | COMPLETED
17. ELEV. TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING (%)
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	255		Siltstone burrowed same as above	2.6'	22	
	256					
	257		Shale dk gy (N3), with few lt gy (N7) laminae, mudstone, lenticular bedded, micaceous, few thin clay ironstone bands .5" thick, small lt gy. nodules .2" dia., sharp lower contact with underclay, few authigenic siderite xtals.	3'		"D" B.J. coal horizon
	258					
	259					
	260					
	261		Mudstone, lt gy (N7), slightly silty, soft, blocky - conch. frac. abundant plant + root frags, no evidence of bedding, gradational lower contact,	1.1'		Underclay but No coal ?
	262					
	263		Siltstone med. lt. gy (N6), hard, qtz-micaceous comp., originally flaser bedded, original bedding destroyed by abundant bioturbation + soft sediment deformation. small plant frags, sharp lower contact,	3'		
	264					
	265					

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS ARE OBSOLETE PROJECT _____ HOLE NO. _____

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DEPARTMENT OF THE ARMY

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DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
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4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL	7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK / 9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER / 16. DATE HOLE: STARTED / COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					23	
	265		siltstone, same as above	3'		
	266		shale, brownish gy (5YR 5/1), mudstone, slightly silty, micaceous, hard, small plant frags, few small burrows, abundant authigenic siderite xtals + clay ironstone cement. gradational lower contact.			
	267					
	268					
	269					
	270					
	271			14.4'		
	272					
	273					
	274					

HOLE NO. _____

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DIVISION _____
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17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	274		Shale same as above.		24	
	275					
	276			14.4'		
	277					
	278					
	279		Shale med gy (N5), claystone, micaceous, soft, thin horizontal laminae, non-fossiliferous, few small pyrite xtals, small horizontal burrows appear on bedding surfaces, sharp lower contact.	3'		
	280					
	281		Coal, blk (N1), hard, banded, mod. bright, calc, gyp, & sulfide bloom in fracs, sharp contacts,	.4'		Drywood Coal
	282		Mudstone, med lt gy (N6), silty, soft, blocky frac, no evidence of bedding, abundant plant frags., abund. sand sized authigenic siderite xtals, gradational lower contact.			Underclay
	283			4.9'		
	284					

HOLE NO. _____

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DIVISION _____
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1. PROJECT | SHEET OF
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5. NAME OF DRILLER
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7. THICKNESS OF OVER-BURDEN
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Mudstone, same as above.	4.9'	25	(Under clay)
	284					
	285		Shale, med dk gy (N4), with lt gy (N7) lams., hard, silty lams marked by abundant sand sized authigenic siderite grains, few clay ironstone concretions, gradational lower contact.	2.3'		
	286					
	287		Shale, dk gy (N3), claystone, micaceous, thin horizontal laminae, non-fossiliferous, ~~soft~~, few clay ironstone bands up to .2' thick. sharp lower contact	7'		
	288					
	289					
	290					
	291					
	292					
	293					

ENG FORM 1838 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY
DIVISION _____
INSTALLATION _____
DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title and file No.)
5. NAME OF DRILLER
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12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED
14. TOTAL NO. CORE BOXES
15. ELEV. GROUND WATER
16. DATE HOLE: STARTED | COMPLETED
17. ELEV. TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING (%)
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	293		Shale, same unit as above.		26	
	294		Coal blk(N1), hard, banded, mod. bright, calc, gyp + sulfide bloom in fracs. sharp contacts.	.4'		Rowe ~~Neutral~~ Coal
	295		Mudstone, lt gy(N7)↓ to med lt gy(N6)↑, silty, micaceous, no evidence of bedding, abundant plant frags, soft with blocky fracture, sand sized authigenic siderite xtals, gradational lower contact	3.9'		(Underclay)
	296					
	297					
	298					
	299		Silt-shale, med dk gy (N4)↓, grading to lt gy(N7)↑, silty laminae increasing upwards, lenticular bedded, micaceous & qtz comp., some zones with small clay ironstone concretions .5" dia, and abundant sand size authigenic siderite xtals, gradational lower contact.	6.1'		
	300					
	301					
	302					
	303					

HOLE NO. _____

DEPARTMENT OF THE ARMY

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INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
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4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	

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☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL			

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	303		Silt-shale - same unit as above.	6.1'	27	
	304					
	305		Shale, dk gy (N3), Claystone, micaceous, thinly laminated, soft, very fissile, non-fossiliferous, few calcareous concretions up to .5" dia, and abundant calcareous cement, , sharp lower contact.			
	306					
	307					
	308					
	309			11.8'		
	310					
	311					
	312					
	313					

HOLE NO. _____

DEPARTMENT OF THE ARMY
DIVISION _____
INSTALLATION _____
DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title and file No.)
5. NAME OF DRILLER
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED | DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED
14. TOTAL NO. CORE BOXES
15. ELEV. GROUND WATER
16. DATE HOLE: STARTED | COMPLETED
17. ELEV. TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING (%)
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	314		Shale same unit as above.		28	
	315			11.8'		
	316					Neutral [redacted]' coal horizon
	317					
	318		Mudstone, med lt gy (N6), silty, micaceous, soft, with blocky - conch. frac., bedding characteristics not observed, abundant plant frags, abundant authigenic siderite xtals up to coarse sand size & clay ironstone concretions up to .1' in diameter, gradational lower contact. Resembles underclay but no coal present.	3.8'		(Underclay N.C.)
	319					
	320					
	321		Shale med dk gy (N4) ↓ lightening to med gy (N5) at top. Claystone, micaceous, thinly lam., hard at base becoming softer at top. Thin clay ironstone bands up to .1' thick, no fossils found, gradational lower contact.	6.5'		
	322					
	323					
	324					

HOLE NO. _____

DEPARTMENT OF THE ARMY
DIVISION _____
INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER	
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL	7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK / 9. TOTAL DEPTH OF HOLE
10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER / 16. DATE HOLE: STARTED / COMPLETED
17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	324		Shale, same as above		29	
	325			6.5'		
	326					
	327					
	328		Siltstone, med brownish gy (5YR 5/1), qtz, micaceous comp, flaser bedded, muddy laminae darker, sand shows ripple x-lam, convolute bedding due to soft sed. deform., small H gy concretions, .5" dia., non-fossiliferous, more permeable silty zones oil stained w/ odor. sharp lower contact. same as lower unit but more silt.			(Upper Warner) S.S.
	329					
	330			7.5'		
	331					
	332					
	333					
	334					

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT	SHEET OF
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	
4. HOLE NO. (As shown on drawing title and file No.) RM # 5	5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			actually about 7' of core below but crumbled mud stone takes up about half the box, so box is full.		30	
	334					
	335		Siltstone, med. brownish gray (5YR 5/1), more mud in lower 1', silt increasing ↑, lenticular bedding at base, silts at top ripple cross laminated. some orange-brown Fe stains in lower part. Sharp lower contact.	3.5'		
	336					
	337		Mudstone, med gy (N5), soft, blocky frac, crumbled, authigenic siderite xtals, small pyrite concretions silty, grad. lower contact	1.2'		Unnamed coal horizon
	338					
	339		Shale, med dk gy (N4), with abundant fossil frags (N8) White, calc. brachs, crinoid stems, other fossil debris. gradational lower contact	.8'		(Impure 1.5)
	340		Shale described on next page.	10.4'		
	341					

HOLE NO. _____

DEPARTMENT OF THE ARMY
DIVISION _____
INSTALLATION _____

DRILLING LOG

1. PROJECT | SHEET OF

2. LOCATION (Coordinates or Station)

3. DRILLING AGENCY

4. HOLE NO. (As shown on drawing title and file No.) Pad M #5

5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					31	
			elev. 341			
	341		Shale med. gy(N5), mudstone, silty, micaceous - quartz comp., few H gy qtz rich laminae,			
	342		few fossil frags, small round brachs, calc. cement. Abundant calcareous concretions up to .2' dia.			
	343		few thin .5" clay ironstone bands. Sharp lower contact, also bryozoa frags, & crinoid frags. in foss. zones. (marine)			
	344			10.4'		
	345					
	346					
	347					
	348					
	349		Coal blk (N1), hard, banded, mod. bright abundant gyp, calc. & yellow sulfide in fracs. sharp contacts.	.95'		"A" Coal
	350		Mudstone - desc. on next page	2.7'		(Underclay)

ENG FORM 1836 1 JUN 80 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT | SHEET OF

2. LOCATION (Coordinates or Station)

3. DRILLING AGENCY

4. HOLE NO. (As shown on drawing title and file No.) P+M # 5

5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	350		Mudstone, med gy (N5), slightly silty, soft, conchoidal – blocky fracture, abundant plant frags, gradational lower contact.	2.7'	32	(Underclay)
	351					
	352					
	353		Mudstone, dk gy (N3), w/ H. gy (N7) laminae, lenticular bedded, micaceous, with qtz common in silty lams, laminations increase ↑ Some soft sed. deformation, upper 1' burrowed. gradational lower contact.	3.1'		
	354					
	355					
	356		Shale dk gy (N3), claystone, micaceous, thin horiz. lams, few small pyrite nodules .1" dia., few thin clay ironstone bands .1' thick. non-fossiliferous, sharp lower contact.	2.9'		
	357					
	358		Coal, blk (N1), banded mod. bright, hard, abundant gyp, calc, & yellow sulfide in fracs. Sharp contacts	.8'		"B" coal ?
	359					
	360		Mudstone, described on next page	3.2'		(Underclay)

NO FORM 1836 (NT) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT | SHEET OF

2. LOCATION (Coordinates or Station)

3. DRILLING AGENCY

4. HOLE NO. (As shown on drawing title and file No.) P+M #5

5. NAME OF DRILLER

6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED | DEGREES WITH VERTICAL

7. THICKNESS OF OVER-BURDEN

8. DEPTH DRILLED INTO ROCK

9. TOTAL DEPTH OF HOLE

10. SIZE AND TYPE OF BIT

11. DATUM FOR ELEVATION SHOWN (TBM or MSL)

12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED

14. TOTAL NO. CORE BOXES

15. ELEV. GROUND WATER

16. DATE HOLE: STARTED | COMPLETED

17. ELEV. TOP OF HOLE

18. TOTAL CORE RECOVERY FOR BORING (%)

19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	360		Mudstone, med lt gy(N6), silty, micaceous - qtz composition, soft, blocky - conchoidial frac. abundant plant frags, no evidence of bedding, gradational lower contact.	3.2'	33	(Underclay)
	361					
	362					
	363		Mudstone med dkgy(N4), silty, lenticular bedded, few lt gy silty lams. blocky - conch. frac. small plant frags, upper .5' may be burrowed, gradational lower contact.	1.7'		
	364					
	365		Shale dk gy(N3), mudstone, slightly silty, micaceous, thinly laminated, abundant elongate pyrite concretions, cylindrical shape & inclined to bedding, may be burrows, some calcareous cement, small brown Fe stains, gradational lower contact. some gypsum xtals in fracs. around concretions	15.1'		
	366					
	367					
	368					
	369					
	370					

ENG FORM 1836 1 JUN 57 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.) P+M # 5	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	370		Shale same as above		34	
	371					
	372					
	373					
	374			15.1'		
	375					
	376					
	377					
	378					
	379					"C" coal horizon
	380		Mudstone described on next page.	3.5'		

ENG FORM 1838 (TRANSLUCENT) 1 JUN 89 (PREVIOUS EDITIONS ARE OBSOLETE) (AEM 1110-2-180)

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT | SHEET OF

2. LOCATION (Coordinates or Station)

3. DRILLING AGENCY

4. HOLE NO. (As shown on drawing title and file No.) P+M # 5

5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	380		Mudstone, med. lt. gy (N6), slightly silty, micaceous, abundant authigenic siderite xtals soft, blocky fracture, small plant frags, few dk brown Fe stains, large growth of gypsum has expanded & crumbled core in one place. gradational lower contact.	3.5'	35	
	381					
	382					
	383		Shale dk brownish gy (5YR 3/1) ↓ grading to med lt gy (N6) near top. few lt gy (N7) laminae. Mudstone, slightly silty, micaceous, hard, lt gy laminae are calcareous. Sharp lower contact marked by brownish red stained zone.			
	384					
	385					
	386			7.4'		
	387					
	388					
	389					
	390					

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
2. LOCATION (Coordinates or Station)		
3. DRILLING AGENCY		
4. HOLE NO. (As shown on drawing title and file No.) P+M #5	5. NAME OF DRILLER	

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	390		Shale same as above		36	
	391			9.5'		"D" coal horizon
	392		Mudstone lt gy (N7), silty, mod. hard, blocky frac, qtz-micaceous comp, abundant authigenic siderite xtals. small plant frags near top, sharp lower contact.			
	393			3.7'		
	394					
	395					
	396		S.S. lt gy (N7), very fine gr., qtz + micaceous comp., large amt. mud, few small plant frags, soft sed. deformation, no apparent ripple X-laminae, sharp lower contact,			(Lower Warner S.S.)
	397			2'		
	398		Siltstone, med. dk gy (N4) muds interlaminated with very lt. gy (N8) silts, wavy-flaser bedded, abundant soft sed. deformation due to diff. compaction of mud + silts. Quartz + micaceous comp. upper portion burrowed. gradational lower contact			
	399			2.4'		
	400					

ENG FORM 1836 1 JUN 87 (TRANSLUCENT) (FEB 1974-0-1981) OUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT	SHEET OF
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	
4. HOLE NO. (As shown on drawing title and file No.) P+M #5	5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	400		Mudstone med. dk gy (N4) with lt gy (N7) laminae increasing ↑, Lenticular - wavy bedded, micaceous, with lt. gy lams. rich in quartz, few small plant frags, abundant soft sediment def. due to mixing of silt + mud., gradational upper & lower contacts,		37	
	401					
	402			7.6'		
	403					
	404					
	405					
	406					
	407					
	408		Shale, med dk gy, (N4), Claystone, micaceous non-fossiliferous, thinly laminated, few small lt gy nodules, .1" dia., no lt gy lams. in this unit., few thin clay ironstone bands. sharp lower Contact marked by clay ironstone band.	4.4'		
	409					
	410					

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1. PROJECT | SHEET OF

2. LOCATION (Coordinates or Station)

3. DRILLING AGENCY

4. HOLE NO. (As shown on drawing title and file No.) P+M #5

5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	410		Shale, same as above.		38	
	411			4.4'		
	412					
			Shale med dk gy (N4) with very lt gy (N8) laminae. mudstone, micaceous, lenticular – wavy bedded, some soft sediment deformation, non-fossiliferous. few small lt. gy concretions, ½cm dia., top of unit marked by .3' thick clay ironstone band. sharp lower contact also marked by prominent clay ironstone band,			
	413					
	414					
	415			7.8'		
	416					
	417					
	418					
	419					
	420					

FORM 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE

NOV 1110-2-1801

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY
DIVISION _____
INSTALLATION _____
DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title and file No.) P+M #5
5. NAME OF DRILLER

6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL	7. THICKNESS OF OVERBURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE: STARTED / COMPLETED

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	420		Claystone, med.dk gy(N4) soft, blocky frac., may be burrowed, sharp lowe contact. Top marked by red-brown clay ironstone band.	.8'	39	
	421		Coal, blk,(N1), banded, mod. bright, hard, abundant gypsum, calc, & yellow sulfur along frac. planes, sharp lower contacts.	1.5'		(Riverton Coal ?)
	422		Claystone, clay parting	.25'		
			Coal, same as above, gyp.	.2'		
	423		Claystone - med ltgy(N6) soft, blocky - conch. frac. no evidence of bedding, abundant plant frags, gradational lower contact.	1.2'		(Underclay)
	424		Mudstone - as below except burrowed.	.6'		
	425		Shale, dkgy(N3), with very ltgy(N8) laminae, mudstone, lenticular bedded, lt.gy lams silty. small lt. gy concretions .1" dia., sharp contact with lower unit marked by increased organic content + large pyrite concretions. shale is micaceous & has few plant frags.	5.0'		
	426					
	427					
	428					
	429					unamed lower coal horizon?
	430		Mudstone, desc. on next page	1.4'		

ENG FORM 1836 (TRANSLUCENT) 1 JUN 88 (1 EDIT ARE OBSOLETE)

PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

DIVISION _____

INSTALLATION _____

DRILLING LOG

1· PROJECT | SHEET OF

2· LOCATION (Coordinates or Station)

3· DRILLING AGENCY

4· HOLE NO. (As shown on drawing title and file No.) PdM # 5

5· NAME OF DRILLER

6· DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL

7· THICKNESS OF OVER-BURDEN

8· DEPTH DRILLED INTO ROCK

9· TOTAL DEPTH OF HOLE

10· SIZE AND TYPE OF BIT

11· DATUM FOR ELEVATION SHOWN (TBM or MSL)

12· MANUFACTURER'S DESIGNATION OF DRILL

13· TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED | UNDISTURBED

14· TOTAL NO. CORE BOXES

15· ELEV. GROUND WATER

16· DATE HOLE: STARTED | COMPLETED

17· ELEV. TOP OF HOLE

18· TOTAL CORE RECOVERY FOR BORING (%)

19· SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	430		Mudstone - (med gy N5), slightly silty, pyrite xtals, plant frags, soft, blocky frac, gradational lower contact.	1.4'	40	(may be Underclay but N.C.) Riverton horizon?
	431		Shale, dk gy (N3), clay st. thin planar laminae, micaceous, extensive pyritization, non-fossiliferous, finely disseminated pyrite xtals & pyrite concretions ½" dia. sharp, erosional lower contact with limestone clasts in lower 2" of shale.			
	432					
	433					
	434			7.1'		
	435					
	436					
	437					
	438		(erosional contact)			
	439		Limestone, white (N9), mudstone, calcareous, fractures, probably extensively recrystallized, non-fossiliferous, some oil stains along fracs, lower contact Not observed.	1.9'		(Mississippian Limestone)
	440					

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____