Gulf Pittsburg - Midway Strat well PM-9

HOLE NO.

DEPARTMENT OF THE ARMY
DIVISION
INSTALLATION
DRILLING LOG

1. PROJECT | SHEET OF
2. LOCATION (Coordinates or Station) NWNENE Sec 18 T32S R23E
3. DRILLING AGENCY P+M (Gulf Minerals)
4. HOLE NO. (As shown on drawing title and file No.) P+M #9
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 900
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)
	43		Shale, med gy (N5) at base to dk gy (N3) at top, claystone, micaceous, thin horizontal laminae, brachs and other fossil frags scattered throughout, those at base are extensively pyritized, calcareous cement and small calc. nodules, ½" dia, sharp lower contact w/coal, upper contact not observed.	6'	1	(logged by John Harris)
	44					
	45					
	46					
	47					
	48					
	49		Coal blk (N1), banded, dull, seems soft + weathered, especially at base, gyp, calc. and sulfate bloom in fracs, sharp contacts.	1.6'		Mineral coal
	50					
	51		Mudstone lt gy (N7) same unit as below.	2.4'		"Underclay"
	52					
	53					

18-32-23e

ENG FORM 1836 1 JUN 57 (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	

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)
	53		Mudstone Hgy (N7), soft, crumbled, few woody plant frags, no evidence of bedding, lower contact lost,, may be same unit as below	2'	2	"Underclay"
	54					
	55		12 feet of core lost, from 55'-68', Probably mud stone, N.C.R.			

ENG FORM 1836 1 JUN 57 (TRANSLUCENT) (EM 1110-2-1901) 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	

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)
	68		Mudstone, lt gy (N7), soft, blocky fract., crumbled, mostly lost, calcareous cement.	2'	2	
	69					
	70		Shale, medgy (N5), mudstone, slightly silty, micaceous, thin horizontal laminae, fossiliferous zone at 78' w/ brachs and other fossil frags, surrounded by clay ironstone band, few clay ironstone bands 1" thick in lower portion, few small woody plant frags, gradational lower contact.	10'		
	71					
	72					
	73					
	74					
	75					
	76					
	77					
	78					

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)
	78		Shale med dk gy (N4) same unit as above	10'	3	
	79					
	80		Shale dk gy (N3), claystone, calc, with brachs + other foss, frags, sharp lower cont	1'		
	81		Coal blk (N1) banded, mod bright, hard, calc, gyp + sulfate bloom in fracs, sharp contacts	.8'		Scammon coal
	82		Mudstone, lt gy (N7) at base to med gy (N5) at top, slightly silty, soft, blocky fracture, no evidence of bedding, woody plant frags, gradational lower contact.	2.9'		"Underclay"
	83					
	84					
	85		Shale, lt gy (N7), mudstone, silty, thin horizontal laminae, few clay ironstone nodules and authigenic siderite, few small woody plant frags, sharp lower contact.	2.8'		
	86					
	87					
	88		S.S., same as below.	8'		

ENG FORM 1836 (TRANS: NT) 1 JUN 87 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	

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)
	88				4	
			Sandstone Brn gy (5YR 4/1), hard,			
	89		qtz, micaceous, rock			
			fragments, thinly			
			laminated on order			
			of 1-2", shows			
	90		multidirectional			
			ripple cross			
			laminae, upper			
	91		2' shows several			Chelsea S.S.
			small fining			
			upwards sequences,	8'		
	92		abundant oil			
			staining, sharp			
			lower contact.			
	93					
	94					
	95					
	96		Si H-shale med lt gy			
			(N6), hard, qtz,			
			micaceous comp,			
			lenticular bedded,			
	97		thinly laminated,	4.5'		
			ripple x-laminations			
			convolute bedding,			
	98		gradational lower contact			

ENG FORM 1836 1 JUN 57 (TRANSLUCENT) (EM 1110-1-1801) 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.)

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)
	98		Silt-shale med ltgy (N6), same unit as above		5	
	99			4.5'		
	100		Shale meddkgy(N4) at base to medgy(N5) at top, mudstone, slightly silty, micaceous, thin horizontal laminae, few ltgy (N7) silty lenses near top., few small woody plant frags along bedding planes, few clay ironstone nodules, abundant brown stains, gradational lower contact.			
	101					
	102					
	103					
	104			1.8'		
	105					
	106					
	107					
	108					

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

HOLE NO.

DEPARTMENT OF THE ARMY	1. PROJECT	SHEET OF
DIVISION	2. LOCATION (Coordinates or Station)	
INSTALLATION	3. DRILLING AGENCY	
DRILLING LOG		
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: 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)
	108		Shale med dk gy (N4) at base to med. gy (N5) at top. same unit as above.		6	
	109					
	110					
	111			13.8'		
	112					
	113					
	114		Shale dk gy (N3) claystone, micaceous, hard, thin horizontal laminae, few small, calcareous fossil frags at base, abundant pyritized woody plant frags along bedding planes, small calc. nodules 1" dia, clay ironstone bands 2" thick, abundant brown staining, may be burrowed. sharp lower contact.			
	115					
	116			5.6'		
	117					
	118					

HOLE NO. _____

DEPARTMENT OF THE ARMY

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INSTALLATION _____

DRILLING LOG

1. PROJECT		SHEET OF
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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

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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)
	117		Shale dk gy (N3), same unit as above.	5.6'	7	
	118		Coal blk (N1), banded, mod bright, sulfate bloom, sharp contacts.	.3'		Tebo coal
	119		Mudstone med ltgy (N6), slightly silty qtz, micaceous, hard, blocky frac, few clay ironstone concretions 3" dia, woody plant frags, grad. lower contact.	2.1'		"Underclay"
	121		Silt-shale, ltgy (N7), same unit as described below			
	122					
	123			12'		
	124					
	125					
	126					
	127					

HOLE NO.

DEPARTMENT OF THE ARMY	1. PROJECT	SHEET OF
DIVISION	2. LOCATION (Coordinates or Station)	
INSTALLATION		
DRILLING LOG	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)
	126–132		Silt-shale, Ltgy(N7), hard, qtz, micaceous, thinly laminated, some inclined, lenticular bedded, silty zones show multi directional ripple cross lamination, few clay ironstone bands and concretions up to 2" thick, few sand sized authigenic siderite xtals, some brown stains, gradational lower contact.	12'	8	
	132–133.7		Siltstone Ltgy(N7), qtz, micaceous comp, hard, original thin laminae destroyed by burrows, sharp lower contact.	1.5'		
	133.7–136		Coal blk, (N1), banded, mod. bright, hard, abundant calc, gyp and sulfate bloom, lies on top of sandstone, sharp contact.	2.3'		Tebo "B" coal
	136		Sandstone, med lt gy(N6), same as below.	1.7'		"Seat rock"

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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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)
	136–137		Sandstone, med lt gy (N6), hard, qtz, micaceous, no evidence of bedding, abundant woody plant frags, very fine gr., grad. lower contact.	1.7'	9	"Seatrock"
	138–139		Mudstone - med lt gy (N6), soft, blocky frac, no evidence of bedding, few authigenic siderite xtals, grad. lower contact.	1.6'		"Underclay"
	139–142		Shale med gy (N5), claystone, soft, micaceous, few woody plant frags, sharp lower contact, lighter color than lower shale.	3.4'		
	143–146		Shale, gy blk (N2) at base grading to dk gy (N3) at top. Claystone, hard, thin horiz. laminae, small elongate nodules 1" long and 1/4" dia. may be phosphatic. sharp lower contact with coal. a very dark shale.	4.8'		Sample taken from 146.4' for x-ray analysis.

ENG FORM 1836 (TRANSLUCENT) 1 JUN 57 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
☐ 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)
	146		Shale, gy blk (N2), may be phosphatic, same unit as above.	4.8'	10	Black Shale sample taken here at 146.4' for x-ray analysis.
	147					
	148		Coal, blk (N1), banded, mod. bright, sulfate bloom, sharp contacts	≈25'		Weir-Pittsburg coal
	149		Mudstone lt gy (N7), slightly silty, micaceous, soft, blocky fracture, no evidence of bedding, woody plant frags, authigenic siderite xtals, gradational lower contact.	2'		Underclay
	150					
	151					
	152		Silt-shale, lt gy (N7), with med lt gy (N6) lams. qtz, micaceous comp. wavy bedded, ripple cross laminated, clay ironstone band at base, few authigenic siderite xtals near top. gradational lower contact.	4.3'		
	153					
	154					
	155					
	156		Shale med gy	4.5'		

ENG FORM 1838 (TRANSLUCENT) 1 JUN 57 PREVIOUS EDITIONS ARE OBSOLETE PROJECT ____ HOLE NO.

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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			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)
	156		Shale, med ltgy(N6), mudstone, slightly silty, hard, micaceous, thin horizontal laminae, clay ironstone bands up to .6' thick gradational lower contact.		11	
	157					
	158			4.5'		
	159					
	160		Shale med. dkgy, (N4), same unit as described below.			
	161					
	162					
	163			10.5'		
	164					
	165					
	166					

HOLE NO. _____

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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

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)
	167		Shale, med dk gy (N4), claystone, mod. hard, thin horizontal laminae, few thin clay ironstone bands .2" thick and small pyrite concretions up to .5" dia. some pyrite concretions resemble burrows sharp lower contact marked by .3" clay ironstone bands. This unit is slightly lighter in color than lower unit.	10.5'	12	
	168					
	169					
	170					
	171					
	172					
	173					
	174					
		XXXX	Shale, dk gy (N3), claystone, hard, thin horizontal laminae, abundant pyrite, may be fossil traces or burrows, sharp lower cont.	2'		Top marked by clay ironstone band, color lighter in upper unit.
	175	XXXX				
	176		Clay Coal, blk (N1), hard, banded, mod. bright, sulfate bloom, sharp cont.	.3'		Bluejacket "A" Coal
	177		Mudstone - same as below	1.9'		Underclay

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

HOLE NO. _____

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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			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)
	177		Mudstone ltgy(N7), slightly silty, micaceous, abundant woody plant frags, becomes slightly darker just		13	Underclay
	178		below coal. gradational lower contact.	1.9'		
	179		Shale med dkgy (N4) at base to med ltgy(N7) at top, mudstone, silty, thin horizontal laminae w/ silty			
	180		lenses, sed. has been mixed by burrowing gradational lower contact.	2.1'		
	181		Shale dkgy(N3), claystone, micaceous, thin horizontal laminae, may have been burrowed			
	182		few small pyrite concretions, may follow burrows,	3.7'		
	183		small calcareous nodules, elongated ½" dia. sharp lower contact,			
	184		Coal blk(N1), banded, mod. bright, hard, sulfate bloom. Sharp contacts.	.6'		"B" Bluejacket Coal
	185		Mudstone, ltgy(N7) at base to med gy(N5) at top. slightly			Underclay
	186		silty, micaceous, abundant woody plant frags, brown iron oxide stains	2.7'		
	187		gradational lower contact.			

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			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)
	187		Mudstone, Hgy (N7) same unit as above.	2.7'	14	
	188		Silt-shale Hgy(N7), qtz. micaceous comp. hard, thin horizontal laminae, few authgenic siderite xtals, portions may be burrowed gradational lower contact. Uniform color + composition throughout.	6.6'		
	189					
	190					
	191					
	192					
	193					
	194					
	195		Mudstone - Hgy(N7), slightly silty, micaceous, soft, crumbledy blocky fracture, authigenic siderite grains, gradational contacts.	1.6'		
	196					
	197		Siltstone Hgy(N7), qtz, micaceous, abund. siderite xtals grad. contacts.	1.5'		

FORM 1836 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	

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)
	197		Siltstone, v lt gy (N8), same unit as above	1.2'	15	
	198		Sandstone, very lt gy (N8), v. fine gr. quartz, mica, and rock fragments,			
	199		rock frags more abundant near top. flaser bedded, with very thin muddy			
	200		laminae, few small woody plant frags, gradational lower & upper contacts,	5.5'		Upper Bluejacket 5.5.
	201		shows multidirectional ripple x-laminae. few authigenic siderite xtals.			
	202					
	203		Siltstone, alternating thin lt gy (N7) & med dk gy (N4) laminae.			
	204		wavy bedded, dk muddy laminae decreasing upwards,			
	205		quartz, micaceous comp, small woody plant frags,	4.4'		
	206		sharp lower contact w/shale.			
	207					

ENG FORM 1 JUN 57 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
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)
	207		Siltstone - lt gy (N7), alternating lt & dk laminae, same unit as above,	4.4'	16	
	208		Shale med dk gy (N4), claystone, hard, thin horizontal laminae, abundant thin clay ironstone bands & brown iron oxide stains, sharp lower contact	2.8'		
	209					
	210		L.S. med. lt gy (N6), shaly at base and top, wackestone, brachs, crinoids & other fossil frags, sharp lower contact	.8'		
	211		Coal blk (N1), banded, mod bright, abundant calc. & sulfate bloom, sharp contacts	.3'		"C" Bluejacket coal
	212		Mudstone, med. lt gy (N6), soft-mod hard, blocky fracture, no evidence of bedding, abundant woody plant frags, abundant pyrite concretions .1' dia, and sand sized authigenic siderite x-tals, sharp lower contact marked by sideritic zone.	3.7'		Underclay
	213					
	214					
	215					
	216		Shale med dk gy (N4), described on next page.	5.6'		
	217					

ENG FORM 1836 (TRANSL) 1 JUN 59 — 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

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)
	216		Shale med dkgy(N4), claystone, hard, micaceous, thin horizontal laminae with occasional ltgy silty lenses, lower portion contains bracks, crinoid stems, & other fossil frags, calcareous cement, woody plant frags, abundant finely disseminated pyrite & siderite xtals at top. sharp lower cont. marked by fossiliferous zone.		17	
	217					
	218			5.6'		
	219					
	220		Shale, med dkgy(N4) w/abundant brown iron oxide stains. mudstone, few thin ltgy silty lenses, thin horizontal laminae, upper portion burrowed both ⊥ & ∥ to bedding, few small woody plant frags, small pyrite nodules, authigenic siderite xtals, and thin clay ironstone bands to .1' thick, sharp lower contact w/coal. Small amt. of localized calc. cement.			
	221					
	222					
	223			8.2'		
	224					
	225					
	226					

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)
	225		Shale med dk gy (N4) with brown iron oxide stains, same unit as above,	8.2'	18	
	226					
	227		Coal blk (N1), banded, mod bright, hard, calc, gyp + sulfate bloom, sharp contacts,	.3'		Bluejacket coal "D"
	229		Mudstone, med ltgy (N6), silty, quartz, micaceous, original bedding destroyed, contains woody plant frags, hard, blocky fracture, gradational lower contact.	1.8'		Underclay
	229		Sandstone ltgy (N7) w/ abundant brown iron oxide stains, very fine grained, well sorted, quartz, mica + some Rx frags, flaser bedded, with very thin muddy lams, woody plant frags along bedding planes and authigenic siderite xtals, sharp lower contact.	3.1'		Lower Bluejacket sandstone
	231					
	232					
	233		Shale dk gy (N3), claystone, mod. hard, micaceous, non-fossiliferous, clay ironstone bands up to 4' thick, sharp lower contact w/ underclay.	4.4'		
	234					
	235					

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

HOLE NO. ______

DEPARTMENT OF THE ARMY	1. PROJECT	SHEET OF
DIVISION ______ INSTALLATION ______	2. LOCATION (Coordinates or Station)	
DRILLING LOG	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)
	235–6		Shale dk gy (N3) same unit as above.	4.4'	19	
	7–8		Mudstone, med lt gy (N6), soft, slightly silty, blocky fracture, no evidence of bedding, abundant woody plant frags, few small pyrite concretions less than .1" dia. gradational lower contact	1.8'		Underclay but no coal present. Unnamed horizon
	9–240–1–2		Interbedded siltstone & shale, very thin alternating lt gy (N7) & med dk gy (N5) laminae, quartz, micaceous comp., hard, thin lenticular - wavy bedded, few small woody plant frags, localized calc. cement. sharp lower contact. Individual laminae appear much thinner than in previous interbedded unit.	9.7'		
	3					
	4					
	245					

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			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)
	244		Siltstone, alternating thin lt & dk gy laminae (N5) & (N7), same unit as above,		20	
	245			9.7'		
	246					
	247		Sandstone Hgy (N7) w/ med. dk gy (N4) muddy lenses., very fine grained sand, quartz, micaceous comp, flaser bedded, some rock frags in upper portion, ripple x-laminae, abundant woody plant frags along bedding planes, arbitrary gradational lower contact, some dead oil stains, small amt. odor,			Upper Warner S.S.
	248					
	249					
	250					
	251			9.1'		
	252					
	253					
	254					

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			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)
	254		Sandstone ltgy (N7) very fine gr. same unit as above.		21	
	255			9.1'		
	256		Interbedded siltstone + shale, shale med dk gy (N4), siltstone lt gy (N7), quartz, micaceous, wavy bedded, silty lams increasing towards top. silty laminations show good ripple cross lamination, abundant woody plant frags, few authigenic siderite xtals, sharp lower contact marked by scour surface and silty zone.			
	257					
	258					
	259					
	260			25.4'		
	261					
	262					
	263					
	264					

ENG FORM 1836 (TRANSLUCENT) 1 JUN 57 (EM 1110-3-1301) PREVIOUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO.

HOLE NO. _____

DEPARTMENT OF THE ARMY

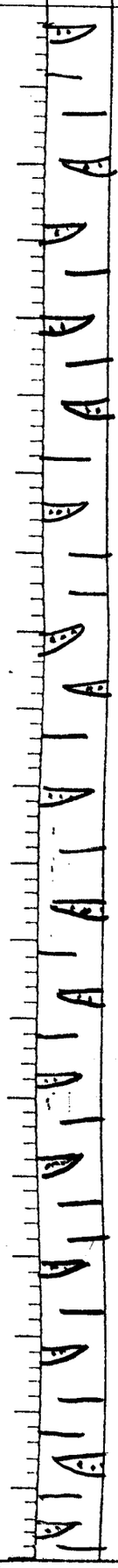
DIVISION _____

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		
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)
			Interbedded siltstone + shale		22	
			same unit as above.			
				25.4'		



ENG FORM 1836 1 JUN 57 (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	

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)
	273		Interbedded siltstone & shale		23	
			siltstone lt gy (N7)			
	274		shale med dk gy (N4)			
			same as above			
	275					
	276			25.4'		
	277					
	278					
	279					
	280					
			Shale med gy (N5)			
	281		described on p 25.			
	282			26.6'		
	283					

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			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)
	283		Shale med gy (N5), same unit as below. decribed on p 25.		24	
	284					
	285					
	286					
	287			26.6'		
	288					
	289					
	290					
	291					
	292					
	293					

ENG FORM 1836 (TRANSLUCENT) 1 JUN 57 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

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)
	293		Shale, med gy(N5) w/abundant brown iron oxide stains, and occasional thin lt gy(N7) silty lenses.		25	
	294		Mudstone, silty, micaceous, thin horizontal laminae, a few thin zones contain crinoid stems & other fossil frags., abundant authenic siderite xtals and clay ironstone bands, no calc. cement, may have been converted to siderite, abundant woody plant frags appearing as black carbon films on bedding planes, sharp lower contact w/coal.	26.6'		
	295					
	296					
	297					
	298					
	299					
	300					
	301					
	302					
	303					

ENG FORM 1 JUN 57 1836 (TRANSLU) 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	
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)
	303		Shale, med. gy (N5) w/ abundant brown iron oxide stains. same unit as above.		26	
	304					
				2.6'		
	305					
	306					
	307		Coal blk(N1), mod. hard, banded, mod. bright gyp & sulfate bloom in fracs, sharp contacts.	1.4'		"A" coal
	308					
			Mudstone, med gy (N5)↓ to lt gy(N7)↑. slightly silty, micaceous, soft, blocky-conchoidal fracture, abundant woody plant frags, abundant authigenic siderite xtals, gradational lower contact, lacks bedding.			Underclay
	309					
	310			4.9'		
	311					
	312					
	313					

ENG FORM 1836 (TRANSMENT) 1 JUN 57 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
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)
	313		Shale, dk gy(N3), w/ few very thin lt gy(N7) silty lenses, mudstone, micaceous, thin horizontal lams, non-fossiliferous, few authigenic siderite xtals, sharp lower contact w/ coal.	2.5'	27	
	314					
	315		Coal, blk(N1), hard, banded, mod. bright, calc., gyp, & sulfate bloom, sharp contacts.	.4'		"B" coal
	316		Mudstone, lt gy(N7), slightly silty, soft, conchoidal fracture, no evidence of bedding, abundant woody plant frags, brown iron oxide stains, gradational lower contact	2.5'		Underclay
	317					
	318					
	319		Shale, med. gy(N5), mudstone, silty, hard, micaceous, Lenticular bedded, non-fossiliferous, calcareous cement, sharp lower content marked by silty zone, lighter color than lower unit.	2.4'		
	320					
	321		Shale, dk gy(N3), same unit as below, decribed on p 28.	12.7'		
	322					
	323					

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			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 — 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)
	323		Shale dk gy (N3), claystone, mod. hard, micaceous, thin horizontal laminae, localized calcareous cement, non-fossiliferous, very thin clay ironstone bands, sharp lower contact, uniform color + comp. throughout.		28	
	324					
	325					
	326					
	327			12.7'		
	328					
	329					
	330					
	331					
	332					
	333					

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			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: 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)
	333		Shale dk gy (N3) same as above		29	
			Coal blk (N1), smut, sharp contacts	.1'		"C" coal
	334 335 336 337 338		Mudstone med lt gy (N6), slightly silty, micaceous, mod. soft, blocky fracture, no evidence of bedding, abundant woody plant frags, some pyritized. gradational lower contact. a big underclay for such a small coal.	5.5'		Underclay
	339 340 341		Shale dk gy (N3), mudstone, hard, micaceous, thin horizontal laminae, abundant small brachs, crinoid stems and other fossil frags at base, extensively pyritized, calc. cement, sharp lower contact w/ coal.	3.2'		
	342		Coal blk (N1), banded, mod bright, sulfate bloom, sharp contacts	.15'		"D" coal
	343		Mudstone lt gy (N7), silty, soft, blocky frac, plant frags, grad'l lower contact	1.4'		Underclay

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			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)
	343		Mudstone lt gy (N7) same as above.	1.4'	30	Underclay
	344		Siltstone, lt gy (N7) quartz, micaceous comp, hard, wavy bedded at base, with ripple x-laminae near top., non-fossiliferous, abundant authigenic siderite x-tals., gradational lower contact. also contains small pyrite xtals.	4.1'		f.s. or v.f. sand?
	345					
	346					
	347					
	348					
	349		Shale, dk gy (N3) w/ lt gy (N7) silty laminae, mudstone, hard, thin horiz. laminae, lenticular bedded, non-fossiliferous, sharp lower contact. no convolute bedding as in lower unit.	1.9'		
	350					
	351		Shale, dk gy (N3) w/ lt gy (N7) lenses increasing. mudstone, lt gy lenses silty, micaceous, hard, abundant convolute bedding, may be burrowed, original bedding destroyed. clay ironstone bands up to .5' thick, grad. lower contact.	7.9'		Is this convolute bedding, burrowing, or both, and how can you tell?
	352					
	353					

HOLE NO. ______

DEPARTMENT OF THE ARMY DIVISION ______ INSTALLATION ______ DRILLING LOG	1. PROJECT	SHEET OF
4. HOLE NO. (As shown on drawing title and file No.)	2. LOCATION (Coordinates or Station)	
	3. DRILLING AGENCY	
	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)
	355		Shale dkgy(N3) w/ lt gy(N7) silty lenses, same unit as above.	7.9'	31	
	6					
	7					
	8					
	9					
	360		Shale, med dkgy(N4) claystone, hard, micaceous, thin horizontal laminae, finely disseminated pyrite xtals along bedding planes, few pyritized plant frags in lower portion, clay ironstone bands and concretions up to .4' thick. sharp lower contact with coal. few lt gy silty lenses at 374'.	15.7'		
	1					
	2					
	3					
	4					
	365					

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			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)
	365		Shale med dk gy (N4)		32	
	6		same unit as above.			
	7			15.7'		
	8					
	9					
	370					
	1					
	2					
	3					
	4					
	375					

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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	

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)
	375		Shale med dkgy(N4) same as above	15.7'	33	
	6		Coal, blk (N1), hard, banded, mod. bright, abundant calc, gyp, sulfate bloom, pyrite xtals in fracs, .2' dk gy(N3) shale parting, .3' above base, sharp contacts	1.3'		Riverton Coal bed 1.6' total thickness
	7			.2'		
				.3'		
	8		Claystone, dk gy(N3) mod. hard, blocky - conchoidial fracture, no evidence of bedding, abundant pyritized woody plant frags, finely disseminated pyrite x-tals, grad. lower contact.	2'		Underclay not leached extensively, essentially the same color as underlying shale.
	9					
	380		Shale, dk gy(N3), claystone, hard, thin horiz. laminae, non-fossiliferous, abundant finely disseminated pyrite xtals, and pyrite concretions up to 1" thick, few light gy(N7) silty lenses near top., sharp erosional lower contact with L.S. intraclasts, uniform color.	6.4'		
	1					
	2					
	3					
	4					
	385					

ENG FORM 1 JUN 57 1836 (TRANS)

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 #9

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)
	385		Shale, dk gy (N3), same as above	6.4'	34	
	386		L.S. – v. lt gy (N8), mudstone, calcareous, non-fossiliferous, massive, erosional surface w/ upper 6' extensively fractured, abundant mineralization, pyrite & other dark mins., lower contact not observed, upper contact erosional w/ clastic zone at base of overlying shale,	8.9'		Mississippian L.S.
	387					
	388					
	389					
	390					
	391					
	392					
	393					
	394					
	395					