Gulf Pittsburg-Midway

Strat Well PM-4

HOLE NO.

DEPARTMENT OF THE ARMY

DIVISION

INSTALLATION

DRILLING LOG

1. PROJECT RM # 4

SHEET OF

2. LOCATION (Coordinates or Station) SW NW SW Sec 29 T32S R22E

3. DRILLING AGENCY

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

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 830

18. TOTAL CORE RECOVERY FOR BORING (%)

19. SIGNATURE OF INSPECTOR

29-32-22e

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	18		Limestone, lt gy (N7), calc, wackestone, massive bedded, brachs & other fos frags, upper zones burrowed, gradational lower contact w/ shale.	2.7'	1	(logged by John Harris)
	19					
	20		Verdigris Limestone.			
	21		Shale - grayish black (N2), ↓ mudstone, calc. cement, few broken foss. frags, micaceous, grades upward to med gy N5, sharp lower cont. w/ mudstone.			
	22					
	23		4" fossiliferous zone calc., med. dk gy (N4) brachs, other fos frags.	6.5'		
	24					
	25					
	26					
	27					
	28		Mudstone, med. lt gy (N6) soft, strong, fissile, lower cont. not observed.	.7'		
			1.2' core missing			

EDC FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-3-1801) PREVIOUS EDITIONS ARE OBSOLETE

PROJECT HOLE NO.

HOLE NO. _____

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DRILLING LOG

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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)
	40		Shale, med. dk gy (N4) mudstone, micaceous, plant frags, brn clay ironstone bands, some slight phos. Concretions w/ brown stains around them, sharp lower cont.	6.2'	2	
	41					
	42					
	43					
	44					
	45					
	46					
	47		Sandstone med dk gy (N6) U. fine gr., qtz, micaceous, interclast zone at base, upper part x-laminated Sh, L.S. & coal clasts, sharp lower contact.	1.4'		.7' clastic zone at base w/ coal, shale, limestone clasts, mudballs, plant frags.
	48		Shale dk gy (N3) mudstone, abund. Calc. cement, foss. zones w/ Bracho & other shell frags, sharp cont. w/ coal below.	1.7'		2" foss. zone below conglomeratic base.
	49					
	50		Coal blk, (Desc. on next page.)	1.8'		Fleming Coal

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

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	50		Coal blk (N1), banded, mod. brite, hard, gyp, calc. & sulfur lit. fracs, lower part crumbled.	1.8'	3	Fleming
	51		Mudstone med. Hgy (N6) slightly silty, micaceous, soft, conch. frac, some sid. x-tals, brn clay ironstone conc. & brn. stains, plant & rust frags, contact w/ shale not observed, some burrowed zones.	3.9'		
	52					
	53					
	54					
	55		2.5' core missing mudstone.			
	58		Shale med gy (N5) to dk gy (N3), mudstone, micaceous, upper zone calc, w brachs & other foss. frags, some brn. ox. stg grad. lower contact.	1.8'		
	59					
	60		Mudstone desc. on next page			
	61					
	62					

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	62		Mudstone, lt gy (N7), silty, micaceous, zones with calcareous cement appear yellow, siderite xtals & brachiopod ironstone conc. (½" dia.), contact with coal sharp.		4	
	63			7.9'		
	64					
	65					
	66		mudstone lt gy calc (N7)			4' core may not be in order. Mineral / Coal
	67			1.2'		
	68		1.1' Coal 4' core not in right order, (N1) look at core #5 & try to straighten out strat. order,	1.1'		
	69			1.7'		
	70		Sh, dk gy, calc (N3)			
			Claystone (Desc. on next page)			
	71					
	72					

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	72		Claystone, med gy (N5), micaceous, conch. frac, soft, clay ironstone conc. & siderite x-tals, grad. lower contact, does not exhibit fissility.	7.2'	5	
	73					
	74					
	75					
	76					
	77					
	78		Shale, med gy (N5) claystone, micaceous, soft, localized calc. cement, bndary ironstone bands, irregular shaped, sharp lower cont. w/ coal, small bracks in clay ironstone bands.	4.8'		
	79					
	80					
	81					
	82					

N4
N3

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	82		Shale (cont.)		6	
	83					
			Coal, blk(N1), banded, mod bright, gyp, calc, & sulf dep. Coal has 1½" shale parting 2" above base.	.65 .2 .25		shale parting upper coal silty Scammon Coal Mbr.
	84					
			Mudstone, med. gy(N5), silty, w abundant plant frags, soft, conch. frac., siderite x-tals. grad. lower contact (Underclay)	2.5'		
	85					
	86					
	87		Shale, lt gy(N7), mudstone, silty, micaceous, few plant frags, abundant clay ironstone conc. & siderite x-tals, gradational lower contact, textural difference. ripple laminated, Silt - shale	4.5'		
	88					
	89					
	90					
	91					
	92		Mudstone, (desc. on next page)			

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	92		Mudstone, lt gy (N7), micaceous, conch. frac. abundant org. mat., brn clay ironstone conc. & sid. x-tals, grad. lower contact.	3.3'	7	Chelsea S.S.
	93					
	94					
	95		Silt shale, med gy (N5) ↓ w lt gy lams, to lt gy N7 ↑ w dark gy lams. Siltstone, micaceous, abund. plant frags, some dead oil stn. Siderite x-tals, grad. lower cont.			
	96					
	97		6" storm cycles exhibit 1-2 cm sand base & grade upwards into ripple laminated siltstone. 2 cycles, sharp contacts.	10.3'		Crevasse & storm deposition prodelta
	98					
	99					
	100					
	101					
	102					

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	102		Shale - silty (cont.)		8	
	103					
	104					
	105		Shale, med gy (N5), mudstone, silty, micaceous, few lt gy lams, increasing ↑, abund. organic mdt, plant frags etc, grad. lower contact, shows increase in lt gy lams ↑			
	106					
	107					
	108			7'		
	109					
	110					
	111					
	112					

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	112				9	
	113		Shale, dk gy (N3) to med gy (N5), clayst, micaceous, few thin lt gy lams. near top. Brn clay ironstone bands thruout up to 3" thick. Some dk hydrocarbon stns. in spots. Sharp lower contact w/ coal.			
	114					
	115			17.2		
	116					
	117					
	118					
	119					
	120					
	121					

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	121		Shale (cont)		10	
	122					
	123					
	124					
	125					
	126					
	127					
	128		Coal, blk (N1), banded, mod. bright, yellow sulf, white calc. & gyp deposits, hard, sharp cont. w/ underclay.	.7'		Tebo coal
	129		Mudstone v. H. gy (N8) ↓ to med. dk gy N4 ↑, silty, micaceous, abundant plant fragp, conch. frac, soft, grad. lower contact. (underclay)	2.2'		
	130					
	131					

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			1' core missing		11	
	131					Unnamed S.S.
	132		Siltstone micaceous, ltgy(N7) thin dkgy lams, abundant organic debris, plant frags, siderite x-tals, lower 6" has calc. cement, gradational lower contact.			
	133					
	134					
				19.4'		
	135					
	136					
	137					
	138					
	139					
	140					

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	140		Siltstone (Cont)		12	
			Hgy			
	141					
	142					
	143					
	144		thin organic rich laths, bioturbated plant frags,			
	145					
	146					
	147					
	148					
	149					
	150		Shale (described on next page)			

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	150		Shale, dk gy(N3) to med gy(N5) ↑ mudstone, silty, micaceous, w/thin lt gy calc. lams, increasing ↑. ← cone in cone structure, poorly developed. grad. lower contact. ripple x-laminated	3.8'	13	
	151					
	152					
	153					
	154		Shale dk gy(N3) claystone, micaceous, w 2" calcareous fossiliferous zone, calc. concretions near base, few brn clay ironstone bands(1") sharp lower contact with coal.	10.1'		
	155					
	156					
	157					
	158					
	159					
	160					

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	160		Shale (cont)		14	
	161		} 2" calc, fossiliferous zone.	10.1'		
	162					
	163		Calc. concretions near base ≤ 1/2" diameter			
			Coal blk(N1), banded, mod. bright, gyp, sulf, & calc. dep. in fracs.	.3'		W.P.? Weir-Pittsburg coal
	164		Mudstone med. dk gy (N4) at base to med. dk gy (N4) at top, silty, micaceous, conch. frac., w slicken-sides, abundant plant frags, soft, crumbled, lower contact not observed due to missing core. (Underclay)	3'		
	165					
	166					
	167		core missing			
	168		6ft of core ground up during removal from barrel, Mostly mudstone.	6.0		
	174					

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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
☐ 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)
	174		Siltstone, lt gry (N7) micaceous, thin x-lams, wavy, gradational lower contact w/ shale..		15	
	175		ripple-laminated	2.6'		
	176		} 3" zone of siderite x-tals			
			Shale dk gy (N3) claystone, micaceous, thin brn clay ironstone bands (½"), grad. lower contact.			
	177					
	178					
	179			6'		
	180					
	181					
	182					
			Shale, (description on next page)			
	183		lt. gy lams.	4.5'		
	184					

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	184		Shale, (mudstone) med dk gy (N4) ↓ to med. gy (N5) ↑, thin light gy lams. increasing ↑, micaceous, silty, with plant frags + organic debris near top. gradational lower contact. Presence of lt. gy lams. increasing ↑ bioturbated.	4.5'	16	
	185					
	186					
	187		Shale dk gy (N3) ↓ to med. dk gy (N4) ↑ claystone micaceous, thin brn clay ironstone bnds (1" thick), few thin lt gy lams ↑, sharp lower contact w/ coal.	9.9'		
	188					
	189					
	190					
	191					
	192					
	193					
	194					

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					17	
	194		Shale (cont)			
	195					
	196		Coal, blk N1, hard, mod. brittle, banded, yel. sulf. wh. calc. & gyp in fracts.	.25'		"B.J. coal
			Mudstone, med dk gy (N4) to lt gy (N7), silty, conch. frac, soft, abundant plant & other organic frags, sharp lower contact marked by siderite zone. (Underclay)	2.4'		
	197					
	198		} 2" siderite zone at base			
	199		Shale, dk gy (N3), Clayatone, micaceous, few thin clay ironstone bands (1/2"), thin calc. zone at base with foss. frags, sharp contact w/ lower coal.	6.2'		
	200					
	201					
	202					
	203					

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	203		Shale (cont.)		18	
	204		thin calc. zone (1") w/ Bracho + foss at base of frag			
			Coal, smut, silty	.1"		"B" B.J. coal
	205		Mudstone, lt gy (N7) to med. dk gy (N4), silty, soft, conch. frac, abundant root + plant frags, sid. x-tals, grad. lower contact w/ S.S. (Underclay)			
	206			3.7'		
	207					
	208					
	209		Sandstone (Description on next page)			Upper B.J. (Ebanks) Upper Bluejacket S.S.
	210			17.6'		
	211					
	212					
	213					

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

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	213		**Sandstone**		18a	
	214		Brn.-gray (5 YR 3/1), with lt. gy (N7) wavy laminations, lams. inc. ↑, quartz, musc-ovite, fine-very fn gr., upper portion bioturbated, x-lam. near middle, low ∠, abundant sid. x tals, sm. amt. oil stn., sharp lower contact with shale; ripple x-lamination marked by lt. gy sand lenses.			
	215			17.6'		
	216					Upper Bluejacket S.S.
	217					
	218					
	219					
	220					
	221					
	222					

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	222		Sandstone (cont.)		19	
	223			17.6'		
	224					
			← sharp contact			
	225		Shale, dk gy (N3), claystone, micaceous, platy, lower 1" calcareous with brachs & other foss. frags, few brn clay ironstone bands (2"), sharp lower contact w/ coal.			
	226			2.6'		
	227					
			← .9' calc. foss. zone at base, could be another unit.	.9		Seville L.S.?
	228		Coal, blk (N1), hard, banded, mod. bright, calc. & gyp in fracs.	.3'		B. "C" J. coal
			Mudstone, med. gy (N5), carb. frac, abundant sid. x-tals, plant frags & other org. mat. Fracs resemble slickensides, grad. lower contact w/ Shale.			
	229					
	230			3.4'		
	231					
	232					

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	232				20	
	233		Shale med.dk gy (N4) mudstone, micaceous w/ finely dissem. pyrite at base, few lt. gy silty lams. increasing ↑, brown thin (±1") clayey ironstone bands at base above coal, some thin zones may be burrowed, sharp lower contact at coal. Shows increase in lt gy lams. ↑.			
	234					
	235					
	236			12.5'		
	237					
	238					
	239					
	240					
	241					
	242					

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	242		Shale dk gy (cont.)		21	
	243					
	244		Coal, blk (N1), banded, mod. bright, yellow sulf, white gyp & calc. in fracs.	.3'		B.J. Coal "D"
	245		Mudstone, med. H. gy (N6) micaceous, plant frags & siderite x-tals. grad. lower contact. (choc. (Underclay) frac.)	1'		
	246		Sandstone, med. dk gy (N4) at base to very lt gy N8 at top. very fine gr, quartz & micaceous comp, abundant plant frags & org. material, wavy dark & light laminations, few brn siderite x-tals, gradational lower contact.	3.6'		Lower B.J. S.S.
	247					
	248					
	249		Siltstone, med gy (N5) micaceous, choc. frac, plant & root frags, siderite x-tals, grad. lower contact.	1.1'		Unnamed horizon ~~Drywood Marg.~~
	250					
	251		Mudstone, med dk gy (N4) micaceous, abundant organic material, plant frags, siderite x-tals, gradational lower contact. conch frac,	2.8'		(Underclay?) N.C.
	252					

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	252		Mudstone (Cont)		22	
	253		Shale, med. dk gy (N4), claystone, micaceous, thinly laminated with dark brn. clay ironstone bands at base up to 3", some siderite x-tals in upper portion, sharp lower contact with coal.			
	254					
	255					
	256			18'		
	257					
	258					
	259					
	260					
	261					
	262					

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

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	262		Shale (cont)		23	
	263					
	264					
	265					
	266					Most ironstone bands in lower 7' of unit,
	267					
	268					
	269					
	270					
	271		Coal blk(N1) banded, mod. bright, calc. & gyp in frac, crumbled.	.25'		Drywood coal ~~Roof~~
			Clay stone lt gy(N7) to dk gy(N3), conch frac, soft soapy, plant frags, grad. contact,	.5'		(Underclay)
	272					

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	271				24	281 – 272
	272		Mudstone, med dk gy (N4) N, grading to lt gy N7 ↑, abundant siderite x-tals, gradational lower contact, conch. frac,	2'		
	273					
	274		Shale, dk gy (N3), claystone, micaceous v-thin lam some brn iron oxide stains, sharp lower contact uniform color & comp. thruout.			
	275					
	276			7.5'		
	277					
	278					
	279					
	280					
	281					

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	281		Shale (cont.)		25	
			Coal, hard, blk(N1) banded, mod. bright, white gyp & calc. dep. in fract.,	.3'		~~Neutral~~ ? Rowe coal
	282		Claystone, medgy(N5), chonc. frac, soft. soapy, plant & root frags, other org. mat., grad. lower contact. (Underclay)	1.5'		
	283		Mudstone, med. dkgy(N4), micaceous, evidence of thin wavy lam. but conch. frac. abundant siderite xtals, gradational lower contact			
	284					
	285			5.5'		
	286					
	287					
	288					
	289		Shale, dkgy(N3) at base grading to med. lt. gy N6 ↑ thin wavy lt. colored lams, clay thin(1/4") brn ironstone bands & siderite xtals, Sharp lower contact,	4'		
	290					
	291					

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	291		Shale (cont.)	4/0	26	2" solid clay-ironstone band between units.
	292					
	293	XXX	Shale dk gy (N3), claystone, micaceous, thinly lam., sharp, lower contact marked by 3" zone of Bracks & other fossil frags, calc. cement at basal contact. Unit very uniform in color & comp.	1/0		
	294					
	295					
	296					
	297					
	298					
	299					
	300					
	301					

ENG FORM 1 JUN 57 1838 (TRANSLUCENT) (EM 1110-2-1803) PREVIOUS EDITIONS ARE OBSOLETE

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HOLE NO. _____

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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)
	301		Shale (cont.)	11.0'	27	3" zone at contact marked with Brachs & other fossil frags, calc. cement, & brown iron stains.
	302					
	303					
	304		Mudstone med. dk gy (N4) to med. lt. gy N6 ↑ micaceous, conch. frac, abundant siderite x-tals, plant frags. & other org. mat., gradational lower contact. (Underclay?)	3.7'		resembles underclay but no coal developed. Neutral/ [redacted] Horizon
	305					
	306					
	307					
	308		Shale dk gy (N3), few thin lt gy lams at base, claystone, lacy micaceous, bur[illegible], bands <1" thick, siderite x-tals at top, gradat. lower contact, lacks lt. gy lams.	3.5'		
	309					
	310					
	311					

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

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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)
	311		Shale, med. dk gy (N4), with thin, wavy lt. gy lams, N7, mudstone, micaceous no fossils or burrows, gradational lower contact, marked increase in dark material over lower unit, some brn Fe stns.	4'	28	
	312					
	313					
	314					
	315		Siltstone, med. lt gy (N6), w/thin dk gray N3 wavy lams, dk gy lams increase ↑ micaceous, no fossils or burrows, sharp contact w/ lower unit, increase in dark mat. ↑.	8'		Upper Warner S.S.
	316					
	317					
	318					
	319					
	320					
	321					

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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)
	321		Siltstone (cont)		29	
	322					
	323		Claystone, med. lt. gy (N6) conch. frac., soft, soapy feel, root frags & other organic mat., increase in org. mat ↑ brn. x-talline siderite grad. contact with lower unit. (Underclay)	2'		resembles underclay but coal not present. Unnamed coal horizon
	324					
	325		Shale, dk gy (N3), claystone, thn. lam., thn. brn clay ironstone bands up to 2", w/x-talline siderite. Sharp lower contact marked by 2nd clay ironstone band, finely dissem. pyrite x-tals	2'		
	326					
	327		Shale, mudstone, sm. amt. silt. med dk gray (N4), lt gy silty lams, micaceous, abundant crinoid stems, brachs, sponge spicules & many other unidentified fossil frags, calc. cement in these zones, also some evidence of burrowing, gradational contact w/ lower unit.	4'		
	328					
	329					
	330					
	331					

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DRILLING LOG

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

5. NAME OF DRILLER

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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)
	331		Shale, med gy, silty Stone with silt content increasing ↑ thin, lt gy lams, micaceous few thin brn. chalky monotone bands, sharp contact w/ lower coal unit, blooming lighter ↑. color (N5)		30	
	332					
	333					
	334					
	335			8.6'		
	336					
	337					
	338					
	339					
	340		Coal, blk, hard, calc, gyp, sulf, in fraco, sharp cont. with underclay banded, mod. bright color (N1)	1.4'		"A" coal
	341		Underclay (on next page)			

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

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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
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7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE
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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)
					31	Next box 341-350
	341		Claystone, med gy, soft, conch. frac, plant & root frags, grad. cont. w/ lower unit. (Underclay) color (N5)	2'		
	342					
	343		Siltstone dk gy w/ lt gy wavy lamn., becoming lt gy↑, upper part burrowed, micaceous w/ qtz in light gy. lams. few brn clay ironstone bands below burrows, grad. contact w/ lower Shale. color (N3↓ - N5↑)	3.2'		
	344					
	345					
	346		Shale, v. dk gy, micaceous siltstone, increasing silt↑ thin lt lams, platy clay thin brn ironstone bands, sharp cont. w/ lower coal unit. color (N2)	2.9'		
	347					
	348					
	349		Coal, blk, hard, abd. (N1) calc, gyp, sulf, in fracs. sharp cont. w/ underclay banded, mod. bright	.9'		"B" coal
	350		Claystone (Underclay) desc. on next page			

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

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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)
	350		Claystone, med gy, soft, conch. frac, few lt gy spots, root & plant frags, grad. Contact w/ Lower Shale unit (Underclay) color (N5)		32	clay Ironstone bands more abundant below underclay. (1" thick)
	351					
	352		Shale v. dk gy, med stone, sm. amt. silt, micaceous platy, hard, clay thin ironstone bands more abundant near top. few thin lt. gy lams, near top, Sharp lower contact w. coal. similar color & comp. thruout color (N2 - N3)			
	353					
	354					
	355			20'		
	356					
	357					
	358					
	359					
	360					

JUN 7 1936 (2) PREVIOUS EDITIC SOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

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DRILLING LOG

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2. LOCATION (Coordinates or Station)		
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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)
	360		Shale dk gy (cont)		33	
	361					
	362					
	363	XXX				
	364					
	365					
	366					
	367	XXX				
	368					
	369					
	370	XXX				

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	370		Shale dk gy. (cont)		34	
	371					
			Coal, blk, hard, silty, abun. gyp, sulf, & calc. in fracs. Sharp lower contact (N1)	.55'		"C" coal
	372		Mudstone, med gy, (N5) soft, conch frac, slightly silty, root & plant frags. thruout. Sharp contact marked by sld. zone w/ lower sh. (Underclay)	1.3'		
	373					
	374		Shale, dk gy ↓ - med gy ↑ mudstone, sm. amt. fn. silts, micaceous, platy, thin brn. clay ironstone bands & localized bands of calc. cement, sharp contact w. coal below. Top of sh. marked w. sideritic zone. (color N3 ↓ - N4 ↑)			siderritic zone at top of shale (x-talline)
	375					
	376			14'		
	377					
	378					
	379					
	380					

ENG FORM 1836 (TRA 7 11) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

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	380		Shale dk-gy hard, platy, mudstone, sm. amt. silt, micaceous, v. thin lams, thin zones of calc. cement. Seem to have burrows just above them. Sharp contact w/ lower coal. Color (N 3)		35	
	381					
	382					
	383					
	384					
	385					
	386					
↑	387		Coal blk, hard, calc, gyp, sulf. in fracs, sharp contact w/ underclay, banded, mod. bright Color (N 1)	1.7'		"D" coal
	388					
	389		Mudstone Hgy, si Hy, root, plant & other org. frags thruout, micaceous conch. (Underclay) frac. Color (N 7)	3.5'		
	390					

ENG FORM 4880 (TRANS) 1 JUN 69 (1110-2-1501) EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____

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	390		Mudstone (cont). (Underclay)	3.5'	36	
	391					
	392		Sandstone, M-med gy, w dk gy muddy lenses. V. fine gr. qtz & micaceous comp., mostly bioturbated, w blk org. remains thruout, some dis. pyrite, graded, gradational contact w/ lower siltstone, Color (N6-N7)	2'		Lower Warner S.S.
	393					
	394		Siltstone, med dk-gy w/ lt. gy coarse gr. lenses inc. ↑ muds & silts, micaceous w qtz in lt. lenses., upper zones ext. burrowed, several brn clay ironstone bands, inversely graded, grad. contact w/ lower shale. Color (N4)	6'		
	395					
	396					
	397					
	398					
	399					
	400					

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	400		Shale dk gy (N3), micaceous, mudstone, with few lt gy silty lenses inc. ↑. Brown clay ironstone bands, grad. contact w/ lower Sh. unit. more silty lams. & ironstone bands. (N-3)		37	
	401					
	402			3.6'		
	403					
	404		Shale, dk gy, hard, claystone, v. fn. lam, large x-tab lime pyrite & clay ironstone conc. in layers, sharp lower cont. with coal, (N3)	1'		
	405		Coal, blk with wht & yellow min. dep., sulf, gyp & calc. infracs, crumbled, sharp lower cont. w/underclay, banded, mod. bright color - (N1)	1.6'		Riverton coal
	406		Sh. parting, dk, gy, some org. mat.	.2'		
			Coal, blk, hard, gyp, sulf, & calc. in fracs banded, mod. bright	.25'		
	407		Claystone, dk gy, root & plant frags, soft, conch. frac, grad. lower contact, (Underclay) (N4)	1'		
	408		Sh. blk (desc. on next page)			
	409					
	410					

ENG FORM 832 (TT) (EA) PREVIOUS EDITIONS ARE OBSOLETE PROJECT _____ HOLE NO. _____

HOLE NO. _____

DEPARTMENT OF THE ARMY

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DRILLING LOG

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2. LOCATION (Coordinates or Station)		
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	410		shale dk gy mudstone hard, platy, micaceous, very thin light gy lent. lams, silty, more abundant upwards, fine x-talline pyrite in bedding planes & fracs, gradational lower contact with silty lenses increasing upwards. Color-(N3)	6.5'	38	thin lt-gy. silty lenses.
	411					
	412					
	413					
	414		shale, dk gy claystone, hard, platy, v. fine lt gray lams, no fossils found, finely dis. pyrite at base, sharp contact w/basal unit, uniform color & comp. thruout. Color-(N3)	6.8'		
	415					
	416					
	417					
	418					
	419					
	420					

HOLE NO. _____

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	420		} .3' brecciated zone	.3		
	421		L.S. white-ltgy, mudstone, calcareous, few unidentified fossil frags, d, thick massive bedded, abundant stylolites with dark min. deposits, lower contact not observed, sharp upper contact marked by clastic zone, oils stn., grades ↑ to dark gy. color (N8)	8.3'	39	.3' brecciated zone at miss. contact
	422					
	423					
	424					
	425					
	426					
	427					
	428					
	429		End of Core			
	430					

ENG FORM 1836 1 JUN 87 (TRANSLUCENT) (EM 1110-3-18) VIOUS EDITIONS ARE OBSOLETE

PROJECT _____ HOLE NO. _____