

Gulf Pittsburg-Midway

HOLE NO.

DEPARTMENT OF THE ARMY			1. PROJECT		SHEET OF	
DIVISION			2. LOCATION (Coordinates or Station) NENW 19/32S/23E			
INSTALLATION			3. DRILLING AGENCY			
DRILLING LOG			5. NAME OF DRILLER P+M Coal Co. (Gulf Minerals)			
4. HOLE NO. (As shown on drawing title and file No.) PM # 22			7. THICKNESS OF OVER-BURDEN		8. DEPTH DRILLED INTO ROCK	
6. DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED			DEGREES WITH VERTICAL		9. TOTAL DEPTH OF HOLE 54	
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		14. TOTAL NO. CORE BOXES		15. ELEV. GROUND WATER		16. DATE HOLE STARTED COMPLETED
17. ELEV. TOP OF HOLE 890		18. TOTAL CORE RECOVERY FOR BORING (%)		19. SIGNATURE OF INSPECTOR J. W. Harris		
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					
			Top of core		54'	
	55		Mudshale - same unit as below.		# 1	
					204'	
	60					

19-32-23e

DEPARTMENT OF THE ARMY
DIVISION
INSTALLATION
DRILLING LOG

1. PROJECT
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
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 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)
	70		Mudshale- same unit as above			
				20.4'	# 2	
	75		Argillaceous Limestone lt gy(N7), hard, wackestone, massive, brachs & other fossil frags, calc. cement, sharp lower contact.	1.6'		
				76'		
			Coal b/k(N1), banded, mod. bright, sharp contacts.	0.5'	# 3	Scammon coal
			Mudstone- med lt gy(N6), soft, blocky frags, massive, silty, micaceous, plant frags, brown Fe oxide stains, gradational lower contact.	2.7'		
	80		Mudshale- same unit as below.	33.3'		

HOLE NO. _____

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG 4. HOLE NO. (As shown on drawing title and file No.)				1. PROJECT _____		SHEET _____ OF _____	
				2. LOCATION (Coordinates or Station) _____			
				3. DRILLING AGENCY _____			
				5. NAME OF DRILLER _____			
6. DIRECTION OF HOLE				7. THICKNESS OF OVER-BURDEN		8. DEPTH DRILLED INTO ROCK	
☐ VERTICAL		☐ INCLINED		DEGREES WITH VERTICAL		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		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)	
	90		<u>Mudshale</u> - same unit as above				
	95						
					#4		
				33.3'			
					96'		
					#5		
	100						

DEPARTMENT OF THE ARMY						
DIVISION _____						
INSTALLATION _____						
DRILLING LOG						
HOLE NO. (As shown on drawing title and file No.)						
NAME OF DRILLER						
DIRECTION OF HOLE VERTICAL INCLINED DEGREES WITH VERTICAL						
THICKNESS OF OVER-BURDEN						
DEPTH DRILLED INTO ROCK						
TOTAL DEPTH OF HOLE						
SIZE AND TYPE OF BIT						
DATUM FOR ELEVATION SHOWN (TBM or MSL)						
MANUFACTURER'S DESIGNATION OF DRILL						
TOTAL NO. OF OVERBURDEN SAMPLES TAKEN						
DISTURBED UNDISTURBED						
TOTAL NO. CORE BOXES						
ELEV. GROUND WATER						
DATE HOLE STARTED COMPLETED						
ELEV. TOP OF HOLE						
TOTAL CORE RECOVERY FOR BORING (%)						
SIGNATURE OF INSPECTOR						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER Y	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
110	T T T T	Mudshale - same unit as above.	333'	# 6	Tebo coal	
	- - - - -	Cool, blk, (N1), banded, mod. bright, sulfate bloom, sharp contacts.	0.65'			
115	-- -- -- --	mudstone - med lt gy (N6), soft, blocky frags, massive, silty micaceous, plant debris, brown Fe oxide stains, gradational lower contact.	54' 115'	# 7		
	- - - - -	mud shale - same unit as below.	49'			
120	- - - - -					

HOLE NO. _____

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG				1. PROJECT _____ SHEET _____ OF _____	
2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____				4. NAME OF DRILLER _____	
5. HOLE NO. (As shown on drawing title and file No.) _____				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)
120			Mudshale - med lt gy (N6), hard, parallel fracs, silty, qtz, micaceous, thin horizontal laminae, few plant frags, abundant sand sized authigenic siderite crystals, gradational lower contact.	4.9'	# 7	
125			Siltstone - med lt gy (N6), hard, blocky fracs, massive, qtz, micaceous, abundant mud matrix, abundant plant debris, few sand sized authigenic siderite crystals intercalating lower contact.	5.6'	# 8	
130			Mudshale - same as below.	8.0'		

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

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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)	
	140	T T	Clayshale - same unit as above.	3.6'		Weir - Pittsburgh coal	
		T T	Coal, blk, (N1), banded, mod. bright, sharp contacts.	0.2'			
			Mudstone - med gy (N5), soft, blocky frags, silty, micaceous, massive, abundant plant frags, brown Fe oxide stains, gradational lower contact.	3.1'	# 9		
			Siltstone - v lt gy (N8), hard, blocky frags, wavy bedded at base to massive at top, authigenic siderite, gradational lower contact.	1.4'	145'		
			Sandstone - v lt gy (N8), v. fine gr, silty, qtz, micaceous comp, flaser bedded & rippled, very thin flasers, small plant frags in muddy lams, abundant sand sized authigenic siderite x'tals, sharp lower contact w/ load casts.	2.8'	# 10		
			Mudshale - same unit as below	21.8'			
150							

HOLE NO. _____

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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 ☐ 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		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)	
	150		Mudshale - med dkgy (N4) at base to med gy (N5) at top w/ occasional v ltgy (N8) silty laminae, hard, parallel fracture, silty, qtz, micaceous, thin horizontal laminae at base to lenticular bedded upwards w/ thin lenses, abundant small plant frags, clay ironstone bands to 0.1' thick, small pyrite nodules 21cm dia, surrounded by brown Fe oxide stain, sharp lower contact w/ coal.				
	155						
				218'	# 11		
					155'		
	160						

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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)
	160		Mudshale - same unit as above,		# 11	
	165			21.8	# 12	
	170		Coal, blk (N1), banded, mod. bright, sulfate bloom, sharp contacts.	0.4		Bluejacket "A" coal

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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 _____	
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 MOLE 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)	
	170		<u>Mudstone</u> - med H gy (N6) to lt gy (N7), soft, blocky frags, silty, micaceous, massive, plant frags, small pyrite nodules, gradational lower contact.	24'	# 12		
			<u>Mudshale</u> - dk gy (N3), lt gy lams, wavy bedded, bioturbated, gradational lower contact.	1.2'			
			<u>Clayshale</u> - dk gy (N3), hard, parallel frags, micaceous, thin horizontal laminae, few marine fossil frags at base, calcareous cement, clay ironstone bands to 0.1' thick near top, sharp lower contact w/ coal.	5.4'	# 13		
	175						
			<u>Coal</u> , blk (N1), banded, mod. bright, sulfate bloom, sharp contacts.	0.4'		Bluejacket "B" coal	
			<u>Mudstone</u> - lt gy (N7), soft, massive, plant frags, grad. lower cont.	1.0'			
	180						

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4. HOLE NO. (As shown on drawing title and file No.) _____				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		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)	
	180	--	<u>mudstone</u> - same unit as above	1.0'			
		--	<u>Siltstone</u> - med				
		--	H 94 (N6), hard, blocky frags, qtz, micaceous, wavy bedded in some zones but mostly massive due to bioturbation, few small plant frags, abundant bioturbation, abundant sand sized authigenic siderite crystals, brown Fe oxide stains, gradational lower contact.		# 13		
	184	--			184	Upper Bluejacket Sandstone	
		--			# 14		
	190	--		9.9'			

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6. DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED DEGREES WITH VERTICAL				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		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)	
	190	SS	Siltstone - same as above	9.9'		Upper Bluejacket Sandstone	
			Sandstone - vltgy (N8), v-fine gr, qtz, micaceous, massive, clay ironst, veins, sharp lower	1.2'			
		SS	Siltstone - ltgy (N7), wavy bedded at base to massive at top, burrowed at top, sharp lower contact.	1.7'	# 14		
			Sandstone - vltgy (N8), rippled, sand sized auth. siderite xstals sharp lower contact.	0.7'			
			Siltstone - alternating ltgy (N7) & vltgy (N8) laminae, hard, blocky frags, qtz, micaceous comp, wavy bedded, silt lenses increase upwards, few small plant frags, few burrows at base, brown Fe oxide stains, few authigenic sand sized siderite crystals, sharp, non scoured lower contact.	195'	# 15		
	195			65'			
	200						

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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)	
200			Siltstone - same unit as above.	6.5'			
			Clayshale - dk gy(N3), hard, brittle, parallel fracs, micaceous, thin horizontal laminae, non fossiliferous, clay ironstone bands to 0.1' thick, brown Fe oxide stains, sharp lower contact,	3.3'	# 15		
			Argillaceous Limestone - lt gy(N7), hard, wackestone, brachs, crinoids & other fossil frags, dk gy mud matrix, sharp lower contact.	0.8'			
			Coal, blk(N1), banded, mod. bright, sulfate bloom, sharp contacts.	0.3'		Bluejacket "C" coal	
Start	205		Mudstone - med lt gy(N6), soft, blocky fracs, silty, micaceous, massive, plant frags, irregular clay ironstone nodules & veins, gradational lower contact.	2.2'	# 16		
			Mudshale - same unit as below.	14.6'			
210							

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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN			14. TOTAL NO. CORE BOXES			15. ELEV. GROUND WATER		16. DATE MOLE			
DISTURBED			UNDISTURBED					STARTED		COMPLETED	
17. ELEV. TOP OF MOLE			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)			
210			Mudshale - med dk gy (N4) w vlt gy (N8) silty lenses, hard, parallel frags, silty, qtz, micaceous, lenticular bedded w/ thin lenses, few, small plant frags, some pyritized, clay ironstone nodules to 0.1' dia, localized calcareous cement near base, sharp lower contact w/ coal.					# 16			
215						# 16	215'	# 17			
220											

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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)	
	220		Mudshale - same unit as above.	14.6'		Bluejacket 'D' coal	
			Coal - blk(N1), banded mod. bright, sharp contacts.	0.2'			
			Mudstone - med gy(N5), massive, plant frags, gradational lower contact.	0.8'	# 17		
			Mudshale - med dk gy(N4), lenticular bedded, bioturbated, sharp lower contact.	1.2'			
	225		Sandstone - vlt gy(N8), hard, blocky frags, very fine - fine gr, qtz, micaceous comp, rippled + flaser bedded with thin flasers, few clay & coal clasts, few sand sized authigenic siderite crystals, sharp lower contact.	4.8'	# 18A	Unnamed Coal	
			Mudshale - med dk gy(N4), lenticular bedded, bioturbated, sharp lower contact.	1.0'			
			Coal blk(N1), banded, mod. bright, sulfate bloom, clay parting 0.1' thick, sharp contacts.	0.7'			
	230						

HOLE NO.

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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	
☐ 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)
	230		Mudstone, med gy (N5) mod. hard, blocky frags, massive, plant frags, brown Fe oxide stains, gradational lower contact.	1.4'		
			Mudshale - med gy (N5) w ult gy (N8) silty lenses, hard, parallel frags, silty, qtz, micaceous, lenticular bedded w/ thick & thin silty lenses, from 0.1' - 2mm thick, abundant plant debris along bedding planes, small pyrite nodules to 1cm dia, concentric brown Fe oxide stains, sharp lower contact w/ sandstone.		# 18A	
					234'	
					# 18B	
	235			20.4'		
	240					

25.2
23.1 20.6

HOLE NO.

DEPARTMENT OF THE ARMY				1. PROJECT		SHEET OF	
DIVISION				2. LOCATION (Coordinates or Station)			
INSTALLATION				3. DRILLING AGENCY			
DRILLING LOG				5. NAME OF DRILLER			
4. HOLE NO. (As shown on drawing title and file No.)				7. THICKNESS OF OVER-BURDEN			
6. DIRECTION OF HOLE				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)	
250			Mudshale - same unit as above.	20.4'	# 19		
					252'		
			Sandstone - ult gy (N8) w med dk gy (N4) mud flasers, hard, blocky frags, qtz, micaceous comp, rippled & flaser bedded w/ very thin flasers (less than 0.5 cm), plant frags common, small amount of localized calcareous cement, intercalating lower contact.	4.0'	# 20	Upper Warner Sandstone	
255							
			Mudshale - med dk gy (N4), w ult gy (N8) silty lenses, hard, parallel fracture, silty, qtz, micaceous, lenticular bedded, w/ thick & thin lenses, abundant plant frags, brown Fe oxide stains, sharp lower contact w/ sand.	7.0'			
260							

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG				1. PROJECT _____		SHEET _____ OF _____	
				2. LOCATION (Coordinates or Station) _____			
3. DRILLING AGENCY _____				5. NAME OF DRILLER _____			
4. HOLE NO. (As shown on drawing title and file No.) _____				7. THICKNESS OF OVER-BURDEN _____			
6. DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED DEGREES WITH VERTICAL _____				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 _____		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)	
260			<u>mudshale</u> - same unit as above. small amount of localized calcareous cement.	7.0'	# 20		
					262'		
					# 21		
265			<u>Sandstone</u> - vlt gy(N8) w/ m. dk gy(N4) mud flasers, hard, blocky frags, fine gr, qtz, micaceous comp, flaser bedded & rippled, mud flasers up to 1cm thick, load structures, abundant coal and clay clasts, sand sized authigenic siderite crystals, sharp lower contact w/ load structures, small amount of localized calcareous cement.	7.4'		Upper Warner Sandstone	
270							

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG				1. PROJECT _____		SHEET _____ OF _____	
				2. LOCATION (Coordinates or Station) _____			
3. DRILLING AGENCY _____				5. NAME OF DRILLER _____			
4. HOLE NO. (As shown on drawing title and file no.) _____				7. THICKNESS OF OVER-BURDEN _____		8. DEPTH DRILLED INTO ROCK _____	
6. DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED DEGREES WITH VERTICAL _____				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 _____		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)	
270			Sandstone - same as above	7.4'			
			Mudshale - med dk gy (N4) w ult gy (N8) silty laminae + brown mottling, hard, parallel frags, silty, qtz, micaceous, lenticular bedded w/ thick & thin lenses, abundant plant fragments, some zones extensively bioturbated, clay ironstone bands to 0.1' thick, sand sized authigenic siderite crystals & veins, brown Fe oxide stains, sharp lower contact w/ coal.		# 21		
					272'		
					# 22		
275				29.4'			
280							

DEPARTMENT OF THE ARMY				1. PROJECT		SHEET OF	
DIVISION _____				2. LOCATION (Coordinates or Station)			
INSTALLATION _____				3. DRILLING AGENCY			
DRILLING LOG				5. NAME OF DRILLER			
4. HOLE NO. (As shown on drawing title and file No.)				7. THICKNESS OF OVER-BURDEN		8. DEPTH DRILLED INTO ROCK	
6. DIRECTION OF HOLE				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)	
280	0		mudshale - same unit as above.				
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
285	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						
290	30						

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DEPARTMENT OF THE ARMY
DIVISION
INSTALLATION

DRILLING LOG

1. PROJECT
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

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

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)
	300		Coal, blk(N6), banded, mod. bright, sulfate bloom, sharp contacts,	1.1'	# 24	"A" coal
			Mudstone - med ltgy (N6) - ltgy (N7), mod hard, blocky frags, silty, micaceous, massive, plant frags, sand sized authigenic siderite crystals at base, gradational lower contact.	3.2'	# 25	
			Mudshale - dk gy (N3), hard, parallel frags, silty, qtz, micaceous, thin horizontal laminae at base to lenticular bedded w/ thin lenses upwards, few small plant frags, few small burrows, clay ironstone bands to 1' thick, sharp lower contact w/ coal.	3.4'		
	305		Coal, blk (N1), crumbled, banded, mod. bright, sharp contacts,	0.3'		
			Mudstone - lt gy (N7), mod. hard, blocky frags, silty, micaceous, massive, plant frags, brown Fe oxide stains, gradational lower contact.	3.2'		
	310					

[illegible]

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG				1. PROJECT		SHEET OF	
				2. LOCATION (Coordinates or Station)			
3. DRILLING AGENCY				5. NAME OF DRILLER			
4. HOLE NO. (As shown on drawing title and file No.)				7. THICKNESS OF OVERBURDEN			
6. DIRECTION OF HOLE		DEGREES WITH VERTICAL		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
☐ VERTICAL ☐ INCLINED							
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)	
	330	---	mudstone - same unit as above.	5.3'	# 27		
		---	mudshale - dk gy (N3), hard, parallel fracs, slightly silty, micaceous, thin horizontal laminae, few small brachs & other marine fossil frags at base, calcareous cement at base, clay ironstone band to 0.4' thick, sharp lower contact w/ coal.	3.9'	# 28		
		XXX			332'		
		T					
		T					
		T					
		+	Coal, blk (N1), banded, mod. bright, sulfate bloom, sharp contacts,	0.2'		"D" coal	
	335	---	mudstone - med Hgy (N6) - ltgy (N7), mod. hard, blocky fracs, silty, qtz, micaceous, massive, abundant plant fragments, small pyrite & clay ironst. nodules less than 1cm dia, sand sized auth. siderite crystals, gradational lower contact.	3.3'			
		---	Mudshale - same unit as below.	25.7'			
	340	---					

HOLE NO. _____

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG 4. HOLE NO. (As shown on drawing title and file No.)				1. PROJECT _____		SHEET _____ OF _____			
				2. LOCATION (Coordinates or Station) _____					
				3. DRILLING AGENCY _____					
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)			
	360		<u>Mudshale</u> - same unit as above.		# 30				
					361'				
					# 31				
				25.7'					
			<u>Coal</u> -	0.1'					
			<u>Claystone</u> -	0.3'					
			<u>Coal</u> -	0.2'					
			<u>Claystone</u> -	0.1'					
	365		<u>Coal</u> , blk (W1), banded, mod. bright, abundant sulfate bloom, two clay partings in upper 0.5', sharp upper & lower contacts.	1.5'					
			<u>mudstone</u> - dk gy (W3), mod. hard, blocky frags, massive, silty, micaceous plant frags, gradational lower contacts.	0.9'					
			<u>mudshale</u> - dk gy (W3), hard, parallel frags, silty, qtz, micaceous, lenticular bedded w/ thick & thin lenses, abundant plant frags, some pyritized, few small burrows, pyrite concretions	7.2'					
	370								

Riverton coal
1.8' total thickness.

