

Gulf Pittsburg - Midway

HOLE NO.

DEPARTMENT OF THE ARMY		1. PROJECT		SHEET OF	
DIVISION _____		2. LOCATION (Coordinates or Station) NW SE 36-32-21E			
INSTALLATION _____		3. DRILLING AGENCY P+M (Gulf Minerals)			
DRILLING LOG		5. NAME OF DRILLER			
4. HOLE NO. (As shown on drawing title and file No.) P+M # 17		7. THICKNESS OF OVER-BURDEN		8. DEPTH DRILLED INTO ROCK	
6. DIRECTION OF HOLE		9. TOTAL DEPTH OF HOLE		10. SIZE AND TYPE OF BIT	
<input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL		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	
DISTURBED		UNDISTURBED		16. DATE HOLE	
17. ELEV. TOP OF HOLE 830		18. TOTAL CORE RECOVERY FOR BORING (%) 95%		19. SIGNATURE OF INSPECTOR	

36 - 32 - 21e

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					Clogged by John Harris
	45		Top of core		45'	
			Coal - not all cored	0.2'		
			Mudstone - med H gy(Nb), soft, blocky fracture, massive, silty micaceous, plant fossils, Fe oxide stains, gradational lower contact.	2.9'	# 1	Mineral coal
			Mudshale -	5.1'		
	50					

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 _____	
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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 _____	
DISURBED _____		UNDISTURBED _____		16. DATE HOLE	
				STARTED _____ COMPLETED _____	
17. ELEV. TOP OF HOLE _____		18. TOTAL CORE RECOVERY FOR BORING (%) _____		19. SIGNATURE OF INSPECTOR _____	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
50	—	—	mudshale - med Hgy (No) mod. hard, crumbled, lenticular bedded within lenses, no fossils found, abundant irregular clay ironstone veins, lower contact not observed,	5.1'		
55	—	—	5.0' core loss, 53.3' - 58.3' mudshale.	5.0'		
60	—	—	mudshale - same unit as above	2.5'		

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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.) _____		6. DIRECTION OF HOLE				
<input type="checkbox"/> VERTICAL <input type="checkbox"/> 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		14. TOTAL NO. CORE BOXES _____		
DISTURBED _____ UNDISTURBED _____		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)
60		—	Mudshale - some unit as above.	25'	60'	
			13.9' core loss 60.8' - 74.7'		#2	
65						
				13.9'		
70						

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DRILLING LOG			5. NAME OF DRILLER		
4. HOLE NO. (As shown on drawing title and file No.)			7. THICKNESS OF OVERBURDEN		
6. DIRECTION OF HOLE		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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	
DISTURBED		UNDISTURBED		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)
70			13.9' Core loss 60.8 - 74.7		#2	
				13.9'		
75			Mudshale - med dk gy (N4), mod. hard, sub-parallel frags, silty, micaceous, thin horizontal laminae, clay ironst. nodules, to 0.1', gradational lower contact.			
				3.0'		
			Clay shale to limestone - dk gy (N3) - lt gy (N7), hard, hackly frags, brachs, crinoid, marine fossil frags, sharp lower contact.			
				1.3'		
			Coal - blk (N1), sharp contacts.			
				0.5'		
80			Underclay - med lt gy (N6), massive			
				0.5'		

Scammon coal

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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		10. SIZE AND TYPE OF BIT	
<input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL		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	
DISTURBED		UNDISTURBED		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)
	110	...	Siltstone - vltgy (NS), qtz, micaceous comp, may contain some v. fn sand, flaser bedded, some zones may be burrowed, mostly massive near top, few small plant frags, authigenic siderite, abundant convolute bedding near base, gradational lower contact.		110	
	115	...			# 6	
	120	...			120	

147'

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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		
<input type="checkbox"/> VERTICAL <input type="checkbox"/> 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		
DISTURBED		UNDISTURBED		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)
130		~	Siltstone - med lt gy (N6), qtz, micaceous comp, wavy bedded, some zones massive, may be burrowed, convolute bedding, no fossils found, gradational, intercalating lower contact.	3.5'	130	
		~	Clayshale - same unit as below.		# 8	
135		~		9.9'		
140		~			140	

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6. DIRECTION OF HOLE		8. DEPTH DRILLED INTO ROCK		9. TOTAL DEPTH OF HOLE	
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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		16. DATE HOLE	
DISURBED		UNDISTURBED		STARTED	
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	—	Clayshale - dk gy (N3), hard, brittle, hackly frags, thin horizontal laminae, few zones of marine fossils, (brachiopods, crinoids) calc. cement, calc. concretions near base, sharp lower contact, burrowed near top		140	Weir - Pittsburg coal
		—	Coal - smu	0.15		
		—	Mudstone - med lt gy (N6), mod. hard, blocky frags, plant frags, massive, silty micaceous, gradational lower contact	2.9'	# 9	
	145	—	Siltstone - med lt gy (N6), qtz, micaceous comp, massive, gradational upper & lower contact	3.0'		
		..	Sandstone - same as below, abun. auth. siderite spherules near top.	3.0'	150'	

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6. DIRECTION OF HOLE		9. TOTAL DEPTH OF HOLE			
<input type="checkbox"/> VERTICAL <input type="checkbox"/> 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	
DISTURBED		UNDISTURBED		16. DATE HOLE	
				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)
160			<u>mudshale</u> - same unit as above.	8.7'	# 11	
			<u>Siltstone</u> - med H 44 (N6), mottled, 70-30 silt-shale ratio, flaser-wavy bedded, abundant convolute bedding, plant fossils, gradational lower contact.	3.3'		
			Core loss 4.0' 164.0' - 168.0' mudshale	4.0'		
165			<u>mudshale</u> - same unit as below.	11.2'		
170						

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4. HOLE NO. (As shown on drawing title and file no.)		7. THICKNESS OF OVER-BURDEN		8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
6. DIRECTION OF HOLE					
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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)
180		---	mudstone - Hgy (N7), soft, massive, blocky frags, Fe oxide stain, gradational lower contact.	1.6'		
		---	Mudshale - dk gy (N3) at base to med gy (N5) at top, hard, hackly frags, silty, micaceous, thin horizontal laminae, no fossils found, localized calcareous cement, sharp lower contact w/ coal.	6.0'	# 12	
		T			# 13	
185		---				
		T				
		---	Coal - smut	0.1'		Bluejacket B coal Underlay
		---	Mudstone - med lt gy (N6), mod. hard, blocky frags, silty, micaceous, massive, plant & root frags, gradational lower contact.	2.1'		
		...	Siltstone - same unit as below.	4.2'		
190		---				

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INSTALLATION _____		3. DRILLING AGENCY _____			
DRILLING LOG			4. HOLE NO. (As shown on drawing title and file No.) _____		
5. NAME OF DRILLER _____			7. THICKNESS OF OVER-BURDEN _____	8. DEPTH DRILLED INTO ROCK _____	9. TOTAL DEPTH OF HOLE _____
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> 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)
190		...	<u>Siltstone - med ltgy (N6)</u> , qtz, micaceous comp, massive, to wavy bedded, some zones contorted, appear burrowed, few small plant fossils, sand sized authigenic siderite spherules, grad, lower contact.	4.2'	# 13	
		...	<u>Sandstone - ltgy (N7)</u> , vfn - fn gr, qtz, micaceous, rippled, flaser bedded, few small plant fossils, some zones appear burrowed, gradational lower contact.	3.2'	# 14	Upper Bluejacket Sandstone
		...	<u>Siltstone - ltgy (N7)</u> , hard, wavy bedded, burrowed, gradational lower contact.	0.9'		
		...	<u>Silt shale - med ltgy (N6)</u> , thin, varve like inter laminated sand & shale layers, perhaps representing rainfall variations, abrupt lower contact.	4.3'		
200		...				

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DRILLING LOG	
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			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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	
DISTURBED		UNDISTURBED		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)
200			Siltstone - same unit as above.	43'	# 14	
			sandstone - v. fn. gr, sharp contacts.	0.3		
			Siltstone - med lt gy (N6), hard, sub-parallel fracture, varve-like alternating sand & shale bedding on the order of 1-3mm thick, few small plant frags, abrupt lower contact.	2.8'	204'	
			Sandstone - v H gy (N8), fine gr, rippled, sharp, scoured base w/ abundant coal, chert and clay clasts, abundant authigenic siderite, sharp scoured lower contact.	2.0'	# 15	
205			Mudshale - med. dk gy (N4), hard, hackly fracture, slightly silty, micaceous, non-fossiliferous, sharp lower contact.	2.0'		
			Limestone - H gy (N7) w/ red Fe oxide stain, shaly, sharp contacts.	0.8'		
210						Fluvial system possibly upper B.J. usually coarsens up Bluejacket C horizon

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ <p style="text-align: center;">DRILLING LOG</p>	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on drawing title and file No.) _____	5. NAME OF DRILLER _____
--	--------------------------

6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____	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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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 _____
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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)
210		S	mudshale - med dk gy (N4) at base to med gy (N5) at top, hard, sub-parallel frags, silty, qtz, micaceous, thin horizontal laminae at base to lenticular bedded at top, abundant plant frags, bioturbation, thin clay ironst. bands at base, sand sized auth. siderite spherules at top, sharp lower contact w/ coal.		# 15	
		S			212	
		S			# 16	
215		S				
220		S				

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ <p style="text-align: center;">DRILLING LOG</p>	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on drawing title and file no.) _____	5. NAME OF DRILLER _____
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6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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 MOLE	
DISURBED _____	UNDISURBED _____		STARTED _____	COMPLETED _____

17. ELEV. TOP OF HOLE _____	18. TOTAL CORE RECOVERY FOR BORING (%) _____	19. SIGNATURE OF INSPECTOR _____
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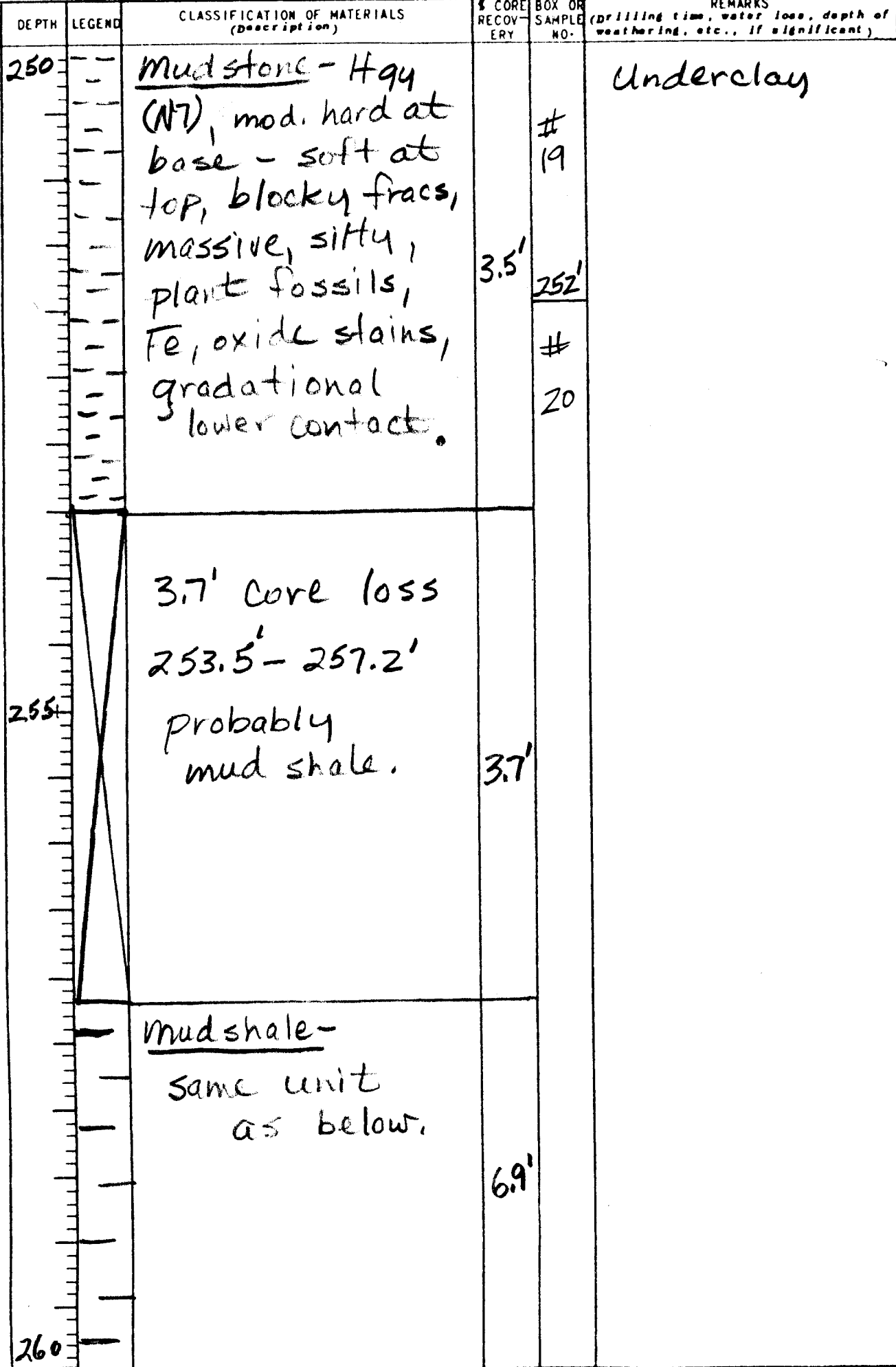
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
230		S	Interbedded s.s. & shale - mottled H & dk gr, vfn gr sand, convolute bedding, burrows, abrupt lower contact 60/40 sand-shale ratio	3.0'	# 17	
			Mudshale - same unit as below.		# 18	
235						
				19.3'		
240						

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6. DIRECTION OF HOLE		DEGREES WITH VERTICAL			
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> 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)
240			Mudshale - med gy (NS), mod. hard, sub-parallel frags, silty, qtz, micaceous, thin horizontal laminae w/ occasional thin silty lense, abundant plant fossils, clay ironstone bands near base, sand sized authigenic siderite spherules near top, Sharp lower contact,		# 18 241'	
245					# 19	
250			Coal blk, (N1), smut		0.3'	Drywood coal

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DRILLING LOG	
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 <input type="checkbox"/> VERTICAL <input type="checkbox"/> 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)
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DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ <p style="text-align: center;">DRILLING LOG</p>	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on drawing title and file No.) _____	5. NAME OF DRILLER _____
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6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____	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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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____	14. TOTAL NO. CORE BOXES _____	15. ELEV. GROUND WATER _____	16. DATE HOLE STARTED _____ COMPLETED _____	
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17. ELEV. TOP OF HOLE _____	18. TOTAL CORE RECOVERY FOR BORING (%) _____	19. SIGNATURE OF INSPECTOR _____
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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)
280		T	Mudshale - same unit as above.			
		T		18.7'	# 22	
			sharp contact mudstone - H qu (N7) soft, blocky frags, silty, massive, clay ironstone, grad. lower cont.	10'		Neutral horizon Underclay
285			Interbedded s.s, siltstone & shale - U 14 qu (N8), flaser - wavy bedded, abrupt color change from lower unit, abrupt but non scoured lower contact.	2.1'	# 23	
			Sandstone - same unit as below.	5.6'		
290						

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on drawing title and file No.) _____	5. NAME OF DRILLER _____
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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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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE
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17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR
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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)
290			Sandstone - med. brn gy (54R511), massive at base to flaser bedded upward, abundant plant fossils, few burrows, convolute bedding, very fine gr., sharp non-scoured lower contact.		5.6	
			Interbedded sandstone and shale - med. brn gy (54R511), sand very fine gr, may be coarse silt, abundant muddy laminae, 60/40 sand-shale ratio, abundant plant fossils, small burrows, convolute bedding, abundant clay ironstone layers + Fe oxide staining gradational lower contact.		# 23	Upper Warner Sandstone
295					295	
				75'	# 24	
300						

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
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> INCLINED	DEGREES WITH VERTICAL	
10. SIZE AND TYPE OF BIT		12. MANUFACTURER'S DESIGNATION OF DRILL	
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		15. ELEV. GROUND WATER	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	
DISTURBED		16. DATE HOLE	
UNDISTURBED		STARTED	COMPLETED
17. ELEV. TOP OF HOLE		19. SIGNATURE OF INSPECTOR	
18. TOTAL CORE RECOVERY FOR BORING (%)			

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			Sandstone - med brn qy (51R 511), very fine grained, flaser bedded, abundant muddy laminae, rippled, abundant plant debris, few small burrows, sharp, apparently non-scoured lower contact, unit coarsens upwards, then fines up, few more mud layers near base.	4.0	# 24	Unnamed horizon Underclay
			Mudshale - med dk qy (N4), lenticular bedded w/ thin lenses, few small burrows, sharp lower contact.	1.7'	# 25	
305			Mudstone med dk qy (N4) at base to 14 qy (N7) at top, mod. hard, blocky frags, plant frags, clay ironstone nodules, gradational lower contact.	1.9'		
			Mudshale - same as below.	12.4'		
310						

Sharp Contact →

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____		1. PROJECT _____		SHEET _____ OF _____	
		2. LOCATION (Coordinates or Station) _____			
DRILLING LOG		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		9. TOTAL DEPTH OF HOLE _____		12. MANUFACTURER'S DESIGNATION OF DRILL _____	
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) _____		10. SIZE AND TYPE OF BIT _____	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN _____		14. TOTAL NO. CORE BOXES _____		15. ELEV. GROUND WATER _____	
17. ELEV. TOP OF HOLE _____		18. TOTAL CORE RECOVERY FOR BORING (%) _____		19. SIGNATURE OF INSPECTOR _____	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____		14. TOTAL NO. CORE BOXES UNDISTURBED _____		16. DATE HOLE STARTED _____ COMPLETED _____	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	320		Coal blk(N1), banded, mod. bright, sulfate bloom, sharp contacts.	1.0'		A coal
			Mudstone - med lt gy (N6), mod. hard, blocky frags, gradational lower contact.	0.9		Blocky relay!
			Mudshale - med dk gy (N4) hard, brittle, hackly fracture, thin horizontal laminae w/ few thin silty lenses, clay ironstone nodules to 0.2' thick, sharp lower contact.	6.8'	# 26	
	325				# 27	
			Coal blk(N1), banded, mod. bright, sulfate bloom, sharp contacts.	0.9'		B coal
	330		Mudstone - same unit as below.	2.4'		

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on drawing title and file No.) _____	5. NAME OF DRILLER _____
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6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____	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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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____	14. TOTAL NO. CORE BOXES _____	15. ELEV. GROUND WATER _____	16. DATE HOLE STARTED _____ COMPLETED _____	
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17. ELEV. TOP OF HOLE _____	18. TOTAL CORE RECOVERY FOR BORING (%) _____	19. SIGNATURE OF INSPECTOR _____
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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)
330			mudstone - lt gy (N7), soft, blocky frags, massive, silty, plant frags, irregular clay ironstone bands, gradational lower contact.	24'		
			Clayshale - dk gy (N3), hard, brittle, hackly fracture, slightly silty in upper 2 feet thin horizontal laminae, non- fossiliferous, brown Fe oxide stains, clay ironstone nodules to 0.1' thick, small amount of localized calcareous cement, sharp lower contact w/ coal,		# 27	
		T			335'	
335					# 28	
		T				
		T				
		T				
		T				
340						

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG		1. PROJECT _____		SHEET _____ OF _____
		2. LOCATION (Coordinates or Station) _____		
4. HOLE NO. (As shown on drawing title and file No.) _____		3. DRILLING AGENCY _____		
6. DIRECTION OF HOLE		7. THICKNESS OF OVER-BURDEN _____		9. TOTAL DEPTH OF HOLE _____
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> INCLINED	DEGREES WITH VERTICAL _____		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		14. TOTAL NO. CORE BOXES _____		15. ELEV. GROUND WATER _____
DISTURBED _____		UNDISTURBED _____		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)
340		T	Clay shale - same unit as above.			
		T			# 28	
		T		14.1		
		T			345	
345		T			# 29	
			Coal, blk(N1), banded, Sharp contacts.	0.5'		C coal
			Mudstone - Itgy(N7), soft, blocky frags, massive, silty, micaceous, plant fossils, abundant irregular clay ironstone nodules, gradational lower contact.	3.4'		
350						

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____	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 <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	DEGREES WITH VERTICAL _____	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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13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____	14- TOTAL NO. CORE BOXES _____	15- ELEV. GROUND WATER _____	16- DATE HOLE STARTED _____ COMPLETED _____
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17- ELEV. TOP OF HOLE _____	18- TOTAL CORE RECOVERY FOR BORING (%) _____	19- SIGNATURE OF INSPECTOR _____
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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		—	mudshale - dk gy, (N3) at base to med gy (N5) at top, hard, hackly fracture, silty, qtz, micaceous, thin horizontal laminae w few thin silty lenses, small amount of bioturbation, clay ironstone nodules to 0.25' thick, sharp, disconformable lower contact. Calcareous cement at base.		#29		
		—				354"	
		—				#30	
		—			16.2'		
		—					
		—					
		—					
		—					
		—					
		—					
360		—					

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____	1. PROJECT _____ SHEET _____ OF _____
DRILLING LOG	
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 <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____			7. THICKNESS OF OVER-BURDEN _____	8. DEPTH DRILLED INTO ROCK _____	9. TOTAL DEPTH OF HOLE _____
10. SIZE AND TYPE OF BIT _____		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) _____		12. MANUFACTURER'S DESIGNATION OF DRILL _____	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____		14. TOTAL NO. CORE BOXES _____	15. ELEV. GROUND WATER _____	16. DATE HOLE STARTED _____ COMPLETED _____	
17. ELEV. TOP OF HOLE _____		18. TOTAL CORE RECOVERY FOR BORING (%) _____		19. SIGNATURE OF INSPECTOR _____	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
360		S	<u>mudshale</u> - same unit as above.		# 30	
		S		16.2'		
		M		364'	# 31	
365		S				
		T				
		T				
		S	<u>Siltstone</u> - med lt gy(N6) - lt gy(N7), hard, blocky frags, massive, silt w mud matrix, qtz, micaceous, abundant plant fossils in upper portion, gradational lower contact.	3.8'		D horizon resembles underclay or seatrock.
370		S				

Sharp contact

DEPARTMENT OF THE ARMY DIVISION _____ INSTALLATION _____ DRILLING LOG	1. PROJECT _____ SHEET _____ OF _____ 2. LOCATION (Coordinates or Station) _____ 3. DRILLING AGENCY _____
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4. HOLE NO. (As shown on Drawing Title and File No.) _____	5. NAME OF DRILLER _____
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6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL _____	7. THICKNESS OF OVERBURDEN _____	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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13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED _____ UNDISTURBED _____	14. TOTAL NO. CORE BOXES _____	15. ELEV. GROUND WATER _____	16. DATE HOLE STARTED _____ COMPLETED _____
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17. ELEV. TOP OF HOLE _____	18. TOTAL CORE RECOVERY FOR BORING (%) _____	19. SIGNATURE OF INSPECTOR _____
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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)
370			mudshale - med. 11 gy(N6), hard, blocky fracture, silty, ± 50%, massive, original bedding probably destroyed by bioturbation or leaching, few small plant fossils, intercalating lower contact.	43'	# 31	
					374'	
375			mudshale - same unit as below.	10.5'	# 32	
380						

DEPARTMENT OF THE ARMY		1. PROJECT		SHEET OF	
DIVISION _____		2. LOCATION (Coordinates or Station)			
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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	9. TOTAL DEPTH OF HOLE
6. DIRECTION OF HOLE					
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> INCLINED	DEGREES WITH VERTICAL			
10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED	COMPLETED
17. ELEV. TOP OF HOLE		18. TOTAL CORE RECOVERY FOR BORING (%)		19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
380			Mudshale - dk gy (N3) w/lt gy (N8) silty laminae, hard, subparallel fracs, up to 40% silty qtz, micaceous comp, lenticular bedded w thick and thin lenses, few pyritized plant fossils, extensive burrowing, both vertical and horizontal, clay ironstone bands to 0.3' thick, gradational lower contact.	10.5'	# 32	
					# 33	
385			Coal blk (N1), banded mod. bright, sulfate bloom, 0.2' mud parting near base, sharp contacts,	1.9'		River ton Coal.
			mudstone - med gy N6 at base to med lt gy (N6) at top, mod hard, blocky fracs, massive, silty, plant frags, gradational lower contact.	1.7'		
			mudshale - same unit as below.	5.6'		
390						

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	9. TOTAL DEPTH OF HOLE
6. DIRECTION OF HOLE		12. MANUFACTURER'S DESIGNATION OF DRILL			
<input type="checkbox"/> VERTICAL	<input type="checkbox"/> INCLINED	DEGREES WITH VERTICAL			
10. SIZE AND TYPE OF BIT		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		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)
390			Mudshale - dk gy (N3) w/lt gy (N7) silty lenses, hard, hackly fracture, up to 25% silt, qtz, micaceous, lenticular bedded w/ thin lenses, abundant plant fossils, few small horizontal burrows, clay ironstone bands to 0.05' thick, sharp, disconformable lower contact.	5.6	# 33	unnamed horizon resembles underclay or seatrock!
			Mudstone - med lt gy N6, mod. hard, blocky fracture, plant fossils, gradational lower contact.	0.5'	# 34	
395			Mudshale - dk gy (N3), hard, brittle, hackly fracture, slightly silty, micaceous, thin horizontal laminae w/ occasional very thin silty lenses, abundant woody plant fossils some pyritized, abundant pyrite nodules and finely disseminated pyrite crystals, sharp, disconformable lower contact.	7.0'		
400						

sharp contact →

