

# Log of Boring No. BRC-SB-11-A

## BMI Site - Hydrogeologic Characterization

### Henderson, Nevada



**Drilling Method:** Mud Rotary  
**Drilling Equipment:** Gefco 15K  
**Drilling Contractor:** Water Development Corporation  
**Driller:** Steve Odom

**Borehole Total Depth:** 400 ft bgs  
**Borehole Diameter:** 10 in  
**Boring Location:** Location 11 (Well ID: AA-11)  
**Depth to Water (ft. bgs):** NA

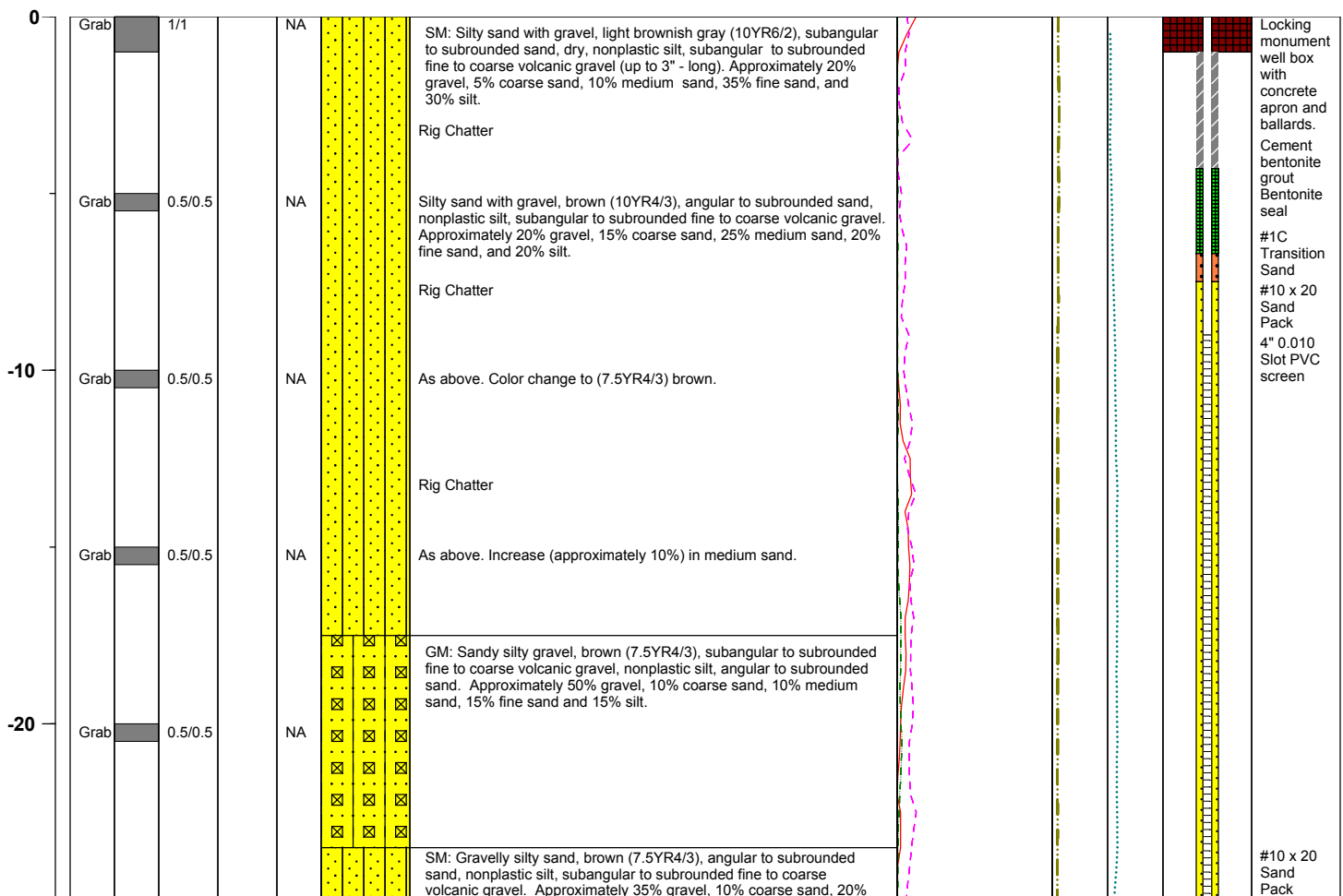
**Sample Type:** Cuttings grab  
**Sample Interval:** Varied

**Logged By:** Adam Norris  
**Date Started:** 3/24/04  
**Date Completed:** 3/24/04

**Monitoring Well Construction**

<b>Type of Surface Seal:</b>	Bentonite-Grout	<b>Screen Slot Size:</b>	0.010 in
<b>Blank Casing Type/Size:</b>	4" Sch 80 PVC	<b>Top of Screen (ft. bgs):</b>	9 ft bgs
<b>Screen Type/Size:</b>	4" Sch 80 PVC	<b>Bottom of Screen (ft. bgs):</b>	29 ft bgs
<b>Transition Sand Type:</b>	#1C	<b>Type of Sand Pack:</b>	#10 x 20

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			



**Project No.** 3850360




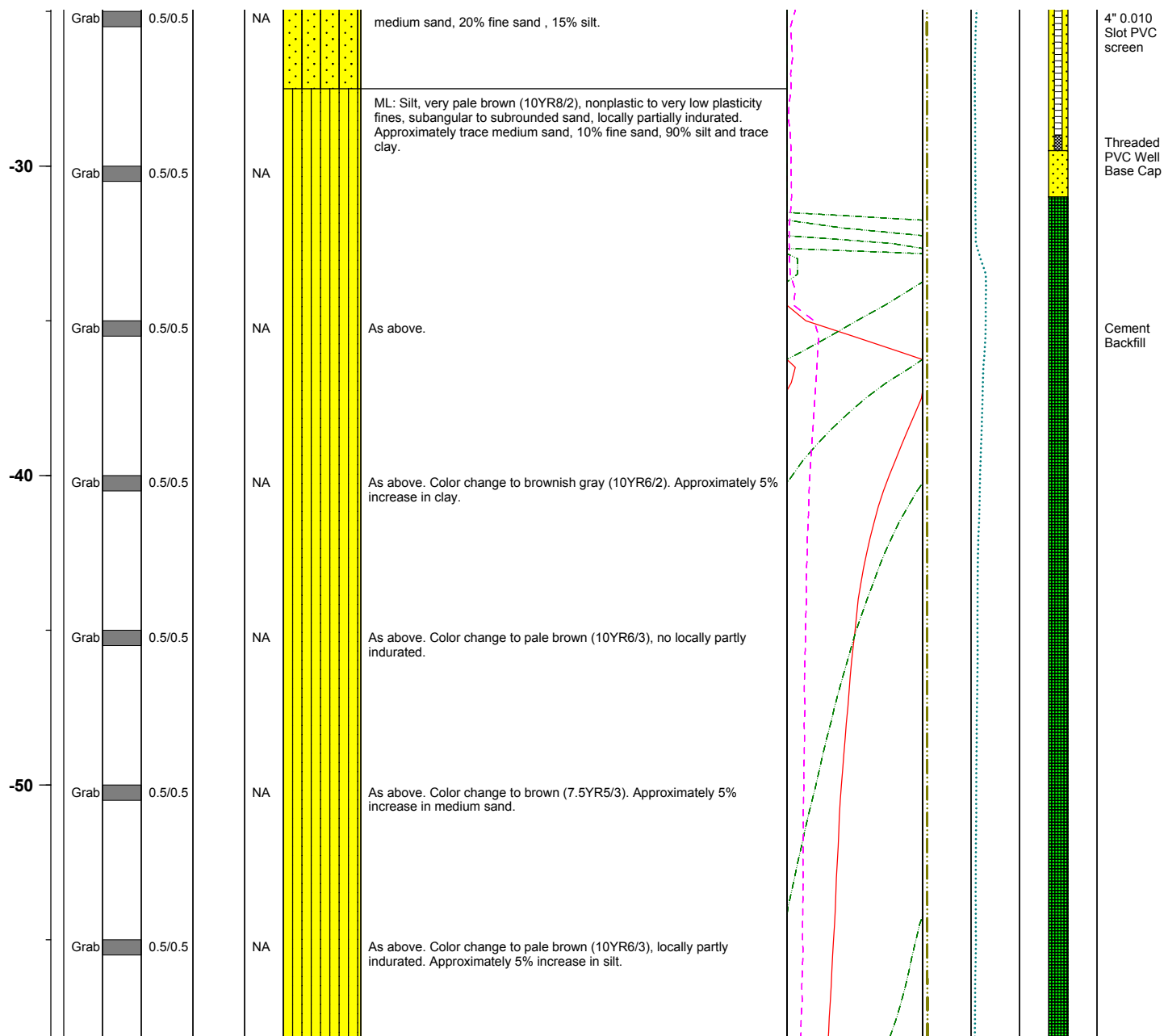
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Soil Description	Depth Elevation (BGS)		
	Sample Type		
	Sample Interval		
	Sample Recovery		
	Sample Retained for Analysis		
	PID		
	Lithology		
	Geophysical Data		
	E-Log		
	16" (OHM) 		
	64" (OHM) 		
	S. PT. (OHM) 		
	Caliper Log (inch)		
	Guard Log (OHM.M)		
Well Construction			



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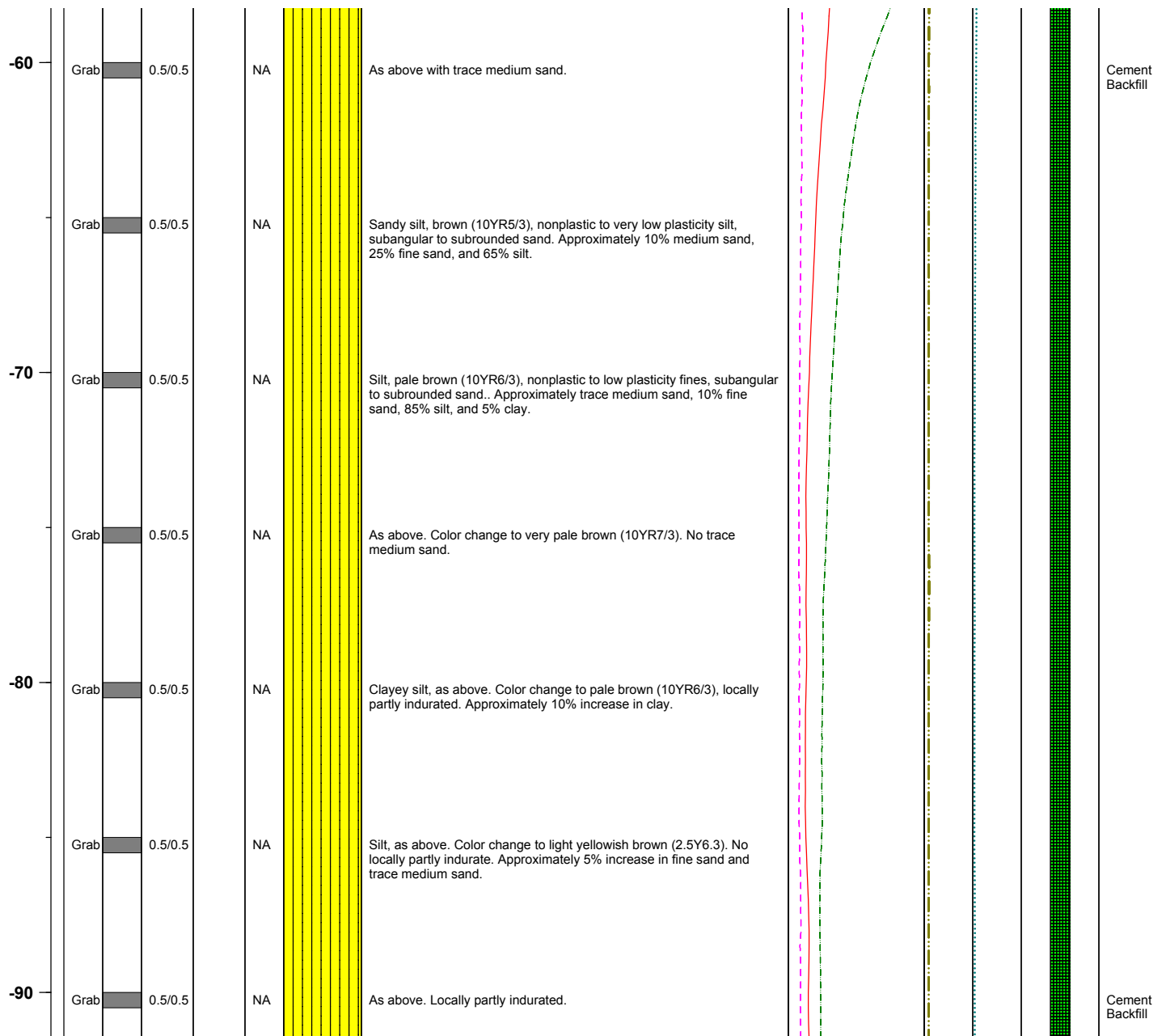


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Soil Description	Lithology	PID	Sample Retained for Analysis	Sample Recovery	Sample Interval	Sample Type	Depth Elevation (BGS)	Geophysical Data			Well Construction
								E-Log		Caliper Log (inch)	
								16" (OHM)	64" (OHM)		
								S. PT. (OHM)		Guard Log (OHM.M)	



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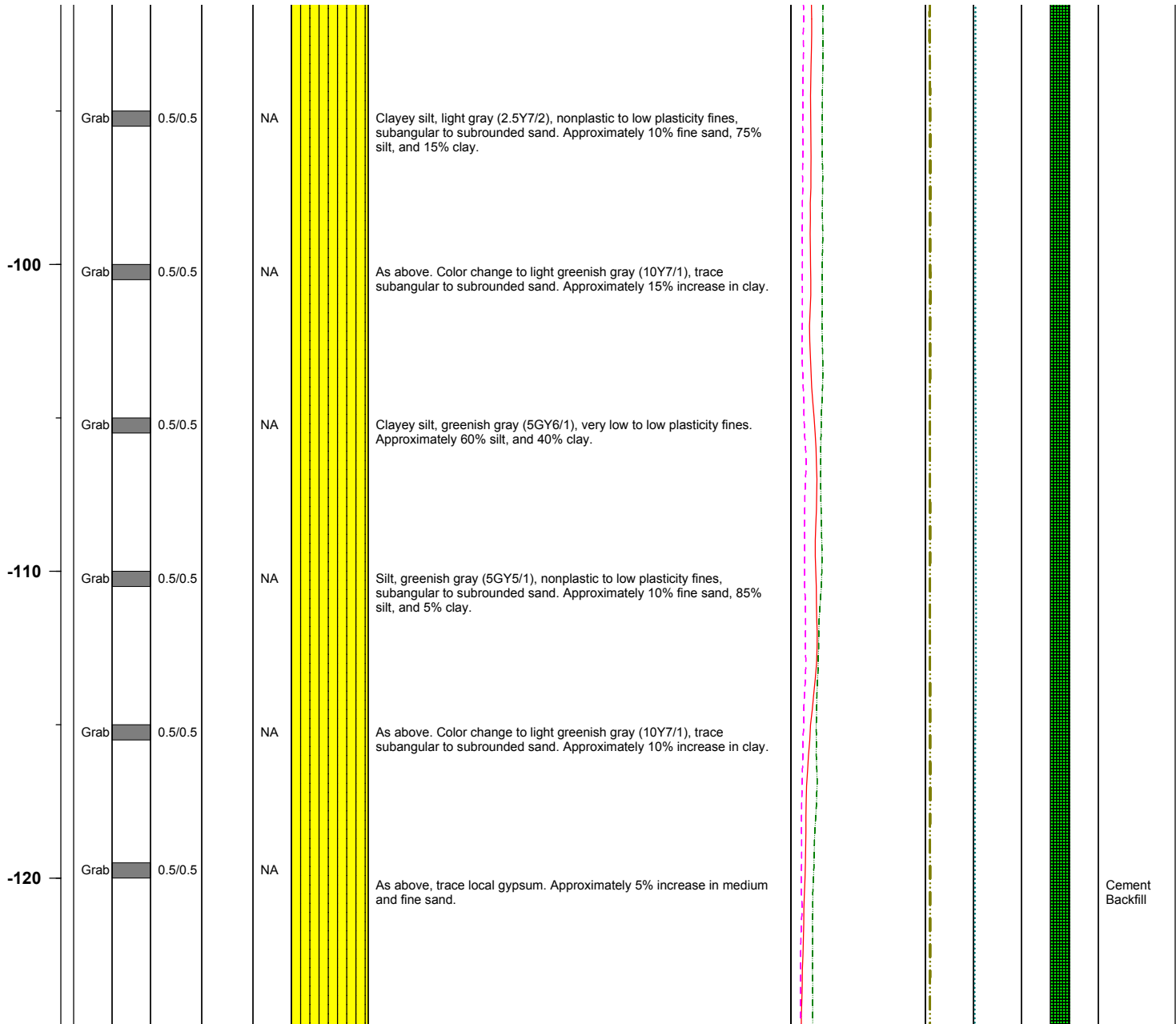
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								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			



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Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

	Grab	0.5/0.5		NA			Silt with sand, as above. 10% increase in silt.						
-130	Grab	0.5/0.5		NA			Clayey silt, as above. Color change to greenish gray (10Y6/1), no locally partly indurated. Approximately trace medium sand, 10% fine sand, 55% silt, and 35% clay.						
	Grab	0.5/0.5		NA			Clayey silt, light brownish gray (2.5Y6/2), nonplastic to low plasticity fines, trace subangular to subrounded sand. Approximately 5% fine sand, 55% silt, and 40% clay.						
-140	Grab	0.5/0.5		NA			As above.						
	Grab	0.5/0.5		NA			Clayey silt, greenish gray (10Y5/1) to very dark gray (3/N), nonplastic to low plasticity fines. Approximately trace fine sand, 60% silt, and 40% clay.						Cement Backfill
-150	Grab	0.5/0.5		NA			Clayey silt, pale brown (10YR6/3), nonplastic to low plasticity fines, trace subangular to subrounded sand. Approximately 5% fine sand, 80% silt, and 15% clay.						
	Grab	0.5/0.5		NA			As above, locally partly indurated. Approximately 20% increase in clay.						Cement Backfill

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Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. P.T. (OHM)			

-160	Grab	0.5/0.5	NA	As above. Color change to light brownish gray (10YR6/2). Approximately 20% increase in silt.								
	Grab	0.5/0.5	NA	Clayey silt, brown (10YR5/3), nonplastic to low plasticity fines, trace local gypsum. Approximately trace fine sand, 70% silt, and 30% clay.								
-170	Grab	0.5/0.5	NA	Clayey silt, pale brown (10YR6/3), nonplastic to low plasticity fines. Approximately trace fine sand, 70% silt, and 30% clay.								
	Grab	0.5/0.5	NA	As above. Color change to light brownish gray (10YR6/2), no trace of fine sand.								
-180	Grab	0.5/0.5	NA	Clayey silt, brown (10YR5/3), nonplastic to low plasticity fines, trace subangular to subrounded sand. Approximately 5% fine sand, 75% silt, and 20% clay.								
	Grab	0.5/0.5	NA	As above. Color change to light brownish gray (10YR6/2), trace local gypsum. Approximately 5% increase in silt.								
-190	Grab	0.5/0.5	NA	As above. Color change to pale brown (10YR6/3), subangular to subrounded sand., trace medium sand. Approximately 5% increase in fine sand.								
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								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

	Grab	0.5/0.5	NA		Clayey silt, brown (7.5YR5/3), nonplastic to low plasticity fines, trace local gypsum. Approximately trace fine sand, 70% silt, and 30% clay.							
-200	Grab	0.5/0.5	NA		Clayey silt with sand, light brownish gray (10YR6/2) nonplastic to low plasticity fines, angular to subrounded sand, some local gypsum. Approximately 5% medium sand, 10% fine sand, 70% silt and 15% clay.							
	Grab	0.5/0.5	NA		Clayey silt, yellowish brown (10YR5/4) nonplastic to low plasticity fines. Approximately trace fine sand, 85% silt, and 15% clay.							
-210	Grab	0.5/0.5	NA		Clayey silt, brown (10YR5/3), nonplastic to low plasticity fines, angular to subrounded sand, trace local gypsum. Approximately trace medium sand 10% fine sand, 60% silt, and 30% clay.							
	Grab	0.5/0.5	NA		CL: Silty clay, brown (7.5YR5/3), very low to low plasticity fines. Approximately 35% silt, and 65% clay.							
-220	Grab	0.5/0.5	NA		ML: Clayey silt, brown (7.5YR5/3), nonplastic to low plasticity fines, trace angular to subrounded sand, some local gypsum. Approximately trace medium sand, 5% fine sand, 55% silt, and 40% clay.							

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								E-Log		Caliper Log (inch)	
								16" (OHM)	64" (OHM)		
								S. PT. (OHM)		Guard Log (OHM.M)	

-230	Grab	0.5/0.5	NA		Clayey silt, pale brown (10YR6/3), nonplastic to low plasticity fines. Approximately trace medium sand, trace fine sand, 70% silt, and 30% clay.							
	Grab	0.5/0.5	NA		As above, no trace medium sand, Approximately 10% increase in clay.							
	Grab	0.5/0.5	NA		Clayey silt, pale brown (10YR6/3), nonplastic to low plasticity fines, trace angular to subrounded sand, trace local gypsum. Approximately trace medium sand, 5% fine sand, 65% silt, and 30% clay.							
-240	Grab	0.5/0.5	NA		CL: Silty clay, brown (7.5YR5/3), very low to low plasticity fines. Approximately 40% silt, and 60% clay.							
	Grab	0.5/0.5	NA		ML: Clayey silt, brown (7.5YR5/3), nonplastic to low plasticity fines, trace angular to subrounded sand, trace local gypsum. Approximately 5% fine sand, 55% silt and 40% clay.							
-250	Grab	0.5/0.5	NA		As above. Approximately 5% increase in medium and fine sand.							
	Grab	0.5/0.5	NA		As above. Color change to brown (10YR5/3), nonplastic to very low plasticity silt. Approximately 10% medium sand, 15% fine sand, and 75% silt.							
	Grab	0.5/0.5	NA									Cement Backfill

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Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

-260	Grab	0.5/0.5	NA		Clayey silt, pale brown (10YR6/3) nonplastic to low plasticity fines, trace angular to subrounded sand, trace local gypsum. Approximately trace medium sand, 5% fine sand, 65% silt, and 30% clay.							
	Grab	0.5/0.5	NA		Clayey silt with sand, as above. Color change to brown (7.5YR5/4). Approximately 10% increase in medium and fine sand.							
-270	Grab	0.5/0.5	NA		CL: Silty clay, light brown (7.5YR6/3), very low to low plasticity fines, trace angular to subrounded sand. Approximately 5% fine sand, 30% silt, and 65% clay.							
	Grab	0.5/0.5	NA		ML: Clayey silt, pale brown (10YR6/3), nonplastic to low plasticity fines, trace angular to subrounded sand. Approximately trace medium sand, 5% fine sand, 65% silt and 30% clay.							
-280	Grab	0.5/0.5	NA		As above, change in color (10YR6/3), locally partly indurated, no trace angular to subrounded sand. Approximately trace fine sand, 70% silt, and 30% clay.							
	Grab	0.5/0.5	NA		As above, angular to subrounded sand. Approximately 10% medium sand, 20% fine sand, 60% silt, and 10% clay.							
-290	Grab	0.5/0.5	NA		As above. Approximately 30% increase in clay.							
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								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

	Grab	0.5/0.5	NA			CL: Silty clay, light brown (7.5YR6/3), very low to low plasticity fines. Approximately trace fine sand, 40% silt and 60% clay.						
-300	Grab	0.5/0.5	NA			ML: Clayey silt, brown (7.5YR5/3), nonplastic to low plasticity fines, trace angular to subrounded sand. Approximately trace medium sand, 5% fine sand, 70% silt and 25% clay.						
	Grab	0.5/0.5	NA			As above. Approximately 5% increase in fine sand and clay.						
-310	Grab	0.5/0.5	NA			As above. Approximately 5% increase in silt.						
	Grab	0.5/0.5	NA			Clayey silt with sand, as above. Color change to brown (7.5YR5/4), trace gypsum. Approximately 5% increase in medium sand and 10% increase in fine sand.						
-320	Grab	0.5/0.5	NA			Clayey silt, brown (7.5YR5/3), nonplastic to low plasticity fines, trace angular to subrounded sand. Approximately 5% fine sand, 60% silt, and 35% clay.						
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								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. PT. (OHM)		

	Grab	0.5/0.5	NA		As above. Color change to brown (7.5YR5/4).							
-330	Grab	0.5/0.5	NA		Clayey silt, light brown (7.5YR6/3), nonplastic to low plasticity fines. Approximately 60% silt, and 40% clay.							
	Grab	0.5/0.5	NA		As above, trace subangular to subrounded sand. Approximately 5% increase in fine sand.							
-340	Grab	0.5/0.5	NA		As above. Color change to light brown (7.5YR6/4). Approximately 5% increase in silt.							
	Grab	0.5/0.5	NA		As above. Color change to light brown (7.5YR6/3). Approximately 5% increase in clay.							
-350	Grab	0.5/0.5	NA		As above. Color change to light brown (7.5YR6/4). Approximately 10% increase in silt.							
	Grab	0.5/0.5	NA		As above. Color change to light brown (7.5YR6/3). Approximately 10% increase in clay.							

Cement  
Backfill

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								E-Log		Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)			
								S. PT. (OHM)				

-360	Grab	0.5/0.5	NA	As above.								
	Grab	0.5/0.5	NA	As above. Approximately 5% increase in silt.								Cement Backfill
-370	Grab	0.5/0.5	NA	Clayey silt, light brown (7.5YR6/4), nonplastic to low plasticity fines, trace local gypsum. Approximately 60% silt, and 40% clay.								
	Grab	0.5/0.5	NA	As above, trace subangular to subrounded sand. Approximately 5% increase in fine sand.								Cement Backfill
-380	Grab	0.5/0.5	NA	As above.								
	Grab	0.5/0.5	NA	As above. Approximately 5% increase in silt.								
-390	Grab	0.5/0.5		As above. Approximately 5% increase in clay.								

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								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. P.T. (OHM)			

-400	Grab	0.5/0.5					As above.					
	Grab	0.5/0.5					As above.					

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