Log of Boring No. BRC-SB-18-A

BMI Site - Hydrogeologic Characterization

Henderson, Nevada

Basic Remediation COMPANY

Drilling Method: Rotary Sonic
Drilling Equipment: Rotary Sonic
Drilling Contractor: Prosonic Corporation
Driller: Gerardo Chavez

Borehole Total Depth: 257 ft bgs
Borehole Diameter: 8.5 in
Boring Location: Location 18 (Well ID: AA-18)
Depth to Water (ft. bgs): 56.75 ft bgs ▽

Sample Type: Split spoon
Sample Interval 5 ft

Logged By: J. Wiley/A. Norris
Date Started: 6/21/04
Date Completed: 6/22/04

Monitoring Well Construction

Type of Surface Seal:	Bentonite-Grout	**Screen Slot Size:**	0.010 in
Blank Casing Type/Size:	4" Sch 80 PVC	**Top of Screen (ft. bgs):**	44.5 ft bgs
Screen Type/Size:	4" Sch 80 PVC	**Bottom of Screen (ft. bgs):**	64.5 ft bgs
Transition Sand Type:	N/A	**Type of Sand Pack:**	#10 x 20

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
0	Grab		1.5/1.5		0.2		SP: Poorly graded sand with gravel, dark yellowish brown (10YR4/4), loose, moist (due to hydration of bentonite sealing tub), angular to subrounded volcanic sand and gravel (to 1/2"), non- cemented, no odor, trace roots, trace silt. Approximately 15% gravel, 10% coarse sand, 50% medium sand, 25% fine sand. Trace silt and no clay.	Locking monument well box with concrete apron and ballards
					0.1		BRC-SB-18-A-0 (chemical) collected.	
					0.1			
					0.1		Poorly graded sand, light yellowish brown (10YR6/4), loose, dry, subangular to subrounded volcanic sand and gravel (to 4"), non-cemented, no odor, trace silt. Approximately 10% gravel, 10% coarse sand, 50% medium sand, 20% fine sand. Trace silt and no clay.	Cement Bentonite Grout
	Grab		1.5/1.5				At 7', increased gravel. Approximately 20% gravel, 10% coarse sand, 60% medium sand, 10% fine sand, trace silt and no clay. BRC-SB-18-A-7 (chemical) collected.	
					0.1			
-10					0.1		GP: Poorly graded gravel with sand, pale brown (10YR 6/3), loose, dry, subangular to subrounded volcanic sand and gravel (to 3/4"), noncemented, no odor, trace silt. Approximately 70% gravel, 10% coarse sand, 15% medium sand, 5% fine sand, trace silt, and no clay.	4" Blank PVC Riser Pipe
					0.1			
							At 12', fewer larger gravel (to 2.5"), dry. Approximately 60% gravel, 15% coarse sand, 20% medium sand, 5% fine sand, trace silt and no clay.	
					0.1			
					0.1		SP: Poorly graded sand, light yellowish brown (10YR 6/4), loose, dry, subangular to subrounded volcanic sand and gravel (to 1"), trace silt, noncemented, no odor. Approximately 5% gravel, 10% coarse sand, 50% medium sand, 30% fine sand, 5% silt, and no clay.	
	Grab		1.5/1.5				Poorly graded sand with gravel, light yellowish brown (10YR 6/4), loose, dry, subangular to subrounded volcanic sand and gravel (to 3/4"), trace silt, noncemented, no odor.. Approximately 15% gravel, 15% coarse sand, 55% medium sand, 15% fine sand, trace silt, and no clay. BRC-SB-18-A-17 (chemical) collected.	
					0.1			
-20					0.1			
							SW: At 21', Well graded sand with gravel, light yellowish brown (10YR 6/4), loose, dry, subangular to subrounded volcanic and granitic sand and gravel (to 3/4"), noncemented, no odor, trace silt. Approximately 20% gravel, 25% coarse sand, 30% medium sand, 25% fine sand, trace silt, and no clay.	
					0.1			
							SP: Poorly graded sand with gravel, pale brown (10YR 6/3), loose, dry, subangular to subrounded volcanic sand and gravel (to 1-1/2"), trace silt, noncemented, no odor. Approximately 20% gravel, 5% coarse sand, 35% medium sand, 40% fine sand, trace silt, and no clay.	
					0.1			

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
					0.1			
	Grab		1.5/1.5				BRC-SB-18-A-27 (chemical) collected.	
					0.1			
-30					0.1		Poorly graded sand with gravel, pale brown (10YR 6/3), loose, dry, subangular to subrounded volcanic sand and gravel (to 2-1/4"), trace silt, noncemented, no odor. Approximately 40% gravel, 5% coarse sand, 25% medium sand, 30% fine sand, trace silt, and no clay.	
					0.1			
					0.1			
							As above, Poorly graded sand, gravel up to 1/2". Approximately 5% gravel, 5% coarse sand, 40% medium sand, 45% fine sand, and 5% silt.	
					0.1		At 36.5', increase in gravel (to 2"). Approximately 20% gravel, 5% coarse sand, 30% medium sand, 45% fine sand, trace silt, and no clay.	
					0.1			
								Bentonite seal
-40					0.1		Poorly graded sand, pale brown (10YR 6/3), loose, dry, subangular to subrounded volcanic sand and gravel (to 3/4"), trace silt, noncemented, no odor. Approximately 10% gravel 10% coarse sand, 30% medium sand, 45% fine sand, 5% silt, and no clay.	
					0.1			
								#10 x 20 Sand Pack
							Poorly graded sand with gravel, pale brown (10YR 6/3), loose, dry, subangular to subrounded volcanic sand and gravel (to 2-1/2"), trace silt, noncemented, no odor. Approximately 40% gravel, 5% coarse sand, 20% medium sand, 35% fine sand, and trace silt.	
					0.1			
	Grab		1.5/1.5				BRC-SB-18-A-47 (chemical) collected.	4" 0.010 Slot PVC screen
					0.1			
-50					0.1		Poorly graded sand with gravel, grayish brown (10YR 5/2), loose, dry to moist, subangular to subrounded volcanic sand and gravel (to 1.5"), trace silt, noncemented, no odor. Approximately 20% gravel, 5% coarse sand, 45% medium sand, 30% fine sand, trace silt, and no clay.	
					0.1			
								#10 x 20 Sand Pack
					0.1		Poorly graded sand with gravel, dark yellowish brown (10YR 4/4), loose, very moist to wet, subangular to subrounded sand and gravel (to 2"), trace silt, noncemented, no odor. Approximately 30% gravel, 15% coarse sand, 35% medium sand, 20% fine sand, trace silt, and no clay. At 56.75', wet.	
					0.1			
	Grab		0.5/0.5				ML: At 57' Clayey silt, light greenish gray ((GLEY 17/10Y), stiff, moist, weak, induration, no odor, medium plasticity. Approximately 70% silt and 30% clay.	
					0.1			

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
							BRC-SB-18-A-57 (NEL) [split spoon] collected.	
-60					0.1		GP: At 60.5'-61.5' Poorly graded gravel, moist only. Approximately 70% gravel, 10% coarse sand, 5% medium sand, 15% fine sand, 5% silt, and no clay.	
					0.1		CC: At 61.5'- 62.25' - Conglomerate rock.	
							ML: Clayey silt, yellowish brown (10YR 5/4), very stiff, moist, weak to moderate induration, no odor, medium plasticity. Approximately 70% silt and 30% clay.	
					0.1			Threaded PVC Well Base Cap
					0.1		At 65.5' color change to light greenish gray (GLEY 17/10Y), moist, noncemented. Approximately 70% silt and 30% clay.	
					0.1		At 68', color change to yellowish brown (10YR 5/4), moist noncemented. Approximately 70% silt and 30% clay.	
-70					0.1		Clayey silt, yellowish brown (10YR 5/4), very stiff, moist, moderately indurated, no odor, high plasticity. At 71', color change to light greenish gray (GLEY 17/10Y). Approximately 70% silt and 30% clay.	
					0.1			Cement Backfill
					0.1			
							Clayey silt, light olive gray (5Y 6/2), medium stiff, moist to very moist in areas, noncemented, no odor, medium plasticity. Approximately 70% silt and 30% clay.	
					0.1			
	Grab		1.5/1.5				BRC-SB-18-A-77 (chemical) collected.	
					0.1		Sandy silt with clay, light olive brown (2.5Y 5/3), soft, wet, noncemented, no odor, low plasticity, sand comprised of silt chips. Approximately 10% medium sand, 20% fine sand, 55% silt, and 15% clay.	
-80	Grab		0.5/0.5		0.1		BRC-SB-18-A-79.5 (NEL) collected.	
							Moist only clayey silt (as at 75') from 81'-81.75'. Approximately 70% silt and 30% clay.	
					0.1		Sandy silt with clay in approximately 2.5" wide zone, wet just above 82'. Approximately 10% medium sand, 20% fine sand, 55% silt and 15% clay.	
					0.1		At 82', clayey silt, yellowish brown (10YR 5/4), very stiff, moist, noncemented, no odor, high plasticity, trace gypsum crystals (to 1/2"). Approximately 70% silt and 30% clay.	
							Wet zone (approximately 2" thick) above 85 (clayey silt). Approximately 70% silt and 30% clay.	
					0.1		At 86', Approximately 10% med sand-sized gypsum crystals. Approximately 10% medium sand, 60% silt, and 30% clay.	
	Grab		1.5/1.5		0.1		Silt, white (10YR 8/1), very stiff, dry to moist, moderate induration, no odor, nonplastic, approximately 10% fine gypsum. Approximately 10% fine sand and 90% silt. BRC-SB-18-A-87 (chemical) collected.	
-90					0.1		Silt (as at 87') dry to moist. Approximately 10% fine sand and 90% silt.	

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
					0.1			Cement Backfill
					0.1		Silt, pale brown (10YR 6/3), very stiff, moist, medium gypsum sand, noncemented, no odor, low plasticity, trace clay. Approximately 10% medium sand, 90% silt and trace clay.	
					0.1		GYPSUM: At 95.5'-98', gypsum crystals in silt matrix, moist.	
	Grab		1.5/1.5				BRC-SB-18-A-97 (chemical) collected.	
					0.1		ML: Silt, pale brown (10YR 6/3), very stiff, moist, medium gypsum sand, noncemented, no odor, low plasticity, trace clay. Approximately 10% medium sand, 90% silt and trace clay.	
-100					0.1			
					0.1		Clayey silt, grayish brown (10YR 5/2), very stiff, moist, noncemented, abundant gypsum crystals (up to 1"), no odor, high plasticity. Approximately 70% silt and 30% clay.	
							GYPSUM: Gypsum crystals in silt matrix, moist.	
					0.1			
					0.1		ML: Silt with clay, grayish brown (10YR 5/2), very stiff, moist, weak induration, no odor, medium plasticity. Approximately 85% silt and 15% clay.	
					0.1		At 108' color change to light greenish gray (GLEY 1 7/2), trace medium gypsum sand. Approximately a trace of medium sand, 85% silt, and 15% clay.	
-110					0.1		Clayey silt, grayish brown (10YR 5/2), very stiff, moist, non-cemented, no odor, medium plasticity, abundant gypsum crystals (to 1-1/4"). Approximately 70% silt and 30% clay.	
					0.1			
					0.1		GYPSUM: Clayey silt (as at 110'), moist, interbedded with gypsum crystal layers (in ML matrix). Approximately 70% silt and 30% clay.	
							ML	
							GYPSUM	
					0.1		ML	
							GYPSUM	
					0.1		ML	
-120					0.1		Sandy silt with clay, grayish brown (10YR 5/2), very stiff, moist, noncemented, no odor, no gypsum. Approximately 30% fine sand, 55% silt, and 15% clay.	
					0.1		Silt with clay, brown (10YR 4/3), very stiff, moist, noncemented, no odor, low plasticity, with gypsum crystals (to 1"). Approximately 85% silt and 15% clay.	
					0.1		Sandy silt with clay (as at 119'), moist. Approximately 30% fine sand, 55% silt, and 15% clay.	

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
					0.1		Clayey silt, very dark grayish brown (10YR 3/2), very stiff, moist, noncemented, no odor, high plasticity, abundant gypsum crystals. Approximately 60% silt and 40% clay.	
							GYPSUM: At 127.5' Gypsum in silt matrix.	
					0.1		ML	
-130					0.1		Silt with clay, greenish gray (GLEY 16/10Y), very stiff, moist, noncemented, no odor. Approximately 85% silt and 15% clay.	
					0.1			
					0.1			
					0.1		Silt with clay, greenish gray (GLEY 15/10Y), very stiff, moist, noncemented, faint sulfur and petroleum odor, trace black streaks with gypsum crystals. Approximately 85% silt and 15% clay.	Cement Backfill
					0.1			
					0.1		GYPSUM: Gypsum crystals in silt matrix, moist.	
							ML	
-140					0.1		Silt with clay, brown (10YR 4/3), very stiff, moist, noncemented, no odor, low plasticity, abundant gypsum crystals (to 1"). Approximately 85% silt and 15% clay.	
					0.1			
							Silt with clay, white (5Y 8/1), moist, very stiff to hard, nonplastic to low plasticity, fines, trace local gypsum. Approximately a trace fine sand, 90% silt and 10% clay.	
					0.1			
					0.1		Silt with clay, light greenish gray (5GY 8/1), moist, very stiff, nonplastic to low plasticity fines. wet at 148' to 148.5' bgs. Approximately a trace fine sand, 90% silt and 10% clay.	
	Grab		0.5/0.5		0.1		BRC-SB-18-A-148 (NEL) collected.	
-150					0.1		Silt with clay, light greenish gray (10Y 7/1), moist, very stiff to hard, nonplastic to low plasticity fines. Approximately a trace fine sand, 90% silt and 10% clay.	
					0.1		Clayey silt, grayish brown (10YR 5/2), moist, very stiff to hard, very low to low plasticity fines, some gypsum. Approximately 80% silt and 20% clay.	
					0.1			
							GYPSUM: Gypsum at 155' to 155.5' bgs.	
					0.1		ML: Clayey silt, grayish borwn (10YR 5/2), moist, very stiff to hard, some gypsum. Approximately 70% silt and 30% clay.	
					0.1			

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
							Clayey silt, brown (7.5YR 5/3), moist, very stiff to hard, very low to low plasticity fines, some local gypsum. Approximately 70% silt and 30% clay.	
-160					0.1			
					0.0			
					0.0		Clayey silt, brown (7.5YR 5/3) moist, very stiff to hard, very low to low plasticity fines, some local gypsum. Approximately 75% silt and 25% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, brown (7.5YR 5/3), moist, very stiff to hard, very low to low plasticity fines, some local gypsum. Approximately 75% silt and 25% clay.	
					0.0			
					0.0			
-170					0.0		Clayey silt, brown (7.5YR 5/3), moist, very stiff, very low to low plasticity fines, some local gypsum. Approximately 75% silt and 25% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, brown (7.5YR 5/3), moist, very stiff, nonplastic to low plasticity fines, trace local gypsum. Approximately a trace fine sand, 75% silt and 25% clay.	
					0.0			
					0.0			
					0.0			
					0.0			
					0.0		SM: Silty sand, brown (10YR 5/3), wet, subangular to subrounded sand, nonplastic silt. Approximately 60% fine sand and 40% silt.	
	Grab		0.5/0.5		0.1			
-180					0.0		ML: Clayey silt, grayish brown (10YR 5/2), moist, very stiff, nonplastic to low plasticity fines, trace local gypsum. Becomes light greenish gray (10Y 7/1) at approximately 183' to 184' bgs. Approximately a trace of fine sand, 85% silt, and 15% clay.	
					0.0			
					0.0		Silt with clay, brown (10YR 5/3), moist to very moist, very stiff, nonplastic to low plasticity fines. Approximately 5% fine sand, 85% silt, and 10% clay. BRC-SB-18-A-179 (grab) collected.	
					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, very low to low plasticity fines, some gypsum crystals (up to 2" long) at approximately 186' bgs. Approximately 80% silt and 20% clay.	
					0.0			
					0.0		Silt, white (N8) to light greenish gray (5GY 7/1), very stiff, moist, nonplastic to low plasticity fines. Approximately a trace of fine sand, 95% silt and 5% clay.	
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, very low to low plasticity fines, some gypsum. Approximately 75% silt and 25% clay.	
					0.0			
-190					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, very low to low plasticity fines, some gypsum.	

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
					0.0		Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, nonplastic to low plasticity fines, some local gypsum. Approximately 80% silt and 20% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, nonplastic to low plasticity fines, some local gypsum. Abundant gypsum content at 199.5' to 200' bgs. Approximately a trace of fine sand, 75% silt and 25% clay.	
					0.0			
-200					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, very low to low plasticity fines, some gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, very low to low plasticity fines, trace local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, brown (10YR 5/3), moist, very stiff, nonplastic to low plasticity fines, some gypsum. Approximately 80% silt and 20% clay.	
					0.0			
-210					0.0			
					0.0			
					0.0		Clayey silt, greenish gray (5GY 5/1), moist, very stiff, very low to low plasticity fines, some local gypsum. Abundant gypsum content at 215.5' to 216' bgs. Approximately 75% silt and 25% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, greenish gray (5GY 5/1), moist, very stiff, very low to low plasticity fines, some gypsum. Approximately 65% silt and 35% clay.	
					0.0			
	Grab		0.5/0.5		0.0		217.5' to 218' bgs, sandy silt, greenish gray (5GY 5/1), wet, very stiff, nonplastic to very low plasticity fines. Approximately 35% fine sand and 65% silt. BRC-SB-18-A-217.5 (grab) collected.	
					0.0			
-220					0.0		Clayey silt, greenish gray (10GY 5/1), moist, very stiff, very low to low plasticity fines, some local gypsum. Approximately 70% silt and 30% clay. Saturated Soil.	
					0.0			
					0.0		Clayey silt, greenish gray (10GY 5/1), moist, hard, very low to low plasticity fines, some gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
					0.0		Clayey silt, light greenish gray (5GY 7/1), moist, very stiff, very low to low plasticity fines, some local gypsum. Approximately 75% silt and 25% clay.	Cement Backfill
					0.0			
					0.0			
					0.0		Clayey silt, dark greenish gray (10Y 4/1), moist, very stiff, very low to low plasticity fines, some local gypsum, some local laminations. Approximately 70% silt and 30% clay.	
					0.0			
-230					0.0			
					0.0		Clayey silt, dark greenish gray (10Y 3/1), moist, very stiff, very low to low plasticity fines, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, dark greenish gray (10Y 3/1), moist, very stiff, very low to low plasticity fines, some local laminations, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, dark greenish gray (10Y 3/1), moist, stiff to very stiff, very low to low plasticity fines, some local laminations, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
-240					0.0		Clayey silt, dark greenish gray (5GY 5/1), moist, very stiff, very low to low plasticity fines, some local laminations, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0			
					0.0		Clayey silt, greenish gray (10Y 5/1), moist, very stiff to hard, very low to low plasticity fines, some local laminations, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0			
					0.0		Clayey silt, greenish gray (5GY 6/1), moist, very stiff, very low to low plasticity fines, some local laminations, some local gypsum. Approximately 70% silt and 30% clay.	
					0.0			
-250					0.0			Cement Backfill
					0.0		Clayey silt, greenish gray (10Y 5/1), moist, very stiff, nonplastic to low plasticity fines, some gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0		Clayey silt, greenish gray (10Y 5/1), moist, very stiff to hard, nonplastic to very low plasticity fines, some gypsum. Approximately 70% silt and 30% clay.	
					0.0			
					0.0		Clayey silt, dark greenish gray (5GY 4/1), moist, hard, very low to low plasticity fines, some gypsum. Approximately 65% silt and 35% clay.	