

APPENDIX B

BOREHOLE LITHOLOGIC LOGS

Project Name: Yerington Groundwater Investigation

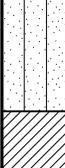
Well Number: PA-MW1

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
		SC	CLAYEY SAND (19-18 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness.				
4420			NO RECOVERY				
20		SC	CLAYEY SAND (21-22 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and a strong reaction to HCl.				
		CL					
		SM	SANDY LEAN CLAY (22-22.5 feet) Dry, hard, no odor. Predominately silt and clay with ~25% fine to medium sand and trace fine gravel to 8 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark gray (7.5YR 4/1), and have a strong reaction to HCl.				
4415			SILTY SAND with GRAVEL (22.5-25.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
25		CL					
		SM	SANDY LEAN CLAY (25.5-25.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
		CL					
4410		SM	SILTY SAND with GRAVEL (25.75-27.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
30		CL	SANDY LEAN CLAY (27.5-28 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
		SM	SILTY SAND with GRAVEL (28-30 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
4405			SANDY LEAN CLAY (30-31 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular,				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
35			<p>the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.</p> <p>SILTY SAND with GRAVEL (31-37.5 feet)</p> <p>Dry, medium dense, no odor.</p> <p>Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
	4400	SM	<p>SANDY LEAN CLAY (37.5-38 feet)</p> <p>Dry, hard, no odor.</p> <p>Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 12 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.</p> <p>SILTY SAND with GRAVEL (38-45.5 feet)</p> <p>Dry, very dense, no odor.</p> <p>Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
	4395						
40							
		CL	<p>SANDY LEAN CLAY (45.5-46 feet)</p> <p>Dry, hard, no odor.</p>				
		CL	<p>Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl.</p> <p>LEAN CLAY (46-48 feet)</p> <p>Dry, hard, no odor.</p>				
	4390	CL	<p>Predominately silt and clay with ~10% fine to medium sand and trace coarse sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.</p> <p>SANDY LEAN CLAY (48-53.5 feet)</p> <p>Dry, hard, no odor.</p> <p>Predominately silt and clay with ~30% fine to medium sand and trace coarse sand to 5 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/2), and have a strong reaction to HCl.</p>				
	4385						
		SP	<p>POORLY-GRADED SAND (53.5-58.5 feet)</p> <p>Dry, very dense, no odor.</p>				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
55			Predominately medium sand with ~5% fine gravel to 20mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and have no reaction to HCl.				
	4380						
60		SM	SILTY SAND with GRAVEL (58.5-71 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine to coarse gravel to 25 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
	4375						
65							
	4370						
70							
		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (71-71.5 feet)				
		CL	Dry, very dense, no odor. Predominately coarse to medium sand with ~25% fine gravel to 20 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4365	SW-SM	SANDY LEAN CLAY (71.5-73 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
75			<p>~10% fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.</p> <p>WELL-GRADED SAND with SILT and GRAVEL (73-76 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
		CL					
		SW-SM	<p>SANDY LEAN CLAY (76-76.5 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~10% fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.</p>				
	4360	CL					
			<p>WELL-GRADED SAND with SILT and GRAVEL (76.5-78 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
		SM					
	80	SM					
			<p>SANDY LEAN CLAY (78-79.5 feet) Dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and trace coarse sand to 5 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/2), and have a strong reaction to HCl.</p>				
			<p>SILTY SAND with GRAVEL (79.5-80 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 25 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
	4355						
			<p>SILTY SAND (80-88.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
	85						
			<p>SANDY LEAN CLAY (88.5-100 feet) Moist to saturated, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 30 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.</p>				
	4350	CL					
	90						
	4345						

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				Water Level	Lithology	Well	
95							
	4340						
100		CL	SANDY LEAN CLAY (100-102 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.				
	4335	CL	SANDY LEAN CLAY (102-109 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 5 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.				
105							
	4330						
110		CL	SANDY LEAN CLAY (109-112 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% gravel. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.				
		SC	INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY (112-117 feet) Thinly interbedded (~1 cm thick).				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
115	4325		POORLY-GRADED SAND Dry to moist, dense, no odor. Predominately coarse to medium sand to 5 mm with trace fine sand and ~5% silt and clay. The sand is subangular. The fines are nonplastic and do not react to HCl.				
			SANDY LEAN CLAY Moist to saturated, stiff, no odor. Predominately silt and clay with ~45% coarse to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.				
4320		CL	SANDY LEAN CLAY (117-119 feet) Moist to dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand, ~5% gravel, and ~10% cobbles to >100 mm. The cobbles are subangular gneiss, the gravel is subangular, and the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
		CL	SANDY LEAN CLAY (119-120 feet) Moist to saturated, stiff, no odor. Predominately silt and clay with ~30% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
120		GW-GM	WELL-GRADED GRAVEL with SILT (121-122 feet) Dry, dense, no odor. Predominately gneissic cobbles to 3 inches with ~30% gravel and ~10% silt and clay. The cobbles are subangular, the gravel is subangular. The fines have medium plasticity and toughness and do not react to HCl.				
		CL	SANDY LEAN CLAY (122-123 feet) Moist to dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand, ~5% gravel, and ~10% cobbles to >100 mm. The cobbles are subangular gneiss, the gravel is subangular, and the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
4315		CL	SANDY LEAN CLAY (122-123 feet) Moist to dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand, ~5% gravel, and ~10% cobbles to >100 mm. The cobbles are subangular gneiss, the gravel is subangular, and the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
		GW-GM	SANDY LEAN CLAY (123-124.5 feet) Dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and ~10% fine to coarse gravel to 40 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
125		CL	SANDY LEAN CLAY (123-124.5 feet) Dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and ~10% fine to coarse gravel to 40 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are gray (2.5Y 5/1), and do not react to HCl.				
			WELL-GRADED GRAVEL with SILT (124.5-125 feet) Dry, dense, no odor. Predominately gneissic cobbles to 3 inches with ~30% gravel and ~10% silt and clay. The cobbles are subangular, the gravel is subangular. The fines have medium plasticity and toughness and do not react to HCl.				
			SANDY LEAN CLAY (125-126 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 50 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and do not react to HCl.				

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Boring Location: Process Area		Elevation: 4485.3 feet amsl	East: 322936.938
		North: 1547233.463	
Drilling Contractor: WDC	Driller: J. Love	Date Started: 1/20/05	Date Finished: 1/21/05
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 159.0	Water Depth: (feet) 140'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: 2-inch Nominal Dia., SCH40 PVC	
Drilling Method: Sonic		Screened Interval and Well Depth: 134.5-154.5 ft., bottom at 155 ft.	
Well Seal: Bentonite and Cement		Slot Size: 0.020"	Filter Material: #3 Monterey Sand
Logged By: C. Gardner		Development Method: Swabbed, bailed, pumped	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
4485		SM	SILTY SAND with GRAVEL (0-1 feet) Moist, dense, no odor. Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~15% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SM	SILTY SAND with GRAVEL (1-5 feet) Same as above but dry and medium dense.				
5	4480	SC	CLAYEY SAND with GRAVEL (5-10 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 15 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				WELL DESIGN: Screened Interval: 134.5-154.5 feet Bottom of sump: 155 feet Cement Grout: 0-10 feet Bentonite Chips: 10-130 feet Filter Pack: #60 Sand 130-131 feet, #3 Sand 131-159 feet
10	4475	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (10-16 feet) Dry, loose, no odor. Predominately medium to fine sand with ~25% fine to coarse gravel to 30 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				All depths are below land surface.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
	4470						
		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (16-19 feet) Same as above but medium dense.				
20	4465	SC	CLAYEY SAND with GRAVEL (19-22 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
		SM	SILTY SAND (22-24 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine to coarse gravel to 30 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
25	4460	SC	CLAYEY SAND (24-31.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 30 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
30	4455						
		SC	CLAYEY SAND (31.5-39 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
35	4450						
40	4445	SM	<p>SILTY SAND with GRAVEL (39-45 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 12 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.</p>				
45	4440	CL	<p>SANDY LEAN CLAY (45-47.5 feet) Dry, very stiff, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.</p>				
		SC	<p>CLAYEY SAND with GRAVEL (47.5-49 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 20 mm and ~20% silt and clay. The gravel is very angular to angular, the sand is angular to subangular. The fines have medium plasticity and toughness and do not react to HCl.</p>				
50	4435	CL	<p>SANDY LEAN CLAY (49-55 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl. Thinly bedded.</p>				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
55	4430	SC	CLAYEY SAND with GRAVEL (55-56 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 20 mm and ~20% silt and clay. The gravel is very angular to angular, the sand is angular to subangular. The fines have medium plasticity and toughness and no reaction to HCl.				
		CL					
			SANDY LEAN CLAY (56-57 feet) Dry, hard, no odor, thinly bedded. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
		SC	NO RECOVERY CLAYEY SAND (59-62.5 feet) Dry, dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 12 mm and ~30% silt and clay. The gravel is very angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
60	4425						
		SC	CLAYEY SAND (62.5-69 feet) Dry, dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~40% silt and clay. The gravel is very angular to subangular, the sand is subangular. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
65	4420						
		CL	SANDY LEAN CLAY (69-70.5 feet) Moist to dry, hard, no odor. Predominately silt and clay with ~30% fine to medium sand and ~5% fine gravel to 13 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
70	4415	SC	CLAYEY SAND (70.5-75 feet) Dry, dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 10 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				

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				Water Level	Lithology	Well	
75	4410	CL	<p>SANDY LEAN CLAY (75-78 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.</p>				
		CL	<p>SANDY LEAN CLAY (78-84 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.</p>				
80	4405						
		SC	<p>CLAYEY SAND (84-85 feet) Dry, dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~35% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.</p>				
85	4400	CL	<p>SANDY LEAN CLAY (85-95 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.</p>				
90	4395						

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				Water Level	Lithology	Well	
95	4390	SW-SM	WELL-GRADED SAND with SILT (95-97 feet) Dry, loose to medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		CL	SANDY LEAN CLAY (97-99 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 13 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.				
100	4385	CL	SANDY LEAN CLAY (99-108.5 feet) Dry, hard, no odor, laminated to thinly bedded. Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and medium to low toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
105	4380						
		CL	SANDY LEAN CLAY (108.5-112 feet) Moist, hard, no odor, massive (no visible bedding). Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, mottled color, and do not react to HCl.				
110	4375	CL	SANDY LEAN CLAY (112-122.5 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and				

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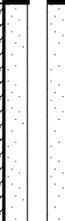
Well Number: PA-MW2

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
115	4370		trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and do not react to HCl.				
120	4365						
		SC	CLAYEY SAND (122.5-125 feet) Moist, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
125	4360		NO RECOVERY				
130	4355	SC	CLAYEY SAND with GRAVEL (130-137 feet) Moist, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 15 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
135	4350						
		SC	<p>CLAYEY SAND (137-142 feet) Moist to 140 feet and saturated to 142 feet, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.</p>				
140	4345						
		CL	<p>SANDY LEAN CLAY (142-149 feet) Moist to saturated, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 25 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.</p>				
145	4340						
		SP	<p>POORLY-GRADED SAND (149-159 feet) Saturated, medium dense to dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.</p>				
150	4335						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
155	4330						

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Boring Location: Process Area		Elevation: 4458.7 feet amsl	East: 324619.316 North: 1546803.593
Drilling Contractor: WDC	Driller: J. Love	Date Started: 1/18/05	Date Finished: 1/19/05
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 129.5	Water Depth: (feet) 114'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: 2-inch Nominal Dia., SCH40 PVC	
Drilling Method: Sonic		Screened Interval and Well Depth: 109-129 ft., bottom at 129.5 ft.	
Well Seal: Bentonite and Cement		Slot Size: 0.020"	Filter Material: #3 Monterey Sand
Logged By: C. Gardner		Development Method: Swabbed, bailed, pumped	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
4455		CL	SANDY LEAN CLAY (0-11 feet) Dry, soft, no odor. Predominately silt and clay with ~35% fine to medium sand and trace fine gravel to 8 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. WELL DESIGN: Screened Interval: 109-129 feet Bottom of sump: 129.5 feet Cement Grout: 0-10 feet Bentonite Chips: 10-105 feet Filter Pack: #60 Sand 105-106 feet, #3 Sand 106-129.5 feet All depths are below land surface.
4450							
4445		SM	SILTY SAND (11-17.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~15% silt and clay. The gravel and sand are angular to subangular. The fines are non plastic and have a strong reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
4440		SM	SILTY SAND (17.5-19 feet) Dry, loose to medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 8 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines are non plastic and have a strong reaction to HCl.				
20		SC	CLAYEY SAND (19-20.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 12 mm and ~45% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
4435		CL	SANDY LEAN CLAY (20.5-24 feet) Dry, stiff, no odor. Predominately silt and clay with ~30% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
25		CL	SANDY LEAN CLAY (24-32 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
4430							
30							
4425		SC	CLAYEY SAND (32-35 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and medium to low toughness and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
35		SM	SILTY SAND (35-37 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
	4420	CL	SANDY LEAN CLAY (37-39 feet) Dry, stiff, no odor. Predominately silt and clay with ~40% fine to medium sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are very dark gray (2.5Y 3/1), and have a weak reaction to HCl.				
40		CL	SANDY LEAN CLAY (39-45.5 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
	4415						
45		SM	SILTY SAND (45.5-49 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 15 mm, and ~15% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
	4410						
50		SC	CLAYEY SAND (49-50 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~40% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
	4405	CL	SANDY LEAN CLAY (50-60 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are very dark gray (5Y 3/1), and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
55							
	4400						
60			NO RECOVERY				
	4395						
65							
	4390						
70		SP-SM	POORLY GRADED SAND with SILT (70-76 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~ 5% coarse sand and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
	4385						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
75							
	4380	ML	<p>SANDY SILT (76-81 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace fine gravels to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.</p>				
80							
	4375	CL	<p>SANDY LEAN CLAY (81-90 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 10 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.</p>				
85							
	4370						
90		SM	<p>SILTY SAND (90-92 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm, and ~15% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.</p>				
		CL	<p>SANDY LEAN CLAY (92-96 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y</p>				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
95	4365		4/2), and have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (96-99 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
	4360						
100		SM	SILTY SAND (99-104 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 15 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4355						
105		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (104-108 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine gravel to 20 mm and ~10% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4350						
110		SM	SILTY SAND (108-114 feet) Dry from 108-110 feet, moist to saturated from 110-114 feet, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~20% silt and clay. The gravel is subangular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Well	
115	4345	SM	SILTY SAND (114-117.5 feet) Saturated, dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.	▽			
	4340	SM	SILTY SAND (117.5-120.5 feet) Saturated, loose, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and do not react to HCl.				
120		SC	CLAYEY SAND (120.5-124 feet) Moist to saturated, very dense, no odor. Predominately medium to fine sand with ~10% gravel and ~25% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
	4335	SC	CLAYEY SAND (124-129.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 15 mm and ~40% silt and clay. The gravel is subangular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
125	4330						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
			NO RECOVERY				
25	4510	CL	SANDY LEAN CLAY (25-26 feet) Dry to moist, medium stiff, no odor. Predominately silt and clay with ~30% fine to medium sand and ~10% gravel to 20 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.				
		SC	CLAYEY SAND with GRAVEL (26-29 feet) Dry, dense, no odor. Predominately medium to coarse sand with ~20% gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl. Roots present.				
30	4505	SM	SILTY SAND with GRAVEL (29-32.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~20% fine to medium gravel to 30 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (32.5-43.5 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand, and ~5% gravel to 15 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
35	4500						
40	4495						
45	4490	SM	SILTY SAND with GRAVEL (43.5-48 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~30% fine to coarse gravel to 40 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines are non-plastic and do not react to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
50	4485	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (48-49.5 feet) Dry, dense, no odor. Predominately coarse to medium sand with ~15% gravel and ~10% silt and clay. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines are non-plastic and do not react to HCl.				
		SM	SILTY SAND with GRAVEL (49.5-53 feet) Moist, very dense, no odor. Predominately medium to fine sand with ~30% coarse sand, ~20% fine gravel to 20 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and do not react to HCl.				
		SM	SILTY SAND with GRAVEL (53-54.5 feet) Same as above but dry.				
55	4480	CL	SANDY LEAN CLAY (54.5-55.5 feet) Moist, medium stiff, no odor. Predominately silt and clay with ~35% fine to medium sand and trace gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (55.5-60.5 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace gravel to 10 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
60	4475	CL	SANDY LEAN CLAY (60.5-63.5 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% gravel to 10 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and react strongly to HCl.				
		CL	SANDY LEAN CLAY (63.5-78 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace gravel to 10 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
65	4470						
70	4465						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4460						
80	4455	SM	SILTY SAND with GRAVEL (78-79 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 15 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and do not react to HCl.				
		CL	SANDY LEAN CLAY (79-97.5 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~10% fine to coarse gravel to 25 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
85	4450						
90	4445						
95	4440						
		SM	SILTY SAND with GRAVEL (97.5-99 feet) Dry, very dense, no odor.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4435	CL	<p>Predominately medium to fine sand with ~20% coarse sand, ~20% fine to coarse gravel to 25 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and have a weak reaction to HCl.</p> <p>SANDY LEAN CLAY (99-108.5 feet) Dry, hard, no odor.</p> <p>Predominately silt and clay with ~40% fine to medium sand and ~10% fine gravel to 20 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.</p>				
105	4430						
110	4425	SC	<p>CLAYEY SAND with GRAVEL (108.5-109.5 feet) Dry, very dense, no odor.</p> <p>Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 20 mm, and ~20% silt and clay. The gravel is angular, the sand is angular to subangular. The fines have medium plasticity and toughness, and have a weak reaction to HCl.</p>				
115	4420	CL	<p>SANDY LEAN CLAY (109.5-112.5 feet) Dry, hard, no odor.</p> <p>Predominately silt and clay with ~40% fine to medium sand, and ~10% fine gravel to 20 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.</p>				
		SW-SM	<p>WELL-GRADED SAND with SILT and GRAVEL (112.5-115 feet) Dry, very dense, no odor.</p>				
120	4415	CL	<p>Predominately coarse to medium sand with ~20% fine to coarse gravel to 40 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines do not react to HCl.</p> <p>SANDY LEAN CLAY (115-126 feet) Dry, hard, no odor.</p> <p>Predominately silt and clay with ~40% fine to medium sand and ~10% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.</p>				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125	4410						
		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (126-129 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines do not react to HCl.				
		SM	SILTY SAND with GRAVEL (129-133 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% fine to coarse gravel to 25 mm, and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and do not react to HCl.				
130	4405						
		CL	SANDY LEAN CLAY (133-133.5 feet) Moist, hard, no odor.				
		SC	Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 8 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak reaction to HCl.				
135	4400						
			CLAYEY SAND (133.5-139 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
			NO RECOVERY				
140	4395						
145	4390						
150	4385						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
155	4380	SC	CLAYEY SAND (152-156 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~5% fine gravel to 10 mm, and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
		SC	CLAYEY SAND with GRAVEL (156-158 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~25% gravel and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
160	4375	CL	SANDY LEAN CLAY (158-162 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand, and trace fine gravel to 10 mm. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (162-164 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 23 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
165	4370	CL	SANDY LEAN CLAY (164-165 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~50% fine to medium sand to 3 mm. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and do not react to HCl.				
		SM	SANDY LEAN CLAY (165-167 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and ~5% gravel to 23 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
170	4365	CL	SILTY SAND (167-170 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 12 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are non-plastic and do not react to HCl.				
		CL	SANDY LEAN CLAY (170-172 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand, and ~5% gravel to 23 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
175	4360	CL	SANDY LEAN CLAY (172-175 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and trace gravel to 8 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW1

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
180	4355		NO RECOVERY				
185	4350						
190	4345						
195	4340	CL	SANDY LEAN CLAY with GRAVEL (191-201 feet) Dry, hard, no odor. Predominately silt and clay with ~25% fine to medium sand and ~20% fine to coarse gravel to 40 mm. The sand and gravel is subangular to subrounded. The fines have medium plasticity and medium to hard toughness, are mottled brownish yellow (10YR 6/6), and do not react to HCl.				
200	4335		NO RECOVERY				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW1

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 9 of 9

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
205	4330						
210	4325						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

 Boring Number: PA-GW4

 Soil Boring

 Monitoring Well

 Project Number: 126259.001

 Sheet 1 of 3

Boring Location: Process Area		Elevation: 4462.9 feet amsl	East: 324857.019
Drilling Contractor: WDC		Driller: J. Love	North: 1545812.055
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Date Started: 11/2/04	Date Finished: 11/4/04
Sampling Method: Core Barrel		Borehole Diameter: 6"	Total Depth: (feet) 128.0
Drilling Method: Sonic		Water Depth: (feet) 125'	
Well Seal: Bentonite and Cement		Well Diameter and Material: NA	
Logged By: P. Bassett		Screened Interval and Well Depth: NA	
		Slot Size: NA	Filter Material: NA
		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4460		GP	POORLY GRADED GRAVEL with SAND (0-5 feet)				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 128 feet
5	4455	SP	POORLY GRADED SAND with GRAVEL (5-15 feet)				
10	4450						
15	4445	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (15-20 feet)				
20	4440	SP	POORLY GRADED SAND with GRAVEL (20-39 feet)				
25	4435						
30	4430						
35	4425						
		SP	POORLY GRADED SAND with GRAVEL (39-44 feet)				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW4

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 2 of 3

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4420							
45		ML	<u>SILT with SAND</u> (44-45 feet)				
		SM	<u>SILTY SAND with GRAVEL</u> (45-49 feet)				
4415							
50		SP	<u>POORLY GRADED SAND with GRAVEL</u> (49-59 feet)				
4410							
55							
4405							
60		SM	<u>SILTY SAND with GRAVEL</u> (59-64 feet)				
4400							
65		SP	<u>POORLY GRADED SAND</u> (64-78 feet)				
4395							
70							
4390							
75							
4385							
80		GW	<u>WELL-GRADED GRAVEL with SAND</u> (78-79 feet)				
		SP	<u>POORLY GRADED SAND</u> (79-100 feet)				
4380							
85							
4375							
90							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW4

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 3 of 3

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
95	4370						
	4365						
100			NO RECOVERY				
	4360						
	4355						
110		SW	<u>WELL-GRADED SAND with GRAVEL</u> (110-115 feet)				
	4350						
115		SP	<u>POORLY GRADED SAND</u> (115-123 feet)				
	4345						
120							
	4340	SW	<u>WELL-GRADED SAND with GRAVEL</u> (123-128 feet)				
125							
	4335						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring Monitoring Well

Project Number: 126259.001

Sheet 1 of 6

Boring Location: Process Area		Elevation: 4481.8 feet amsl	East: 324499.761
Drilling Contractor: WDC		Driller: J. Love	North: 1545977.929
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Date Started: 11/20/04	Date Finished: 11/21/04
Sampling Method: Core Barrel		Borehole Diameter: 6"	Total Depth: (feet) 143.0
Drilling Method: Sonic		Water Depth: (feet) 133'	
Well Seal: Bentonite and Cement		Well Diameter and Material: NA	
Logged By: C. Gardner		Screened Interval and Well Depth: NA	
		Slot Size: NA	Filter Material: NA
		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4480		SM	SILTY SAND with GRAVEL (0-12 feet) Predominately medium to fine sand with ~15% coarse sand, ~15% fine gravel to 20 mm, and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 143 feet
4475							
4470		SC	CLAYEY SAND (12-29 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 10 mm, and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness.				
4465							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 2 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4460							
25							
4455							
30		CL	SANDY LEAN CLAY (29-32 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and are dark grayish brown (2.5Y 4/2).				
4450		SW-SM	WELL-GRADED SAND with SILT (32-36 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine to coarse gravel to 25 mm, and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic.				
35							
4445		CL	SANDY LEAN CLAY (36-46 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine to coarse gravel to 25 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
40							
4440							
45							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4435		SM	SILTY SAND with GRAVEL (46-52 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% fine to coarse gravel to 25 mm, and ~15% silt and clay. The gravel is subangular, the is subangular to subrounded. The fines are nonplastic.				
4430		SC	CLAYEY SAND (52-55 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 15 mm, and ~25% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness.				
55		SC	CLAYEY SAND (55-59 feet) Predominately medium to fine sand with trace coarse sand to 3 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness.				
4425		CL	SANDY LEAN CLAY (59-64 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 8 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
60		SC	CLAYEY SAND (64-74 feet) Predominately medium to fine sand with trace fine gravel to 7 mm and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness.				
4420							
65							
4415							
70							
4410							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4405	SM	SILTY SAND (74-80.5 feet) Predominately medium to fine sand with trace fine to coarse gravel to 30 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic.				
80	4400	CL	SANDY LEAN CLAY (80.5-87 feet) Predominately silt and clay with ~40% fine to medium sand and ~10% fine to coarse gravel to 30 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and are brown (7.5YR 4/4).				
85	4395	SM	SILTY SAND (87-88 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 15 mm, and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic.				
90	4390	CL	SANDY LEAN CLAY (88-90.5 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 12 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and are yellowish brown (10YR 5/4).				
		CL	SANDY LEAN CLAY (90.5-92 feet) Predominately silt and clay with ~40% fine to medium sand and ~10% fine to coarse gravel to 50 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 5/3).				
		SC	CLAYEY SAND (92-94 feet) Predominately medium to fine sand with ~5% fine gravel to 20 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness.				
95	4385	CL	SANDY LEAN CLAY (94-101 feet) Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 10 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/4), and have a weak reaction to HCl.				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100							
	4380	CL	SANDY LEAN CLAY (101-115 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 5/4).				
	4375						
	4370						
110							
	4365		NO RECOVERY				
	4360						
120							
		CL	SANDY LEAN CLAY (124-126 feet)				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW5

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125	4355	CL	<p>Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 5/4).</p> <p>SANDY LEAN CLAY with GRAVEL (126-133.5 feet)</p> <p>Predominately silt and clay with ~30% fine to medium sand and ~15% fine to coarse gravel to 30 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and are dark yellowish brown (10YR 4/4).</p>				
130	4350			▽			
135	4345	SC	<p>CLAYEY SAND with GRAVEL (133.5-137 feet)</p> <p>Predominately medium to fine sand with ~20% fine to coarse gravel to 50 mm and ~20% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness.</p>				
140	4340	SC	<p>CLAYEY SAND with GRAVEL (137-143 feet)</p> <p>Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~40% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness.</p>				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 1 of 6

Boring Location: Process Area		Elevation: 4468.2 feet amsl	East: 325018.762
		North: 1545955.12	
Drilling Contractor: WDC	Driller: J. Love	Date Started: 1/4/05	Date Finished: 1/5/05
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 139.0	Water Depth: (feet) 124'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: NA	
Drilling Method: Sonic		Screened Interval and Well Depth: NA	
Well Seal: Bentonite and Cement		Slot Size: NA	Filter Material: NA
Logged By: C. Gardner		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4465		SM	SILTY SAND with GRAVEL (0-10 feet) Dry, dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~30% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5							
4460		CL	SANDY LEAN CLAY (10-14 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 139 feet
10							
4455		SM	SILTY SAND (14 to 18.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
15							
4450		SM	SILTY SAND (18.5-23 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~20% silt and clay. The sand and gravel are				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
			subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
4445		SC	CLAYEY SAND (23-27.5 feet) Dry, very dense, no odor. Laminated to thinly bedded. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
4440		SM	SILTY SAND (27.5-31 feet) Dry, dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 40 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
4435		SC	CLAYEY SAND (31-39 feet) Dry, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 20 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
4430							
4425		GW-GM	WELL-GRADED GRAVEL with SILT (39-44.5 feet) Dry, dense, no odor. Predominately fine to coarse gravel to 30 mm with ~40% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
45		SC	CLAYEY SAND (44.5-45 feet)				
		SM	Dry, very dense, no odor. Predominately medium to fine sand with trace fine gravel to 12 mm and ~40% silt and clay. The gravel is subangular, the sand is				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4420		SW	<p>subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.</p> <p>SILTY SAND with GRAVEL (45-47.5 feet) Predominately medium to fine sand with ~20% fine gravel to 20 mm and ~30% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.</p> <p>WELL-GRADED SAND with GRAVEL (47.5-53 feet) Predominately medium to fine sand with ~20% fine gravel to 20 mm and ~5% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.</p>				
4415		CL	<p>SANDY LEAN CLAY (53-60 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.</p>				
4410		CL	<p>SANDY LEAN CLAY (60-65 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.</p>				
4405		CL	<p>SANDY LEAN CLAY (65-66.5 feet) Dry, stiff, no odor. Predominately silt and clay with ~35% fine to medium sand and trace coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.</p>				
4400		SP-SM	<p>POORLY GRADED SAND with SILT (66.5-68 feet) Dry, stiff, no odor.</p>				
		SM	<p>Predominately medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.</p>				
70		SM	<p>SILTY SAND (68-70.5 feet) Laminated to thinly bedded. Predominately medium to fine sand with ~10% fine to coarse gravel to 50 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.</p>				
		SM	<p>SILTY SAND (70.5-76 feet)</p>				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4395		Dry, dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY with GRAVEL (76-78 feet) Predominately silt and clay with ~30% medium to coarse sand and ~20% fine to coarse gravel to 40 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and have a weak reaction to HCl.				
80	4390	SC	CLAYEY SAND (78-89 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~10% fine to coarse gravel to 25 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
	4385						
	4380						
90		SC	CLAYEY SAND (89-89.5 feet) Dry, very dense, no odor.				
		SM	Predominately medium to fine sand with trace coarse sand to 5 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
			SILTY SAND (89.5-92 feet) Dry, very dense, no odor.				
		SM	Predominately medium to fine sand with ~5% fine gravel to 12 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4375		SILTY SAND with GRAVEL (92-96 feet) Dry, dense, no odor.				
95			Predominately coarse to medium sand with ~20% fine gravel to 15 mm and ~15% silt and clay. The gravel and sand are subangular. The fines are nonplastic and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (96-107 feet) Dry, hard, no odor. Predominately silt and clay with ~50% fine to medium sand and trace fine to coarse gravel to 25 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and				
	4370						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4365		have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (107-108 feet) Dry, hard, no odor.				
	4360	CL	Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel sand to 15 mm. The gravel is angular to subrounded, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are strong brown (7.5YR 5/6), and have a strong reaction to HCl.				
		SP-SM	SANDY LEAN CLAY (108-110 feet) Dry, hard, no odor.				
		SP-SM	Predominately silt and clay with ~50% fine to medium sand and trace fine to coarse gravel to 25 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
	4355		POORLY GRADED SAND with SILT (110-116 feet) Dry, dense, no odor.				
			Predominately medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		SM	SILTY SAND with GRAVEL (116-118 feet) Dry, dense, no odor.				
			Predominately coarse to medium sand with ~20% fine to coarse gravel to 25 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and have a weak reaction to HCl.				
	4350	SM	SILTY SAND (118-120 feet) Dry to moist, medium dense, no odor.				
			Predominately medium to fine sand with ~5% fine to gravel to 15 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
120		SC	CLAYEY SAND (120-126.5 feet) Predominately medium to fine sand with trace fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak reaction to HCl.				
	4345						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW6

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125							
	4340	SW-SM	<p>WELL-GRADED SAND with SILT (126.5-136 feet) Moist to saturated, medium dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.</p>				
	4335						
	135	SM	<p>SILTY SAND (136-139 feet) Moist to saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.</p>				
	4330						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW7

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 1 of 3

Boring Location: Process Area		Elevation: 4471.4 feet amsl	East: 324736.608
Drilling Contractor: WDC		Driller: J. Love	North: 1546192.997
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Date Started: 10/22/04	Date Finished: 10/29/04
Sampling Method: Core Barrel		Borehole Diameter: 6"	Total Depth: (feet) 127.0
Drilling Method: Sonic		Water Depth: (feet) 123'	
Well Seal: Bentonite and Cement		Well Diameter and Material: NA	
Logged By: P. Bassett		Screened Interval and Well Depth: NA	
		Slot Size: NA	Filter Material: NA
		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4470		GM	SILTY GRAVEL with SAND (0-2 feet)				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 127 feet
		SW	WELL-GRADED SAND with GRAVEL (2-5 feet)				
5		ML	SANDY SILT (5-8 feet)				
	4465	CL	SANDY LEAN CLAY (8-10 feet)				
10		SW	WELL-GRADED SAND with GRAVEL (10-15 feet)				
	4460						
15		SW-SM	WELL-GRADED SAND with SILT (15-18 feet)				
	4455						
20		SW	WELL-GRADED SAND with GRAVEL (18-22 feet)				
	4450						
25		SM	SILTY SAND (22-23 feet)				
	4445	SW	WELL-GRADED SAND with GRAVEL (23-27 feet)				
30		SM	SILTY SAND (27-29 feet)				
	4440	SP	POORLY GRADED SAND with GRAVEL (29-39 feet)				
35							
	4435						
		ML	SILT with SAND (39-43 feet)				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW7

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4430							
45	4425	SW	WELL-GRADED SAND (43-68 feet)				
50	4420						
55	4415						
60	4410						
65	4405						
70	4400	NA	NO RECOVERY				
75	4395	SW	WELL-GRADED SAND (73-100 feet)				
80	4390						
85	4385						
90	4380						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW7

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
95	4375						
100	4370	ML	<u>SILT with SAND</u> (100-101 feet)				
		SW	<u>WELL-GRADED SAND with GRAVEL</u> (101-110 feet)				
105	4365						
110	4360	ML	<u>SILT with SAND</u> (110-112 feet)				
		SW	<u>WELL-GRADED SAND</u> (112-127 feet)				
115	4355						
120	4350						
125	4345						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 1 of 6

Boring Location: Process Area		Elevation: 4469.1 feet amsl	East: 324570.785
Drilling Contractor: WDC		Driller: J. Love	North: 1546339.749
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Date Started: 11/1/04	Date Finished: 11/2/04
Sampling Method: Core Barrel		Borehole Diameter: 6"	Total Depth: (feet) 134.0
Drilling Method: Sonic		Water Depth: (feet) 127'	
Well Seal: Bentonite and Cement		Well Diameter and Material: NA	
Logged By: C. Gardner		Screened Interval and Well Depth: NA	
		Slot Size: NA	Filter Material: NA
		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4465		SC	CLAYEY SAND (0-0.5 feet)				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
5		SM	Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl. SILTY SAND with GRAVEL (0.5-15 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% fine gravel to 15 mm, and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
4460							ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 134 feet
10							
4455							
15		CL	SANDY LEAN CLAY (15-16 feet) Predominately silt and clay with ~35% fine to medium sand and trace coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (16-17 feet) Predominately coarse to medium sand with ~30% fine to coarse gravel to 60 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular. The fines are nonplastic.				
4450		SM	SILTY SAND with GRAVEL (17-25 feet) Predominately coarse to medium sand with ~15% fine to coarse gravel to 40 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/7/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
			have a strong reaction to HCl.				
25	4445	SM	SILTY SAND (25-27.5 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 15 mm, and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4440	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (27.5-28.5 feet) Predominately coarse to medium sand with ~40% fine to coarse gravel to 30 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and have a strong reaction to HCl.				
30		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (28.5-30 feet) Predominately medium to fine sand with ~5% fine gravel to 8 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
	4435	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (30-34 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
35		SC	CLAYEY SAND with GRAVEL (34.5-36.5 feet) Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
	4430	CL	SANDY LEAN CLAY (36.5-40 feet) Predominately silt and clay with ~35% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
40		CL	SANDY LEAN CLAY (40-43.5 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
	4425	SC	CLAYEY SAND (43.5-50 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
45							

SONIC METHOD NO. SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/7/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
50	4420	GP	POORLY GRADED GRAVEL (50-51 feet) Predominately fine to coarse gravel to 30mm with ~10% coarse sand and ~5% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and have a strong reaction to HCl.				
55	4415	CL	SANDY LEAN CLAY (51-56 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
60	4410	SC	CLAYEY SAND (56-60.5 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 25 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
65	4405	CL	SANDY LEAN CLAY (60.5-64 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
65	4405	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (64-68.5 feet) Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
70	4400	SM	SILTY SAND (68.5-74 feet) Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines have low plasticity and toughness and have a strong reaction to HCl.				

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Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4395	SC	CLAYEY SAND (74-78.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
80	4390	CL	SANDY LEAN CLAY (78.5-84.5 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
85	4385	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (84.5-87 feet) Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
90	4380	SM	SILTY SAND (87-90 feet) Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
95	4375	SM	SILTY SAND (90-95 feet) Predominately medium to fine sand with trace fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.				
		SW-SM	WELL-GRADED SAND with SILT (95-97 feet) Predominately medium to fine sand with ~10% fine to coarse gravel to 40 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		CL	SANDY LEAN CLAY (97-100 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/7/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4370		toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
		CL	SANDY LEAN CLAY (100-112.5 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
	4365						
105							
	4360						
110							
	4355	SC	CLAYEY SAND (112.5-118 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
115							
	4350	CL	SANDY LEAN CLAY (118-119 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are mottled (ranging from yellowish brown (10YR 5/4) to strong brown (7.5YR 5/6)), and have a strong reaction to HCl.				
120		CL	SANDY LEAN CLAY (119-125 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak reaction to HCl.				
	4345						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/7/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW8

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125		CL	SANDY LEAN CLAY (125-125.5 feet)				
		SC	Predominately silt and clay with ~40% fine to medium sand and ~5% fine to coarse gravel to 30 mm. The fines are strong brown (7.5YR 5/6).				
			CLAYEY SAND (125.5-134 feet)				
			Predominately medium to fine sand with ~10% fine gravel to 15mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
	4340						
130							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/7/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW9

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 1 of 6

Boring Location: Process Area		Elevation: 4470.5 feet amsl	East: 325146.701 North: 1546119.14
Drilling Contractor: WDC	Driller: J. Love	Date Started: 1/5/05	Date Finished: 1/6/05
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 139.0	Water Depth: (feet) 124'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: NA	
Drilling Method: Sonic		Screened Interval and Well Depth: NA	
Well Seal: Bentonite and Cement		Slot Size: NA	Filter Material: NA
Logged By: C. Gardner		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4470		SC	CLAYEY SAND with GRAVEL (0-1 feet) Moist, dense, no odor. Predominately medium to fine sand with ~25% fine gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SM	SILTY SAND (1-8 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
5	4465		NO RECOVERY				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 139 feet
10	4460						
15	4455	SM	SILTY SAND with GRAVEL (18-21 feet) Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 20 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW9

Soil Boring

Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
	4450						
		CL	SANDY LEAN CLAY (21-24.5 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
25	4445	SM	SILTY SAND (24.5-41.5 feet) Dry, no odor. Laminated to thinly bedded. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~20% silt and clay. The gravel and sand are subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.				
	4440						
	4435						
	4430						
		SM	SILTY SAND with GRAVEL (41.5-42.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 20 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (42.5-47.5 feet) No odor. Predominately silt and clay with ~45% medium to fine sand with trace fine gravel to 15 mm. The gravel is subangular, the sand is angular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
45	4425						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW9

Soil Boring Monitoring Well

Project Number: 126259.001

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
50	4420	CL	SANDY LEAN CLAY (47.5-50 feet) Dry, very dense, no odor. Predominately silt and clay with ~40% medium to fine sand with ~5% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and have a strong reaction to HCl.				
		SW-SM	WELL-GRADED SAND with SILT (50-53.5 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 15 mm, and ~10% silt and clay. The sand and gravel are subangular. The fines are nonplastic and have a strong reaction to HCl.				
55	4415	SC	CLAYEY SAND (53.5-58 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~30% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
60	4410	CL	SANDY LEAN CLAY (58-68 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% gravel to 15mm. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and have a strong reaction to HCl.				
65	4405						
70	4400	SM	SILTY SAND (68-72 feet) Predominately medium to fine sand with trace fine gravel to 8 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW9

Soil Boring

Monitoring Well

Project Number: 126259.001

Sheet 4 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4395	SM	SILTY SAND (72-74 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		SC	CLAYEY SAND (74-80 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~30% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
80	4390	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (80-87 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 35 mm and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
85	4385						
90	4380	CL	SANDY LEAN CLAY (87-94 feet) Predominately silt and clay with ~25% fine to medium sand, ~15% coarse sand, and ~5% fine to coarse gravel to 35mm. The gravel is angular to subangular, the sand is subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
95	4375	SM	SILTY SAND (94-95.5 feet) Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
		SC	CLAYEY SAND (95.5-102 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4370						
		SC	CLAYEY SAND (102-104 feet) Predominately medium to fine sand with trace fine gravel to 8 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
105	4365		NO RECOVERY				
110	4360	SC	CLAYEY SAND (109-111 feet) Predominately medium to fine sand with trace fine gravel to 8 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
		SM	SILTY SAND (111-113.5 feet) Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
115	4355	SC	CLAYEY SAND (113.5-116.5 feet) Predominately medium to fine sand with trace fine gravel to 8 mm and ~45% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
		SM	SILTY SAND (116.5-125.5 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The gravel and sand are subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.				
120	4350						

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

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Boring Number: PA-GW9

Soil Boring

Monitoring Well

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125	4345	CL	SANDY LEAN CLAY (125.5-128 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 20mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
130	4340	CL	SANDY LEAN CLAY (128-139 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
135	4335						

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Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW10

Soil Boring

Monitoring Well

Project Number: 126259.001

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Boring Location: Process Area		Elevation: 4471.6 feet amsl	East: 324939.427 North: 1546246.487
Drilling Contractor: WDC	Driller: J. Love	Date Started: 11/5/04	Date Finished: 11/8/04
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 135.0	Water Depth: (feet) 120'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: NA	
Drilling Method: Sonic		Screened Interval and Well Depth: NA	
Well Seal: Bentonite and Cement		Slot Size: NA	Filter Material: NA
Logged By: C. Gardner		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4470		SM	SILTY SAND (0-13 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5							
4465							
10							ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 135 feet
4460							
			NO RECOVERY				
15							
4455							

SONIC METHOD NO SAMPLE YERINGTON.GPJ BRN&CALD.GDT 4/6/05

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Soil Boring

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
25	4450	SM	SILTY SAND (20-26 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4445	CL	SANDY LEAN CLAY (26-29 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 15 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
30		SM	SILTY SAND (29-30 feet) Predominately medium to fine sand with ~5% fine gravel to 12 mm and ~45% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
	4440	CL	SANDY LEAN CLAY (30-35 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
35		SW	WELL-GRADED SAND with GRAVEL (35-37 feet) Predominately medium to fine sand with ~20% fine gravel to 15 mm and ~5% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
	4435	CL	SANDY LEAN CLAY (37-45 feet) Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
40							
	4430						
45		SM	SILTY SAND (45-48 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~15% silt and clay. The gravel is subangular, the sand is				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
	4425		subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4420	CL	SANDY LEAN CLAY (48-58 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 12 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
	4415						
	4410	CL	SANDY LEAN CLAY (58-62 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 12 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light yellowish brown (10YR 6/4), and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (62-64.5 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
	4405	SP-SM	POORLY GRADED SAND with SILT (64.5-67 feet) Predominately medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (67-68 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
		SM	SILTY SAND (68-74 feet) Predominately medium to fine sand with ~5% fine gravel to 20 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4400						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75		CL	SANDY LEAN CLAY (74-76 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 30 mm. The gravel is subangular, the sand is subangular to subrounded. The fines are brown (10YR 5/3) and have a strong reaction to HCl.				
	4395	CL	SANDY LEAN CLAY (76-80 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
80		SW	WELL-GRADED SAND with GRAVEL (80-86 feet) Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~5% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
	4390						
85		SC	CLAYEY SAND (86-92 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
	4385						
90		SC	CLAYEY SAND (92-98 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl.				
	4380						
95		CL	SANDY LEAN CLAY (98-105 feet)				
	4375						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4370		Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
105	4365	CL	SANDY LEAN CLAY (105-107 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
		CL	SANDY LEAN CLAY (107-108 feet) Predominately silt and clay with ~30% fine to medium sand and ~15% fine to coarse gravel to 25 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
110	4360	SP-SM	POORLY GRADED SAND with SILT (108-112 feet) Predominately medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
			NO RECOVERY				
115	4355						
120	4350	CL	SANDY LEAN CLAY (122-128 feet) Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125	4345						
		CL	SANDY LEAN CLAY (128-130 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% coarse sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
130	4340	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (130-133 feet) Predominately coarse to medium sand with ~40% fine to coarse gravel to 40 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and have a weak reaction to HCl.				
		SP-SM	POORLY GRADED SAND with SILT (133-135 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
135							

Project Name: Yerington Groundwater Investigation

Boring Number: PA-GW11

Soil Boring Monitoring Well

Project Number: 126259.001

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Boring Location: Process Area		Elevation: 4463.0 feet amsl	East: 324666.049 North: 1546586.005
Drilling Contractor: WDC	Driller: J. Love	Date Started: 11/8/04	Date Finished: 11/10/04
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 135.0	Water Depth: (feet) 115'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: NA	
Drilling Method: Sonic		Screened Interval and Well Depth: NA	
Well Seal: Bentonite and Cement		Slot Size: NA	Filter Material: NA
Logged By: C. Gardner		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4460		GM	SILTY GRAVEL with SAND (0-1.5 feet) Predominately fine gravel to 20 mm with ~25% medium to fine sand and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have low to medium plasticity and low toughness and have a weak reaction to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SC	CLAYEY SAND (1.5-3 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
5		SC	CLAYEY SAND (3-6 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
4455		SW-SM	WELL-GRADED SAND with SILT (6-10 feet) Predominately medium to fine sand with ~5% fine gravel to 6 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
10		SC	CLAYEY SAND (10-16 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 30 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
4450							ABANDONMENT DESIGN: Cement Grout: 0 - 10 feet Bentonite Chips: 10 - 135 feet
15		CL	SANDY LEAN CLAY (16-22 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
4445							

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
25	4440	SM	SILTY SAND (22-29 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 15 mm, and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
30	4435	CL	SANDY LEAN CLAY (29-37 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
35	4430	CL	SANDY LEAN CLAY (37-39.5 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl.				
40	4425	CL	SANDY LEAN CLAY (39.5-46 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 4/3), and have a weak reaction to HCl.				
45	4420	CL					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4415		CL	SANDY LEAN CLAY (46-49 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are strong brown (10YR 5/6), and have a strong reaction to HCl.				
50		CL	SANDY LEAN CLAY (49-52.5 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 20 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
4410		SC	CLAYEY SAND (52.5-54 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4) and have a strong reaction to HCl. NO RECOVERY				
55							
4405							
60		CL	SANDY LEAN CLAY (60-62 feet) Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
4400		SC	CLAYEY SAND (62-64 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4) and have a strong reaction to HCl.				
65		SC	CLAYEY SAND (64-72.5 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4) and have a strong reaction to HCl.				
4395							
70							

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4390	CL	SANDY LEAN CLAY (72.5-79 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2) and have a strong reaction to HCl.				
	4385						
80		SC	CLAYEY SAND (79-81 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
	4380	SC	CLAYEY SAND (81-88.5 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
85							
	4375						
90		SW-SM	WELL-GRADED SAND with SILT (88.5-91.5 feet) Predominately medium to fine sand with ~10% fine gravel 15 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
	4370	SC	CLAYEY SAND (91.5-94 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4) and have a strong reaction to HCl.				
95		SM	SILTY SAND with GRAVEL (94-95 feet) Predominately medium to fine sand with ~15% coarse sand, ~25% fine to coarse gravel 40 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4365	CL	SANDY LEAN CLAY (95-98 feet) Predominately silt and clay with ~30% fine to medium sand and ~20% fine gravel to 15 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4) and have a weak reaction to HCl.				
		SC					

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4360	CL	CLAYEY SAND (98-99 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4) and have a strong reaction to HCl.				
		CL	SANDY LEAN CLAY (99-100.5 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3,) and have a weak reaction to HCl.				
		SP-SM	SANDY LEAN CLAY (100.5-103 feet) Predominately silt and clay with ~30% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
105		SC	POORLY GRADED SAND with SILT (103-104.5 feet) Predominately medium to fine sand with trace fine gravel 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		SP-SM	POORLY GRADED SAND with SILT (103-104.5 feet) Predominately medium to fine sand with trace fine gravel 10 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
	4355	CL	CLAYEY SAND (104.5-105 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl.				
		SW-SM	POORLY GRADED SAND with SILT (105-107 feet) Predominately medium to fine sand with trace fine gravel 8 mm and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
110		SW-SM	SANDY LEAN CLAY (107-110 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.				
	4350		WELL-GRADED SAND with SILT (110-120 feet) Predominately medium to fine sand with ~5% fine gravel 10 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
115							
	4345						
120		SC	CLAYEY SAND with GRAVEL (120-123.5 feet) Predominately medium to fine sand with ~15% fine gravel 10 mm and ~25% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
	4340						
		CL	SANDY LEAN CLAY (123.5-127 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 10 mm. The gravel is subangular, the sand is				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125			subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 4/4), and have a weak reaction to HCl.				
	4335	CL	SANDY LEAN CLAY (127-130 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine to coarse gravel to 25 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
130		CL	SANDY LEAN CLAY with GRAVEL (130-132 feet) Predominately silt and clay with ~25% fine to medium sand and ~25% fine to coarse gravel to 40 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 4/4), and have a weak reaction to HCl.				
	4330	CL	SANDY LEAN CLAY (132-134 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and have a weak reaction to HCl.				
		SC	CLAYEY SAND (134-139 feet) Predominately medium to fine sand with ~5% fine gravel 10 mm and ~40% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak reaction to HCl.				
135							

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Boring Number: PA-GW12

Soil Boring

Monitoring Well

Project Number: 126259.001

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Boring Location: Process Area		Elevation: 4441.2 feet amsl	East: 325029.16 North: 1546795.145
Drilling Contractor: WDC	Driller: J. Love	Date Started: 12/17/04	Date Finished: 12/18/04
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Total Depth: (feet) 99.0	Water Depth: (feet) 98.5'
Sampling Method: Core Barrel	Borehole Diameter: 6"	Well Diameter and Material: NA	
Drilling Method: Sonic		Screened Interval and Well Depth: NA	
Well Seal: Bentonite and Cement		Slot Size: NA	Filter Material: NA
Logged By: C. Gardner		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4440		SM	SILTY SAND (0-1 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 30 mm and ~20% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		CL	SANDY LEAN CLAY (1-22.5 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel and sand are subangular to subrounded. The fines have low plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.				
5							
4435							
10							
4430							
15							
4425							

ABANDONMENT DESIGN:
Cement Grout: 0 -10 feet
Bentonite Chips: 10 - 99 feet

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
25	4420	CL	SANDY LEAN CLAY (22.5-25 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
	4415	SM	SILTY SAND (25-28 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
		SW-SM	WELL-GRADED SAND with SILT (28-29 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and do not react to HCl.				
30	4410	CL	SANDY LEAN CLAY (29-37 feet) Predominately silt and clay with ~30% fine to medium sand and ~10% fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.				
	4405	CL	SANDY LEAN CLAY (37-40 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 12 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.				
	4400	CL	SANDY LEAN CLAY (40-42 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 15 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (42-44 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 12 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/6), and do not react to HCl.				
45		CL	SANDY LEAN CLAY (44-49 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and do not				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
			react to HCl.				
50	4390		NO RECOVERY				
55	4385						
60	4380	CL	SANDY LEAN CLAY (59-69 feet) Predominately silt and clay with ~35% fine to medium sand and trace fine gravel to 12 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
65	4375						
70	4370	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (69-72 feet) Predominately medium to fine sand with ~15% fine gravel to 20 mm, ~20% coarse sand, and ~10% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4365	CL	SANDY LEAN CLAY (72-80.5 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine to coarse gravel to 30 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.				
80	4360	CL	SANDY LEAN CLAY (80.5-86.5 feet) Predominately silt and clay with ~50% fine to medium sand and trace fine gravel to 15 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
85	4355	SC	CLAYEY SAND (86.5-92 feet) Predominately medium to fine sand with ~5% fine gravel to 20 mm and ~45% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
90	4350	SW-SM	WELL-GRADED SAND with SILT and GRAVEL (92-94 feet) Predominately medium to fine sand with ~20% fine to coarse gravel to 25 mm and ~10% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and do not react to HCl.				
95	4345	CL	SANDY LEAN CLAY (94-95 feet) Predominately silt and clay with ~40% fine to medium sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.				
		SC	CLAYEY SAND (95-99 feet) Predominately medium to fine sand with trace fine gravel to 8 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
	4340						

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Boring Location: Process Area		Elevation: 4496.3 feet amsl	East: 324119.532
Drilling Contractor: WDC		Driller: J. Love	North: 1546113.375
Drilling Equipment: GEFCO 15L with Sonicor 50K Drill Head		Date Started: 1/7/05	Date Finished: 1/8/05
Sampling Method: Core Barrel		Borehole Diameter: 6"	Total Depth: (feet) 167.0
Drilling Method: Sonic		Water Depth: (feet) 152'	
Well Seal: Bentonite and Cement		Well Diameter and Material: NA	
Logged By: C. Gardner		Screened Interval and Well Depth: NA	
		Slot Size: NA	Filter Material: NA
		Development Method: NA	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4495		SC	CLAYEY SAND with GRAVEL (0-5 feet) Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 15 mm, and ~40% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 167 feet
5	4490	SC	CLAYEY SAND (5-8 feet) Predominately medium to fine sand with trace fine gravel to 6 mm and ~45% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
10	4485	SW	WELL-GRADED SAND with GRAVEL (8-12 feet) Predominately medium to fine sand with ~15% coarse sand, ~15% fine to coarse gravel to 30 mm, and ~5% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
15	4480	SC	CLAYEY SAND (12-18 feet) Predominately medium to fine sand with trace fine gravel to 6 mm and ~45% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
		CL	SANDY LEAN CLAY (18-32.5 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 15 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
4475							
25	4470						
30	4465						
35		CL	SANDY LEAN CLAY (32.5-36 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% fine to coarse gravel to 50 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
40	4460	SM	SILTY SAND (36-41 feet) Predominately medium to fine sand with ~10% fine to coarse gravel to 25 mm and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and do not react to HCl.				
45	4455	CL	SANDY LEAN CLAY (41-45 feet) Predominately silt and clay with ~40% fine to medium sand and trace coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (10YR 4/2), and have a weak reaction to HCl.				
		SM	SILTY SAND with GRAVEL (45-48 feet) No odor. Predominately coarse to medium sand with ~15% fine gravel to				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
			20 mm and ~20% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and do not react to HCl.				
50	4445	SM	SILTY SAND with GRAVEL (48-53 feet) Dry, medium dense, no odor. Predominately coarse to medium sand with ~15% fine gravel to 20 mm and ~20% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and do not react to HCl.				
55	4440	SM	SILTY SAND with GRAVEL (53-60 feet) Dry, medium dense. Predominately medium to fine sand with ~15% coarse sand, ~15% fine to coarse gravel to 25 mm, and ~15% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
60	4435	CL	SANDY LEAN CLAY (60-65 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
65	4430	CL	SANDY LEAN CLAY (65-75 feet) Predominately silt and clay with ~35% fine to medium sand and trace fine gravel to 8 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak reaction to HCl.				
70	4425						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
75	4420	CL	SANDY LEAN CLAY (75-87 feet) Predominately silt and clay with ~30% fine to medium sand and ~10% fine gravel to 12 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/3), and have a weak reaction to HCl.				
80	4415						
85	4410						
		SC	CLAYEY SAND (87-89 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
90	4405	SM	SILTY SAND with GRAVEL (89-96 feet) Predominately medium to fine sand with ~20% fine gravel to 20 mm and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
95	4400	SC	CLAYEY SAND (96-107 feet) Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
100	4395						
	4390	SC	CLAYEY SAND (107-110 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 25 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
110	4385	CL	SANDY LEAN CLAY (110-115 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
115	4380	SC	CLAYEY SAND (115-117 feet) Dry, very dense. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
		SM	SILTY SAND with GRAVEL (117-125 feet) Dry, very dense. Laminated to thinly bedded. Predominately medium to fine sand with ~15% fine to coarse gravel to 25 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak to strong reaction to HCl.				
120	4375						

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
125	4370	SC	CLAYEY SAND (125-129 feet) Dry, very dense. Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~30% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
130	4365	SM	SILTY SAND with GRAVEL (129-132 feet) Dry, medium dense. Predominately medium to fine sand with ~15% fine gravel to 12 mm and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
135	4360	SC	CLAYEY SAND (132-133 feet) Dry. Predominately medium to fine sand with ~10% fine to coarse gravel to 40 mm and ~20% silt and clay. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
135	4360	SM	SILTY SAND (133-142 feet) Dry, very dense. Predominately medium to fine sand with ~5% fine gravel to 15 mm and ~45% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have a low plasticity and toughness and have a strong reaction to HCl.				
140	4355	SM	SILTY SAND with GRAVEL (142-146 feet) Dry, very dense. Predominately medium to fine sand with ~20% fine to coarse gravel to 25 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
145	4350	SC	CLAYEY SAND (146-147 feet) Dry, very dense. Predominately medium to fine sand to 2mm with ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
150		SP-SM	POORLY GRADED SAND with SILT (147-167 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 25 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log			Remarks
				Water Level	Lithology	Backfill	
155	4345			▽			
	4340						
160	4335						
165	4330						

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