APPENDIX B

BOREHOLE LITHOLOGIC LOGS

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **7**

Boring Location: **Process Area**		Elevation: **4495.0 feet amsl**	East: **323470** North: **1546685**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **2/1/05**	Date Finished: **2/3/05**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **152.0**	Water Depth: (feet) **122'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		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.
		SM	**SILTY SAND** (1-8 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 and sand are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5	4490						
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (8-15 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 subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 152 feet
10	4485						
15	4480		NO RECOVERY				
	4475						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet **2** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
25	4470	SM	**SILTY SAND** (22-28 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 subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
30	4465	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (28-33 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 subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
35	4460	SM	**SILTY SAND** (33-38 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 40 mm and ~25% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
40	4455	CL	**SANDY LEAN CLAY** (38-38.5 feet)				
		SM	Moist, soft, no odor. Predominately silt and clay with ~35% 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 very dark gray (2.5Y 3/1), and have a weak reaction to HCl.				
		SM	**SILTY SAND** (38.5-40 feet) Dry, very dense, no odor, no odor. Predominately medium to fine sand with trace fine gravel to 5 mm and ~45% 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.				
45	4450		**SILTY SAND** (40-53 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 20 mm and ~40% silt and clay. The gravel and sand are subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
50	4445						
		SM	**CLAYEY SAND** (53-56 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 20 mm and ~40% 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.				
55	4440						
		CL	**SANDY LEAN CLAY** (56-77.5 feet) Dry, hard, no odor. Laminated to thinly bedded. Predominately silt and clay with ~40% fine to medium sand and ~5% 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 4/3), reaction to HCl varies from none to strong.				
60	4435						
65	4430						
70	4425						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4420						
		CL	**SANDY LEAN CLAY** (77.5-80 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~10% fine gravel to 15 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are yellowish red (5YR 4/6), and have a strong reaction to HCl.				
80	4415	CL	**SANDY LEAN CLAY** (80-97.5 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~10% 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.				
85	4410						
90	4405						
95	4400						
		CL	**SANDY LEAN CLAY** (97.5-104.5 feet) Dry, hard, no odor.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 5 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
100	4395		Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 20 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.				
105	4390	SW-SM	**WELL-GRADED SAND with SILT** (104.5-108 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% 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 weak reaction to HCl.				
		CL	**GRAVELLY LEAN CLAY with SAND** (108-110 feet) Dry, hard, no odor. Predominately silt and clay with ~20% fine to medium sand and ~30% fine to coarse gravel to 40 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.				
110	4385	SC	**CLAYEY SAND** (110-118 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~35% 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.				
115	4380						
			NO RECOVERY				
120	4375			▽			

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 6 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125	4370						
130	4365						
135	4360						
140	4355	CL	**SANDY LEAN CLAY** (137-145 feet) Dry to 139.5 and moist to 145, hard, no odor. Predominately silt and clay with ~45% 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 5/4), and do not react to HCl.				
145	4350	SC	**CLAYEY SAND** (145-151 feet) Moist to saturated, very dense, no odor. Predominately medium to fine sand with trace fine to coarse gravel to 25 mm and ~35% 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.				
150	4345						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW14**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 7 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		CL	**SANDY LEAN CLAY** (151-152 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 20 mm. The gravel and sand are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a weak reaction to HCl.				
	4340						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **6**

Boring Location: **Process Area**		Elevation: **4470.8 feet amsl**	East: **324127.669** North: **1546454.143**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/18/04**	Date Finished: **11/19/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **138.0**	Water Depth: (feet) **135.5'**
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: Water Level / Lithology / Backfill	Remarks
	4470	SM	**SILTY SAND** (0-4.5 feet) Predominately medium to fine sand with trace 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.		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	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (4.5-12 feet) Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 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 strong reaction to HCl.		
10	4460				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 138 feet
		SM	**CLAYEY SAND** (12-20 feet) Predominately medium to fine sand with ~10% 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 strong reaction to HCl.		
15	4455				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4450	SM	**SILTY SAND with GRAVEL** (20-24 feet) Predominately medium to fine sand with ~15% coarse sand, ~25% 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.				
25	4445	GM	**SILTY GRAVEL with SAND** (24-33.5 feet) Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~15% medium to fine sand, 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.				
30	4440						
		SC	**CLAYEY SAND with GRAVEL** (33.5-41.5 feet) Predominately medium to fine sand with ~15% 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 brown (10YR 4/3), and have a strong reaction to HCl.				
35	4435						
40	4430						
		CL	**SANDY LEAN CLAY** (41.5-43 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 brown (10YR 4/3), and have a strong reaction to HCl.				
		CL	**SANDY LEAN CLAY** (43-48 feet) 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
45	4425						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SC	**CLAYEY SAND with GRAVEL** (48-54 feet) Predominately medium to fine sand with ~15% 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 strong reaction to HCl.				
50	4420						
		CL	**SANDY LEAN CLAY** (54-59.5 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 dark grayish brown (2.5Y 4/2), and have a strong reaction to HCl.				
55	4415						
		SC	**CLAYEY SAND** (59.5-64 feet) Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 10 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.				
60	4410						
		SC	**CLAYEY SAND** (64-72.5 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				
65	4405						
70	4400						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4395	SP-SM	**POORLY GRADED SAND with SILT** (72.5-88.5 feet) 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.				
80	4390						
85	4385						
90	4380	SM	**SILTY SAND with GRAVEL** (88.5-94.5 feet) Predominately medium to fine sand with ~20% 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.				
95	4375	CL	**SANDY LEAN CLAY** (94.5-98 feet) 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 brown (10YR 5/4), and have a strong reaction to HCl.				
		SC	**CLAYEY SAND** (98-103 feet)				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
100	4370		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 strong reaction to HCl.				
105	4365	GC	**CLAYEY GRAVEL with SAND** (103-109.5 feet) Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~15% medium to fine sand, and ~15% 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.				
110	4360	SC	**CLAYEY SAND** (109.5-118 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 20 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.				
115	4355	SP-SM	**POORLY GRADED SAND with SILT** (118-119.5 feet) Predominately medium to fine sand with trace 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 do not react to HCl.				
120	4350	CL	**SANDY LEAN CLAY** (119.5-130.5 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 and have a strong reaction to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW15**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 6 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125	4345						
130	4340	CL	**SANDY LEAN CLAY with GRAVEL** (130.5-132 feet) Predominately silt and clay with ~15% fine to medium sand, ~15% coarse sand, and ~20% fine to coarse 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 5/4), and have a strong reaction to HCl.				
		CL	**SANDY LEAN CLAY** (132-138 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 and are brown (10YR 5/3). From 132-136 the fines have a strong reaction to HCl, from 136-138 the fines do not react to HCl.				
135	4335			▽			

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **6**

Boring Location: **Process Area**		Elevation: **4480.3 feet amsl**	East: **323640.914** North: **1546875.001**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/17/04**	Date Finished: **11/18/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **144.0**	Water Depth: (feet) **135'**
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: Water Level / Lithology / Backfill	Remarks
	4480	SM	**SILTY SAND with GRAVEL** (0-8.5 feet) Dry, dense, no odor. Predominately medium to fine sand with ~35% fine to coarse gravel to 30 mm and ~25% 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 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	4475				
		SC	**CLAYEY SAND with GRAVEL** (8.5-16.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% 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.		ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 144 feet
10	4470				
15	4465				
		SM	**SILTY SAND** (16.5-18 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% 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 have low plasticity and toughness and have a strong reaction to HCl.		
		CL	**SANDY LEAN CLAY** (18-22 feet) Dry, hard, no odor.		

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4460		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 dark grayish brown (10YR 4/2), and have a weak reaction to HCl.				
		SP-SM	**POORLY GRADED SAND with SILT** (22-29 feet) Dry, very dense, no odor. 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 have a strong reaction to HCl.				
25	4455						
		SC	**CLAYEY SAND** (29-34.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~15% 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.				
30	4450						
		SM	**SILTY SAND** (34.5-37.5 feet) Dry, very dense, no odor. 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 have low plasticity and toughness and have a strong reaction to HCl.				
35	4445						
		CL	**SANDY LEAN CLAY** (37.5-52 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 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	4440						
45	4435						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **3** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
50	4430						
		SC	**CLAYEY SAND** (52-59 feet) Dry, very 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 subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and have a strong reaction to HCl.				
55	4425						
		CL	**SANDY LEAN CLAY** (59-62 feet) Dry, hard, no odor. 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.				
60	4420						
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (62-69 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 angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
65	4415						
		CL	**SANDY LEAN CLAY** (69-76.5 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 subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 4/4), and have a strong reaction to HCl.				
70	4410						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4405						
		SM	**SILTY SAND** (76.5-80 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20%coarse sand, trace fine gravel to 8 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.				
80	4400	SM	**SILTY SAND** (80-83 feet) Dry, very dense, no odor. Predominately medium to fine sand with trace fine gravel to 5 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.				
		CL	**SANDY LEAN CLAY** (83-87.5 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 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	4395						
		CL	**SANDY LEAN CLAY** (87.5-92 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
90	4390						
		CL	**SANDY LEAN CLAY** (92-98 feet) Dry, hard, no odor. 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 weak reaction to HCl.				
95	4385						
		SM	**SILTY SAND with GRAVEL** (98-101 feet)				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet **5** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
100	4380		Dry, very dense, no odor. Predominately medium to fine sand with ~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.				
		SM	**SILTY SAND** (101-106 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 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.				
105	4375						
		SM	**SILTY SAND** (106-109.5 feet) Dry, very 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.				
		CL	**SANDY LEAN CLAY** (109.5-110 feet)				
110	4370	SC	Dry, hard, 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
			CLAYEY SAND with GRAVEL (110-114 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% 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 do not react to HCl.				
		CL	**SANDY LEAN CLAY** (114-119 feet) Dry, hard, 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
115	4365						
		CL	SANDY LEAN CLAY**SANDY LEAN CLAY** (119-129 feet) Dry, hard, 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 /3), and have a weak reaction to HCl.				
120	4360						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW16**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **6** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125	4355						
		CL	**SANDY LEAN CLAY** (129-133.5 feet) Dry, hard, no odor. 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 (10YR 4/3), and have a strong reaction to HCl.				
130	4350						
		CL	**SANDY LEAN CLAY** (133.5-139 feet) Dry, hard, no odor. Predominately silt and clay with ~35% 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 (7.5YR 5/4), and have a strong reaction to HCl.	▽			
135	4345						
		SW-SM	**WELL-GRADED SAND with SILT** (139-141.5 feet) Dry, hard, no odor. Predominately medium to fine sand with ~10% fine gravel to 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.				
140	4340						
		CL	**SANDY LEAN CLAY with GRAVEL** (141.5-143 feet) Predominately silt and clay with ~30% medium to coarse sand and ~20% 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 strong reaction to HCl.				
		CL	**SANDY LEAN CLAY** (143-144 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 4/3), and have a strong reaction to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **7**

Boring Location: **Process Area**		Elevation: **4457.6 feet amsl**	East: **324323.859** North: **1546960.448**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/11/04**	Date Finished: **11/12/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **154.0**	Water Depth: (feet) **118'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4455	SM	**SILTY SAND** (0-3 feet) Predominately medium to fine sand with trace fine gravel to 5 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.				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	4450	SM	**SILTY SAND** (3-8.5 feet) Predominately medium to fine sand with trace fine to coarse gravel to 30 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.				Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		SM	**SILTY SAND** (8.5-10 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine to coarse gravel to 30 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.				
10	4445	SM	**SILTY SAND** (10-14 feet) Predominately medium to fine sand with trace fine to coarse gravel to 30 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.				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 154 feet
15	4440	SM	**SILTY SAND** (14-20.5 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine to coarse gravel to 30 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.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		CL	**SANDY LEAN CLAY** (20.5-26.5 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 brown (7.5YR 5/3), and have a weak reaction to HCl.				
	4435						
25							
		CL	**SANDY LEAN CLAY** (26.5-31 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 10 mm. The fines have medium plasticity and toughness, are brown (10YR 4/3), and have a strong reaction to HCl.				
	4430						
30							
		CL	**SANDY LEAN CLAY** (31-35 feet) Predominately silt and clay with ~50% 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 strong reaction to HCl.				
	4425						
35							
		CL	**SANDY LEAN CLAY** (35-37 feet) 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 dark yellowish brown (10YR 4/4), and do not react to HCl.				
	4420	SW-SM	**WELL-GRADED SAND with SILT** (37-40 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 20 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.				
40		CL	**SANDY LEAN CLAY** (40-48 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
	4415						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4410						
		CL	**SANDY LEAN CLAY** (48-51.5 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, are dark yellowish brown (10YR 4/4), and have a strong reaction to HCl.				
50							
		CL	**SANDY LEAN CLAY** (51.5-58.5 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 (7.5YR 5/4), and have a strong reaction to HCl.				
	4405						
55							
	4400						
		CL	**SANDY LEAN CLAY** (58.5-60 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 have a weak reaction to HCl. NO RECOVERY				
60							
	4395	CL	**SANDY LEAN CLAY** (62-68.5 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 strong reaction to HCl.				
65							
	4390						
		SM	**SILTY SAND** (68.5-76 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 are nonplastic and have a strong reaction to HCl.				
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75							
	4380	SC	**CLAYEY SAND** (76-79 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				
80		SM	**SILTY SAND** (79-85.5 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 weak reaction to HCl.				
	4375						
85		CL	**SANDY LEAN CLAY** (85.5-86.5 feet) 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
	4370	SM	**SILTY SAND** (86.5-88 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 weak reaction to HCl.				
90		CL	**SANDY LEAN CLAY** (88-95.5 feet) Predominately silt and clay with ~40% fine to medium sand to 1 mm. 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.				
	4365						
95		CL	**SANDY LEAN CLAY** (95.5-100 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 5/4), and have a strong reaction to HCl.				
	4360						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 5 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
100		SM	**SILTY SAND** (100-101 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				
		GW-GM	**WELL-GRADED GRAVEL with SILT** (100-101 feet) Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~30% medium to fine sand, 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.				
	4355	SM	**SILTY SAND** (102-103.5 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				
		GW-GM	**WELL-GRADED GRAVEL with SILT** (103.5-104 feet) Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~30% medium to fine sand, 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.				
105			NO RECOVERY				
	4350						
110							
	4345						
		SW-SM	**WELL-GRADED SAND with SILT** (114-120 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				
115							
	4340			▽			
120		SM	**SILTY SAND** (120-128 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 low plasticity and toughness and have a weak reaction to HCl.				
	4335						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 6 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125							
	4330						
		SC	**CLAYEY SAND** (128-134 feet) Predominately medium to fine sand with ~10% fine gravel to 10 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 weak reaction to HCl.				
130							
	4325						
		SM	**SILTY SAND** (134-142 feet) Predominately medium to fine sand with ~15% coarse sand, trace 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.				
135							
	4320						
140							
	4315	GW-GM	**WELL-GRADED GRAVEL with SILT** (142-145 feet) Predominately fine to coarse gravel to 40 mm with ~20% coarse sand, ~20% medium to fine sand, 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.				
145		SC	**CLAYEY SAND** (145-151.5 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~45% 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.				
	4310						
150							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW17**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 7 of 7

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4305	CL	**SANDY LEAN CLAY** (151.5-154 feet) Predominately silt and clay with ~35% 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.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **6**

Boring Location: **Process Area**		Elevation: **4459.1 feet amsl**	East: **324001.08** North: **1547266.533**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **12/15/04**	Date Finished: **12/16/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **130.0**	Water Depth: (feet) **116'**
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: Water Level / Lithology / Backfill	Remarks
			NO RECOVERY		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.
	4455				
5		GW-GC / SM	**WELL-GRADED GRAVEL with CLAY and SAND** (5-6 feet) Predominately fine gravel to 15 mm with ~20% coarse sand, ~20% medium to fine sand, and ~10% silt and clay. The gravel and sand are angular to subangular. The fines have medium plasticity and toughness and do not react to HCl. **SILTY SAND with GRAVEL** (6-11 feet) Predominately medium to fine sand with ~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.		
	4450				
10					ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 130 feet
		CL	**SANDY LEAN CLAY** (11-15 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.		
	4445				
15		CL	**SANDY LEAN CLAY** (15-19 feet) Predominately silt and clay with ~45% 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 (10YR 5/3), and have a weak reaction to HCl.		
	4440				
		SC	**CLAYEY SAND** (19-24 feet) Predominately medium to fine sand with trace fine gravel to 10		

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 2 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			mm and ~35% silt and clay. 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.				
	4435	CL	**SANDY LEAN CLAY** (24-26.5 feet) 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 weak reaction to HCl.				
25		SC	**CLAYEY SAND** (26.5-29 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 do not react to HCl.				
	4430	CL	**SANDY LEAN CLAY** (29-34 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 5/3), and have a weak reaction to HCl.				
30	4425	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (34-39 feet). Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~20% medium to fine sand, and ~10% silt and clay. The gravel and sand are angular to subangular. The fines are nonplastic and have a strong reaction to HCl.				
35							
	4420	CL	**SANDY LEAN CLAY** (39-43 feet) 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 brown (10YR 5/3), and have a strong reaction to HCl.				
40		CL	**SANDY LEAN CLAY** (43-47 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 strong reaction to HCl.				
	4415						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		CL	**SANDY LEAN CLAY** (47-53.5 feet) Predominately silt and clay with ~40% 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.				
	4410						
50							
		CL	**SANDY LEAN CLAY** (53.5-58 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.				
	4405						
55							
		SM	**SILTY SAND** (58-60 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 10 mm, and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
	4400						
60		SM	**SILTY SAND** (60-61.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~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 do not react to HCl.				
		CL	**SANDY LEAN CLAY** (61.5-67 feet) Predominately silt and clay with ~50% 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 brown (7.5YR 5/4), and do not react to HCl.				
	4395						
65							
			NO RECOVERY				
	4390						
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		CL	**SANDY LEAN CLAY** (72-77 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 do not react to HCl.				
	4385						
75							
		GW	**WELL-GRADED GRAVEL with SAND** (77-82 feet) Predominately fine gravel to 15 mm with ~20% coarse sand, ~25% medium to fine sand, and ~5% silt and clay. The gravel is angular to subangular, the sand is subangular to subangular. The fines are nonplastic and do not react to HCl.				
	4380						
80							
		GM	**SILTY GRAVEL with SAND** (82-86 feet) Predominately fine gravel to 15 mm with ~20% coarse sand, ~15% medium to fine sand, and ~15% silt and clay. The gravel is angular to subangular, the sand is angular to subangular. The fines are nonplastic and do not react to HCl.				
	4375						
85							
		CL	**SANDY LEAN CLAY** (86-94 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.				
	4370						
90							
	4365						
		CL	**SANDY LEAN CLAY** (94-96 feet) Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 5 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.				
95		CL	**SANDY LEAN CLAY** (96-100 feet) 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 do not react to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet **5** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4360						
100		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (100-104 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 do not react to HCl. GRADED SAND with SILT and GRAVEL				
	4355		NO RECOVERY				
105							
	4350						
110							
	4345						
115				▽			
	4340						
120							
	4335						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW18**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **6** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125							
	4330						
130							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW19**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4434.6 feet amsl**	East: **324348.776** North: **1547643.036**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **12/5/04**	Date Finished: **12/6/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **117.0**	Water Depth: (feet) **112'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			NO RECOVERY				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.
	4430						
5							
		GM	**POORLY GRADED GRAVEL with SILT and SAND** (8-9 feet) No odor. Predominately fine gravel to 15 mm with ~20% coarse sand, ~5% medium to fine sand, and ~10% silt and clay. The gravel is very angular to angular, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
	4425	SM	**SILTY SAND** (9-12 feet) No odor. Predominately medium to fine sand with ~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 do not react to HCl.				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 117 feet
10							
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (12-17.5 feet) No odor. Predominately medium to fine sand with ~30% fine to coarse gravel to 50 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.				
	4420						
15							
		SM	**SILTY SAND** (17.5-19 feet) No odor. Predominately medium to fine sand with ~5% fine gravel to 10 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.				
	4415	SM					

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW19**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet 2 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			SILTY SAND (19-33 feet) No odor. 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 are nonplastic and do not react to HCl.				
	4410						
25							
	4405						
30							
		CL	**SANDY LEAN CLAY** (33-39 feet) No odor. Predominately silt and clay with ~45% 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 brown (10YR /3), and do not react to HCl.				
	4400						
35							
	4395	CL	**SANDY LEAN CLAY** (39-42 feet) No odor. Predominately silt and clay with ~30% 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 and do not react to HCl.				
40		SM	**SILTY SAND with GRAVEL** (42-45 feet) No odor. Predominately coarse to medium sand with ~20% fine gravel to 20 mm and ~15% silt and clay. The gravel and sand are angular to subangular. The fines are nonplastic and do not react to HCl.				
	4390						
45		CL	**SANDY LEAN CLAY** (45-49 feet) No odor. Predominately silt and clay with ~30% fine to medium sand and				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW19**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			~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 (7.5YR 5/4) and do not react to HCl.				
	4385	CL	**SANDY LEAN CLAY** (49-52 feet) No odor. 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 (7.5YR 5/4) and do not react to HCl.				
50							
		CL	**SANDY LEAN CLAY** (52-55 feet) 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 yellowish brown (10YR 5/4) and do not react to HCl.				
	4380						
55		CL	**SANDY LEAN CLAY** (55-65 feet) No odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 15 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 do not react to HCl.				
	4375						
60							
	4370						
65		CL	**SANDY LEAN CLAY** (65-76 feet) No odor. Predominately silt and clay with ~40% fine to medium sand and trace 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 do not react to HCl.				
	4365						
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW19**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4360						
75							
		SM	**SILTY SAND** (76-78 feet) 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 are nonplastic and do not react to HCl.				
		SM	**SILTY SAND with GRAVEL** (78-82 feet) No odor. Predominately coarse to medium sand with ~40% fine gravel to 15 mm and ~20% silt and clay. The gravel is very angular to subangular, the sand is angular to subangular. The fines are nonplastic and do not react to HCl.				
	4355						
80							
			NO RECOVERY				
	4350						
85							
		SM	**SILTY SAND** (87-91 feet) 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 do not react to HCl.				
	4345						
90							
		SM	**SILTY SAND with GRAVEL** (91-100 feet) No odor. Predominately medium to fine sand with ~20% coarse sand, ~30% 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 do not react to HCl.				
	4340						
95							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW19**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet 5 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4335						
100		SM	**SILTY SAND with GRAVEL** (100-107 feet) No odor. 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 angular to subrounded, the sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
	4330						
105							
		SC	**CLAYEY SAND** (107-117 feet) Predominately medium to fine sand with ~5% fine to coarse gravel to 35 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.				
	4325						
110				▽			
	4320						
115							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW20**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4436.0 feet amsl**	East: **323922.006** North: **1547845.34**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/30/04**	Date Finished: **12/1/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **99.0**	Water Depth: (feet) **98'**
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: Water Level / Lithology / Backfill	Remarks
	4435	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (0-3 feet) Predominately coarse to medium 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 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.
		SM	**SILTY SAND** (3-4.5 feet) Predominately medium to fine sand with ~15% coarse sand, ~10% fine gravel to 15 mm, and ~15% 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.		Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5	4430	SC	**CLAYEY SAND** (4.5-10 feet) Predominately medium to fine sand with ~25% fine to coarse gravel to 30 mm and ~15% silt and clay. The fines have medium plasticity and have a weak reaction to HCl.		
10	4425	CL	**SANDY LEAN CLAY** (10-13 feet) Predominately silt and clay with ~45% 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 do not react to HCl.		ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 99 feet
		SC	**CLAYEY SAND** (13-17 feet) Predominately medium to fine sand with ~25% fine to coarse gravel to 30 mm and ~15% silt and clay. The fines have medium plasticity and have a weak reaction to HCl.		
15	4420	SC	**CLAYEY SAND** (17-23 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 and have a strong reaction to HCl.		

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW20**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4415						
		CL	**SANDY LEAN CLAY** (23-29 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.				
25	4410						
		SC	**CLAYEY SAND** (29-33 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 and have a strong reaction to HCl.				
30	4405						
		SW-SM	**WELL-GRADED SAND with SILT** (33-39 feet) Predominately medium to fine sand with ~15% coarse sand, ~5% fine gravel to 10 mm, and ~10% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines have are nonplastic and have a strong reaction to HCl.				
35	4400						
		CL	**SANDY LEAN CLAY** (39-42 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.				
40	4395						
		CL	**SANDY LEAN CLAY** (42-48 feet) Predominately silt and clay with ~35% fine to medium sand and ~5% fine to coarse gravel to 40 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.				
45	4390						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW20**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		CL	**SANDY LEAN CLAY** (48-56 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 strong reaction to HCl.				
50	4385						
55	4380						
		CL	**SANDY LEAN CLAY** (56-57 feet) Predominately silt and clay with ~35% fine to medium sand to 1 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.				
		CL	**SANDY LEAN CLAY** (57-59 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 strong reaction to HCl.				
		SC	**CLAYEY SAND** (59-65.5 feet) Dry, very dense. Predominately medium to fine sand with ~5% fine gravel to 10 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.				
60	4375						
65	4370	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (65.5-72 feet) Dry, very dense. Predominately medium to fine sand with ~20% coarse sand, ~25% fine to coarse gravel to 30 mm, and ~10% silt and clay. The gravel and sand are angular to subangular. The fines are nonplastic and have a strong reaction to HCl.				
70	4365						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW20**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4360	CL	**SANDY LEAN CLAY** (72-86 feet) Dry, hard. 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
80	4355						
85	4350	CL	**SANDY LEAN CLAY** (86-92 feet) Dry, hard. Predominately silt and clay with ~50% fine to medium sand and trace coarse sand to 4 mm. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong reaction to HCl.				
90	4345	SP-SM	**POORLY GRADED SAND with SILT** (92-98.5 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.	▽			
95	4340						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW20**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4335	CL	**SANDY LEAN CLAY** (98.5-99 feet) Dry, hard. 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 do not react to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW21**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4422.1 feet amsl**	East: **323954.693** North: **1548351.237**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/23/04**	Date Finished: **11/24/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **97.0**	Water Depth: (feet) **81'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4420		NO RECOVERY				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	4415	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (8-9 feet) Predominately coarse to medium sand with ~30% fine gravel to 15 mm and ~10% silt and clay. The gravel and sand are angular to subangular. The fines are nonplastic and do not react to HCl.				
		CL	**SANDY LEAN CLAY** (9-13 feet) Predominately silt and clay with ~50% fine to medium sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are pale yellow (5Y 7/4) and have a weak reaction to HCl.				
10	4410						ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 97 feet
		SM	**SILTY SAND** (13-18 feet) Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
15	4405						
		SM	**SILTY SAND** (18-27 feet) Predominately medium to fine sand with ~10% coarse sand to 4 mm and ~15% silt and clay. 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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW21**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4400						
25							
	4395	SC	**CLAYEY SAND** (27-30 feet) Predominately medium to fine sand with ~5% fine gravel to 20 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 strong reaction to HCl.				
30		CL	**SANDY LEAN CLAY** (30-31 feet) 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 brown (7.5Y 5/4) and have a weak reaction to HCl.				
	4390	CL	**SANDY LEAN CLAY** (31-34 feet) Predominately silt and clay with ~35% fine to medium sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5Y 5/4) and have a weak reaction to HCl.				
35		CL	**SANDY LEAN CLAY** (34-38 feet) 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 brown (7.5Y 5/4) and have a weak reaction to HCl.				
	4385	SM	**SILTY SAND with GRAVEL** (38-39.5 feet) Predominately medium to fine sand with ~15% 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 strong reaction to HCl.				
40		CL	**SANDY LEAN CLAY** (39.5-45 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
	4380						
45		CL	**SANDY LEAN CLAY** (45-48 feet) Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 20 mm. The gravel is angular to subangular,				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW21**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **3** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4375		the sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/4), and do not react to HCl.				
		CL	**SANDY LEAN CLAY** (48-49 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
50		CL	**SANDY LEAN CLAY** (49-50 feet) Predominately silt and clay with ~40% 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 4/4), and do not react to HCl.				
	4370	SC	**SANDY LEAN CLAY** (50-51 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
55			**CLAYEY SAND** (51-53.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 20 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.				
	4365	CL	**CLAYEY SAND** (53.5-57 feet) Predominately medium to fine sand to 4 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and have a weak reaction to HCl.				
60		CL	**SANDY LEAN CLAY** (57-59 feet) 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
	4360		**SANDY LEAN CLAY** (59-71.5 feet) Predominately silt and clay with ~50% 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 brown (10YR 4/3), and do not react to HCl.				
65							
	4355						
70							
	4350	CL	**SANDY LEAN CLAY** (71.5-74 feet) Predominately silt and clay with ~35% fine to medium sand and				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW21**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			trace fine gravel to 8 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 4/3).				
		CL	**SANDY LEAN CLAY** (74-79 feet) Predominately silt and clay with ~45% 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 brown (10YR 5/3), and have a weak reaction to HCl.				
75	4345						
			NO RECOVERY	▽			
80	4340						
85	4335						
		SW-SC	**WELL-GRADED SAND with CLAY and GRAVEL** (87-88.5 feet) Predominately medium to fine sand with ~30% coarse sand, ~40% fine gravel to 20 mm and ~10% 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.				
		SM	**SILTY SAND** (88.5-91 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 20 mm, and ~35% 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 strong reaction to HCl.				
90	4330						
		SM	**SILTY SAND** (91-92 feet) Predominately medium to fine sand with trace fine gravel to 8 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.				
		SP-SM	**SILTY SAND** (92-93 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 subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
95		SW/SP-SM	**POORLY GRADED SAND with SILT** (93-94.4 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
		SW/SM	**WELL-GRADED SAND with GRAVEL** (94.4-94.5 feet) Predominately coarse to medium sand with ~40% fine gravel to 20 mm. The gravel and sand are angular to subangular.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW21**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 5 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			POORLY GRADED SAND with SILT (94.5-96.4 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl. **WELL-GRADED SAND with GRAVEL** (96.4-96.5 feet) Predominately coarse to medium sand with ~40% fine gravel to 20 mm. The gravel and sand are angular to subangular. **SILTY SAND** (96.5-97 feet) Predominately medium to fine sand with ~5% fine gravel to 10 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.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW22**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4441.5 feet amsl**	East: **323644.306** North: **1547723.836**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/22/04**	Date Finished: **11/22/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **109.0**	Water Depth: (feet) **96'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4440	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (0-5 feet) Predominately medium to fine sand with ~25% coarse sand, ~30% fine gravel to 15 mm, and ~10% silt and clay. The gravel and sand are subangular. 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	4435	SC	**CLAYEY SAND** (5-8 feet) Predominately medium to fine sand with trace coarse sand to 4 mm and ~15% silt and clay. 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** (8-9 feet) Predominately medium to fine sand with ~15% fine to coarse gravel to 50 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.				
10	4430	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (9-10 feet) Predominately medium to fine sand with ~15% fine gravel to 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. NO RECOVERY				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 109 feet
15	4425	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (15-18.5 feet) Predominately medium to fine sand with ~15% fine gravel to 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.				
		CL	**SANDY LEAN CLAY** (18.5-20 feet) Predominately silt and clay with ~40% fine to medium sand and trace fine gravel to 6 mm. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and				

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BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW22**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SM	toughness, are brown (10YR 5/3), and have a strong reaction to HCl.				
	4420		**SILTY SAND with GRAVEL** (20-25 feet) Predominately medium to fine sand with ~15% coarse sand, ~25% fine gravel to 15 mm, and ~15% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and have a strong reaction to HCl.				
25		CL	**SANDY LEAN CLAY** (25-31 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.				
	4415						
30							
	4410	SC	**CLAYEY SAND** (31-35 feet) Predominately medium to fine sand with ~10% 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 medium plasticity and toughness and have a strong reaction to HCl.				
35		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (35-38 feet) Predominately medium to fine sand with ~15% fine gravel to 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.				
	4405						
		CL	**SANDY LEAN CLAY** (38-40 feet) Predominately silt and clay with ~45% fine to medium sand and trace 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 yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
40			NO RECOVERY				
	4400						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW22**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4395						
50							
	4390						
		SC	**CLAYEY SAND** (54-54.5 feet)				
		SW	Predominately medium to fine sand with ~10% 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 medium plasticity and toughness and have a strong reaction to HCl.				
55	4385		**WELL-GRADED SAND with GRAVEL** (54.5-56.5 feet)				
		CL	Predominately medium to fine sand with ~20% coarse sand, ~15% fine to coarse gravel to 25 mm, and ~5% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and do not react to HCl.				
			SANDY LEAN CLAY (56.5-64 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.				
60	4380						
		SW	**WELL-GRADED SAND with GRAVEL** (64-68 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% fine to coarse gravel to 25 mm, and ~5% silt and clay. The gravel is angular to subangular, the sand is subangular. The fines are nonplastic and do not react to HCl.				
65	4375						
		SC	**CLAYEY SAND with GRAVEL** (68-71 feet) Predominately medium to fine sand with ~15% fine gravel to 20 mm and ~15% 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.				
70							
	4370		NO RECOVERY				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW22**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4365	CL	**SANDY LEAN CLAY** (74-82 feet) 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 brown (7.5YR 5/4), and have a strong reaction to HCl.				
80	4360	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (82-83 feet) Predominately fine to coarse gravel to 30 mm with ~20% coarse sand, ~10% medium to fine sand, 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.				
		SC	**CLAYEY SAND** (83-85 feet) Predominately medium to fine sand with ~10% fine gravel to 20 mm and ~15% 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.				
85	4355	CL	**SANDY LEAN CLAY** (85-94 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 yellowish brown (10YR 5/4), and do not react to HCl.				
90	4350						
95	4345	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (94-97 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% 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 do not react to HCl.	▽			
		CL	**SANDY LEAN CLAY** (97-99 feet) Predominately silt and clay with ~35% 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 4/6/05

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW22**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			toughness, are yellowish brown (10YR 5/4), and have a weak reaction to HCl.				
		SC	**CLAYEY SAND** (99-104 feet) Predominately medium to fine sand with trace fine gravel to 5 mm and ~20% 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.				
100	4340						
		SP-SM	**POORLY GRADED SAND with SILT** (104-106 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 do not react to HCl.				
105							
	4335	CL	**SANDY LEAN CLAY** (106-109 feet) Predominately silt and clay with ~45% fine to medium sand and trace fine to coarse gravel to 30 mm. The fines have medium plasticity and toughness, are brown (10YR 5/3), and to not react to HCl.				

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BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW23**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4449.4 feet amsl**	East: **323892.541** North: **1547627.134**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **12/1/04**	Date Finished: **12/4/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **114.0**	Water Depth: (feet) **104'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SC	**CLAYEY SAND** (0-8 feet) 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 have medium 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.
	4445						
5							
		SC	**CLAYEY SAND with GRAVEL** (8-15 feet) Predominately medium to fine sand with ~15% coarse sand, ~25% 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 medium plasticity and toughness and have a strong reaction to HCl.				
	4440						
10							ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 114 feet
	4435						
15		SW-SM	**WELL-GRADED SAND with SILT** (15-18 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 strong reaction to HCl.				
		SM	**SILTY SAND** (18-26 feet) Predominately medium to fine sand with ~15% coarse sand, ~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 strong				
	4430						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW23**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			reaction to HCl.				
	4425						
25							
		CL	**SANDY LEAN CLAY** (26-29 feet) Predominately silt and clay with ~45% 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.				
	4420	CL	**SANDY LEAN CLAY** (29-32 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 weak reaction to HCl.				
30		CL	**SANDY LEAN CLAY** (32-34 feet) 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
	4415	CL	**SANDY LEAN CLAY** (34-36.5 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 weak reaction to HCl.				
35		SC	**CLAYEY SAND** (36.5-39 feet) Predominately medium to fine sand with ~5% gravel 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.				
	4410	CL	**SANDY LEAN CLAY** (39-48 feet) Predominately silt and clay with ~50% 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 brown (10YR 5/3), and have a strong reaction to HCl.				
40							
	4405						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW23**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SW-SM / CL	**WELL-GRADED SAND with SILT** (48-48.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 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 strong weak reaction to HCl.				
	4400	SW-SM	**SANDY LEAN CLAY** (48.5-49 feet) 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 brown (7.5YR 5/4), and have a weak reaction to HCl.				
50			**WELL-GRADED SAND with SILT** (49-53 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 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 strong weak reaction to HCl.				
		SC					
	4395		**CLAYEY SAND** (53-59 feet) Predominately medium to fine sand with ~5% gravel and ~20% 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.				
55							
	4390	CL	**SANDY LEAN CLAY** (59-64 feet) Predominately silt and clay with ~45% fine to medium sand and ~5% 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 strong reaction to HCl.				
60							
	4385	CL	**SANDY LEAN CLAY** (64-69 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 weak reaction to HCl.				
65							
	4380	CL	**SANDY LEAN CLAY** (69-76 feet) Thinly bedded to laminated. Predominately silt and clay with ~40% fine to medium sand and trace coarse sand to 3 mm. 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.				
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW23**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4375						
75							
		SC	**CLAYEY SAND** (76-84 feet) Predominately medium to fine sand with trace gravel 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.				
	4370						
80							
	4365	CL	**SANDY LEAN CLAY** (84-89.5 feet) Predominately silt and clay with ~40% fine to medium sand and trace coarse sand to 3 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.				
85							
	4360						
		SW-SM	**WELL-GRADED SAND with SILT** (89.5-94 feet) Predominately medium to fine sand with trace fine gravel to 8 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.				
90							
	4355	CL	**SANDY LEAN CLAY** (94-102.5 feet) Predominately silt and clay with ~50% 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 brown (10YR 4/3), and have a weak reaction to HCl.				
95							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW23**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4350						
100							
		SC	**CLAYEY SAND** (102.5-107 feet) Predominately medium to fine sand with ~5% gravel 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 weak reaction to HCl.	▽			
	4345						
105							
		CL	**SANDY LEAN CLAY** (107-114 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 do not react to HCl.				
	4340						
110							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **6**

Boring Location: **Process Area**		Elevation: **4472.6 feet amsl**	East: **323643.464** North: **1547275.767**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **11/15/04**	Date Finished: **11/16/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **129.0**	Water Depth: (feet) **126'**
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: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SM	**SILTY SAND** (0-10 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~10% 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 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.
	4470						
5							
	4465						
10		SM	**SILTY SAND** (10-15 feet) No odor. Predominately medium to fine sand with ~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.				ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 129 feet
	4460						
15		GP-GM	**POORLY GRADED GRAVEL with SILT and SAND** (15-23 feet) No odor. Predominately fine to coarse gravel to 30 mm with ~30% sand 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.				
	4455						

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4450						
		SM	**SILTY SAND** (23-30 feet) No odor. 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 to subrounded. The fines are nonplastic and do not react to HCl.				
25							
	4445						
30		SM	**SILTY SAND with GRAVEL** (30-33 feet) No odor. Predominately medium to fine sand with ~20% coarse sand, ~15% fine to coarse gravel to 30 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.				
	4440						
		SC	**CLAYEY SAND** (33-39 feet) Predominately medium to fine sand with ~5% gravel 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.				
35							
	4435						
		SC	**CLAYEY SAND** (39-40 feet) Very dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.				
40		SC	**CLAYEY SAND** (40-46 feet) No odor. Predominately medium to fine sand with ~10% fine gravel to 20 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.				
	4430						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **3** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SM	**SILTY SAND with GRAVEL** (46-52 feet) No odor. Predominately medium to fine sand with ~15% 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 do not react to HCl.				
	4425						
50							
	4420	SW	**WELL-GRADED SAND** (52-56 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~5% fine gravel to 20 mm, and ~5% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines are nonplastic and do not react to HCl.				
55							
		CL	**SANDY LEAN CLAY** (56-58 feet) Dry, stiff, no odor. Predominately silt and clay with ~25% 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 4/4), and have a strong reaction to HCl.				
	4415	SM	**SILTY SAND with GRAVEL** (58-62 feet) No odor. Predominately medium to fine sand with ~20% coarse sand, ~20% fine gravel to 10 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.				
60							
	4410	SC	**CLAYEY SAND** (62-65 feet) 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 toughness and have a strong reaction to HCl.				
65			NO RECOVERY				
	4405						
		CL	**SANDY LEAN CLAY** (69-75 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 5 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.				
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4400						
75		SC	**CLAYEY SAND** (75-80 feet) No odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 30 mm and ~45% 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.				
	4395						
80			NO RECOVERY				
	4390						
85							
	4385						
90							
	4380	SM	**SILTY SAND** (92-96 feet) No odor. Predominately medium to fine sand with trace 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 do not react to HCl.				
95							
	4375	SM	**SILTY SAND** (96-100 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~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 do not react to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **6**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
100	4370	CL	**SANDY LEAN CLAY** (100-104 feet) No odor. Predominately silt and clay with ~40% 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 brown (10YR 5/3), and have a weak reaction to HCl.				
105		CL	**SANDY LEAN CLAY** (104-106 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 angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness.				
	4365	SM	**SILTY SAND with GRAVEL** (106-114 feet) No odor. Predominately medium to fine sand with ~20% coarse sand, ~15% 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 do not react to HCl.				
110	4360						
		SC	**CLAYEY SAND** (114-122 feet) No odor. Predominately medium to fine sand with ~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.				
115	4355						
120							
	4350	SM	**SILTY SAND** (122-124.5 feet) No odor. Predominately medium to fine sand with ~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.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW24**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 6 of 6

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
125	4345	SC	**CLAYEY SAND** No odor. Predominately medium to fine sand with trace fine gravel to 8 mm and ~20% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and low toughness and do not react to HCl.	▽			

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW25**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4437.6 feet amsl**	East: **324622.639** North: **1547300.9**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **12/6/04**	Date Finished: **12/7/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **119.0**	Water Depth: (feet) **96'**
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: Water Level / Lithology / Backfill	Remarks
		SM	**SILTY SAND** (0-7.5 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~10% 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 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.
	4435				
5					
	4430	CL	**SANDY LEAN CLAY** (7.5-11 feet) No odor. Predominately silt and clay with ~30% 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 and are brown (10YR 5/3).		ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 119 feet
10					
		SM	**SILTY SAND** (11-16 feet) No odor. Predominately medium to fine sand with ~10% fine to coarse gravel to 30 mm and ~40% 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.		
	4425				
15					
		CL	**SANDY LEAN CLAY** (16-17 feet) No odor. Predominately silt and clay with ~25% 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.		
	4420	CL	**SANDY LEAN CLAY** (17-21.5 feet) Dry, hard, no odor. Predominately silt and clay with ~35% fine to medium sand and		

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW25**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			~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 have a strong reaction to HCl.				
		SC	**CLAYEY SAND** (21.5-24 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~10% fine to coarse gravel to 40 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.				
	4415						
		CL	**SANDY LEAN CLAY** (24-27 feet) No odor. Predominately silt and clay with ~30% fine to medium sand and ~10% 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 brown (10YR 5/3), and have a weak reaction to HCl.				
25							
		CL	**SANDY LEAN CLAY** (27-42.5 feet) No odor. Predominately silt and clay with ~30% fine to medium sand and ~10% 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 have a strong reaction to HCl.				
	4410						
30							
	4405						
35							
	4400						
40							
	4395	SC	**CLAYEY SAND** (42.5-54 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 12 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.				
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW25**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4390						
50							
	4385						
			NO RECOVERY				
55							
	4380						
		CL	**SANDY LEAN CLAY** (58-65 feet) 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 brown (10YR 5/3), and have a strong reaction to HCl.				
60							
	4375						
65		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (65-75 feet) Very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~30% 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.				
	4370						
70							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW25**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4365						
75		CL	**SANDY LEAN CLAY** (75-76 feet) No odor. 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 brown (10YR 5/3), and have a weak reaction to HCl.				
	4360	SC	**CLAYEY SAND** (76-80 feet) No odor. Predominately medium to fine sand with ~15% coarse sand, ~5% 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 have a weak reaction to HCl.				
80		SC	**CLAYEY SAND with GRAVEL** (80-82.5 feet) Predominately medium to fine sand with ~15% fine gravel to 12 mm and ~45% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughnessand have a strong reaction to HCl.				
	4355	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (82.5-85.5 feet) Dry, no odor. Predominately medium to fine sand with ~20% coarse sand, ~30% 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.				
85		SM	**SILTY SAND** (85.5-93 feet) No odor. 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 to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
	4350						
90							
	4345						
		SW	**WELL-GRADED SAND** (93-98 feet) Predominately medium to fine sand with ~10% fine gravel to 12 mm and ~5% 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.				
95				▽			
	4340						
		SC	**CLAYEY SAND** (98-107 feet)				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW25**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet 5 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			No odor. Predominately medium to fine sand with ~10% fine gravel to 20 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 weak reaction to HCl.				
100							
	4335						
105							
	4330	SW-SM	**WELL-GRADED SAND with SILT** (107-114 feet) 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 angular to subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
110							
	4325						
		CL	**SANDY LEAN CLAY** (114-115 feet) No odor. 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 5/3), and have a weak reaction to HCl.				
115		SC SM	**CLAYEY SAND** (115-155.5 feet) Predominately medium to fine sand with trace fine gravel to 10 mm and ~45% 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.				
	4320		**SILTY SAND** (115.5-119 feet) No odor. Predominately medium to fine sand with ~10% 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 do not react to HCl.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW26**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4447.7 feet amsl**	East: **324776.886** North: **1546808.852**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **12/13/04**	Date Finished: **12/14/04**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **115.0**	Water Depth: (feet) **105'**
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: Water Level / Lithology / Backfill	Remarks
		SM	**SILTY SAND** (0-5 feet) Dry, loose to medium dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~5% fine gravel to 15 mm and ~15% silt and clay. The gravel and sand are 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.
	4445				
5		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (5-7.5 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~25% fine to coarse gravel to 40 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.		
	4440	CL	**SANDY LEAN CLAY** (7.5-18 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 brown (10YR 5/3), and have a strong reaction to HCl.		ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 115 feet
10					
	4435				
15					
	4430				
		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (18-26 feet) Dry, very dense, no odor. Predominately fine to coarse gravel to 30 mm with ~30% fine to medium sand and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are		

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW26**

Soil Boring [X] Monitoring Well [ ] Project Number: **126259.001** Sheet 2 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			nonplastic and have a strong reaction to HCl.				
	4425						
25		CL	**SANDY LEAN CLAY** (26-33 feet) Dry, hard, no odor. Predominately silt and clay with ~35% 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 low plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
	4420						
30							
	4415						
		CL	**SANDY LEAN CLAY** (33-34 feet) Dry, hard, no odor. Predominately silt and clay with ~30% 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 dark gray (10YR 4/1), and have a weak reaction to HCl.				
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (34-37.5 feet) Dry, dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 40 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.				
35							
	4410						
		CL	**SANDY LEAN CLAY** (37.5-40 feet) Dry, hard, no odor. Predominately silt and clay with ~45% fine to medium sand and trace fine gravel to 5 mm. The gravel is angular to subangular, the sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and have a strong reaction to HCl.				
40		SC	**CLAYEY SAND** (40-46 feet) Dry, very dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 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.				
	4405						
45							

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW26**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 3 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4400	SM	**SILTY SAND** (46-48 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% 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.				
50		SC	**CLAYEY SAND with GRAVEL** (48-51.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% fine to coarse gravel to 30 mm and ~15% 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.				
	4395	SC	**CLAYEY SAND** (51.5-54.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine to coarse gravel to 30 mm and ~35% 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.				
55		CL	**SANDY LEAN CLAY** (54.5-66 feet) Dry, hard, no odor. 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 toughness, are dark grayish brown (10YR 4/2), and have a strong reaction to HCl.				
	4390						
60							
	4385						
65							
	4380	SP-SM	**POORLY GRADED SAND with SILT** (66-74 feet) Dry, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 12 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.				
70							

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BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW26**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet 4 of 5

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4375						
		CL	**SANDY LEAN CLAY** (74-85 feet) Dry, hard, no odor. 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 have a weak reaction to HCl.				
75							
	4370						
80							
	4365						
85		SW-SM	**WELL-GRADED SAND with SILT** (85-87 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~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 and have a weak reaction to HCl.				
	4360	SM	**SILTY SAND with GRAVEL** (87-90.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~15% fine to coarse gravel to 35 mm, and ~15% silt and clay. The gravel and sand are subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.				
90		CL	**SANDY LEAN CLAY** (90.5-93 feet) Dry, hard, no odor. 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 and are brown (10YR 5/3).				
	4355	SW-SM	**WELL-GRADED SAND with SILT** (93-97 feet) Dry, very 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 subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
95							
	4350	CL	**SANDY LEAN CLAY** (97-98 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 mm. The gravel and sand are subangular to				

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BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW26**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SM	subrounded. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.				
		CL	**WELL-GRADED SAND with SILT** (98-99 feet) Dry, very 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 subangular, the sand is subangular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
100		SM	**SANDY LEAN CLAY** (99-100 feet) Dry, hard, no odor. Predominately silt and clay with ~40% fine to medium sand and ~5% fine gravel to 10 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.				
	4345		**SILTY SAND** (100-108.5 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 subangular, the sand is subangular to subrounded. The fines have low plasticity and toughness and have a weak reaction to HCl.	▽			
105							
	4340						
		SP-SM	**POORLY GRADED SAND with SILT** (108.5-113.5 feet) Dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and do not react to HCl.				
110							
	4335						
		CL	**SANDY LEAN CLAY** (113.5-114.5 feet) Hard, no odor. Predominately silt and clay with ~35% fine to medium sand and ~5% fine gravel to 15 mm. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.				
115		SP-SM	**POORLY GRADED SAND with SILT** (114.5-115 feet) Dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~10% silt and clay. 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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW27**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **1** of **5**

Boring Location: **Process Area**		Elevation: **4440.8 feet amsl**	East: **325543.068** North: **1546265.079**
Drilling Contractor: **WDC**	Driller: **J. Love**	Date Started: **1/3/05**	Date Finished: **1/4/05**
Drilling Equipment: **GEFCO 15L with Sonicor 50K Drill Head**		Total Depth: (feet) **109.0**	Water Depth: (feet) **106'**
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: Water Level / Lithology / Backfill	Remarks
	4440	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (0-5 feet) Predominately medium to fine sand with ~20% coarse sand, ~30% fine gravel to 15 mm, and ~10% silt and clay. The gravel is angular to subangular, the sand is subangular. 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.
5	4435	SM	**SILTY SAND** (5-10 feet) Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~35% 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 strong reaction to HCl.		Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
10	4430	CL	**SANDY LEAN CLAY** (10-14 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 strong reaction to HCl.		ABANDONMENT DESIGN: Cement Grout: 0 -10 feet Bentonite Chips: 10 - 109 feet
15	4425	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (14-15.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% 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 have a weak reaction to HCl.		
		CL	**SANDY LEAN CLAY** (15.5-16 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 strong reaction to HCl.		
		SM	**SILTY SAND with GRAVEL** (16-21 feet) Predominately medium to fine sand with ~15% fine gravel to 15 mm and ~35% silt and clay. The gravel is angular to subangular,		

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BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW27**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4420		the sand is subangular to subrounded. The fines have low plasticity and toughness and have a strong reaction to HCl.				
		CL	**SANDY LEAN CLAY** (21-24 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 and have a strong reaction to HCl.				
25	4415	SW-SM	**WELL-GRADED SAND with SILT** (24-28 feet) Predominately medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The gravel is angular to subangular, the sand is angular to subrounded. The fines are nonplastic and have a weak reaction to HCl.				
		CL	**SANDY LEAN CLAY** (28-36.5 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.				
30	4410						
35	4405						
		SM	**SILTY SAND with GRAVEL** (36.5-38 feet) Predominately medium to fine sand with ~20% 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.				
		CL	**SANDY LEAN CLAY** (38-40 feet) Predominately silt and clay with ~40% 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.				
40	4400	SM	**SILTY SAND** (40-44 feet) Predominately medium to fine sand with ~20% coarse sand, ~10% fine gravel to 15 mm, and ~30% silt and clay. The gravel is angular to subangular, the sand is subangular to subrounded. The fines are nonplastic, are brown (7.5YR 5/4), and have a strong reaction to HCl.				
		CL	**SANDY LEAN CLAY** (44-58 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				
45	4395						

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BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW27**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **3** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			HCl.				
50	4390						
55	4385						
		SM	**SILTY SAND** (58-66 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 low plasticity and have a weak reaction to HCl.				
60	4380						
65	4375						
		CL	**SANDY LEAN CLAY** (66-70 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.				
70	4370	SM	**SILTY SAND with GRAVEL** (70-73.5 feet) Predominately medium to fine sand with ~20% coarse sand, ~30% 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.				

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

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW27**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **4** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		SP-SM	**POORLY GRADED SAND with SILT** (73.5-75 feet) 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.				
75	4365	CL	**SANDY LEAN CLAY** (75-78.5 feet) Predominately silt and clay with ~50% fine to medium sand to 2 mm. 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.				
		SM	**SILTY SAND with GRAVEL** (78.5-86 feet) Predominately medium to fine sand with ~20% coarse sand, ~15% fine gravel to 20 mm, and ~35% silt and clay. The gravel is subangular, the sand is subangular to subrounded. The fines are nonplastic and have a strong reaction to HCl.				
80	4360						
85	4355						
		SM	**SILTY SAND** (86-90.5 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 are nonplastic and have a weak reaction to HCl.				
90	4350	SM	**SILTY SAND with GRAVEL** (90.5-97.5 feet) Predominately medium to fine sand with ~15% 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.				
95	4345						
		SC	**CLAYEY SAND** (97.5-105 feet) Predominately medium to fine sand with ~5% fine gravel to 15				

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BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **PA-GW27**

Soil Boring ☒ Monitoring Well ☐ Project Number: **126259.001** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Graphic Log: Water Level	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			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.				
100	4340						
105	4335	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (105-107.5 feet) Predominately medium to fine sand with ~15% coarse sand, ~20% fine gravel to 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.	▽			
		SM	**SILTY SAND** (107.5-109 feet) 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 have low plasticity and toughness and do not react to HCl.				

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