BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **17**

Boring Location: **North of mine tailings, west of residential area**		Elevation: **4465.8 feet amsl**	East: **320292** North: **1565005.7**
Drilling Contractor: **WDC**	Driller: **D. Tonnancour**	Date Started: **8/15/05**	Date Finished: **8/21/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **214.5**	Water Depth: (feet) **146.5' / 139.27'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **181.6-201.6 ft., bottom at 201.8 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4465	SM	**SILTY SAND with GRAVEL** (0-1 feet) Dry, loose, no odor. Primarily medium to fine sand with ~20% gravel to 50 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong to no 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.
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (1-5.5 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~30% gravel to 35 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
5								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
								All depths are below land surface unless stated otherwise.
	4460	SM	**SILTY SAND** (5.5-6.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					WELL DESIGN for B/W-8D: Screened Interval: 181.6-201.6 feet. Bottom of sump: 201.8 feet.
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (6.5-8 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Cement Grout: 0-168.5 feet. Bentonite Chips: 168.5-178 feet. Filter Pack: #60 Sand 178-178.5 feet, #10-20 Sand 178.5-203.3 feet. Bentonite Chips: 203.3-214.5 feet
		SM	**SILTY SAND with GRAVEL** (8-11 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to 25 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,468.33 feet amsl. PVC Stick-up: 2.5 feet above land surface.

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4455							
		SM	**SILTY SAND with GRAVEL** (11-12.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (12.5-14.75 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~15% gravel to 20 mm, and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
15		SM	**SILTY SAND with GRAVEL** (14.75-15.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic and are dark gray.					
	4450	SW-SM	**WELL-GRADED SAND with SILT** (15.5-16.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (16.75-18 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 45 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (18-20 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak to no reaction to HCl.					
20		CL	**SANDY LEAN CLAY** (20-20.5 feet) Dry, very very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 8 mm. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are very dark grayish brown (10YR 3/2), and do not react to HCl.					
	4445	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (20.5-22.25 feet) Dry, very dense, no odor. Primarily gravel to 30 mm with ~35% coarse to medium sand and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		GM	**SILTY GRAVEL with SAND** (22.25-24.5 feet) Dry, medium dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily gravel to 40 mm with ~35% coarse to medium sand and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
25	4440	SP	**POORLY GRADED SAND** (24.5-26 feet) Dry, medium dense, no odor. Primarily medium to fine sand to 2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (26-27.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
30		SC	**CLAYEY SAND** (27.75-30.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
	4435	SM	**SILTY SAND with GRAVEL** (30.5-33 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (33-35 feet) Dry, dense, no odor. Primarily sand with ~20% gravel to 20 mm and ~25% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
35	4430	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (35-36.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (36.5-42.25 feet) Dry, dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
40	4425							
		SM	**SILTY SAND** (42.25-44 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND** (44-45 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
45		SM	**SILTY SAND with GRAVEL** (45-47 feet) Dry, dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4420							
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (47-48 feet) Dry, dense, no odor. Primarily medium to coarse sand with ~15% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND** (48-52 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~10% fine gravel to 20 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic,					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			are brown, and have a strong reaction to HCl.					
50	4415							
		SC	**CLAYEY SAND with GRAVEL** (52-54.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to 15 mm and ~30% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (54.5-55 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 25 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
55		SC						
		SM						
	4410	SW	**CLAYEY SAND with GRAVEL** (55-55.25 feet) Dry, dense, no odor. Primarily coarse to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are dark gray, and have a strong reaction to HCl.					
		SW-SM	**SILTY SAND with GRAVEL** (55.25-55.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with GRAVEL** (55.5-57 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~20% gravel to 50 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
60			**WELL-GRADED SAND with SILT** (57-58 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
	4405	SW-SM	**WELL-GRADED SAND with SILT** (58-60.5 feet) Dry, dense, no odor. Primarily medium sand with ~10% gravel to 35 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			WELL-GRADED SAND with SILT (60.5-61.5 feet) Dry, dense, no odor.					
		SC	Primarily medium sand with ~10% gravel to 20 mm and ~10% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM						

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**CLAYEY SAND** (61.5-62 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			SILTY SAND (62-62.5 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL	**SILTY SAND** (62.5-64.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
65	4400		**SANDY LEAN CLAY** (64.5-66 feet)					
		CL	Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SC	**SANDY LEAN CLAY** (66-66.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% sand and ~20% gravel to 60 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/3), and have a strong reaction to HCl.					
		CL	**CLAYEY SAND with GRAVEL** (66.5-67.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	**SANDY LEAN CLAY** (67.5-69 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and have a strong reaction to HCl.					
70	4395	SM	**SILTY SAND** (69-70 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are dark gray, and have a strong reaction to HCl.					
		SC	**SILTY SAND with GRAVEL** (70-71.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**CLAYEY SAND with GRAVEL** (71.5-73 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC						
		SM	**SILTY SAND with GRAVEL** (73-73.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~40% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
75		SW-SM	**CLAYEY SAND** (73.5-74 feet)					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4390		Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (74-75 feet) Dry, very dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			WELL-GRADED SAND with SILT and GRAVEL (75-76.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL	**SILTY SAND** (76.5-78.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
80			**SANDY LEAN CLAY** (78.5-79 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand to 2 mm. 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		**SANDY LEAN CLAY** (79-81.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~10% gravel to 30 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL						
		SM	**SANDY LEAN CLAY** (81.5-82 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are pale brown (10YR 6/3), and do not react to HCl.					
			SILTY SAND with GRAVEL (82-85.5 feet) Dry, very dense, no odor. Primarily sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
85								
	4380	CL	**SANDY LEAN CLAY** (85.5-88.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% fine gravel to 15 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
90	4375	CL	**SANDY LEAN CLAY** (88.5-89 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% coarse to medium sand and ~5% gravel to 20 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a weak to no reaction to HCl.					
		SM	**SILTY SAND** (89-90.25 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~10% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (90.25-92.25 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 20 mm and ~20% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
95	4370	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (92.25-94.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 25 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (94.5-96.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% coarse to medium sand and ~5% fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		SM	**SILTY SAND** (96.75-98.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 50 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
100	4365	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (98.5-99.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (99.5-101.5 feet) Dry, very dense, no odor. Primarily silt and clay with ~50% medium to fine sand with trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are light brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (101.5-104 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (104-104.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
105	4360	CL	**SANDY LEAN CLAY** (104.5-106.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 6 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (106.5-108.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% fine gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (108.5-109.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 7 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
110	4355	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (109.75-111 feet) Dry, very dense, no odor. Primarily gravel to 30 mm with ~25% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (111-113 feet) Dry, very hard, no odor. Primarily silt and clay with ~20% medium to fine sand and ~5% fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (113-114 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (114-115 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 45 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
115		SM	**SILTY SAND with GRAVEL** (115-115.75 feet)					
	4350	SM	Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		CL	**SILTY SAND with GRAVEL** (155.75-116.5 feet)					
		SC	Dry, very dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			SANDY LEAN CLAY with GRAVEL (116.5-117 feet) Dry, very hard, no odor. Primarily silt and clay with ~25% coarse to medium sand and ~15% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	**CLAYEY SAND with GRAVEL** (117-119 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
120		SC	**SANDY LEAN CLAY** (119-119.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4345	SM	**CLAYEY SAND with GRAVEL** (119.75-120.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~25% gravel to 40 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (120.5-122 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~25% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			SILTY SAND with GRAVEL (122-122.5 feet)					
		CL	Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			SILTY SAND with GRAVEL (122.5-123.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~25% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
125			**SANDY LEAN CLAY** (123.5-126.5 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4340	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (126.5-127.75 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% fine sand, ~30% gravel to 40 mm, and ~10% silt and clay. The sand and					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		CL	gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			SANDY LEAN CLAY (127.75-129.75 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 7 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 5/6), and do not react to HCl.					
130		SM	**SILTY SAND with GRAVEL** (129.75-132.5 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% gravel to 30 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4335							
		CL	**SANDY LEAN CLAY** (132.5-134 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 30 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (134-134.75 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~25% fine gravel to 17 mm, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
135		SW						
		SM	**WELL-GRADED SAND with GRAVEL** (134.75-135.25 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 28 mm and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4330	SM						
		SW-SM	**SILTY SAND with GRAVEL** (135.25-135.5 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 50 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrouned. The fines are nonplastic, are brown, and do not react to HCl.					
			SILTY SAND with GRAVEL (135.5-136 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED SAND with SILT and GRAVEL (136-146.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~40% gravel to 55 mm and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
140								

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
145	4320	SW	**WELL-GRADED SAND with GRAVEL** (146.5-150 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 40 mm and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
150	4315	SC	**CLAYEY SAND with GRAVEL** (150-154.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fne sand, ~15% gravel to 40 mm, and ~25% silt and clay. The sand and gravel are angular to subrounded. The fines have medium plasticity and toughness and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
155	4310	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (154.5-156 feet) Moist to saturated, very dense, no odor. Primarily gravel to 60 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (156-157.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~35% silt and clay. The sand nad gravel are angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (157.5-159 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to 45 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
160	4305	CL	**SANDY LEAN CLAY with GRAVEL** (159-162.25 feet) Moist, very hard, no odor. Primarily silt and clay with ~30% coarse to fine sand and ~20% gravel to 40 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		ML	**SANDY SILT** (162.25-164 feet) Moist, very hard, no odor. Primarily silt and clay with ~40% sand and ~10% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
165	4300	SC	**CLAYEY SAND with GRAVEL** (164-166 feet) Moist, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~20% gravel to 30 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness and do not react to HCl.					
		SW	**WELL-GRADED SAND** (166-168 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 10 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **14** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			brown, and do not react to HCl.	B/W-8 @ 165 - 170 Ft.				
		CL	**SANDY LEAN CLAY with GRAVEL** (168-169 feet) Moist, hard, no odor. Primarily silt and clay with ~25% sand and ~25% gravel to 30 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SC	**CLAYEY SAND with GRAVEL** (169-176 feet) Moist, dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~15% gravel to 50 mm, and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
170								
	4295							
175								
	4290							
		SM	**SILTY SAND with GRAVEL** (176-179 feet) Moist to saturated, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand is and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (179-184 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~25% fine sand, trace fine gravel to 15 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic,					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **15** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			are brown, and do not react to HCl.					
	4285							
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (184-185.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 42 mm, and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-8 @ 181 - 186 Ft.				
185								
	4280	SC	**CLAYEY SAND** (185.5-187.25 feet) Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (187.25-188 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (176-179 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~35% gravel to 60 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (189.5-190.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded,. The fines are nonplastic, are brown, and do not react to HCl.					
190								
	4275	SM	**SILTY SAND with GRAVEL** (190.5-194.25 feet) Saturated, dense, no odor. Primarily sand with ~20% gravel to 40 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **16** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
195	4270	SM	**SILTY SAND with GRAVEL** (190.5-194.25 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 25 mm, and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and do not react to HCl.	B/W-8 @ 196 - 201 Ft.				
		SW	**WELL-GRADED SAND with SILT** (197-197.5 feet) Dry to moist, very dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~5% gravel to 35 mm, and ~10% silt and clay. The sand and gravel are subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
		SM	**SANDY LEAN CLAY** (197.5-198 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~30% coarse to medium sand, ~15% fine sand, and ~5% fine gravel to 15 mm. The sand and gravel are subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
200		SM	**SILTY SAND** (198-199.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
	4265		**SILTY SAND** (199.5-201 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to 10 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY with GRAVEL** (201-204 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~30% sand and ~20% gravel to 50 mm. The sand and gravel are angular. The fines have medium plasticity and toughness and the upper 0.5 feet have a weak reaction to HCl, the lower 2.5 feet have a strong reaction to HCl.					
205	4260	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (204-206.5 feet) Dry, very dense, no odor. Primarily gravel to 25 mm with ~30% coarse to medium sand and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic and have a strong reaction to HCl. The upper 1.25 feet are pinkish white (5YR 8/2), the lower 1.25 feet are pale red (10R 6/4).					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-8**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **17** of **17**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
210	4255		**DECOMPOSED GRANITE** (206.5-213.5 feet) Dry, very dense, no odor. Fractured decomposed granite with ~15 to 25% secondary silt and clay. The fines have medium plasticity and toughness, have a strong reaction to HCl, and are light reddish brown (2.5YR 6/4) to reddish yellow (5YR 6/6) to pink (5YR 8/3).					
			DECOMPOSED GRANITE (213.75-214.5 feet) Dry, very dense, no odor. Fractured decomposed granite with ~10% secondary silt and clay. The fines are nonplastic, have a strong reaction to HCl, and are pinkish white (7.5YR 8/2).					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **13**

Boring Location: **North of mine tailings, east of Sunset Hills Drive**		Elevation: **4351.3 feet amsl**	East: **323810.1** North: **1558835.3**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **9/11/05**	Date Finished: **9/14/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **165.5**	Water Depth: (feet) **22.5' / 17.11'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **144.8-164.8 ft., bottom at 165.0 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SC	**CLAYEY SAND** (0-1.5 feet) Dry, loose, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
	4350							
		SC	**CLAYEY SAND** (1.5-8 feet) Dry to moist, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. All depths are below land surface unless stated otherwise.
5								WELL DESIGN for B/W-9D: Screened Interval: 144.8-164.8 feet. Bottom of sump: 165 feet. Cement Grout: 0-132.2 feet. Bentonite Chips: 132.2-142.5 feet. Filter Pack: #60 Sand 142.5-143.5 feet, #10-20 Sand 143.5-165.5 feet.
	4345							
		CL	**SANDY LEAN CLAY** (8-9.5 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5-2), and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,353.84 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
		SM	**SANDY LEAN CLAY** (10.5-12 feet) Dry to moist, stiff, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Predominately silt and clay with ~30% medium to fine 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 to strong reaction to HCl.					
		CL	**SANDY LEAN CLAY** (10.5-12 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~30% medium to fine 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 to strong reaction to HCl.					
	4340							
		SM	**SILTY SAND** (12-14 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (14-15 feet) Dry to moist, medium dense, no odor. Predominately fine sand (<0.5 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
15		SM	**SILTY SAND** (15-15.5 feet) Moist, medium dense, no odor.					
		CL	Predominately medium to fine sand with trace fine gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are light brown.					
		SM						
		CL	**SANDY LEAN CLAY** (15.5-15.75 feet) Dry to moist, soft, no odor. Predominately silt and clay with ~40% medium to fine sand to 0.5 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.					
	4335		**SILTY SAND** (15.75-16 feet) Moist, loose, no odor. Predominately medium to fine sand with trace fine gravel to 5 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are light brown.					
			SANDY LEAN CLAY (16-21.5 feet) Dry to moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand (<0.5 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.					
20								
	4330							
		SC	**CLAYEY SAND** (21.5-22 feet) Moist, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SW-SM						
		SP-SM/SW	**WELL-GRADED SAND with SILT** (22-22.5 feet) Moist, medium dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Predominately medium to fine sand with trace coarse sand to ~5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			POORLY-GRADED SAND with SILT (22.5-22.75 feet) Moist, dense, no odor. Predominately medium to fine sand to 1 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
25			**WELL-GRADED SAND** (22.75-25.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 12 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic and are brown.					
		SP						
		SM	**POORLY-GRADED SAND** (25.5-25.75 feet) Saturated, medium dense, no odor. Predominately fine sand (<0.5mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4325	SP						
		CL	**SILTY SAND** (25.75-26.25 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) with ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SP-SM	**POORLY-GRADED SAND** (26.25-26.75 feet) Saturated, dense, no odor. Predominately fine sand (<0.5mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-9 @ 26 - 31 Ft.				
		SW-SM	**SANDY LEAN CLAY** (26.75-27 feet) Dry to moist, firm, no odor. Predominately silt and clay with ~40% medium to fine sand (<0.5 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.					
		CL						
30		SW-SM	**POORLY-GRADED SAND with SILT** (27-28.25 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED SAND with SILT (28.25-29.5 feet) Moist, dense, no odor.					
	4320	CL	Predominately medium to fine sand with ~5% fine gravel to 8mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
			SANDY LEAN CLAY (29.5-29.75 feet) Dry to moist, firm, no odor.					
		SW	Predominately silt and clay with ~40% medium to fine sand to 0.5 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.					
			WELL-GRADED SAND with SILT (29.75-31 feet)					
		SC	Predominately medium to fine sand with trace fine gravel to 6 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are yellowish brown, and do not react to HCl.					
			SANDY LEAN CLAY (31-32.25 feet)					
		SC	Dry to moist, stiff, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
		SW						
35		CL	**WELL-GRADED SAND** (32.25-33 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**CLAYEY SAND** (33-34 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4315		Moist, stiff, no odor. Predominately medium to fine sand to 1 mm with ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.	B/W-9 @ 38 - 43 Ft.				
		CL						
		SW	**CLAYEY SAND** (34-34.75 feet) Moist, medium dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 4 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (34.75-35 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			SANDY LEAN CLAY (35-35.5 feet) Moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand to 1 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.					
40			**WELL-GRADED SAND with SILT** (35.5-36.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4310		**SANDY LEAN CLAY** (36.75-37 feet) Moist, stiff, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% 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 do not react to HCl.					
			WELL-GRADED SAND (37-38.25 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
			WELL-GRADED SAND (38.25-43 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand with ~15% fine sand, ~5% fine gravel to 8 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
45			**SANDY LEAN CLAY** (43-45.25 feet) Moist, stiff, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% 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 do not react to HCl.					
		CL						
		CL						
	4305	SW-SM	**SANDY LEAN CLAY** (45.25-45.5 feet) Moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand to 2 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.					
		CL						
			SANDY LEAN CLAY (45.5-46 feet) Moist, no odor. Predominately silt and clay with ~50% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 5-3), and do not react to HCl.					
		CL						
			WELL-GRADED SAND with SILT (46-46.75 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand with ~15% fine sand, ~10% fine gravel to 8 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (46.75-47.5 feet) Moist, firm, no odor. Predominately silt and clay with ~50% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown (10YR 4-3), and do not react to HCl.					
50			**SANDY LEAN CLAY** (47.5-49.5 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm). The fines have medium plasticity and low toughness, are brown (10YR 5-3), and do not react to HCl.					
	4300	CL	**LEAN CLAY** (49.5-51 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
			SANDY LEAN CLAY (51-54 feet) Dry to moist, firm to hard, no odor. Predominately silt and clay with ~30% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3) to yellowish brown (10YR 5-4), and have a strong reaction to HCl.					
		CL	**LEAN CLAY** (54-55 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). 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.					
55		CL	**SANDY LEAN CLAY** (55-56 feet) Moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. 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.					
	4295	SM	**SILTY SAND** (56-57.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (57.5-58.75 feet) Moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. 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.					
		SC	**CLAYEY SAND** (58.75-59.5 feet) Moist, dense, no odor. Predominately medium to fine sand to 1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
60		SM	**SILTY SAND** (59.5-61 feet) Moist, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4290	ML	**SANDY SILT** (61-61.75 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
		SW	**WELL-GRADED SAND** (61.75-64 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to ~5 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-9 @ 60 - 65 Ft.				
		SC	**CLAYEY SAND** (64-67.5 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
65								
	4285							
		CL	**SANDY LEAN CLAY** (67.5-70.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 8 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 4-3).					
70								
		SW-SM	**WELL-GRADED SAND with SILT** (70.75-71.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 5 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4280	CL	**SANDY LEAN CLAY** (71.5-78.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (10YR 5-2), and do not react to HCl.					
75								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4275							
		SW-SM	**WELL-GRADED SAND with SILT** (78.5-80 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to 3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
80		SW	**WELL-GRADED SAND** (80-81.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-9 @ 78 - 83 Ft.				
	4270							
		SM	**SILTY SAND** (81.75-83.75 feet) Saturated, dense, no odor. Predominately fine sand (<0.5mm) with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (83.75-84.5 feet) Saturated, medium 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, are light brown, and have a weak to strong reaction to HCl.					
		SM						
85		SW	**SILTY SAND** (81.75-83.75 feet) Dry to moist, very dense, no odor. Predominately medium to fine sand to 0.5 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
	4265		**WELL-GRADED SAND** (85-86.5 feet) Saturated, medium dense, no odor. Predominately coarse to medium sand to 4 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (86.5-87.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~35% medium to fine sand to 1.5 mm. 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.					
		SW						
		CL	**WELL-GRADED SAND** (87.5-88 feet) Saturated, medium dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Predominately coarse to medium sand to 4 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SANDY LEAN CLAY** (88-89 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1 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.					
90			**SILTY SAND** (89-90.75 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
	4260	SC	**LEAN CLAY** (90.75-91 feet) Dry to moist, firm, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The fines have medium plasticity and toughness, are reddish brown (5YR 5-3), and have a strong reaction to HCl.					
			CLAYEY SAND (91-93 feet) Moist, medium dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (93-94 feet) Moist, dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a weak reaction to HCl.					
		CL	**SANDY LEAN CLAY** (94-96.75 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~30% medium to fine sand to 1 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.					
95								
	4255							
		SC	**CLAYEY SAND** (96.75-98.5 feet) Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (98.5-100.5 feet) Moist, medium dense, no odor. Predominately fine sand (<0.5mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
100								
		SM	**SILTY SAND** (100.5-101 feet) Moist to saturated, medium dense, no odor.					
	4250	SC	Predominately medium to fine sand with trace coarse sand to 3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			react to HCl.					
			CLAYEY SAND (101-102 feet)					
		SC	Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
			CLAYEY SAND (102-104 feet)					
			Moist, medium dense, no odor. Predominately fine sand (<0.5mm) and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (104-105 feet) Dry to moist, dense, no odor. Predominately fine sand (<0.5mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
105		SC	**CLAYEY SAND** (105-109.5 feet) Moist, medium dense, no odor. Predominately fine sand (<0.5mm) and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
	4245							
		CL	**LEAN CLAY** (109.5-118 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~10% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and high toughness, are brown (10YR 4-3) and dark gray (2.5Y 4-1), and have a strong to no reaction to HCl.					
110								
	4240							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
115								
	4235							
		CL	**SANDY LEAN CLAY** (118-120 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% 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.					
120		SM	**SILTY SAND** (120-121 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4230	SM	**SILTY SAND** (121-121.5 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-9 @ 121 - 126 Ft.				
		SW	**WELL-GRADED SAND** (121.5-122 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with trace coarse sand to 3 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (122-127 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 0.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
125								
	4225							
		CL	**SANDY LEAN CLAY** (127-132.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm).					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are dark gray (GLEY N4-1), and do not react to HCl.					
130	4220	SP	**POORLY-GRADED SAND** (132.5-135 feet) Saturated, dense, no odor. Predominately medium to fine sand to 1 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
135	4215	SC	**CLAYEY SAND** (135-139.25 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are yellowish brown, and do not react to HCl.					
		SP	**POORLY-GRADED SAND** (139.28-140 feet) Saturated, dense, no odor. Predominately medium to fine sand to 2 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are reddish brown, and do not react to HCl.					
140		SP-SM	**POORLY-GRADED SAND with SILT** (140-143.25 feet) Saturated, dense, no odor. Predominately medium to fine sand to 1 mm with ~10% silt					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4210							
		SC	**CLAYEY SAND** (143.25-145 feet) Moist, dense, no odor. Predominately fine sand (<0.5mm) and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are yellowish brown, and do not react to HCl.					
145		SP	**POORLY-GRADED SAND** (145-147.25 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4205							
		SM	**SILTY SAND** (147.25-148 feet) Saturated, dense, no odor. Predominately fine sand (<0.5mm) with ~30% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	**POORLY-GRADED SAND** (148-149 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**LEAN CLAY with SAND** (149-149.5 feet) Dry to moist, hard, no odor. Predominately silt and clay with ~20% fine sand (<0.5mm). The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react to HCl.					
150		SP	**POORLY-GRADED SAND** (149.5-151.5 feet) Saturated, dense, no odor. Predominately medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic and are brown.					
	4200							
		CL	**SANDY LEAN CLAY** (151.5-152 feet) Moist, stiff, no odor. Predominately silt and clay with ~40% fine sand (<0.5mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness and are brown (10YR 4-3).					
		SM	**SILTY SAND** (152-153 feet) Saturated, medium dense, no odor. Predominately medium to fine sand to 1 mm with ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (153-155.5 feet) Moist, stiff, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-9**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
155			Predominately silt and clay with ~35% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5-3), and do not react or HCl.	B/W-9 @ 158 - 163 Ft.				
		SM	**SILTY SAND** (155.5-156 feet) Moist to saturated, medium dense, no odor. Predominately medium to fine sand to 1.5 mm with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4195	SM	**SILTY SAND** (156-157 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~10% coarse sand to 3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (157-163 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~5% coarse sand to ~5 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
160								
	4190							
		SM	**SILTY SAND** (163-164 feet) Moist to saturated, medium dense, no odor. Predominately medium to fine sand to 2 mm wtih ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (164-165.5 feet) Moist, dense, no odor. Predominately medium to fine sand to 1 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
165								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **13**

Boring Location: **North of Sunset Hills residential area**		Elevation: **4341.6 feet amsl**	East: **324460.1** North: **1569181.6**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **7/26/05**	Date Finished: **8/5/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **165.0**	Water Depth: (feet) **22' / 19.49'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **100.6-120.6 ft., bottom at 120.8 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		CL	**LEAN CLAY** (0-14 feet) Dry, hard, no odor. Primarily silt and clay with ~10% medium to fine sand and trace coarse sand to ~3 mm. 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.					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.
	4340							
								Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
								Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
								All depths are below land surface unless stated otherwise.
5								
								WELL DESIGN for B/W-10D: Screened Interval: 100.6-120.6 feet. Bottom of sump: 120.8 feet.
	4335							Cement Grout: 0-92 feet. Bentonite Chips: 92-96 feet. Filter Pack: #60 Sand 96-96.5 feet, #10-20 Sand 96.5-122.5 feet. Bentonite Chips: 122.5-165 feet
								Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,344.08 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4330							
		CL	**SANDY LEAN CLAY** (14-15.5 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace coarse sand to 4 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.					
15		SW	**WELL-GRADED SAND with GRAVEL** (15.5-17 feet) Moist to dry, loose, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4325							
		SM	**SILTY SAND with GRAVEL** (17-18 feet) Moist, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel and ~25% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (18-19.5 feet) Moist to dry, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% fine gravel to ~8 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**GRAVELLY LEAN CLAY with SAND** (19.5-20.5 feet) Moist, hard, no odor. Primarily silt and clay with ~20% sand and ~30% gravel to ~25 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
20		SM	**SILTY SAND with GRAVEL** (20.5-21 feet) Dry, medium dense, no odor.					
		SW	Primarily medium to fine sand with ~20% gravel and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
	4320		**WELL-GRADED SAND** (21-24.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
25	4315	SW	**WELL-GRADED SAND** (24.5-25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~1.5 mm with trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-10 @ 26 - 31 Ft.				
		SW	**WELL-GRADED SAND with GRAVEL** (25-26 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, ~35% gravel to ~30 mm, and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (26-27.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~35% gravel to ~30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (27.5-29.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm with trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
30	4310	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (29.5-30 feet) Saturated, medium dense, no odor. Primarily gravel to ~20 mm with ~20% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		ML	**SILT** (30-32 feet) Moist, soft, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl. Some black organic streaks.					
		CL	**LEAN CLAY** (32-32.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 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.					
		ML	**SILT** (32.5-33.5 feet) Moist, soft, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl. Some black organic streaks.					
35		CL	**LEAN CLAY** (33.5-35.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 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. Some black organic streaks.					
		CL	**LEAN CLAY** (35.5-37.5 feet) Moist, very soft, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4305		Primarily silt and clay with ~20% medium to fine sand and trace coarse sand to ~3 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. Some black organic streaks.					
		CL	**SANDY LEAN CLAY** (37.5-38.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand and trace fine gravel to ~15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with GRAVEL** (38.5-40.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~20% coarse sand, ~25% gravel to ~25 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
40								
		CL	**SANDY LEAN CLAY** (40.5-41.5 feet) Moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and trace coarse sand to ~4.5 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.					
	4300	SM	**SILTY SAND with GRAVEL** (41.5-44.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~15% gravel to 20 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (44.5-48.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~15% fine gravel to ~15 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
45								
	4295							
		SM	**SILTY SAND** (48.5-49 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~20% silt and clay. The sand and gravel are					
		SW						

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			subangular to subrounded. The fines are nonplastic, and are brown.					
50			**WELL-GRADED SAND** (49-55 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm with ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.	B/W-10 @ 50 - 55 Ft.				
	4290							
55		SW-SM	**WELL-GRADED SAND with SILT** (55-58 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. From 55-56.5 feet the interval has elongated gravel, from 56.5-58 the interval has no gravel.					
	4285							
		SW	**WELL-GRADED SAND with GRAVEL** (58-59 feet) Saturated, medium dense no odor. Primarily medium to fine sand with ~20% coarse sand, ~15% fine gravel to ~15 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (59-60 feet) Saturated, medium dense, no odor. Primarily gravel to ~25 mm with ~15% medium to fine sand, ~15% coarse sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
60		SM						
		SW-SM	**SILTY SAND** (60-60.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~5% gravel to 20 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are reddish brown, and to not react to HCl. Red oxidized staining.					
	4280		**WELL-GRADED SAND with GRAVEL** (60.25-63.5 feet) Saturated, medium dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily medium to fine sand with ~15% gravel to ~25 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl. No gravel in the interval from 61.5-63.5	B/W-10 @ 64 - 69 Ft.				
		SW	**WELL-GRADED SAND** (63.5-64.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to ~25 mm with trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Some reddish brown iron oxide streaks at ~63 feet.					
65		SW	**WELL-GRADED SAND** (49-55 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm with trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4275							
		GW	**WELL-GRADED GRAVEL with SAND** (67-69.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~20 mm with ~15% coarse to medium sand and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**LEAN CLAY with SAND** (69.5-72 feet) Moist to saturated, loose, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subrounded. The fines have low to medium plasticity and low toughness, are dark yellowish brown (10YR 4/4), and do not react to HCl. Interval has some reddish brown iron oxide streaks.					
70								
	4270							
		SP-SM	**POORLY-GRADED SAND with SILT** (72-73.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are reddish brown, and do not react to HCl.					
		CL	**LEAN CLAY with SAND** (73.5-74.5 feet) Moist to saturated, soft to stiff, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subrounded. The fines have low to medium plasticity and low toughness, are olive brown (2.5Y 4/3), and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (74.5-79 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are					
75								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			nonplastic, are brown, and do not react to HCl.					
	4265							
		SW	**WELL-GRADED SAND with GRAVEL** (79-84 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
80								
	4260							
		SW-SM	**WELL-GRADED SAND with SILT** (84-87.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-10 @ 83.5 - 88.5 Ft.				
85								
	4255							
		SM	**SILTY SAND** (87.5-89.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~25% coarse sand, trace fine gravel to ~10 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			nonplastic, are brown, and do not react to HCl.					
		CL	**LEAN CLAY with SAND** (89.5-92 feet) Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 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. Some black organic streaks.					
90	4250							
		CL	**LEAN CLAY with SAND** (94.5-95 feet) Moist, stiff to hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1.5 mm. The sand is subangular to subrounded. The fines low to medium plasticity and low toughness in the upper and lower portions of the interval, medium plasticity and toughness in the middle portion of the interval, are brown (10YR 5/3), and do not react to HCl. Some black organic streaks.					
95	4245							
		SW	**WELL-GRADED SAND** (97-101 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
100								
		SW	**WELL-GRADED SAND** (101-102.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-10 @ 100 - 105 Ft.				
		SW	**WELL-GRADED SAND** (102.5-107 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~25 mm with ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
105								
	4235							
		CL	**LEAN CLAY** (107-107.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. 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.					
		SW-SM	**WELL-GRADED SAND with SILT** (107.5-115 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~6 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Increased grain size (includes ~15% angular to subrounded gravel to ~25 mm) between ~114 and 115 feet.					
110								
	4230							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
115		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (115-116.5 feet) Saturated, medium dense, no odor. Primarily gravel to 40 mm with ~15% sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-10 @ 120 - 125 Ft.				
	4225	SW	**WELL-GRADED SAND** (116.5-122.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
120		SW	**WELL-GRADED SAND with GRAVEL** (119.5-121.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4220	SW	**WELL-GRADED SAND** (121.5-122.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~6 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (122.5-124 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to ~30 mm, and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (124-124.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
125		SW-SM	**WELL-GRADED SAND with SILT** (124.5-127.75 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~20% fine sand, trace fine gravel to ~9 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4215							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		ML	**SANDY SILT** (127.75-128.5 feet) Moist, firm, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (128.5-129.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 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.					
		ML	**SANDY SILT** (129.5-130.5 feet) Moist, firm, no odor. Primarily silt and clay with ~30% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
130		CL	**LEAN CLAY** (130.5-132 feet) Moist, hard, no odor. Primarily silt and clay with ~10% sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and have a strong reaction to HCl.					
	4210	SM	**SILTY SAND with GRAVEL** (132-133 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and to not react to HCl.					
		CL	**LEAN CLAY** (130.5-132 feet) Moist, hard, no odor. Primarily silt and clay with ~10% sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (132-133 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~20 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, are brown, and to not react to HCl.					
		SC	**CLAYEY SAND** (134.5-135 feet) Moist to saturated, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~12 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness and are brown.					
135		CL	**LEAN CLAY with SAND** (135-136 feet) Moist, hard, no odor. Primarily silt and clay with ~20% medium to fine sand to ~1.5 mm. 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.					
	4205	SM	**SILTY SAND** (136-136.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**SILTY SAND** (136.5-137 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, and do not react to HCl.					
140			**WELL-GRADED SAND** (137-145 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~5% gravel to ~30 mm, and ~5% silt and clay. The sand and					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4200		gravel are subrounded. The fines are nonplastic, are brown, and do not react to HCl. The interval from 145-147.5 feet has ~15% gravel to 50 mm. The gravel is subrounded.	B/W-10 @ 140 - 145 Ft.				
145		SW	**WELL-GRADED SAND** (145-147.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~15% gravel to ~50 mm, and ~5% silt and clay. The sand and gravel are subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4195							
		GW-GM	**WELL-GRADED GRAVEL with SILT** (147.5-149.5 feet) Saturated, dense, no odor. Primarily gravel to ~30 mm with ~10% coarse to medium sand and ~10% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
150		CL	**LEAN CLAY** (149.5-151 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~10% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3 to 10YR 5/3), and do not react to HCl.					
	4190							
		SM	**SILTY SAND** (152-153.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4.5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (153.5-154 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-10**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		CL	Saturated, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~8 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SANDY LEAN CLAY** (154-154.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~20% coarse to medium sand and ~10% fine gravel to ~15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
155		GW-GM	**SILTY SAND with GRAVEL** (154.5-155 feet) Saturated to moist, medium dense, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are yellowish brown, and have a strong reaction to HCl.					
	4185	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (155-155.5 feet) Saturated, medium dense, no odor. Primarily gravel to ~75 mm with ~20% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are olive brown, and have a strong reaction to HCl.					
			WELL-GRADED GRAVEL with SILT and SAND (155.5-160 feet) Saturated, medium dense, no odor. Primarily gravel to ~55 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
160		CL	**SANDY LEAN CLAY** (160-161.75 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% sand and trace fine gravel to ~15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and have a strong reaction to HCl.					
	4180	CL	**SANDY LEAN CLAY** (154-154.5 feet) Moist to dry from 161.75-162 feet, dry from 162-165 feet, very hard, no odor. Primarily silt and clay with ~35% coarse to medium sand and ~10% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (7.5YR 5/2), and have a strong reaction to HCl.					
165								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **19**

Boring Location: **On mine site, near lined evaporatin ponds**		Elevation: **4368.1 feet amsl**	East: **321936** North: **1554614.6**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **9/28/05**	Date Finished: **9/27/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **233.5**	Water Depth: (feet) **45' / 35.84'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **170.3-190.3 ft., bottom at 190.5 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		VLT	**Vat Leach Tailings** (0-2.25 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 20 mm and ~20% silt and clay. The sand and gravel is angular. The fines are nonplastic, yellow, 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.
		SW-SM	**WELL-GRADED SAND WITH SILT** (2.25-7.75 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~5mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and react strongly to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. All depths are below land surface unless stated otherwise.
	4365							
5								WELL DESIGN B/W-11D: Screened Interval: 170.3-190.3 feet. Bottom of sump: 190.5 feet. Cement Grout: 0-160.5 feet. Bentonite Chips: 160.5-167 feet. Filter Pack: #60 Sand 167-167.5 feet, #10-20 Sand 167.5-194 feet. Bentonite Chips: 194-233.5 feet
	4360	SC	**CLAYEY SAND** (7.75-8.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					Top of PVC Elevation: 4,370.60 feet amsl. PVC Stick-up: 2.5 feet above land surface.
		SM	**SILTY SAND** (8.5-9.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			nonplastic, brown, and react strongly to HCl.					
			SILTY SAND (9.5-10.5 feet)					
		SM	Dry, medium dense, no odor. Primarily coarse to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
		SW-SM	**SILTY SAND with GRAVEL** (10.5-11 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
	4355		**WELL-GRADED SAND with SILT and GRAVEL** (11-13.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~40mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (13.5-14.75 feet) Dry, medium dense, no odor. Primarily coarse to fine sand with ~20% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, reddish brown, and have no reaction to HCl.					
15		CL	**SANDY LEAN CLAY** (14.75-15 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~45% medium to coarse sand and trace gravel to ~5 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/6), and do not react to HCl.					
		SC	**CLAYEY SAND** (15-15.5 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
	4350		**SANDY LEAN CLAY** (15.5-16 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~45% medium to coarse sand and trace gravel to ~5 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/6), and do not react to HCl.					
		CL						
		SW-SM	**CLAYEY SAND with GRAVEL** (16-18.25 feet) Dry, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity, low toughness, are brown, and have noreaction to HCl.					
		SM						
20		SC	**SANDY LEAN CLAY** (18.25-18.75 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~40% medium to coarse sand to ~2 mm. 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.					
			WELL-GRADED SAND WITH SILT (18.75-19 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			SILTY SAND (19-19.5 feet) Dry, dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	Primarily medium to fine sand with trace gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
			CLAYEY SAND (19.5-20.5 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
25		SM	**CLAYEY SAND** (20.5-23 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (23-24.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~40% gravel to ~20 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines are nonplastic, yellowish brown, and have no reaction to HCl.					
			SILTY SAND with GRAVEL (24.5-26.5 feet) Dry, dense, no odor. Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4340							
		SC	**SILTY SAND** (26.5-28.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
30			**CLAYEY SAND** (28.5-30 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (30-32 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (32-33 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4335							
		SC	**CLAYEY SAND** (33-33.5 feet) Dry, dense, no odor.					
		SC	Primarily medium to fine sand to ~2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
			CLAYEY SAND (33.5-36 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
35								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SC	**CLAYEY SAND** (36-38 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4330	SM	**SILTY SAND** (38-41.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines have low plasticity and toughness, brown, and have no reaction to HCl.					
40								
		SC	**CLAYEY SAND** (41.5-45 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~30 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4325							
45 ▽		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (45-46.5 feet) Saturated, medium dense, strong acid odor. Primarily coarse to medium sand with ~15% gravel to ~20mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (46.5-49 feet) Moist, medium dense, strong acid odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.	B/W-11 @ 45 - 50 Ft.				
	4320							
		SM	**SILTY SAND** (49-50.5 feet)					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
50			Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (50.5-52.5 feet) Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4315	SM	**SILTY SAND** (52.5-55 feet) Dry to moist, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
55		SM	**SILTY SAND** (55-55.75 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (55.75-59 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% coarse sand to ~4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4310							
60		SC	**CLAYEY SAND** (59-62.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4305	SC	**CLAYEY SAND** (62.5-66.75 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
65								
		SM	**SILTY SAND** (66.75-68 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4300	SC	**CLAYEY SAND** (68-70 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
70		SM	**SILTY SAND** (70-72 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (72-74.5 feet) Moist, medium dense, strong acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4295							
		SM	**SILTY SAND** (74.5-75.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~25% silt and clay. The sand is subangular to					
75								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	subrounded, the gravel is angular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.	B/W-11 @ 75 - 80 Ft.				
			SILTY SAND (75.5-76.25 feet)					
		SM	Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			SILTY SAND with GRAVEL (76.25-77.75 feet)					
		SM	Saturated, medium dense, strong acid odor. Primarily coarse to medium sand with ~15% gravel to ~10 mm and ~15% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
	4290							
			SILTY SAND (77.75-79 feet)					
		SM	Moist, medium dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have low plasticity and toughness, are light brown, and have no reaction to HCl.					
			SILTY SAND (79-80 feet)					
80		SC	Saturated, medium dense, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand and gravel is subangular to angular. The fines are nonplastic, brown, and have no reaction to HCl.					
			CLAYEY SAND (80-88 feet)					
			Moist, dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4285							
85								
	4280	SM	**SILTY SAND** (88-90 feet) Saturated, medium dense, strong acid odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to angular. The fines are nonplastic, brown, and have no reaction to HCl.					
90		SC	**CLAYEY SAND** (90-91.5 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~25% silt and clay. The sand is subangular to angular. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (91.5-94 feet) Dry, very dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4275							
		SM	**SILTY SAND** (94-95 feet) Dry to moist, dense, strong acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
95		SM	**SILTY SAND** (95-98 feet) Saturated and medium dense from ~95-96 feet, moist and dense from ~96-98 feet, strong acid odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.	B/W-11 @ 95 - 100 Ft.				
	4270							
		SC	**CLAYEY SAND** (98-103 feet) Dry to moist, dense, strong acid odor. Primarily 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, low toughness, are brown, and have no reaction to HCl.					
100								

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4265	SC	**CLAYEY SAND** (103-105.5 feet) Moist, dense, strong acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
105		SM	**SILTY SAND** (105.5-108.5 feet) Saturated and medium dense from 105.5-106.5 feet, moist and dense from 106.5-108.5 feet, strong acid odor. Primarily medium to fine sand with ~10% gravel to ~15 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
	4260	SC	**CLAYEY SAND** (108.5-109.5 feet) Moist, dense, acid odor. Primarily medium to fine sand with trace gravel to ~12 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
110		SM	**SILTY SAND** (109.5-110.5 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (110.5-113 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have slight plasticity, low toughness, are brown, and have no reaction to HCl.					
	4255	SC	**CLAYEY SAND** (113-115 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
115		SM	**SILTY SAND** (115-118 feet) Dry to moist, dense, weak acid odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
	4250	SC	**CLAYEY SAND** (118-119 feet) Moist, dense, slight acid odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (119-121.5 feet) Moist, dense, slight acid odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					
120								
		SC	**CLAYEY SAND** (121.5-123.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a strong reaction to HCl. Some strongly developed caliche present.					
	4245							
		SM	**SILTY SAND** (123.5-125.5 feet) Moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
125								
		SW-SM	**WELL-GRADED SILTY SAND** (125.5-127 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (127-128 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4240	SW-SM	**WELL-GRADED SAND with SILT** (128-135.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine to coarse gravel to ~60 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
130				B/W-11 @ 130 - 135 Ft.				
	4235							
135		SW-SM	**WELL-GRADED SAND with SILT** (135.5-138.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
	4230							
		SC	**CLAYEY SAND** (138.75-140 feet) Moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have no reaction to HCl.					
140		SC	**CLAYEY SAND** (140-142 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~35% silt and clay. The sand is subangular to					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND** (142-142.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to HCl.					
	4225	SW-SM	**WELL-GRADED SAND with SILT** (142.5-144 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
145		SM	**SILTY SAND** (144-149.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4220							
150		SC	**CLAYEY SAND** (149.5-150.5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction to HCl.					
		SC	**CLAYEY SAND** (150.5-153 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
	4215	SC	**CLAYEY SAND** (153-154.75 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
155		SM	**SILTY SAND with GRAVEL** (154.75-155.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a weak to strong reaction to HCl.					
		CL	**SANDY LEAN CLAY** (155.5-156 feet) Dry, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to ~15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (7.5YR 4/3), and do not react to HCl.					
		SC	**CLAYEY SAND** (156-157.5 feet) Dry, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4210		**CLAYEY SAND** (157.5-159 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
160		SM	**SILTY SAND** (159-160.9 feet) Moist, dense, no odor. Primarily 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, brown, and have no reaction to HCl.	B/W-11 @ 159 - 164 Ft.				
		SC	**CLAYEY SAND** (160.9-161 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (161-162 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
	4205	SC	**CLAYEY SAND** (162-163 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
165		SC	**CLAYEY SAND** (163-164.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (164.5-165 feet) Dry to moist, dense, no odor. Primarily 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, are brown, and have a weak to strong reaction to HCl.					
			CLAYEY SAND (165-165.5 feet)					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **14** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (165.5-167 feet) Dry to moist, dense, no odor. Primarily 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, are brown, and have a weak to strong reaction to HCl.					
	4200		**SILTY SAND** (167-167.5 feet) Moist, medium dense, slight acid odor.					
		SC	Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
170			**CLAYEY SAND** (167.5-169.5 feet) Moist, medium dense, no odor.					
		SC	Primarily medium to fine sand with ~15% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a no reaction to HCl.					
			CLAYEY SAND (169.5-170.5 feet) Dry to moist, dense, no odor.					
		SM	Primarily medium to fine sand with ~5% gravel to 15 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (170.5-171.5 feet) Dry to moist, dense, no odor.					
	4195		Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SW-SM	**SILTY SAND** (171.5-172 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
175			**CLAYEY SAND** (172-173 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			WELL-GRADED SAND with SILT (173-177 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.	B/W-11 @ 173 - 178 Ft.				
		SC	**CLAYEY SAND** (177-178.25 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4190							
		SM	**SILTY SAND** (178.25-180 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have no reaction to HCl.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **15** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (180-181.5 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (181.5-187 feet) Moist from ~181-183 feet, dry to moist from ~183 to 187 feet, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4185							
185								
		SW	**WELL-GRADED SAND** (187-188.5 feet) Saturated, medium dense, slight acid odor. Primarily medium sand with ~10% coarse sand to ~5 mm and ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
	4180							
		SW-SM	**WELL-GRADED SAND with SILT** (188.5-189.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (189.5-191 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a weak to no reaction to HCl.					
190								
		CL	**SANDY LEAN CLAY** (191-192.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand with trace gravel to ~10 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong to no reaction to HCl.					
		SC	**CLAYEY SAND** (192.5-193.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **16** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong to no reaction to HCl.					
		CL	**SANDY LEAN CLAY** (193.5-194 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand with trace gravel to ~10 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a strong to no reaction to HCl.					
		SC						
195		SC	**CLAYEY SAND** (194-194.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~4 mm and ~45% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	**CLAYEY SAND** (194.5-195 feet) Dry to moist, dense, no odor. Primarily 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, are brown, and have a strong to no reaction to HCl.					
			CLAYEY SAND with GRAVEL (195-195.75 feet) Moist to saturated, dense, no odor. Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~20% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.	B/W-11 @ 195 - 200 Ft.				
	4170	SC						
			SILTY SAND (195.75-198 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM						
		SC						
			CLAYEY SAND with GRAVEL (198-198.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~60 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SW-SM						
200		SC						
			WELL-GRADED SAND with SILT (198.5-199 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM						
			CLAYEY SAND with GRAVEL (199-199.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% gravel to ~60 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4165		**WELL-GRADED SAND with SILT** (199.5-200 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SC	**CLAYEY SAND** (200-201.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong to no reaction to HCl.					
205		SM	**SILTY SAND with GRAVEL** (201.5-204 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~20% gravel to ~10					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **17** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SC	mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a strong reaction to HCl.					
		SW-SM	**CLAYEY SAND with GRAVEL** (204-205 feet) Dry to moist, dense, no odor. Primarily coarse to fine sand with ~30% gravel to ~20 mm and ~40% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4160		**SILTY SAND** (205-206 feet) Saturated, medium dense, no odor. Primarily coarse to fine sand with ~10% gravel to ~15 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have a strong to no reaction to HCl.					
		SM	**CLAYEY SAND with GRAVEL** (206-206.5 feet) Moist to saturated, medium dense, no odor. Primarily coarse to fine sand with ~15% gravel to ~8 mm and ~30% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
210			**WELL-GRADED SAND with SILT and** (206.5-209 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~15% gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
			SILTY SAND (209-212 feet) Moist, dense, no odor. Primarily coarse to fine sand with trace gravel to ~8 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
		SC	**CLAYEY SAND** (212-213 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace gravel to ~20 mm and ~40% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
	4155		**CLAYEY SAND** (213-214 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to ~4 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (214-217.5 feet) Moist, dense, no odor. Primarily 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, brown, and have no reaction to HCl.					
215								
		SC	**CLAYEY SAND** (217.5-218.5 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. Some well-developed gravel-sized caliche is present.					
	4150		**CLAYEY SAND** (218.5-220 feet) Dry to moist, dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **18** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
220		SW-SM	Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity, low toughness, are brown, and have a strong to no reaction to HCl. **WELL-GRADED SAND with SILT** (220-222.5 feet) Saturated, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have no reaction to HCl.	B/W-11 @ 219 - 224 Ft.				
	4145	SC CL	**CLAYEY SAND** (222.5-223 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. **SANDY LEAN CLAY** (223-224.5 feet) Dry to moist from ~223-223.5 feet, dry from ~223.5-224.5 feet, very hard, no odor. Primarily silt and clay with ~30% medium to fine sand with ~5% gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
225		SC	**CLAYEY SAND with GRAVEL** (224.5-228.25 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~25% gravel to ~75 mm and ~35% silt and clay. Cobbles to ~10 cm comprise ~20% of the interval. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4140	SC SC SC	**CLAYEY SAND** (228.25-228.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace gravel to ~10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are strong brown, and have a strong reaction to HCl. **CLAYEY SAND with GRAVEL** (228.75-229 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to ~10 mm and ~35% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have no reaction to HCl.					
230			**COBBLES with SANDY CLAY** (229-233.5 feet) Dry, very dense, no odor. Primarily cobbles comprised of weathered and non weathered tuff with ~35% sandy clay. The tuff has a gray groundmass with angular to subangular clasts to ~5 mm. The sandy clay is primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, and are yellowish brown (10YR 5/4). The fines have a strong reaction to HCl from					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-11**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **19** of **19**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4135		~229 to 231 feet, and a weak reaction to HCl from ~231 to 233.5 feet.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **1** of **10**

Boring Location: **South of Pit Lake, west of highway**		Elevation: **4640.0 feet amsl**	East: **324600** North: **1536992**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **7/22/05**	Date Finished: **7/25/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **172.0**	Water Depth: (feet)
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **NA**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **NA**	
Well Seal: **Abandonded with Cement-Bentonite Grout**		Slot Size: **NA**	Filter Material: **NA**
Logged By: **C. Gardner**		Development Method: **NA**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
		GM	**SILTY GRAVEL with SAND** (0-5 feet) Dry, very dense, no odor. Predominately gravel to 70 mm with ~30% medium to fine sand, ~10% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, 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. Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
5	4635	GM	**SILTY GRAVEL with SAND** (5-6 feet) Dry, very dense, no odor. Predominately gravel to 50 mm with ~30% medium to fine sand, ~10% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are light brown, and have a strong reaction to HCl.					Dry borehole, no well installed, borehole abandoned. Abandonded with cement-bentonite grout, installed from land suface to total depth.
		GM	**SILTY GRAVEL with SAND** (6-10 feet) Dry, very dense, no odor. Predominately gravel to 70 mm with ~30% medium to fine sand, ~10% coarse sand, and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
10	4630	CL	**SANDY LEAN CLAY** (10-13 feet) Dry, very very hard, no odor. Predominately silt and clay with ~45% medium to fine sand and trace fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness, are brown (10YR 4/3), and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (13-15 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~30% gravel to 20 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light brown, and do not react to HCl.					
	4625							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **2** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			NO RECOVERY					
		CL	**SANDY LEAN CLAY** (18-21 feet) Dry, very very hard, no odor. Predominately silt and clay with ~50% medium to fine sand and trace gravel to 60 mm. The sand is angular to subangular, the gravel is angular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a weak to strong reaction to HCl.					
20	4620							
		GM	**SILTY GRAVEL with SAND** (21-25 feet) Dry, very dense, no odor. Predominately gravel to 50 mm with ~30% coarse to fine sand and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light brown, and have a weak to strong reaction to HCl.					
25	4615							
		SM	**SILTY SAND with GRAVEL** (25-26.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~20% gravel to 30 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines have slight plasticity and low toughness, are light grayish brown, and have a weak reaction to HCl.					
		GM	**SILTY GRAVEL with SAND** (26.5-34 feet) Dry, very dense, no odor. Predominately gravel to 40 mm with ~35% sand and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness and have a weak reaction to HCl.					
30	4610							
		SC	**CLAYEY SAND with GRAVEL** (34-36.5 feet) Dry, very dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **3** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
35	4605		Predominately medium fine sand with ~15% coarse sand, ~15% gravel to 50 mm, and ~35% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a weak reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (36.5-38 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~20% gravel to 60 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and have a strong reaction to HCl.					
			NO RECOVERY					
40	4600	SC	**CLAYEY SAND with GRAVEL** (40-40.75 feet) Dry, very dense, no odor. Predominately sand with ~25% fine gravel to 10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness, are grayish brown, and have a weak reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (40.75-44 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~20% gravel to 50 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are grayish brown, and have a weak reaction to HCl.					
		SC	**CLAYEY SAND with GRAVEL** (44-46 feet) Dry, very dense, no odor. Predominately coarse to fine sand with ~25% gravel to 30 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.					
45	4595	SW-SM	**SAND with SILT and GRAVEL** (46-50 feet) Dry, medium dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~25% gravel to 20 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and do not react to HCl.					
50	4590	SC	**CLAYEY SAND with GRAVEL** (50-51 feet) Dry, very dense, no odor. Predominately sand with ~15% gravel to 45 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are light brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (51-54 feet) Dry, medium dense, no odor. Predominately sand with ~35% gravel to 75 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light grayish brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **4** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
55	4585	SM	**SILTY SAND with GRAVEL** (54-55 feet) Dry, very dense, no odor. Predominately sand with ~20% fine gravel to 15 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (55-56.5 feet) Dry, very hard, no odor. Predominately silt and clay with ~35% medium to fine sand and trace fine gravel to 7 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
		SM	**SILTY SAND** (56.5-58 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% gravel to 75 mm and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
60	4580		**SILTY SAND with GRAVEL** (58-62.5 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~15% coarse sand, ~25% gravel to 30 mm, and ~15% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and have a strong reaction to HCl.					
		CL	**SANDY LEAN CLAY** (62.5-65 feet) Dry, very very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.					
65	4575	SC	**CLAYEY SAND with GRAVEL** (65-66 feet) Dry, very dense, no odor. Predominately sand with ~25% gravel to 25 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness, are light brown, and do not react to HCl.					
		GC	**CLAYEY GRAVEL with SAND** (66-68.25 feet) Dry, very dense, no odor. Predominately gravel to 75 mm with ~20% medium to fine sand and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are light grayish brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (68.25-74 feet) Dry, very dense, no odor. Predominately sand with ~20% gravel to 15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
70	4570							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **5** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
75	4565	CL	**SANDY LEAN CLAY** (74-77 feet) Dry, very very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% gravel to 20 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are dark yellowish brown (10YR 4/4), and do not react to HCl.					
		GC	**CLAYEY GRAVEL with SAND** (77-81 feet) Dry, very dense, no odor. Predominately gravel to 20 mm with ~35% coarse to fine sand and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are light brown, and do not react to HCl.					
80	4560	CL	**SANDY LEAN CLAY** (81-81.5 feet) Dry, very very hard, no odor.					
		SM	Predominately silt and clay with ~25% medium to fine sand and ~5% gravel to 40 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are dark gray (10YR 4/1), and have a weak reaction to HCl.					
			SILTY SAND with GRAVEL (81.5-83.5 feet) Dry, very dense, no odor.					
		SC	Predominately coarse to fine sand with ~30% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have slight plasticity and low toughness, are light brown, and do not react to HCl.					
85	4555	CL	**CLAYEY SAND with GRAVEL** (83.5-84.5 feet) Dry, very dense, no odor. Predominately coarse to fine sand with ~30% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are light brown, and do not react to HCl.					
			SANDY LEAN CLAY (84.5-90 feet) Dry, very hard, no odor. Predominately silt and clay with ~45% medium to fine 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 5/2), and do not react to HCl.					
90	4550	SC	**CLAYEY SAND** (90-92 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% gravel to 50 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are light brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (92-96.75 feet) Dry, very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **6** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
95	4545							
		SC	**CLAYEY SAND** (96.75-100 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines have medium plasticity and toughness, are light grayish brown, and do not react to HCl.					
100	4540	SM	**SILTY SAND with GRAVEL** (100-101 feet) Dry, very dense, no odor. Predominately medium to fine sand with trace fine gravel to 8 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (101-104.5 feet) Dry, very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 10 mm. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and have a weak reaction to HCl.					
		SC	**CLAYEY SAND** (104.5-107 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~10% fine gravel to 12 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
105	4535	CL	**SANDY LEAN CLAY** (107-107.5 feet) Dry, very hard, no odor. Predominately silt and clay with ~30% medium to fine sand and ~5% fine gravel to 15 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness and are brown (10YR 5/3).					
		SC	**CLAYEY SAND** (107.5-109 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~10% fine gravel to 10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are light brown, and do not react to HCl.					
110	4530	CL	**SANDY LEAN CLAY** (109-113 feet) Dry, very hard, no odor. Predominately silt and clay with ~45% medium to fine sand and trace fine gravel to 5 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **7** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
115	4525	CL	**SANDY LEAN CLAY** (113-117 feet) Dry, very hard, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% coarse sand to 4 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a weak reaction to HCl.					
120	4520	SC	**CLAYEY SAND** (117-121 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~5% gravel to 20 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (121-125 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~10% gravel to 25 mm and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
125	4515	CL	**SANDY LEAN CLAY** (125-127 feet) Dry, very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (127-130 feet) Dry, very hard, no odor. Predominately silt and clay with ~40% medium to fine sand and ~5% fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
130	4510	SM	**SILTY SAND with GRAVEL** (130-132 feet) Dry, very dense, no odor. Predominately coarse to medium sand with ~15% gravel to 40 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		GC	**CLAYEY GRAVEL with SAND** (132-137 feet) Dry, very dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **8** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			Predominately gravel to 65 mm with ~25% coarse to medium sand and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					
135	4505							
		SC	**CLAYEY SAND with GRAVEL** (137-141 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~25% gravel to 30 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
140	4500							
		SM	**SILTY SAND with GRAVEL** (141-141.5 feet) Dry, very dense, no odor. Predominately sand with ~20% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY with GRAVEL** (141.5-147 feet) Dry, very hard, no odor. Predominately silt and clay with ~25% coarse to medium sand and ~20% gravel to 65 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl. Interval includes some thin gravelly lean clay seams.					
145	4495							
		CL	**SANDY LEAN CLAY** (147-148 feet) Dry, very hard, no odor. Predominately silt and clay with ~35% medium to fine sand and ~5% gravel to 25 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl.					
		CL	**SANDY LEAN CLAY with GRAVEL** (148-150 feet) Dry, very hard, no odor. Predominately silt and clay with ~25% coarse to medium sand and ~20% gravel to 65 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.					
150	4490							
		SC	**CLAYEY SAND with GRAVEL** (150-150.5feet) Dry, very dense, no odor. Predominately sand with ~35% gravel to 35 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium					
		SM						

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring [X] Monitoring Well [ ] Project Number: **121243.021** Sheet **9** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
			plasticity and toughness, are light grayish brown, and do not react to HCl.					
			SILTY SAND with GRAVEL (150.5-153.5 feet) Dry, very dense, no odor.					
		SC	Predominately coarse to medium sand with ~30% gravel to 30 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brownish gray, and do not react to HCl.					
155	4485							
		SC	**CLAYEY SAND with GRAVEL** (150-150.5 feet) Dry, very dense, no odor. Predominately sand with ~25% gravel to 25 mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					
			CLAYEY SAND (155-157 feet) Dry, very dense, no odor.					
		SM	Predominately coarse to medium sand with ~5% gravel to 10 mm and ~45% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are light grayish brown, and do not react to HCl.					
			SILTY SAND (157-160 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% fine gravel to 10 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and medium toughness, are light grayish brown, and do not react to HCl.					
160	4480							
		CL	**SANDY LEAN CLAY** (160-160.5 feet) Dry, very hard, no odor.					
		SM	Predominately silt and clay with ~30% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.					
		SC	**SILTY SAND with GRAVEL** (160.5-161 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~20% coarse sand, ~30% fine gravel to 15 mm, and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
			CLAYEY SAND (161-163 feet) Dry, very dense, no odor. Predominately medium to fine sand with ~10% gravel to 15 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					
165	4475							
		CL	NO RECOVERY					
		SC	**SANDY LEAN CLAY** (165-166 feet) Dry, very hard, no odor. Predominately silt and clay with ~45% medium to fine sand and trace fine gravel to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and do not react to HCl.					
		CL	**CLAYEY SAND with GRAVEL** (166-168.25 feet) Dry, very dense, no odor.					
		CL	Predominately sand with ~35% gravel to 30 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					
170	4470	CL						
			SANDY LEAN CLAY (168.25-168.75 feet) Dry, very hard, no odor.					
		SC	Predominately silt and clay with ~45% sand and ~5% fine gravel to 10 mm. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Boring Number: **B/W-12**

Soil Boring ☒ Monitoring Well ☐ Project Number: **121243.021** Sheet **10** of **10**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Backfill	Remarks
	4465		**LEAN CLAY** (168.75-169.5 feet) Dry, weakly consolidated, no odor. Predominately silt and clay with ~10% medium to fine sand to 1 mm. The sand is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and do not react to HCl. Two to 10 cm thick bedding planes preserved. **SANDY LEAN CLAY with GRAVEL** (169.5-171 feet) Dry, moderately consolidated, no odor. Predominately silt and clay with ~15% medium to fine sand and ~25% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and do not react to HCl. **CLAYEY SAND with GRAVEL** (171-172 feet) Dry, weakly consolidated, no odor. Predominately medium to fine sand with ~25% fine gravel to 15 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown, and do not react to HCl.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **13**

Boring Location: **South of Pit Lake, west of highway**		Elevation: **4503.4 feet amsl**	East: **326838.9** North: **1535222.9**
Drilling Contractor: **WDC**	Driller: **M. Wilkerson**	Date Started: **7/7/05**	Date Finished: **7/13/05**
Drilling Equipment: **GEFCO SS-15K-HL, Roussy Sonic Head**		Total Depth: (feet) **244.0**	Water Depth: (feet) **126.5' / 124.20'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **139.2-159.2 ft., bottom at 159.5 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**SILTY SAND with GRAVEL** (0-1.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~40% gravel to 40 mm, and ~15% silt and clay. The sand is angular to subrounded, the gravel angular to subangular. The fines are nonplastic, are light brown, 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.
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (1.5-4 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 60 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown (7.5YR 4/3), and have a strong reaction to HCl.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
	4500							Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		CL	**SANDY LEAN CLAY** (4-5.75 feet) Dry, very dense, no odor. Primarily silt and clay with ~35% fine sand and ~10% gravel to 30 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a weak reaction HCl.					All depths are below land surface unless stated otherwise.
5								
		ML	**SANDY SILT** (5.75-10 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~10% gravel to 20 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness and are light brownish gray (2.5Y 6/2).					WELL DESIGN for B/W-13: Screened Interval: 139.2-159.2 feet. Bottom of sump: 159.5 feet. Cement Grout: 0-130 feet. Bentonite Chips: 130-135.5 feet. Filter Pack: #60 Sand 135.5-136 feet, #10-20 Sand 136-160 feet. Native Collapse: 160-163 feet. Bentonite Chips: 163-244 feet.
	4495							
10		GM	**SILTY GRAVEL with SAND** (10-16 feet) Dry, very dense, no odor. Primarily gravel to 60 mm with ~30% coarse to medium sand and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,505.86 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
	4490							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**SILTY SAND with GRAVEL** (16-17.25 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (17.25-19.25 feet) Dry, very dense, no odor. Primarily coarse to fine sand with ~20% gravel to 50 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4485	SC	**CLAYEY SAND with GRAVEL** (19.25-20 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% fine gravel to 15 mm, and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
20		SM	**SILTY SAND with GRAVEL** (20-21.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 50 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a weak reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (21.5-23.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% gravel to 20 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
	4480	SW	**WELL-GRADED SAND with GRAVEL** (23.5-25 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~25% coarse sand, ~45% gravel to 25 mm, and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
25		SM	**SILTY SAND with GRAVEL** (25-26 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 25 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND with GRAVEL** (26-26.5 feet) Dry, very dense, no odor. Primarily sand with ~30% gravel to 30 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light grayish brown, and have a strong reaction to HCl.					
		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (26.5-27.5 feet) Dry, very dense, no odor. Primarily gravel to 30 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
	4475	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (27.5-32 feet) Dry, very dense, no odor. Primarily coarse to medium sand with, ~15% fine sand, ~45% gravel to 40 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
30		SC	**CLAYEY SAND with GRAVEL** (32.-33.25 feet) Dry, very dense, no odor.					
	4470	SM						

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
35		GW	Primarily sand with ~30% gravel to 20 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction to HCl.					
			SILTY SAND with GRAVEL (33.25-35.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 30 mm, and ~20% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
	4465		**WELL-GRADED GRAVEL with SAND** (35.5-39 feet) Dry, medium dense, no odor. Primarily gravel to 75 mm with ~30% coarse to medium sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL						
		CL	**SANDY LEAN CLAY** (39-39.25 feet) Dry, very dense, no odor. Primarily silt and clay with ~35% medium to fine sand and ~10% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are yellowish brown (10YR 5/4), and have a strong reaction HCl.					
40		SW-SM						
		SM	**SANDY LEAN CLAY** (39.25-40 feet) Dry, very dense, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to 40 mm. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and toughness, are gray (5Y 6/1), and have a strong reaction HCl.					
	4460		**WELL-GRADED SAND with SILT and GRAVEL** (40-41.25 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~25% gravel to 60 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		CL						
45			**SILTY SAND with GRAVEL** (41.25-44 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~30% gravel to 20 mm, and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
		SM	**SANDY LEAN CLAY** (44-47.25 feet) Dry, very dense, no odor. Primarily silt and clay with ~45% medium to fine sand and ~5% gravel to 50 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are light brownish gray (2.5Y 6/2), and have a strong reaction HCl.					
	4455		**SILTY SAND with GRAVEL** (47.25-50 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~35% gravel to 50 mm, and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and have a strong reaction to HCl.					
50		GW	**WELL-GRADED GRAVEL with SAND** (50-52.5 feet) Dry, very dense, no odor. Primarily gravel to 50 mm with ~20% medium to fine sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are light brown, and have a weak reaction to HCl.					
		GM	**SILTY GRAVEL with SAND** (52.5-56 feet) Dry, very dense, no odor. Primarily gravel to 25 mm with ~25% medium to fine sand and ~15% silt and clay. The sand and gravel are subangular					
	4450							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
55		GC	**CLAYEY GRAVEL with SAND** (56-59.5 feet) Dry, medium dense, no odor. Primarily gravel to 40 mm with ~20% medium to fine sand and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and toughness, are light brown, and have a weak reaction to HCl.					
	4445							
60		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (59.5-60.75 feet) Dry, medium dense, no odor. Primarily gravel to 50 mm with ~25% medium to fine sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (60.75-63 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
	4440							
65		SC	**CLAYEY SAND with GRAVEL** (63-65 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~30% gravel to 30 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brownish gray, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (65-70 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a weak reaction to HCl.					
	4435							
70		SM	**SILTY SAND with GRAVEL** (70-72.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		CL	**SANDY LEAN CLAY** (72.5-73 feet) Dry, very hard, no odor.					
	4430	SM	Primarily silt and clay with ~50% medium to fine sand and trace fine gravel to 5 mm. The sand is subangular to					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW-SM	subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
75			**SILTY SAND with GRAVEL** (73-74 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
			WELL-GRADED SAND with SILT (74-77.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4425	GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (77.5-79 feet) Dry, very dense, no odor. Primarily gravel to 25 mm with ~20% medium to fine sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (79-80 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and low toughness and are brown.					
80		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (80-83.5 feet) Dry, medium dense, no odor. Primarily coarse to fine sand with ~30% gravel to 75 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4420	GW	**WELL-GRADED GRAVEL with SAND** (83.5-86 feet) Dry, very dense, no odor. Primarily gravel to 75 mm with ~30% coarse to fine sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
85		SM	**SILTY SAND with GRAVEL** (86-90 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 60 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
	4415							
90		SM	**SILTY SAND with GRAVEL** (90-97 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 40 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. Gravel seam in the lower 6-inches of the interval.					
	4410							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
95								
	4405	SM	**SILTY SAND with GRAVEL** (97-98.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~25% fine gravel to 15 mm, and ~40% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (98.5-99.5 feet) Moist to saturated, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 5 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
100		SM	**SILTY SAND** (99.5-100 feet) Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~25% gravel to 40 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SC	**SILTY SAND with GRAVEL** (100-101.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 50 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4400	CL	**CLAYEY SAND with GRAVEL** (101.5-102.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~35% gravel to 70 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
105			**SANDY LEAN CLAY** (102.5-110 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% gravel to 20 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are grayish brown (10YR 5/2), and have a strong reaction to HCl.					
	4395							
110		SM	**SILTY SAND** (110-116 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 15 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4390							
115								
		SM	**SILTY SAND** (116-117 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 5 mm and ~35% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (117-120 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4385							
120		GM/SC	**SILTY GRAVEL with SAND** (120-120.2 feet) Dry to moist, medium dense, no odor. Primarily gravel to 30 mm with ~30% medium to fine sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**CLAYEY SAND** (120.2-121.2 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~40% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are light brownish gray, and do not react to HCl.					
	4380							
			WELL-GRADED SAND with SILT (121.2-125 feet) Dry from 121.2-123, moist to saturated from 123-125, dense, no odor. Primarily medium to fine sand to ~1 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
125		SW-SM	**WELL-GRADED SAND with SILT** (125-126.75 feet) Moist to saturated, medium dense to very dense, no odor. Primarily medium to fine sand with trace gravel and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	**POORLY-GRADED SAND** (126.75-127.5 feet) Saturated, medium dense, no odor.					
		SW-SM	Primarily medium to fine sand with trace fine gravel to 10 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4375							
			WELL-GRADED SAND with SILT (127.5-129 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 15 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL						
130		SW-SM						
			SANDY LEAN CLAY (129-129.75 feet) Dry, no odor. Primarily silt and clay with ~50% medium to fine sand to 2 mm. 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.					
		SM	**WELL-GRADED SAND with SILT** (129.75-130.75 feet) Saturated, medium dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4370		Primarily medium to fine sand with ~10% fine gravel to 15 and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-13 @ 140 - 145 Ft.				
		GW-GM	**SILTY SAND with GRAVEL** (100-101.5 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~45% gravel to 70 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and have a strong reaction to HCl.					
135			**WELL-GRADED GRAVEL with SILT and SAND** (133.5-136 feet) Moist, very dense, no odor. Primarily gravel to 70 mm with ~20% medium to fine sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak to no reaction to HCl.					
		CL						
		GW-GM	**SANDY LEAN CLAY** (136-137 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~10% gravel to 20 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are gray (10YR 5/1), and have a weak reaction to HCl.					
	4365							
140			**WELL-GRADED GRAVEL with SILT and SAND** (137-140 feet) Saturated, medium dense, no odor. Primarily gravel to 30 mm with ~30% sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM						
		GW	**SILTY SAND with GRAVEL** (140-141.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~40% gravel to 30 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED GRAVEL with SAND (141.25-143.25 feet) Saturated, medium dense, no odor. Primarily fine gravel to 15 mm with ~20% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are gray, and do not react to HCl.					
	4360							
		SM						
		SW						
145			**SILTY SAND with GRAVEL** (143.25-144 feet) Saturated, medium dense, no odor. Predominately medium to fine sand with ~15% gravel to 75 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED SAND (144-153 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace gravel to 20 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4355							
150								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4350	SM	**SILTY SAND with GRAVEL** (153-154.75 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~30% gravel to 25 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.	B/W-13 @ 159 - 164 Ft.				
155		SM	**SILTY SAND** (154.75-155.5 feet) Moist to saturated, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (155.5-159 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to 20 mm, and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brownish gray (2.5Y 2/6), and have a weak to no reaction to HCl.					
	4345							
		SM	**SILTY SAND with GRAVEL** (159-160 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 20 mm, and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
160		GW	**WELL-GRADED GRAVEL with SAND** (160-161.5 feet) Saturated, medium dense, no odor. Primarily gravel to 30 mm with ~45% coarse to medium sand and ~5% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (161.5-162 feet) Dry, very hard, no odor. Primarily silt and clay with ~35% sand and trace fine gravel to 8 mm. The sand is angular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 4/6), and do not react to HCl.					
	4340	SW-SM						
		SM	**WELL-GRADED SAND with SILT** (162-162.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
165		SM	**INTERBEDDED SILTY SAND with GRAVEL and SANDY LEAN CLAY** (162.5-164 feet) **SILTY SAND with GRAVEL** Saturated, medium dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~20% gravel to 20 mm, and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. **SANDY LEAN CLAY** Moist, hard, no odor. Primarily silt and clay with ~35% medium to fine sand and trace coarse sand to 2.5 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.					
	4335							
170		SM	**SILTY SAND with GRAVEL** (164-170 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 40 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**INTERBEDDED SILTY SAND with GRAVEL and**					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4330		**SANDY LEAN CLAY** (170-171.5 feet) **SILTY SAND with GRAVEL** Moist, medium dense, no odor. Primarily medium to fine sand with ~15% coarse sand, ~20% gravel to 50 mm, and ~30% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl. **SANDY LEAN CLAY** Moist, very hard, no odor. Primarily silt and clay with ~35% medium to fine sand and ~5% fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
175			**SANDY LEAN CLAY** (171.5-180 feet) Moist, very hard, no odor. Primarily silt and clay with ~45% sand and ~5% fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are mostly brown (10YR 4/3) with some very dark gray sediments (10YR 3/1), and do not react to HCl.					
	4325							
180		CL	**SANDY LEAN CLAY with GRAVEL** (180-184 feet) Moist, very hard, no odor. Primarily silt and clay with ~30% sand and ~15% gravel to 75 mm. The sand is angular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a weak to no reaction to HCl.					
	4320							
			NO RECOVERY	B/W-13 @ 185 - 190 Ft.				
185								
	4315							
190								
		GW	**WELL-GRADED GRAVEL with SAND** (191-192.5 feet) Saturated, medium dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily gravel to 30 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (192.5-193.5 feet) Moist, very hard, no odor. Primarily silt and clay with ~30% coarse to fine sand and trace fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
	4310	SM	**SILTY SAND with GRAVEL** (193.5-200 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
195								
	4305							
200		SC	**CLAYEY SAND with GRAVEL** (200-203 feet) Dry to moist, very dense, no odor. Primarily medium to fine sand with ~35% gravel to 30 mm and ~25% silt and clay. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brownish gray, and have a weak to no reaction to HCl.					
	4300	SC	**CLAYEY SAND with GRAVEL** (203-206 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to 15 mm and ~45% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
205		CL	**SANDY LEAN CLAY** (206-210 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to 12 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5Y 5/2), and have a strong reaction to HCl.					
	4295							
210		CH	**SANDY FAT CLAY** (210-212.75 feet) Dry to moist, very hard, no odor. Primarily silt and clay with ~20% medium to fine sand and ~5% fine gravel to 10 mm. The sand and gravel are					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			subangular to subrounded. The fines have high plasticity and toughness, are dark yellowish brown (10YR 4/4) to yellowish red (5YR 4/6), and have a strong reaction to HCl.					
	4290	CH	**SANDY FAT CLAY** (212.75-213.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~40% medium to fine sand and trace fine gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have high plasticity and medium toughness, are very dark gray (10YR 3/1), and do not react to HCl.					
		CH	**FAT CLAY with SAND** (213.75-214.75 feet) Dry, very hard, no odor. Primarily silt and clay with ~20% medium to fine sand and trace coarse sand to 2 mm. The sand is subangular to subrounded. The fines have high plasticity and toughness, are mottled dark yellowish brown (10YR 4/6) to grayish brown (10YR 5/2) to pinkish white (5YR 8/2), and do not react to HCl.					
215			**WEATHERED GRANITE** (219.75-219.75 feet) Dry, very hard, no odor. Fractured and weathered granite with ~55% secondary silt and clay. The fines have high plasticity, medium toughness, are light brownish gray (10Y/R 6/2), and do not react to HCl.					
	4285							
220		CH	**FAT CLAY** (219.75-220 feet) Dry, very hard, no odor. Primarily silt and clay with ~15% sand and trace fine gravel to 12 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have high plasticity and medium toughness, are light brownish gray (2.5Y 6/2), and do not react to HCl.					
			WEATHERED GRANITE (220-226 feet) Dry, very hard, no odor. Fractured and weathered granite with ~55% secondary silt and clay. The fines have high plasticity, medium toughness, are light brownish gray (10YR 6/2), and do not react to HCl.					
	4280							
225			**WEATHERED TUFF** (226-228.5 feet) Dry, very hard, no odor. Fractured weathered volcanic tuff with ~20% secondary silt and clay, includes some angular quartz clasts to 3 mm. The fines have medium plasticity and toughness, are reddish brown to weak red with some pink, and do not react to HCl.					
	4275							
			WEATHERED TUFF (228.5-229 feet) Dry, very hard, no odor. Fractured weathered volcanic tuff with ~30% secondary silt and clay, includes some angular quartz clasts to 3 mm. The fines have are nonplastic, are yellowish red (5YR 5/6), and do not react to HCl.	@ 228 - 233 Ft.				
230			**WEATHERED TUFF** (229-243 feet) Dry, very hard, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-13**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **13**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Fractured weathered volcanic tuff with ~10% secondary silt and clay, includes some elemental sulfur and angular quartz clasts to 3 mm. The fines have are nonplastic, are pinkish white (5YR 8/2) to light reddish brown (5YR 6/3), and do not react to HCl.					
	4270							
235								
	4265							
240								
	4260	CH	**WEATHERED ASH / FAT CLAY** (243-243.5 feet) Dry, very hard, no odor. Entirely silt and clay with high plasticity, medium toughness, are brown (10YR 5/3), and do not react to HCl.					
		T	**TUFF** (229-243 feet) Dry, very hard, no odor. Crystalline volcanic tuff, pale red (2.5YR 7/2) and white (2.5YR 8/1), with some angular quartz clasts to ~3 mm. Does not react to HCl.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **16**

Boring Location: **Southeast of Pit Lake, east of highway near river**		Elevation: **4394.1 feet amsl**	East: **329551.6** North: **1538561.1**
Drilling Contractor: **WDC**	Driller: **M. Wilkerson**	Date Started: **6/15/05**	Date Finished: **7/6/05**
Drilling Equipment: **GEFCO SS-15K-HL, Roussy Sonic Head**		Total Depth: (feet) **200.0**	Water Depth: (feet) **15' / 10.75'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **37.2-57.2 ft., bottom at 57.5 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**SILTY SAND** (0-1.25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are yellowish brown (10YR 5/4), 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.
		SW	**WELL-GRADED SAND with GRAVEL** (1.25-2 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~20% fine gravel to 12 mm and ~5% silt and clay. The gravel and sand are subangular to subrounded.					Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
		CL	**LEAN CLAY** (2-8.5 feet) Moist, soft, no odor. Primarily silt and clay with trace sand to 5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark brown (10YR 3/3), and have a slight reaction to HCl.					Well B/W-14 was installed in a second borehole drilled to 60 feet near the initial borehole location. The initial borehole was abandonded with cement-bentonite grout tremied from total depth to land surface. All depths are below land surface unless stated otherwise.
	4390							
5								WELL DESIGN for B/W-14: Screened Interval: 37.2-57.2 feet. Bottom of sump: 57.5 feet. Cement Grout: 0-28 feet. Bentonite Chips: 28-34.3 feet. Filter Pack: #60 Sand 34.3-35.1 feet, #10-20 Sand 35.1-60 feet.
		SP	**POORLY GRADED SAND** (8.5-9.25 feet) Moist, loose, no odor. Primarily medium to fine sand to 2 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light olive brown (2.5Y 5/3), and do not react to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,396.56 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
	4385	CL	**LEAN CLAY with SAND** (9.25-10 feet) Moist, soft, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	Primarily silt and clay with trace sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are dark grayish brown (2.5Y 4/2), and do not react to HCl.	B/W-14 @ 12 - 17 Ft.				
			SILTY SAND (10-11 feet)					
		SM	Moist, loose, no odor. Primarily fine sand with trace medium sand to 1 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are dark gray (2.5Y 4/1), and do not react to HCl.					
			SILTY SAND (11-12.5 feet)					
		SW	Moist, medium dense, no odor. Primarily fine sand with trace medium sand to 1 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are dark gray (2.5Y 4/1), and do not react to HCl.					
			WELL-GRADED SAND (12.5-14.25 feet)					
	4380		Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 5 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are gray (2.5Y 5/1), and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (14.25-15 feet)					
15			Moist, soft, no odor. Primarily silt and clay with ~30% medium to fine sand to 1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are very dark gray (5Y 3/1), and do not react to HCl.					
		SW	**WELL-GRADED SAND** (15-17 feet)					
			Saturated, loose, no odor. Primarily medium sand with ~15% coarse sand, ~5% gravel to 20 mm, and ~5% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray (2.5Y 5/1), and do not react to HCl.					
		CL	**LEAN CLAY** (17-18.5 feet)					
			Moist, firm, no odor. Primarily silt and clay with ~5% fine sand to 0.5 mm. The fines have medium plasticity and toughness and do not react to HCl.					
		SW	**WELL-GRADED SAND** (18.5-19 feet)					
	4375		Saturated, loose, no odor.					
		SW	Primarily medium to fine sand with trace fine gravel to 10 mm, and trace silt and clay. The sand is angular to subrounded, the gravel is subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
			WELL-GRADED SAND (18.5-19 feet)					
20			Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 7 mm, and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (20.5-21.5 feet)					
			Saturated, loose, no odor. Primarily medium sand with ~20% coarse sand, ~10% gravel to 15 mm, and trace silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (21.5-23 feet)					
			Saturated, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 75 mm and trace silt and clay. The sand and gravel are angular to subrounded, some gravel is elongated. The fines are nonplastic, are gray, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW	**WELL-GRADED SAND** (23-35 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% coarse sand, ~5% gravel to 20 mm, and trace silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are gray, and do not react to HCl.					
	4370							
25								
	4365							
30				B/W-14 @ 29 - 34 Ft.				
	4360							
35		SW	**WELL-GRADED SAND with GRAVEL** (35-36 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~25% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW-SM	**WELL-GRADED SAND** (36-37.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% fine gravel to 10 mm and ~10% silt and clay. The sand is angular to subangular, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (37.25-38 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (38-40.75 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
	4355							
40								
		SW-SM	**WELL-GRADED SAND** (40.75-41.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 5 mm and ~10% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (41.25-42.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to 20 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are grayish brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (42.25-43 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% fine sand, ~5% fine gravel to 30 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4350							
		SW-SM	**WELL-GRADED SAND with GRAVEL** (43-43.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% fine gravel to 15 mm and ~5% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
45								
		GW	**WELL-GRADED SAND with GRAVEL** (43.25-44 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND** (44-45.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine gravel to 30 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**WELL-GRADED GRAVEL with SAND** (45.5-46 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~25% coarse to medium sand and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.	B/W-14 @ 46 - 51 Ft.				
	4345	SW	**WELL-GRADED SAND** (46-48 feet) Saturated, loose, no odor.					
		SW-	Primarily medium to fine sand with ~5% fine gravel to 10					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
50			**SILTY SAND** (48-48.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 3 mm and ~15% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED SAND with GRAVEL (48.75-49 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% fine sand, ~35% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
			WELL-GRADED SAND (49-54 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4340	GW	**WELL-GRADED GRAVEL with SAND** (54-54.5 feet) Saturated, loose, no odor. Primarily gravel to 45 mm with ~20% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
55		SW	**WELL-GRADED SAND with GRAVEL** (54.5-58 feet) Saturated, loose, no odor. Primarily coarse to medium sand ~20% fine gravel to 20 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	**POORLY GRADED SAND** (58-59 feet) Saturated, loose, no odor. Completely medium to fine sand to 1.5 mm. The sand is angular to subangular.					
	4335	SW	**WELL-GRADED SAND** (59-60 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 20 mm and trace silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
60		GW	**WELL-GRADED GRAVEL with SAND** (60-61.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~40% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW-GM	**WELL-GRADED GRAVEL with SILT and SAND** (60-61.5 feet) Saturated, loose, no odor. Primarily gravel to 50 mm with ~40% medium to fine sand					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (63-64 feet) Saturated, loose, no odor. Primarily medium sand with ~5% coarse sand to 2.5 mm and ~10% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4330	CL	**SANDY LEAN CLAY** (64-64.25 feet) Moist, hard, no odor. Primarily silt and clay with ~30% fine sand (<0.5 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.					
		SP-SM	**POORLY GRADED SAND with SILT** (64.25-64.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to 0.5 mm with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
65		CL	**LEAN CLAY with SAND** (64.75-68.5 feet) Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3) with some black organic staining, and do not react to HCl.					
		ML	**SANDY SILT** (68.5-70 feet) Saturated, soft, no odor. Primarily silt and clay with ~40% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4325							
70		SW	**WELL-GRADED SAND with GRAVEL** (70-70.75 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~35% gravel to 30 mm and ~10% silt and clay. The sand is subangular to rounded,					
		GW	the gravel is subrounded to rounded. The fines have medium					
		CL	plasticity and toughness, are brown, and do not react to HCl.					
		SW	**WELL-GRADED GRAVEL with SAND** (70.75-71 feet) Saturated, loose, no odor. Primarily gravel to 50 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		GW	**SANDY LEAN CLAY** (71-71.25 feet) Moist, stiff, no odor. Primarily silt and clay with ~40% medium to fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (7.5YR 5/2), and do not react to HCl.					
		CL	**WELL-GRADED SAND** (71.25-72.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% gravel to 30 mm and ~5% silt and clay. The sand is angular to rounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4320							
		GM	**WELL-GRADED GRAVEL** (72-73.5 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~20% coarse to medium sand					
75		ML/SC	and ~5% silt and clay. The sand and gravel are subangular to rounded. The fines are nonplastic, are brown, and do not					

B/W-14 @ 70 - 75 Ft.

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			react to HCl.					
			SANDY LEAN CLAY (73.5-74.5 feet) Saturated, soft, no odor. Primarily silt and clay with ~30% coarse to medium sand and trace gravel to 15 mm. The sand and gravel are subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
		CL						
		SW	**SILTY GRAVEL** (74.5-75 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~10% coarse to fine sand and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are brown and do not react to HCl.					
			SANDY SILT (75-75.1 feet) Saturated, medium dense, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is subrounded. The fines have low plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
	4315		**CLAYEY SAND** (75.1-76 feet) Saturated, medium dense, no odor. Primarily medium fine sand to 0.5 mm and ~35% silt and clay. The sand is subangular to rounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.					
80		GC	**SANDY LEAN CLAY** (76-76.75 feet) Moist, hard, no odor. Primarily silt and clay with ~40% fine sand to 0.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/4), and do not react to HCl.					
			WELL-GRADED SAND (76.75-80 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 10 mm. The sand is subangular to subrounded, the gravel is subangular to rounded.					
		SW	From 79-79.2 feet 30% gravel to 25mm and 70% coarse to medium sand.					
			CLAYEY GRAVEL (80-82 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~25% coarse to medium sand and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
	4310		**WELL-GRADED SAND with GRAVEL** (82-85 feet) Moist, loose, no odor. Primarily coarse to medium sand with ~15% gravel to 20 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
85		SW	**WELL-GRADED SAND** (85-89 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to 25 mm. The sand is angular to subrounded, the gravel is subrounded to rounded.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4305	SW	**WELL-GRADED SAND with GRAVEL** (89-90 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% fine gravel to 15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to rounded. The fines are nonplastic, are brown, and do not react to HCl. Thin clay seams at ~89.25 and 89.5 feet.	B/W-14 @ 90 - 95 Ft.				
90		SW	**WELL-GRADED SAND with GRAVEL** (90-91.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm. The sand and gravel are subangular to subrounded					
		SW	**WELL-GRADED SAND with GRAVEL** (91.25-94 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~30% gravel to 25 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4300	SW	**WELL-GRADED SAND with GRAVEL** (94-97.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm and ~5% silt and clay. The sand is angular to rounded, the gravel is angular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
95								
		SW	**WELL-GRADED SAND with GRAVEL** (97.5-98.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% fine gravel to 15 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are dark gray, and do not react to HCl.					
		SM	**SILTY SAND with GRAVEL** (98.5-100 feet) Moist, very dense, no odor. Primarily coarse to medium sand with ~20% gravel to 25 mm and ~40% silt and clay. The sand and gravel are angular to subrounded. The fines have low plasticity and toughness, are dark gray, and do not react to HCl.					
	4295							
100		GW	**WELL-GRADED GRAVEL with SAND** (100-101 feet) Saturated, loose, no odor. Primarily gravel to 60 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (101-105 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 20 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4290							
105		SW	**WELL-GRADED SAND** (105-106.75 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW	**WELL-GRADED GRAVEL with SAND** (106.75-107.5 feet) Saturated, loose, no odor. Primarily gravel to 35 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.	B/W-14 @ 107 - 112 Ft.				
		SW						
		GW	**WELL-GRADED SAND with GRAVEL** (107.5-108 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% gravel to 25 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4285	SW						
			WELL-GRADED GRAVEL with SAND (108-108.5 feet) Saturated, loose, no odor. Primarily gravel to 70 mm with ~35% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
110		SW						
			WELL-GRADED SAND (108.5-109.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% fine gravel to 10 mm and trace silt and clay. The sand is angular to rounded, the gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW						
			WELL-GRADED SAND (109.5-111 feet) Saturated, loose, no odor. Primarily medium sand with ~5% fine gravel to 15 mm and trace silt and clay. The sand is angular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		GW						
			WELL-GRADED GRAVEL with SAND (111-112 feet) Saturated, loose, no odor. Primarily gravel to 25 mm with ~45% coarse to medium sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			WELL-GRADED GRAVEL with SAND (112-115.5 feet) Saturated, loose, no odor. Primarily gravel to 50 mm with ~30% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines					
	4280							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			are nonplastic, are light brown, and do not react to HCl.					
115		SP-SM	**POORLY GRADED SAND with SILT and GRAVEL** (115.5-117 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SP-SM	**POORLY GRADED SAND with SILT** (117-118.5 feet) Saturated, loose, no odor. Primarily 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, are light brown, and do not react to HCl.					
	4275	SM	**SILTY SAND** (118.5-120.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~20% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
120		CL	**SANDY LEAN CLAY** (120.5-120.75 feet) Moist, hard, no odor. Primarily silt and clay with ~35% fine sand to 0.5 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.					
		SW	**WELL-GRADED SAND with GRAVEL** (120.75-121.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 30 mm and ~10% silt and clay. The sand and gravel are angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		CL						
		SP						
		GW-GM	**WELL-GRADED SAND** (121.25-122 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
	4270	SW	**SANDY LEAN CLAY** (122-122.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~30% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light olive brown (2.5Y 5/3), and do not react to HCl.					
125			**POORLY GRADED SAND** (122.5-123 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to 0.5 mm with ~5% silt and clay. The sand is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			WELL-GRADED GRAVEL with SILT and SAND (123-124 feet) Saturated, loose, no odor. Primarily gravel to 35 mm with ~25% coarse to medium sand and ~10% silt and clay. The sand is subangular to subrounded, the gravel angular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
			WELL-GRADED SAND with GRAVEL (124-130 feet) Saturated, loose, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily coarse to medium sand with ~15% gravel to 50 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subrounded. The fines are nonplastic, are light brown, and do not react to HCl.	B/W-14 @ 128 - 133 Ft.				
	4265							
130		GW	**WELL-GRADED GRAVEL with SAND** (130-133.25 feet) Saturated, loose, no odor. Primarily gravel to 70 mm with ~25% coarse to medium sand and ~5% silt and clay. The sand is angular to subangular, the gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		CL	**LEAN CLAY** (133.25-134 feet) Dry, hard, no odor. Primarily silt and clay with ~10% fine sand (<0.5 mm). The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3), and do not react to HCl.					
	4260	SP-SM	**POORLY GRADED SAND with SILT** (134-136 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines have low plasticity, are brown, and do not react to HCl.					
135		SP	**POORLY GRADED SAND** (136-138.75 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4255	SW	**WELL-GRADED SAND** (138.75-141.75 feet) Saturated, loose, no odor. Primarily medium sand with ~5% fine gravel to 15 mm and ~5% silt and clay. The sand is angular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
140								

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **12** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW	**WELL-GRADED SAND with GRAVEL** (141.75-143.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 35 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.	B/W-14 @ 140 - 145 Ft.				
		CL	**SANDY LEAN CLAY** (143.5-143.7 feet)					
	4250	SW	Moist, stiff, no odor. Primarily silt and clay with ~40% medium to fine sand and trace coarse sand to 3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown (2.5YR 5/2), and do not react to HCl.					
145		SP	**WELL-GRADED SAND** (143.7-144.8 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% fine sand, ~10% gravel to 20 mm, and ~5% silt and clay. The sand is angular to subrounded, the gravel is angular to subrounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
			INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY (144.8-147.5 feet) Beds are 0.1 to 0.4 feet thick. **POORLY-GRADED SAND** Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 4/3), and do not react to HCl.					
		SP	**LEAN CLAY with SAND** Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 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. Some iron oxide and organic staining.					
		SP	**POORLY GRADED SAND** (147.5-148.5 feet) Saturated, medium dense, no odor.					
	4245		Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
			INTERBEDDED POORLY-GRADED SAND and SANDY LEAN CLAY (144.8-147.5 feet)					
		SP	**POORLY-GRADED SAND**					
150		CL	Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 4/3), and do not react to HCl.					
			LEAN CLAY with SAND Moist, hard, no odor. Primarily silt and clay with ~20% fine sand (<0.5 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.					
			POORLY GRADED SAND (149.75-150 feet)					
		SP	Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown (10YR 5/3), and do not react to HCl.					
			LEAN CLAY (150-152 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~5% fine sand (<0.5 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are light brownish gray (2.5Y 6/2), and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **13** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4240		**CLAYEY SAND** (152-155 feet) Saturated, medium dense, no odor. Primarily fine sand (<0.5 mm) with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and do not react to HCl.	B/W-14 @ 155 - 160 Ft.				
155		SP	**POORLY GRADED SAND** (155-156 feet) Saturated, loose, no odor. Completely medium to fine sand to 1 mm. The sand is subangular to subrounded.					
		SW	**WELL-GRADED SAND** (156-161.5 feet) Saturated, loose, no odor. Primarily medium sand with ~5% gravel to 40 mm, and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4235							
160								
		SW	**WELL-GRADED SAND** (161.5-162 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (162-162.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm. The sand is subangular to subrounded, the gravel is angular.					
	4230		**WELL-GRADED SAND** (162.5-165 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to 30 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, and do not react to HCl.					
165		CL	**LEAN CLAY with SAND** (165-166 feet) Moist, stiff, no odor. Primarily silt and clay with ~20% fine sand (<0.5 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. Some iron oxide staining.					
		SM	**SILTY SAND** (166-167.5 feet) Saturated, loose, no odor. Primarily fine sand (<0.5 mm) and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic,					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **14** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			are yellowish brown (10YR 5/4), and do not react to HCl. Significant iron oxide staining.					
		CL	**LEAN CLAY** (150-152 feet) Moist to saturated, firm to stiff, no odor. Primarily silt and clay with ~30% medium to fine sand and ~5% gravel to 30 mm. The sand is angular to subrounded, the gravel is subrounded to rounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and do not react to HCl.					
	4225							
		SC	**CLAYEY SAND with GRAVEL** (169.25-170 feet) Moist to saturated, medium dense, no odor. Primarily medium sand with ~40% gravel to 40 mm, and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines have medium plasticity and toughness, are dark brown, and do not react to HCl.					
170		SW	**WELL-GRADED SAND with GRAVEL** (170-171 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 40 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are dark brown, and do not react to HCl.					
		GW	**WELL-GRADED GRAVEL with SAND** (171-173.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~30% sand and ~10% silt and clay. The sand is subangular to rounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND with GRAVEL** (173.5-174 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~20% gravel to 30 mm. The sand is subangular to rounded, the gravel is subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
	4220	GW	**WELL-GRADED GRAVEL with SAND** (174-176 feet) Saturated, loose, no odor. Primarily gravel to 60 mm with ~25% sand and ~5% silt and clay. The sand is angular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are grayish brown, and do not react to HCl.					
175		GW	**WELL-GRADED GRAVEL with SAND** (176-177.5 feet) Saturated, loose, no odor. Primarily gravel to 45 mm with ~30% coarse to medium sand and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are grayish brown, and do not react to HCl.	B/W-14 @ 173 - 178 Ft.				
		SW	**WELL-GRADED SAND with GRAVEL** (177.5-178 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~35% gravel to 40 mm. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**CLAYEY SAND with GRAVEL** (178-180 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~35% gravel to 75 mm, and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subrounded. The fines have medium plasticity and low to medium toughness, are brownish gray, and do not react to HCl.					
	4215							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **15** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		GW	**WELL-GRADED GRAVEL with SAND** (180-181 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~20% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SP	**POORLY GRADED SAND** (181-183.5 feet) Saturated, loose, no odor. Primarily medium to fine sand trace coarse sand to 3 mm. The sand is subangular to subrounded.					
		GW	**WELL-GRADED GRAVEL with SAND** (183.5-189.5 feet) Saturated, loose, no odor. Primarily gravel to 40 mm with ~35% coarse to medium sand and ~5% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4210							
185								
	4205							
		SW	**WELL-GRADED SAND with GRAVEL** (189.5-190.25 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~50% gravel to 30 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
190		GW	**WELL-GRADED GRAVEL with SAND** (190.25-191 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~20% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.	W-14 @ 190 - 195 Ft.				
		SP	**POORLY GRADED SAND** (191-193.75 feet) Saturated, loose, no odor. Completely medium to fine sand to 1 mm. The sand is angular to subangular.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-14**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **16** of **16**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4200	SM	**SILTY SAND** (193.75-194.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~20% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND** (194.5-195 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~15% fine sand, ~10% fine gravel to 15 mm, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular to angular. The fines are nonplastic, are brown, and do not react to HCl.					
195		SM	**SILTY SAND** (195-195.5 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (195.5-196.75 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~20% fine gravel to 12 mm and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4195		**SILTY SAND** (196.75-197.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% fine gravel to 15 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**WELL-GRADED SAND** (197.25-199.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~10% silt and clay. The sand is angular to subangular, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
200			**SILTY SAND** (199.25-200 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~25% silt and clay. The sand is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-15**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **5**

Boring Location: **Northeast of Pit Lake, east of highway near river**		Elevation: **4384.3 feet amsl**	East: **330160.2** North: **1544187.5**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **7/19/05**	Date Finished: **7/22/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **78.0**	Water Depth: (feet) **5' / 8.75'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **35.8-55.8 ft., bottom at 56 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**SILTY SAND with GRAVEL** (0-2 feet) Dry, medium dense, no odor. Primarily sand with ~15% gravel to 20 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are light brown, 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. Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. All depths are below land surface unless stated otherwise. WELL DESIGN for B/W-15: Screened Interval: 35.8-55.8 feet. Bottom of sump: 56 feet. Cement Grout: 0-29 feet. Bentonite Chips: 29-33.5 feet. Filter Pack: #60 Sand 33.5-34 feet, #10-20 Sand 34-60 feet. Bentonite Chips: 60-78 feet. Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,386.76 feet, amsl. PVC Stick-up: 2.5 feet above land surface.
	4380	CL	**SANDY LEAN CLAY** (2-6 feet) Moist, firm, no odor. Primarily silt and clay with ~35% medium to fine 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 do not react to HCl.					
5 ▽								
	4375	SW	**WELL-GRADED SAND** (6-15 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, and do not react to HCl.	B/W-15 @ 10 - 15 Ft.				
10								
	4370							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-15**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SW	**WELL-GRADED SAND** (15-16.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is subrounded to rounded. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
		GW	**WELL-GRADED GRAVEL with SAND** (16.5-17.5 feet) Saturated, loose, no odor.					
		SW	Primarily fine gravel to 30 mm with ~30% coarse to medium sand and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl.					
	4365		**WELL-GRADED SAND** (17.5-27.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~5% fine gravel to 15 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl. Interval has a gravel layer from 23.75 to 24.25 feet. This layer is 50% gravel to 25 mm and 50% sand. The sand and gravel are subangular to rounded.					
20								
	4360							
25								
		SW	**WELL-GRADED SAND with GRAVEL** (27.5-33 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~25% gravel to 30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish brown, and do not react to HCl. Interval has a gravel layer from 30 to 30.5 feet. This layer is 40% gravel to 35 mm and 60% sand. The sand and gravel are subangular to rounded.					
	4355							
30								
		SW	**WELL-GRADED SAND with GRAVEL** (33-35 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 33 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are light grayish	B/W-15 @ 30 - 35 Ft.				
	4350							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-15**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			brown, and do not react to HCl.					
35		SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (35-36.75 feet) Dry, dense, no odor. Primarily coarse to medium sand with ~15% fine sand, ~40% gravel to 45 mm, and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW	**WELL-GRADED SAND** (36.75-39.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~5% gravel to 40 mm and trace silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4345							
		ML	**SANDY SILT** (39.25-42.5 feet) Saturated, stiff, no odor. Primarily silt and clay with ~30% medium to fine sand to 2 mm. The sand is subangular to subrounded. The fines have low plasticity and toughness, are light grayish brown (10YR 5/2), and do not react to HCl.					
40								
		SW	**WELL-GRADED SAND** (42.5-45.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace fine gravel to 15 mm and trace silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4340							
45								
		CL	**LEAN CLAY with SAND** (45.5-46.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~15% fine sand and trace medium sand to 1.5 mm. The sand is subangular to subrounded. The fines have medium plasticity and low toughness and do not react to HCl.					
		SW	**WELL-GRADED SAND** (46.5-47.5 feet) Saturated, loose, no odor. Primarily medium to fine sand with trace coarse sand to 3.5 mm and trace silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		GW	**WELL-GRADED GRAVEL with SAND** (47.5-54.5 feet) Saturated, loose, no odor. Primarily gravel to 45 mm with ~30% coarse to medium sand and trace silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, are brown, and do not react to HCl.					
	4335							
50				B/W-15 @ 50 - 55 Ft.				

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-15**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
55		SM	**SILTY SAND with GRAVEL** (54.5-55 feet) Moist to saturated, medium dense, no odor. Primarily medium to fine sand with ~20% coarse sand, ~30% gravel to 20 mm, and ~25% silt and clay. The sand and gravel are subangular to subrounded. The have low plasticity and toughness, are brown, and do not react to HCl.	B/W-15 @ 60 - 65 Ft.				
		SW						
		GW						
		SW	**WELL-GRADED SAND** (55-55.5 feet) Saturated, loose, no odor. Primarily coarse to medium sand with ~10% gravel to 30 mm and ~5% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SW						
		CL	**WELL-GRADED GRAVEL with SAND** (55.5-56 feet) Saturated, loose, no odor. Primarily gravel to 30 mm with ~15% sand and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular to rounded. The fines are nonplastic, and do not react to HCl.					
	4325							
60		CL	**WELL-GRADED SAND with GRAVEL** (56-57.25 feet) Saturated, loose, no odor. Primarily medium to fine sand with ~40% gravel to 40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic and do not react to HCl.					
		SP-SM	**WELL-GRADED SAND** (57.25-58 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular. The fines are nonplastic, are light brown, and do not react to HCl.					
			LEAN CLAY with SAND (58-59.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~20% medium to fine 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.					
	4320							
65			**SANDY LEAN CLAY** (59.5-60.75 feet) Moist, firm, no odor. Primarily silt and clay with ~20% fine sand, ~15% coarse to medium sand, and trace fine gravel to 15 mm. The sand is subangular to subrounded, the gravel is subrounded. The fines have medium plasticity and low toughness, are brown (10YR 4/3), and do not react to HCl.					
			POORLY-GRADED SAND with SILT (60.75-63.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
			WEATHERED GRANITE (63.25-78 feet) Dry, very dense, no odor. Weathered granite with ~30% fines. The granite is quartz dominated with white orthoclase. The fines have medium plasticity and tougness, are light gray (2.5Y 7/1), and do not react to HCl.					
	4315							
70								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-15**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **5**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4310							
75								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **7**

Boring Location: **On mine site, between lined evaporatin ponds**		Elevation: **4400.0 feet amsl**	East: **321698** North: **1556693**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **9/27/05**	Date Finished: **9/27/05**
Drilling Equipment: **Gus Pech GP24-400RS, Dietrich Sonic**		Total Depth: (feet) **58.0**	Water Depth: (feet) **44'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **26.6-46.6 ft., bottom at 46.8 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Vat Leach Tailings (0-2.25 feet) Dry, loose, no odor. Primarily coarse to medium sand with ~40% gravel to 20 mm and ~20% silt and clay. The sand and gravel is angular. The fines are nonplastic, yellow, 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. All depths are below land surface unless stated otherwise. WELL DESIGN: Screened Interval: 26.6-46.6 feet. Bottom of sump: 46.8 feet. Cement Grout: 0-18.5 feet. Bentonite Chips:18.5-23.5 feet. Filter Pack: #60 Sand 23.5-24 feet, #10-20 Sand 24-50 feet. Bentonite Chips: 50-58 feet Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: ~xxxx feet amsl. PVC Stick-up: 2.5 feet above land surface.
5	4395							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
10	4390							
15	4385							
		GC	**CLAYEY GRAVEL with SAND** (16.5-17 feet) Moist to saturated, loose, no odor. Primarily gravel to ~20 mm with ~35% coarse to fine sand and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellow, and do not react to HCl.					
		GC	**ASPHAULT LINER** (17-17.1 feet) **CLAYEY GRAVEL with SAND** (17.1-18 feet) Moist to saturated, loose, no odor. Primarily gravel to ~20 mm with ~35% coarse to fine sand and ~25% silt and clay. The sand and gravel is angular to subangular. The fines have medium plasticity and toughness, are yellow, and do not react to HCl.					
		CL						

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			SANDY LEAN CLAY (18-21 feet) Dry to moist, firm, no odor. Primarily silt and clay with ~40% medium to fine sand to ~2 mm. 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.					
20	4380							
		SM	**SILTY SAND** (21 -21.5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and have a weak reaction to HCl.					
		SM	**SILTY SAND** (21.5 -22.5 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (22.5-25 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
25	4375							
		SC	**CLAYEY SAND** (25-25.5 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~40% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are yellowish brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (25.5-26 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% gravel to ~10 mm and ~30% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		CL	**CLAYEY SAND** (26-27 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~5 mm and ~40% silt and clay. The sand and gravel is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
		SW-SM	**SANDY LEAN CLAY** (27-27.5 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand and trace gravel to ~8 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and reacts strongly to HCl.					
		SM	**WELL-GRADED SAND with SILT** (27.5-28 feet) Dry, medium dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		CL	Primarily medium to fine sand with trace fine gravel to 10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
			SILTY SAND (28-29 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
30	4370	SC	**SANDY LEAN CLAY** (29-30 feet) Dry to moist, stiff, no odor. Primarily silt and clay with ~30% fine sand (<1/2 mm). The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and react strongly to HCl.					
		SM	**CLAYEY SAND** (30-31 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity, low toughness, are yellowish brown, and do no react to strongly react to HCl.					
			SILTY SAND (31-33 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~20% silt and clay. The sand and gravel is subangular to subrounded. The fines are nonplastic, brown, react strongly at the top of the interval, and do not react to HCl in the lower portion of the interval.					
		SW-SM	**WELL-GRADED SAND with SILT** (33-35 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
35	4365	SW-SM	**WELL-GRADED SAND with SILT** (35-39 feet) Dry to moist, medium dense, no odor. Primarily medium to fine sand to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	**SILTY SAND** (39-40 feet) Dry to moist, medium dense, no odor.					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily medium to fine sand with ~5% gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
40	4360	SM	**SILTY SAND** (40-41 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SM	**SILTY SAND** (41-43 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (43-43.25 feet) Dry to moist, stiff, no odor.					
		SM	Primarily silt and clay with ~40% medium to fine sand to ~2 mm. The sand is subangular to angular. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
		SW	**SILTY SAND** (41-43 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
45	4355		**WELL-GRADED SAND** (44-45.5 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~15% gravel to ~10 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (45.5-47.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~5% gravel to ~8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (47.75-49 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~5 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (49-50 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand with ~15% gravel to ~15 mm, ~15% fine sand, and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
50	4350		are nonplastic, brown, and have no reaction to HCl.					
		SM	**SILTY SAND** (50-51.25 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand to ~5 mm, ~15% fine sand, and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (51.25-52 feet) Moist, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
		SM	**SILTY SAND** (52-54 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse and to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SM	**SILTY SAND** (54-54.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% coarse and to ~3 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (54.5-54.75 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
55	4345	SM	**SILTY SAND** (54.75-55.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		CL	**SANDY LEAN CLAY** (55.25-55.5 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
		SM	**SILTY SAND** (55.5-55.75 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
		SC	**SANDY LEAN CLAY** (55.75-56 feet) Moist, stiff, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and react strongly to HCl.					
			SILTY SAND (56-56.25 feet) Saturated, medium dense, no odor. Primarily medium to fine sand to ~2 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					
			CLAYEY SAND (56.25-57 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm and ~40% silt and					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **P-1**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **7**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and react strongly to HCl.					
			SILTY SAND (57-58 feet) Saturated, medium dense, no odor. Primarily medium to coarse sand to ~4 mm, ~20% fine sand, and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, brown, and do not react to HCl.					