



One Government Gulch - PO Box 929

Kellogg, ID 83837-0929

(208) 784-1258

www.svl.net

Echo Bay / Reclamation

363 Fish Hatchery Road
Republic, WA 99166

Work Order: **X4B0240**
Reported: 28-Feb-24 11:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
Key-IN	X4B0240-01	Ground Water	14-Feb-24 13:35	JVN	15-Feb-2024	
Key-OUT	X4B0240-02	Ground Water	14-Feb-24 13:46	JVN	15-Feb-2024	

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

Analyses were performed in accordance with SVL standard operating procedures and calibrations were performed and met SVL internal QC criteria.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

This report shall not be reproduced except in full, without the written approval of SVL Analytical, Inc.

Case Narrative: X4B0240

Washington doesn't accredit Reactive Phosphorus.

**Echo Bay / Reclamation**363 Fish Hatchery Road
Republic, WA 99166Work Order: **X4B0240**
Reported: 28-Feb-24 11:43Client Sample ID: **Key-IN**

Sampled: 14-Feb-24 13:35

Received: 15-Feb-24

Sampled By: JVN

SVL Sample ID: **X4B0240-01 (Ground Water)****Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Calcium	318000	µg/L	100	69		X409012	NMS	02/26/24 14:30	
EPA 200.7	Iron	< 56	µg/L	100	56		X409012	NMS	02/26/24 14:30	U
EPA 200.7	Magnesium	51700	µg/L	500	90		X409012	NMS	02/26/24 14:30	
EPA 200.8	Arsenic	0.89	µg/L	1.00	0.21		X409033	SMU	02/27/24 10:42	J
EPA 200.8	Manganese	32.9	µg/L	0.40	0.33		X409033	SMU	02/27/24 10:42	
SM 2340 B	Hardness (as CaCO3)	1010	mg/L	2.31	0.543		N/A		02/26/24 14:30	

Classical Chemistry Parameters

EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.013		X408101	DD	02/22/24 09:41	
EPA 353.2	Nitrate+Nitrite as N	2.52	mg/L	0.250	0.200	5	X408023	DD	02/20/24 09:01	D
SM 2320 B	Total Alkalinity	157	mg/L as CaCO3	1.0			X408057	MWD	02/20/24 19:09	
SM 2540 C	Total Diss. Solids	1400	mg/L	10			X407142	TJL	02/19/24 14:25	
SM 2540 D	Total Susp. Solids	5.0	mg/L	5.0			X407198	TJL	02/19/24 15:25	
SM 4500-P-E	Phosphorus	0.0128	mg/L	0.0100	0.0034		X408069	MCM	02/26/24 17:15	
SM 4500-P-E	Phosphorus-Reactive	< 0.0100	mg/L	0.0100	0.0035		X407181	NMS	02/16/24 11:49	
SM 5310B	Total Organic Carbon	4.56	mg/L	1.00	0.38		X407176	KAG	02/16/24 15:51	

Filtered Classical Chemistry Parameters

SM 4500 S D	Sulfide	< 0.050	mg/L	0.050	0.020		X407180	NMS	02/15/24 17:34	M1
-------------	---------	---------	------	-------	-------	--	---------	-----	----------------	----

Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	899	mg/L	15.0	9.00	50	X407203	RS	02/16/24 11:30	D2
-----------	----------------	-----	------	------	------	----	---------	----	----------------	----

This data has been reviewed for accuracy and has been authorized for release.

Kathryn Salter
Project Manager



One Government Gulch - PO Box 929

Kellogg, ID 83837-0929

(208) 784-1258

www.svl.net**Echo Bay / Reclamation**363 Fish Hatchery Road
Republic, WA 99166Work Order: **X4B0240**
Reported: 28-Feb-24 11:43Client Sample ID: **Key-OUT**

Sampled: 14-Feb-24 13:46

Received: 15-Feb-24

Sampled By: JVN

SVL Sample ID: **X4B0240-02 (Ground Water)****Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Calcium	< 69	µg/L	100	69		X409012	NMS	02/26/24 14:30	U
EPA 200.7	Iron	< 56	µg/L	100	56		X409012	NMS	02/26/24 14:30	U
EPA 200.7	Magnesium	< 90	µg/L	500	90		X409012	NMS	02/26/24 14:30	U
EPA 200.8	Arsenic	0.40	µg/L	1.00	0.21		X409033	SMU	02/27/24 10:44	J
EPA 200.8	Manganese	57.5	µg/L	0.40	0.33		X409033	SMU	02/27/24 10:44	
SM 2340 B	Hardness (as CaCO ₃)	< 2.31	mg/L	2.31	0.543		N/A		02/26/24 14:30	

Classical Chemistry Parameters

EPA 350.1	Ammonia as N	2.31	mg/L	0.060	0.025	2	X408101	DD	02/22/24 13:41	D2
EPA 353.2	Nitrate+Nitrite as N	0.061	mg/L	0.050	0.040		X408023	DD	02/20/24 09:04	
SM 2320 B	Total Alkalinity	254	mg/L as CaCO ₃	1.0			X408057	MWD	02/20/24 19:15	
SM 2540 C	Total Diss. Solids	1660	mg/L	10			X407142	TJL	02/19/24 14:25	
SM 2540 D	Total Susp. Solids	9.0	mg/L	5.0			X407198	TJL	02/19/24 15:25	
SM 4500-P-E	Phosphorus	1.09	mg/L	0.100	0.0337	10	X408069	MCM	02/26/24 17:15	D2
SM 4500-P-E	Phosphorus-Reactive	0.316	mg/L	0.0100	0.0035		X407181	NMS	02/16/24 11:50	E12
SM 5310B	Total Organic Carbon	158	mg/L	5.00	1.92	5	X407176	KAG	02/16/24 16:47	D2

Filtered Classical Chemistry Parameters

SM 4500 S D	Sulfide	34.7	mg/L	2.50	1.00	50	X407180	NMS	02/15/24 17:35	D2
-------------	---------	------	------	------	------	----	---------	-----	----------------	----

Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	978	mg/L	15.0	9.00	50	X407203	RS	02/16/24 11:49	D2
-----------	----------------------------	-----	------	------	------	----	---------	----	----------------	----

This data has been reviewed for accuracy and has been authorized for release.

Kathryn Salter
Project Manager

**Echo Bay / Reclamation**363 Fish Hatchery Road
Republic, WA 99166Work Order: **X4B0240**
Reported: 28-Feb-24 11:43**Quality Control - BLANK Data**

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
--------	---------	-------	--------	-----	-----	----------	----------	-------

Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Calcium	µg/L	<69	69	100	X409012	26-Feb-24	U
EPA 200.7	Iron	µg/L	<56	56	100	X409012	26-Feb-24	U
EPA 200.7	Magnesium	µg/L	<90	90	500	X409012	26-Feb-24	U
EPA 200.8	Arsenic	µg/L	<0.21	0.21	1.00	X409033	27-Feb-24	U
EPA 200.8	Manganese	µg/L	<0.33	0.33	0.40	X409033	27-Feb-24	U

Classical Chemistry Parameters

EPA 350.1	Ammonia as N	mg/L	<0.030	0.013	0.030	X408101	22-Feb-24	
EPA 353.2	Nitrate+Nitrite as N	mg/L	<0.050	0.040	0.050	X408023	20-Feb-24	
SM 2320 B	Total Alkalinity	mg/L as CaCO ₃	<1.0		1.0	X408057	20-Feb-24	
SM 2540 C	Total Diss. Solids	mg/L	<10		10	X407142	19-Feb-24	
SM 2540 D	Total Susp. Solids	mg/L	<5.0		5.0	X407198	19-Feb-24	
SM 4500-P-E	Phosphorus	mg/L	<0.0100	0.0034	0.0100	X408069	26-Feb-24	
SM 4500-P-E	Phosphorus-Reactive	mg/L	<0.0100	0.0035	0.0100	X407181	16-Feb-24	
SM 5310B	Total Organic Carbon	mg/L	<0.38	0.38	1.00	X407176	16-Feb-24	U

Filtered Classical Chemistry Parameters

SM 4500 S D	Sulfide	mg/L	<0.050	0.020	0.050	X407180	15-Feb-24	
-------------	---------	------	--------	-------	-------	---------	-----------	--

Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	<0.18	0.18	0.30	X407203	16-Feb-24	U
-----------	----------------------------	------	-------	------	------	---------	-----------	---

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
--------	---------	-------	------------	----------	--------	-------------------	----------	----------	-------

Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Calcium	µg/L	19400	20000	97	85 - 115	X409012	26-Feb-24	
EPA 200.7	Iron	µg/L	9770	10000	97.7	85 - 115	X409012	26-Feb-24	
EPA 200.7	Magnesium	µg/L	19200	20000	95.9	85 - 115	X409012	26-Feb-24	
EPA 200.8	Arsenic	µg/L	23.9	25.0	95.5	85 - 115	X409033	27-Feb-24	
EPA 200.8	Manganese	µg/L	23.3	25.0	93.3	85 - 115	X409033	27-Feb-24	

Classical Chemistry Parameters

EPA 350.1	Ammonia as N	mg/L	0.987	1.00	98.7	90 - 110	X408101	22-Feb-24	
EPA 353.2	Nitrate+Nitrite as N	mg/L	2.00	2.00	99.9	90 - 110	X408023	20-Feb-24	
SM 2320 B	Total Alkalinity	mg/L as CaCO ₃	98.9	99.3	99.6	96.4 - 105	X408057	20-Feb-24	
SM 2320 B	Total Alkalinity	mg/L as CaCO ₃	403	397	101	96.4 - 105	X408057	20-Feb-24	
SM 2540 D	Total Susp. Solids	mg/L	9.0	10.0	90.0	85 - 115	X407198	19-Feb-24	
SM 4500-P-E	Phosphorus	mg/L	0.501	0.500	100	90 - 110	X408069	26-Feb-24	
SM 4500-P-E	Phosphorus-Reactive	mg/L	0.496	0.500	99.1	90 - 110	X407181	16-Feb-24	
SM 5310B	Total Organic Carbon	mg/L	34.6	34.3	101	90 - 110	X407176	16-Feb-24	

Filtered Classical Chemistry Parameters

SM 4500 S D	Sulfide	mg/L	0.511	0.500	102	80 - 120	X407180	15-Feb-24	
-------------	---------	------	-------	-------	-----	----------	---------	-----------	--

Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	10.6	10.0	106	90 - 110	X407203	16-Feb-24	
-----------	----------------------------	------	------	------	-----	----------	---------	-----------	--

**Echo Bay / Reclamation**363 Fish Hatchery Road
Republic, WA 99166Work Order: **X4B0240**

Reported: 28-Feb-24 11:43

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch and Source ID	Analyzed	Notes
Classical Chemistry Parameters									
SM 2320 B	Total Alkalinity	mg/L as CaCO ₃	253	254	0.4	20	X408057 - X4B0240-02	20-Feb-24	
SM 2540 C	Total Diss. Solids	mg/L	1360	1400	2.8	10	X407142 - X4B0240-01	19-Feb-24	
SM 2540 C	Total Diss. Solids	mg/L	282	301	6.5	10	X407142 - X4B0241-03	19-Feb-24	
SM 2540 D	Total Susp. Solids	mg/L	5.0	5.0	0.0	10	X407198 - X4B0240-01	19-Feb-24	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch and Source ID	Analyzed	Notes
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Calcium	µg/L	75100	58200	20000	85	70 - 130	X409012 - X4B0126-01	26-Feb-24	
EPA 200.7	Iron	µg/L	33400	25500	10000	78.9	70 - 130	X409012 - X4B0126-01	26-Feb-24	
EPA 200.7	Magnesium	µg/L	32400	14500	20000	89.4	70 - 130	X409012 - X4B0126-01	26-Feb-24	
EPA 200.8	Arsenic	µg/L	24.0	0.69	25.0	93.3	70 - 130	X409033 - X4B0244-01	27-Feb-24	
EPA 200.8	Manganese	µg/L	237	219	25.0	73.4	70 - 130	X409033 - X4B0244-01	27-Feb-24	
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	mg/L	1.07	0.039	1.00	103	90 - 110	X408101 - X4B0288-02	22-Feb-24	
EPA 350.1	Ammonia as N	mg/L	1.15	0.046	1.00	111	90 - 110	X408101 - X4B0282-01	22-Feb-24	M1
EPA 353.2	Nitrate+Nitrite as N	mg/L	2.09	<0.050	2.00	102	90 - 110	X408023 - X4B0111-14	20-Feb-24	
EPA 353.2	Nitrate+Nitrite as N	mg/L	2.57	0.390	2.00	109	90 - 110	X408023 - X4B0111-19	20-Feb-24	
SM 4500-P-E	Phosphorus	mg/L	0.547	0.0416	0.500	101	75 - 125	X408069 - X4B0251-04	26-Feb-24	
SM 4500-P-E	Phosphorus-Reactive	mg/L	0.499	<0.0100	0.500	99.8	75 - 125	X407181 - X4B0240-01	16-Feb-24	
SM 5310B	Total Organic Carbon	mg/L	10.8	0.66	10.0	101	80 - 120	X407176 - X4B0126-01	16-Feb-24	
Filtered Classical Chemistry Parameters										
SM 4500 S D	Sulfide	mg/L	0.360	<0.050	0.200	180	75 - 125	X407180 - X4B0240-01	15-Feb-24	M1
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	67.8	58.9	10.0	0.30R>S	90 - 110	X407203 - X4B0244-02	16-Feb-24	D2,M4

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	% Recovery	Batch and Source ID	Notes
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Calcium	µg/L	78200	75100	20000	4.0	20	100	X409012 - X4B0126-01	
EPA 200.7	Iron	µg/L	34900	33400	10000	4.4	20	93.8	X409012 - X4B0126-01	
EPA 200.7	Magnesium	µg/L	33500	32400	20000	3.5	20	95.1	X409012 - X4B0126-01	
EPA 200.8	Arsenic	µg/L	24.0	24.0	25.0	0.1	20	93.2	X409033 - X4B0244-01	
EPA 200.8	Manganese	µg/L	239	237	25.0	0.7	20	79.8	X409033 - X4B0244-01	
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	mg/L	1.11	1.07	1.00	3.8	20	107	X408101 - X4B0288-02	
EPA 353.2	Nitrate+Nitrite as N	mg/L	2.09	2.09	2.00	0.3	20	102	X408023 - X4B0111-14	
SM 4500-P-E	Phosphorus	mg/L	0.547	0.547	0.500	0.0	20	101	X408069 - X4B0251-04	
SM 4500-P-E	Phosphorus-Reactive	mg/L	0.496	0.499	0.500	0.7	20	99.1	X407181 - X4B0240-01	
SM 5310B	Total Organic Carbon	mg/L	10.9	10.8	10.0	0.7	20	102	X407176 - X4B0126-01	



One Government Gulch - PO Box 929

Kellogg, ID 83837-0929

(208) 784-1258

www.svl.net

Echo Bay / Reclamation

363 Fish Hatchery Road
Republic, WA 99166

Work Order: **X4B0240**
Reported: 28-Feb-24 11:43

Quality Control - MATRIX SPIKE DUPLICATE Data (Continued)										
Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	% Recovery	Batch and Source ID	Notes
Filtered Classical Chemistry Parameters										
SM 4500 S D	Sulfide	mg/L	0.360	0.360	0.200	0.0	20	180	X407180 - X4B0240-01	M1
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	68.4	67.8	10.0	0.9	20	94.8	X407203 - X4B0244-02	D2

**Echo Bay / Reclamation**363 Fish Hatchery Road
Republic, WA 99166Work Order: **X4B0240**

Reported: 28-Feb-24 11:43

Notes and Definitions

D	The reported value is from a dilution.
D2	Sample required dilution due to high concentration of target analyte.
E12	The reported value is estimated due to the presence of interferences.
J	The reported value is less than the Reporting Limit (MRL, CRDL) but greater than or equal to the MDL. Results closer to the MDL have increased relative uncertainty.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike recovery calculation does not provide useful information. The LCS recovery was acceptable.
U	Less than MDL.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
0.30R>S	% recovery not applicable; spike level is less than 30% of the sample concentration
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable
