September 1, 2017

Mr. Brian Hamos
Utah Department of Environmental Quality
Division of Water Quality
195 North 1950 West
Salt Lake City, Utah 8416

Subject: Groundwater Discharge Permit Application
Prolific Mining Corporation
100 East 20 North
Hanksville, Utah 84734

Dear Mr. Hamos,

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) is pleased to provide you with this revised groundwater discharge permit application on behalf of the Prolific Mining Corporation for the Bromide Basin mining site. The application has been prepared using information provided from the current operators of the mine, historical and public record research. This revised permit application includes additional information that was requested by the Division of Water Quality in a letter dated April 4, 2017.

Prolific mining is currently conducting an extensive drilling and exploration program in the Bromide Basin and has suspended regular milling operations until the drillings are completed. The exploration program will provide the information to prepare a new mining plan, that will also include a closure plan, pit dewatering systems, and contingency and corrective action plan.

Prolific Mining has requested and received proposals for the design of the process water ponds, to replace the existing ponds. These plans will include measures for leak detection, and corrective action as related to the process water ponds and the water recycling system.

If you have any questions or comments, please contact Scott Wheeler at (801) 999-2027 or scott.wheeler2@amecfw.com.

Ehud Ardon
Senior Project Scientist

Scott Wheeler, PG
Environmental Manager

Mike McCandless
Prolific Mining Corporation
Government Relations & Permitting

Amec Foster Wheeler Environment & Infrastructure, Inc.
9865 South 500 West
Sandy, Utah 84070
Tel 801-999-2027
Fax 801-999-2098

Enclosures: Groundwater Discharge Permit Application
Attachments

MAIL TO:
Division of Water Quality
Utah Department of Environmental Quality
Salt Lake City, Utah 84114-4870

Application No.: ____________________
Date Received: _____________________

UTAH GROUND WATER DISCHARGE PERMIT APPLICATION

Part A - General Facility Information

1. Administrative Information

Facility Name and Address, and Contact Information:
Prolific Mining Corporation (formerly Bromide Mining, LLC.)
100 East 20 North
Hanksville, Utah 84734

Facility Legal Location:
Garfield County
Township 31S, Range 10E, Portions of Section 34 and Section 35 (within Section 34, NE ¼, and SE ¼, and Section 35, NW ¼, and SW ¼)

Latitude 38° 3' 58.93" N   Longitude 110° 47' 25.72" W

The Site location is shown in **Figure 1** – Site Location Map

Contact Information
Mike McCandless – Government Relations and Permitting
(305) 812-8312

2. Owner/Operator Information

Owner
Erez Goldgraber
18800 North East 29st Avenue
Aventura, FL, 33180
(786) 477-6229

Official Representative
Mike McCandless – Government Relations and Permitting
(305) 812-8312

3. Facility Classification (check one)

[ ] New Facility
[X] Existing Facility
[ ] Modification of Existing Facility

4. Type of Facility (check one)

[ ] Industrial
[X] Mining
[ ] Municipal
[ ] Agricultural Operation
[ ] Other, please describe:

5. SIC/NAICS Codes: 102101

6. Projected Facility Life: 10 years

7. Process Description - Prolific Mining Corporation

The discussion below describes the overall Mining operation and future plans for a potential open pit mine operation and dewatering plan. Concurrently, an overview of the Milling process is described which includes an overview illustration.

7.1 Project Description

Bromide, now Prolific Mining has been actively exploring the Bromide Basin since 2009. The majority of the activity in the past has been focused on the existing underground workings. These underground mines or adits have provided the majority of the material that has been processed in the proof of concept mill (Mill).

As a result of this underground activity, the company has determined that the mine will be significantly more productive as some form of open pit mine. The company has undertaken two specific steps towards this change in direction.

First, Prolific Mining has secured bonding and approval to initiate a Small Mine Permit on private acreage in the basin. This is a 10-acre project that is intended to provide a modest amount of ore to process through the Mill in 2017 and 2018. As of the date of this submission, the Small Mine operation is NOT currently in operation. Active mining on this segment concluded approximately August 1, 2017 to allow for exploration and testing, discussed below.

Second, the company has engaged a Drilling company to conduct a comprehensive drilling program that will run through early 2018. This will include 74 drill pads and 148 individual exploration drill holes. Each hole will be between 1,000 and 1,500 feet in depth and drilled at perpendicular angles up to 60^o in the existing bedrock plane. This drilling program will work to generate an underground, 3-dimensional model of the ore body and that model will then guide future mining activities moving forward.

The mine has sufficient stockpiles in the Small Mine Permit area to run the mill if needed, however, the management believes that it is in the best interest of mine to hold off on active milling until the final results of the drilling are completed.

It is assumed that the mining after the drilling is completed, will be fairly standard open pit mining. This will include terracing, blasting and pushing the raw ore towards the bottom of the basin where it can be processed at the mill.

<u>7.1.1 Pit Dewatering</u>

Because the only underground activities up to this point have been limited to the existing adits, we do not have a substantial understanding of the hydrologic mechanisms in place in the basin. We do know that there are three main surface water sources that appear year-round. These are Herki Lake Adit, El Padre Adit and Har El Adit. The Har El Adit source is the water that Prolific has an approved water right and is the source of water for the milling operation.

Preliminary results from the first 15 holes in the drilling exploration program seem to indicate that there are two zones of water. The first appears approximately 100 feet below ground surface (bgs) in an andesitic fracture zone producing up to and estimated 80 gallons per minute (gpm). The second is approximately 600 feet bgs where the depths and flow rates vary greatly based on location. Prolific is working very quickly to drill these holes and as a result, we are currently not leaving the holes open long enough, due to exploration permit restrictions, to determine if there is water recharge in the two zones; or if is simply prehistoric perched water which was isolated in the formations. Prolific will be adding piezometers in at least three locations to help us to understand the subsurface water conditions and to develop procedures for handling this water.

Assuming the mine continues with an open pit operation plan as contemplated, we foresee piping the encountered water through the facility and returning it to the natural channel at the east entrance to the property. Any water that is used for milling or mining will be processed through the settling ponds prior to returning to the natural stream channel.

7.2 Process Description

Prolific Mining Mill has been designed and constructed to be a “proof of concept” operation. As opposed to conventional mining and Milling operations, the sub-economical mine material (waste or low-grade) is spoiled or stocked in waste dumps, for future economical use.

The host rock, while mineralized, is also of potential value. The primary rock is composed primarily of a feldspar porphyry with varying values of quartz and minor amounts of natural metals. Following a proposed Mill flowsheet that is designed to produce a clean, marketable quartz-feldspar product which results in no mine waste rock as well as no Mill tailings.

The Bromide Mill “proof of concept” pilot plant has been laid out to step-wise recover four different product streams from the whole ore:

- Magnetics from the LIMS (Low Intensity Magnetic Separator);
- Gravity recoverable heavy minerals;
- Bulk flotation concentrate consisting of sulfide minerals, oxide minerals and silicates; and
- Clean feldspar (plant tailings).

Each of these product streams are collected with the intent of developing a process to produce saleable, value added concentrates, metals or spec feldspar. The development of these various processes will take place off the mine Site in controlled metallurgical environments. The LIMS and flotation concentrates, are captured and transported to Hanksville, Utah from Bromide Mine in one-ton tote bags. The bags are stored in locked connex boxes in town. The smaller quantity of gravity concentrate is collected, shipped and stored in five gallon buckets at the secure facilities in Hanksville, Utah. The final feldspar product is the tailings from the Mill. This product stream is thickened and then processed through a belt filter. The final feldspar cake is currently being transported and stored near the existing mine site.

Bulk samples of these product streams have been shipped to a research facility in Germany to develop recovery flow processes. From this test work, project economics for product recoveries will be determined, followed by construction of a metallurgical processing plant[1]

All process water used and identified in the Mill flow sheet is recycled. The plant has two process water ponds:

- Pond 1 is located closer to the Mill and has a floating pump that delivers water to the process water tank, and into the plant.
- Pond 2 is located next to the thickener and belt presses. Pond 2 captures and holds all return water from the filtered feldspar and overflows back into Pond 1.

The water level in Pond 1 is controlled by adding water from the Har-El Adit as well as water form Crescent Creek. Additionally, the process water ponds receive water from the El-Padre Adit. The El-Padre Adit water is currently flowing over the ground surface from the portal and into Crescent Creek above the Mill site. Crescent Creek flows into a pipe, under an access road and is discharged down-stream after a water bypass valve. If additional process water is needed from Crescent Creek, the water bypass valve is manually operated at the Mill to direct Crescent Creek flow into the process water pond 1. When makeup water is not needed, Crescent Creek flows through the pipe system and back to the Crescent Creek pathway **(Figure 2 and Figure 3)**.

Makeup water for the Mill is added if needed as described above. Since the water system is 100% recycled (less contained losses in concentrates) adding more water in the plant does not affect total water requirements for the system. As plant usage is increased, recycle volume through the process ponds are increased. Conversely, reducing usage reduces recycling rate.

The company is using a frothing agent (proprietary formula) that is added in batches to the slurry entering the flotation concentrator to create the froth. The reagent is removed from the water cycle with the concentrate (**Figure 4** – Process Flow Diagram).

As of the time of this application, Prolific Mining has engaged in an extensive drilling program to collect data to support future development of an open pit mine. There are currently no mining and milling operation activities, as the management believes it is in the best interest of mine to hold off on active milling until the final results of the drilling exploration program is completed (it is expected that the drilling activities will be concluded at early 2018). The open pit mining operations is expected to include terracing, blasting and pushing the raw ore towards the bottom of the basin where it can be processed at the mill, however site plan and layout will be determined based on drilling results.

Current understanding of pit dewatering needs is based on limited information from preliminary results of the exploration program. It is expected that groundwater encountered during pit excavation can be captured and diverted away from the pit, and into the natural stream channel. The water quality of the pit water will be monitored if necessary.

[1] The metallurgical processing plant will be constructed at an off-site location, not at the current mine site

8. Existing or pending Federal, State, and Local government environmental permits

		Permit Number
[ ]	NPDES or UPDES (discharges to surface water)	_______________
[ ]	CAFO (concentrated animal feeding operation)	_______________
[ ]	UIC (underground injection of fluids)	_______________
[ ]	RCRA (hazardous waste)	_______________
[ ]	PDS (air emissions from proposed sources)	_______________
[ ]	Construction Permit (wastewater treatment)	_______________
[ ]	Solid Waste Permit (sanitary landfills, incinerators)	_______________
[ ]	Septic Tank/Drainfield	_______________
[ ]	Other, specify________________________	_______________

9. Sites within One Mile Radius of Discharge Point

To comply with the requirements of the Permit Application the following landmarks were searched for within a one mile radius of the discharge point site (a one-mile radius line is shown on **Figure 1** - Site Location Map):

- Wells or springs (existing, abandoned, or proposed), water usage (past, present, or future);
- Water bodies;
- Drainages;
- Well-head protection areas;
- Drinking water source protection zones according to UAC 309-600; and
- Man-made structures.

Table 1 provides information of existing water bodies/sources within one mile radius of the point of discharge site. These locations are presented on Figure 4. Not all landmarks listed above were found within the one-mile radius.

Table-1: Sites within 1 mile radius

Name	Location	Description	Status	Usage
El-Padre	38°4’0.97”N 110°47’24.60”	Adit	Existing	
Har-El	38°3’59.65”N 110°47’12.80”	Adit	Existing	
Herki Lake	38°3’56.12”N 110°47’37.53”	Adit	Existing	
Pond-1	38°3’59.30”N 110°47’10.00”	Process water pond	Existing	Process Water
Pond-2	38°3’59.00”N 110°47’9.20”	Process water pond	Existing	Process Water
Crescent Creek	38°4’01.00”N 110°47’15.45”	Creek	Existing	

MAIL TO:
Division of Water Quality
Utah Department of Environmental Quality
Salt Lake City, Utah 84114-4870

Application No.: ____________________
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Part B - General Discharge Information

1. Location

Location Information provided in Part A

2. Type of Fluids to be Discharged or potentially Discharges

Discharges (fluids discharged to the ground)

[ ] Sanitary Wastewater: wastewater from restrooms, toilets, showers and the like
[ ] Cooling Water: non-contact cooling water, non-contact of raw materials, intermediate, final, or waste products
[] Process Wastewater: wastewater used in or generated by an industrial process
[ ] Mine Water: water from dewatering operations at mines
[ ] Other, specify: ______________________

Potential Discharges (leachates or other fluids that may discharge to the ground)

[ ] Solid Waste Leachates: leachates from solid waste impoundments or landfills
[x] Milling/Mining Leachates: tailings impoundments, mine leaching operations, etc.
[ ] Storage Pile Leachates: leachates from storage piles of raw materials, product, or wastes
[ ] Potential Underground Tank Leakage: tanks not regulated by UST or RCRA only
[ ] Other, specify:

3. Discharge Volume

Currently the Prolific Mine does not have any discharge points. Discharge rates/volumes have not been calculated/recorded or quantified.

4. Potential Discharge Volume

Potential discharge from process Water Ponds.

5. Means of Discharge or Potential Discharge

[**x**] Lagoon, pit, or surface impoundment (fluids)
[ ] land application or land treatment
[ ] discharge to an ephemeral drainage (dry wash, etc.)
[ ] storage pile
[ ] landfill (industrial or solid wastes)
[ ] other, specify__________________________
[ ] industrial drain field
[ ] underground storage tank
[ ] percolation/infiltration basin
[ ] mine heap or dump leach
[ ] mine tailings pond

6. Flows, Sources of Pollution, and Treatment Technologies

The following narrative describes the processes that are illustrated in Figure 4 - Process Flow Diagram:

- Ore is fed into a ball mill via a conveyor after it has been crushed in a series of crushers into <½ Inch size.
- The ball mill process incorporates mechanical crushing on a constant basis. Small amounts of water are incorporated to produce a slurry. The material in the ball mill is broken down into a fine powder, roughly the consistency of talcum powder.
- The slurry is run through the LIMS (Low Intensity Magnetic Separator) to remove magnetic materials from the process to improve the concentration of precious metals. Recoverable product is approximately 5% of feed.
- The slurry is run through gravity separator which uses centrifugal force to separate heavy materials out of the process flow. Recoverable product is approximately 600 lbs/day.
- The remaining material is pumped into a float concentrator, which consists of three floatation cells. The concentrator process is aided by chemicals designed to cause the gold and silver to float in the bubbles that are created in the process. Recoverable concentrate is approximately 5% of feed.
- The remnant material after the floatation cells process is raw feldspar. The feldspar (in slurry) is pumped out of the mill building into belt presses. The recovered feldspar (approximately 90% of feed) is considered a product stream (sold for uses as flux for glass making or other industrial processes).
- Water from the belt press is returned into settling ponds and recycled through the process. Pond-2 receives water from the belt press. Pond-1 receives water from Pond-2, as well as from the Har El Adit. Water from Crescent Creek is diverted into Pond-1 as necessary to maintain water level for operation. From Pond-1 water is pumped into a storage tank.

7. Discharge Effluent Characteristics

<u>Water Sampling</u>

To evaluate the water quality of the Site, six sampling points were identified prior to conducting baseline water sampling: Crescent Creek at two locations (upstream and downstream from the Site); El-Padre Adit (located approximately 1,000 feet east of the Mill); Har-El Adit, located south of the Mill; and two process water ponds (Pond 1, and Pond 2). Initial water samples were collected at the Site on January 18, 2017 (two samples were collected at the Har-El Adit and Pond 1) however, not all of the samples were collected due to adverse winter conditions at the Site. A second sampling event was conducted on July 3,2017 where all of the identified sampling locations were collected. The groundwater sampling an analysis was conducted in accordance with the requirement under R317-6-6.3.I and L.

The Har-El Adit water sample was collected from the surface flow at the Adit entrance. Pond 1 sample was collected the influent pump which delivers process water from Pond 1 to the Mill, and the Pond 2 sample was collected from the pond surface. The El-Padre Adit sample was collected at the Adit entrance. Crescent Creek upstream sample was collected from the creek at 100 feet upstream from the mill; where the Crescent Creek downstream sample was collected from the creek at 250 feet downstream from the ponds. Water quality parameters of pH, conductivity, temperature, ORP, and Dissolved Oxygen were recorded in the field for each sample. Sample locations are shown on **Figure 2**.

Laboratory Analysis and Analytical Results

Samples were submitted for analysis to ECS Lab Sciences in Mt. Juliet Tennessee. Table 1 of this section summarizes the analytes and analytical methods that were used.

Table 1: Laboratory Analysis of Groundwater Samples

Analytes	Analytical Method
Total Dissolved Solids (TDS)	EPA Method 2540 C
Alkalinity	EPA Method 2320B
CAM 17 Metals*	EPA Method 6010B/6020 and 7470A
Bromide	EPA Method 9056A
Chloride	EPA Method 9056A
Nitrate	EPA Method 9056A
Sulfate	EPA Method 9056A
Cyanide	EPA Method 9012B
*SB, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, Va, Zn	

Analytical results were compared to the Utah Division of Water Quality (DWQ) Groundwater Quality Standards (GWQS). The analytical results and GWQS concentrations are summarized in Table 2 of this section. TDS concentrations were 294 mg/l for the Har-El sample, and 960 mg/l for the Pond-1 sample. The water quality of all samples, with the exception of January 2017 Pond 1 sample, is equivalent to DWQ Groundwater Class IA (TDS <500 mg/l; no contaminant concentration exceeds GWQS). During the January 2017 sampling event the Mill was not in operation however; the process water pump was running to keep the process water ponds and Mill piping from freezing. Pond-1 water in January 2017 sample had TDS concentration of 960 mg/l, equivalent to Groundwater Class II (TDS greater than the 500 mg/l and less than 3000 mg/l). The laboratory analytical report is attached to this report as **Attachment 1**.

Table 2: Summary of Analytical Results

Parameter	Groundwater Quality Standards	Reporting Limit	HAR-EL		POND 1		POND 2	EL-PADRE	CR-1	CR-2
			1/18/2017	7/3/2017	1/18/2017	7/3/2017	7/3/2017	7/3/2017	7/3/2017	7/3/2017
Field Parameters										
pH	6.5-8.5	-	5.9	7.7	8.3	7.6	7.6	6.9	6.5	7.9
Conductivity(ms/cm)	-	-	0.500	0.397	0.750	0.448	0.497	0.288	0.307	0.301
Temperature (0C)	-	-	3.3	16	7.4	18	18.5	12	15	16
ORP (mv)	-	-	-20.3	108	-135	114	127	126	163	99
Laboratory Analysis										
Total Dissolved Solids	-	10	294	236	960	273	351	174	171	189
Alkalinity	-	20	107	110	73.8	102	106	44	47.4	57.2
Antimony	0.006	0.002	<MDL	<MDL	<MDL	0.002 J	0.002	<MDL	<MDL	<MDL
Arsenic	0.05	0.002	0.000 J	0.000 J	0.001 J	0.000 J	0.000 J	<MDL	<MDL	<MDL
Barium	2	0.005	0.015	0.013	0.025	0.025	0.023 J	<MDL	0.013	<MDL
Beryllium	0.004	0.002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Cadmium	0.005	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Chromium	0.1	0.01	<MDL	<MDL	0.004 J	<MDL	<MDL	<MDL	<MDL	<MDL
Cobalt	-	0.01	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Copper	1.3	0.005	0.005 J	0.002 J	0.003 J	0.006	0.004 J	0.002 J	0.005	0.004 J
Lead	0.015	0.002	<MDL	<MDL	0.0003 J	<MDL	<MDL	<MDL	<MDL	<MDL
Mercury	-	0.0002	<MDL	<MDL	0.0001 J	<MDL	<MDL	<MDL	<MDL	<MDL
Molybdenum	-	0.005	0.013	0.013	0.011	0.034	0.039 J	0.024 J	0.01	<MDL
Nickel	-	0.002	0.001 J	<MDL	0.006	0.001 J	0.000 J	<MDL	<MDL	<MDL
Selenium	0.05	0.002	0.001 J	0.002 J	0.001 J	0.001 J	0.001 J	0.001 J	0.001 J	0.001 J
Silver	0.1	0.002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Thallium	0.002	0.002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Vanadium	-	0.02	<MDL	0.003 J	<MDL	0.004 J	<MDL	<MDL	<MDL	<MDL
Zinc	5	0.025	0.024 J	0.099	0.003 J	0.035	0.015 J	0.014 J	0.024 J	0.023 J
Bromide	-	1	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.31 J
Chloride	-	1	0.87 J	1.11	2.01	12	14.6	1.24	1.26	1.65
Nitrate	10	0.1	1.19	0.67	1.81	2.93	5.0	0.83	1.55	1.58
Sulfate	-	5	107	99.5	94.2	83.7	87.2	98.4	84.2	86.4
Cyanide	0.2	0.005	<MDL	na	0.011 J	na	na	na	na	na

J - Analyte was detected; value is below Reporting Limit
na- not analyzed
MDL – Method Detection Limit

Part C – Accompanying Reports and Plans

8. Hydrogeologic Report

A Hydrogeologic report has been prepared and includes a geologic and hydrogeologic descriptions of the Bromide Basin, the Henry Mountains, and the surrounding area. An agricultural description is not provided as there are no agricultural crops grown within the boundaries of Prolific Mining site or within one mile of the site. The report is included in **Attachment 2**.

9. Ground Water Discharge Control Plan

NO DISCHARGE

The current water system at the Prolific Mine consists of a closed system in which water is circulated within the system and the process water ponds which includes a holding tank at the Mill. Water from the Har-El Adit is added to Pond 1. Make up water is added as necessary from Crescent Creek through a water bypass valve adjacent to the process water ponds. Makeup water is added at infrequent intervals and infrequent volumes. When makeup water is added, the volume and date information is not recorded. The current groundwater discharge control concept is achieved through maintaining water within the closed system without any discharge of fluids through process upsets. There is a potential discharge point through infiltration from the process water ponds, however quantification of the potential water infiltration has not been calculated. The process water ponds were constructed without engineering plans or design specifications and are lined with typical plastic sheeting.

10. Compliance Monitoring Plan

The Compliance Monitoring Plan consist of water sampling. The detailed plan is in **Attachment 3**. Currently, the vadose zone at the mine site is not monitored. Currently groundwater monitoring wells do not exist; however Prolific Mining plans to install three wells during the exploration activities in 2017/2018. The process water ponds do not have leak detection and there is no process to monitor leak detection.

11. Closure and Post Closure Plan

Prolific is currently in the planning phases for both mining and closure of the mine. This work is being conducted with both BLM and the Utah Division of Oil, Gas and Mining. Closure will include establishment of a bond to cover all reclamation activities and BLM and DOGM will be beneficiaries of the bonding.

12. Contingency and Corrective Action Plans

Prolific is currently in the planning phases for both mining and closure of the mine. A Contingency and Corrective Action Plan will be prepared for the mine after site plan is prepared.

Prolific Mining has requested and received proposals for the design of the process water ponds, to replace the existing ponds. These plans will include measures for leak detection, and corrective action as related to the process water ponds and the water recycling system.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Scott Wheeler, Environmental Manager	801-999-2027
Name and official title	Phone Number
[signature]	9-1-2017
Signature	Date signed

LICENSED PROFESSIONAL GEOLOGIST
SCOTT J. WHEELER
No. 7241391-[illegible]
STATE OF UTAH
9/1/2017

FIGURES

Document Path: \\SLC-FS1\ProjectF\Environmental\Projects\2017_Projects_(0452-xxxx)\17-00453 Bromide Mine\5.0_Figures\5.1 GIS Files\PMC Site Location.mxd

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The map shown here has been created with all due and reasonable care and is strictly for use with Amec Foster Wheeler Project Number: 17-814-00453. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind as Amec Foster Wheeler assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.

Legend

Property Outline

1 Mile Radius

SCALE: 1 inch = 1,500 feet	
DATE: 3/16/2017	
PROJECT NO: 17-81400453	
DATUM/PROJECTION: NAD 83 UTM 12	
DWN BY: EA	CHK'D BY: SW

CLIENT

Prolific Mining Corporation

PROJECT

Groundwater Discharge Permit Application

amec foster wheeler

Environment & Infrastructure, Inc.
9865 South 500 West
Sandy, Utah 84070
Tel: (801) 999-2002
Fax: (801) 999-2098

TITLE

Site Location Map

FIGURE NO: 1

N

0 300 600 1,200 Feet

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Legend

- Sample Location
- Crescent Creek
- Property Outline

SCALE:	1 inch = 400 feet
DATE:	3/16/2017
PROJECT NO:	17-81400453
DATUM/PROJECTION:	NAD 83 UTM 12
DWN BY: EA	CHK'D BY: SW

CLIENT: Prolific Mining Corporation

PROJECT: Groundwater Discharge Permit Application

amec foster wheeler

Environment & Infrastructure, Inc.
9865 South 500 West
Sandy, Utah 84070
Tel: (801) 999-2002
Fax: (801) 999-2098

TITLE: Site Overview and Sample Location Map

FIGURE NO: 2

Document Path: \\SLC-FS1\ProjectF\Environmental\Projects\2017_Projects_(0452-xxxx)\17-00453 Bromide Mine\5.0_Figures\5.1 GIS Files\PMC Site Overview.mxd

N

0 75 150 300 Feet

The map shown here has been created with all due and reasonable care and is strictly for use with Amec Foster Wheeler Project Number: 17-814-00453. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind as Amec Foster Wheeler assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.

Legend

- Piping
- Crescent Creek
- Property Outline

SCALE:	1 inch = 100 feet
DATE:	3/16/2017
PROJECT NO:	17-81400453
DATUM/PROJECTION:	NAD 83 UTM 12
DWN BY: EA	CHK'D BY: SW

CLIENT
Prolific Mining Corporation

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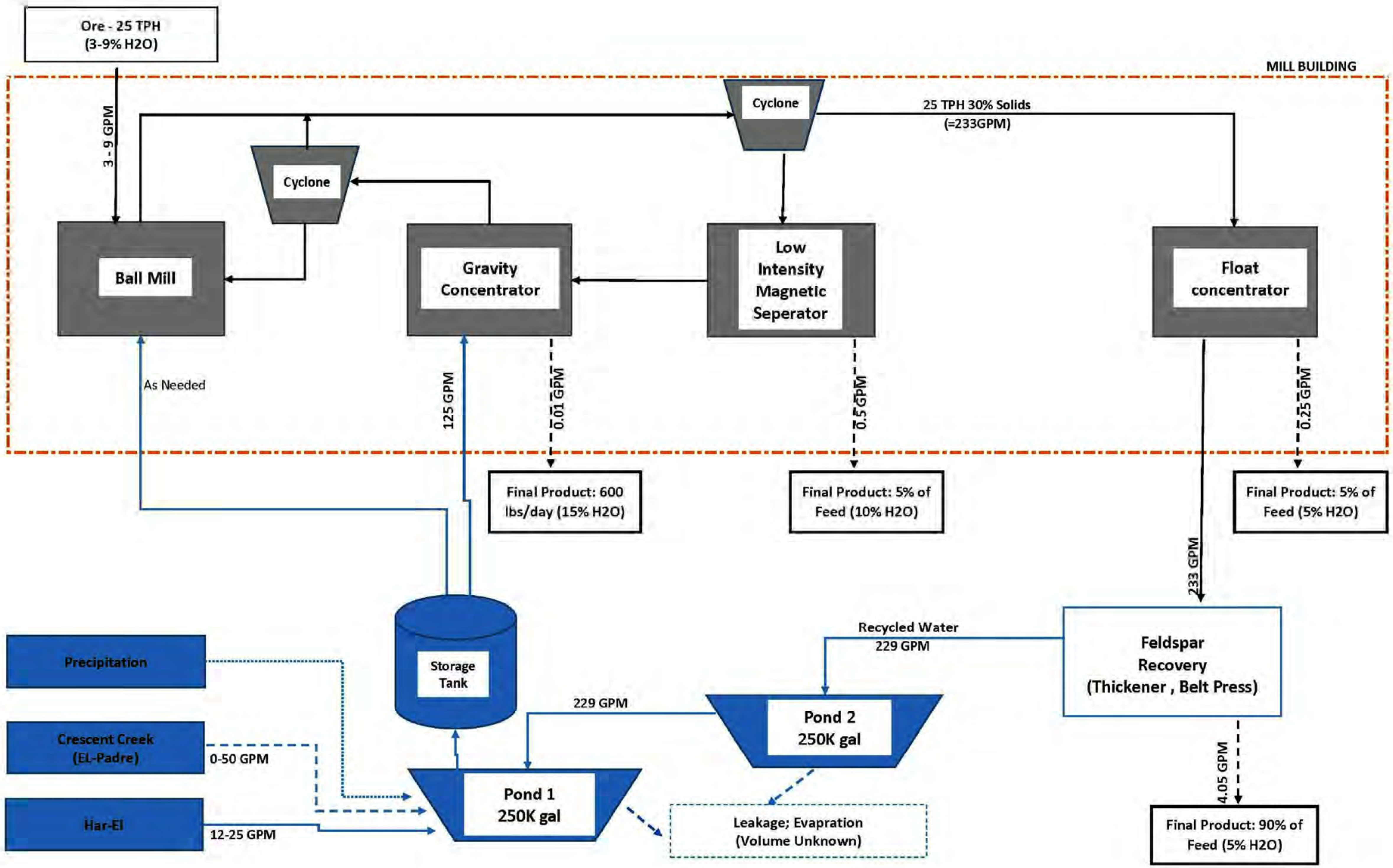
PROJECT
Groundwater Discharge Permit Application

TITLE
Process Mill and Process Water Ponds

FIGURE NO:
3

Document Path: \\SLC-FS1\ProjectF\Environmental\Projects\2017_Projects_(0452-xxxx)\17-00453 Bromide Mine\5.0_Figures\5.1 GIS Files\PMC Site Layout.mxd



Document Path: \\slc-fs1\ProjectFI\Environmental\Projects\2017_Projects_(0452-xxxx)\17-00453 Bromide Mine\5.0_Figures\5.1 GIS Files\PMC Flow Diagram.mxd

SCALE:	CLIENT: Prolific Mining Corporation	PROJECT: Groundwater Discharge Permit Application	
DATE: 3/16/2017			
PROJECT NO: 17-81400453	amec foster wheeler — Environment & Infrastructure, Inc. 9865 South 500 West, Sandy, Utah 84070, Tel: (801) 999-2002, Fax: (801) 999-2098	TITLE: Process Flow Diagram	FIGURE NO: 4
DATUM/PROJECTION: NAD 83 UTM 12			
DWN BY: EA / CHK'D BY: SW			

Prolific Mining Corporation
Groundwater Discharge Permit Application

Figure 5: Bromide Basin Geology (After Blakestad, 1989)

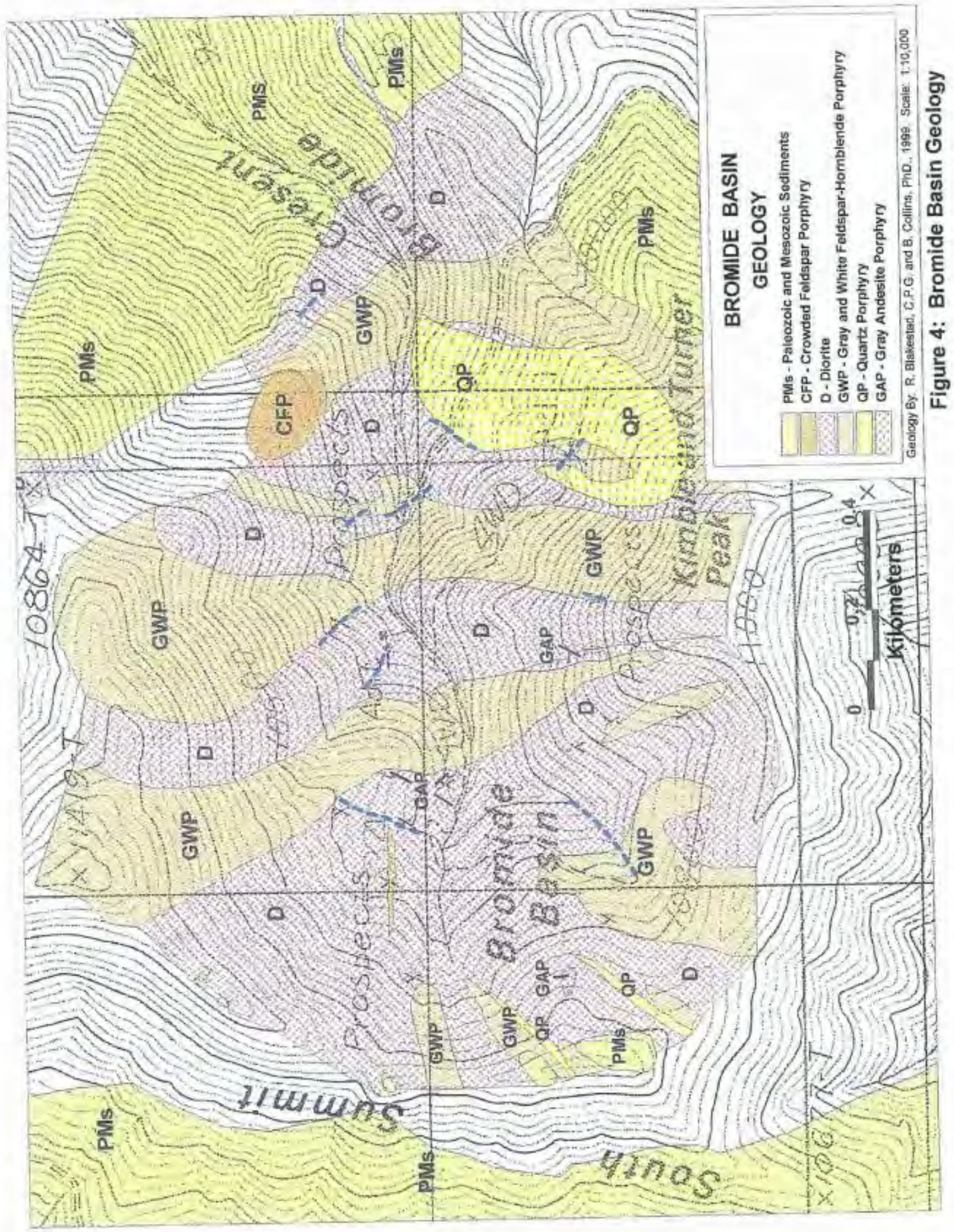
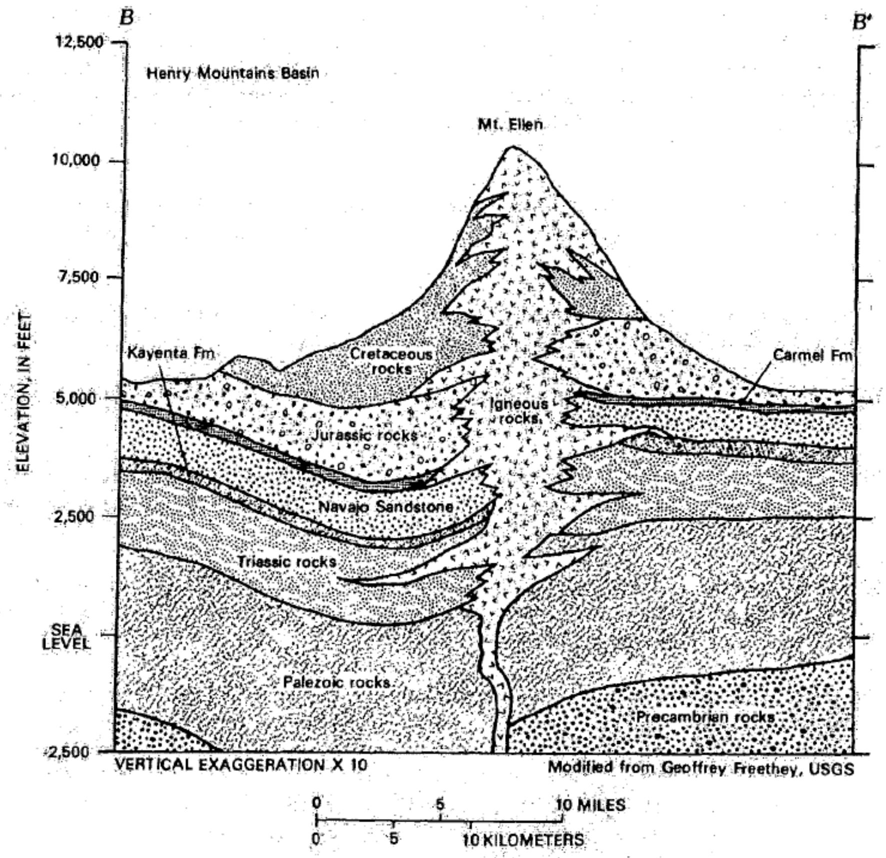


Figure 6: Geologic Section of Mount Ellen (After Weiss, 1987)



ATTACHMENTS

Attachment 1: Laboratory Analytical Report

Attachment 2: Hydrogeological Report

Attachment 3: Compliance Monitoring Plan

Attachment 1: Laboratory Analytical Report

ANALYTICAL REPORT

February 01, 2017

AMEC Earth & Environmental - UT

Sample Delivery Group:	L885022
Samples Received:	01/20/2017
Project Number:	1781400453
Description:	Bromide Mine
Report To:	Scott Wheeler 9865 South 500 West Sandy, UT 84070

Entire Report Reviewed By:

Daphne Richards
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

HAR-EL L885022-01 GW

Collected by	Collected date/time	Received date/time
Scott Wheeler	01/18/17 12:10	01/20/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG945499	1	01/23/17 13:16	01/23/17 14:11	MMF
Mercury by Method 7470A	WG945230	1	01/20/17 14:26	01/21/17 06:14	TRB
Metals (ICP) by Method 6010B	WG945508	1	01/21/17 08:38	01/23/17 09:45	CCE
Metals (ICPMS) by Method 6020	WG945535	1	01/24/17 09:17	01/30/17 20:19	LAT
Metals (ICPMS) by Method 6020	WG945535	1	01/24/17 09:17	01/31/17 19:04	LAT
Wet Chemistry by Method 2320 B-2011	WG945370	1	01/21/17 10:18	01/21/17 10:18	AMC
Wet Chemistry by Method 9012B	WG946724	1	01/25/17 22:16	01/26/17 18:30	ASK
Wet Chemistry by Method 9056A	WG945124	1	01/20/17 11:49	01/20/17 11:49	SAM
Wet Chemistry by Method 9056A	WG945124	5	01/20/17 16:26	01/20/17 16:26	SAM

POND 1 L885022-02 GW

Collected by	Collected date/time	Received date/time
Scott Wheeler	01/18/17 12:50	01/20/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG945499	1	01/23/17 13:16	01/23/17 14:11	MMF
Mercury by Method 7470A	WG945230	1	01/20/17 14:26	01/21/17 06:16	TRB
Metals (ICP) by Method 6010B	WG945508	1	01/21/17 08:38	01/23/17 09:48	CCE
Metals (ICPMS) by Method 6020	WG945535	1	01/24/17 09:17	01/30/17 20:22	LAT
Metals (ICPMS) by Method 6020	WG945535	1	01/24/17 09:17	01/31/17 15:20	LAT
Metals (ICPMS) by Method 6020	WG945535	1	01/24/17 09:17	01/31/17 19:08	LAT
Wet Chemistry by Method 2320 B-2011	WG945370	1	01/21/17 10:26	01/21/17 10:26	AMC
Wet Chemistry by Method 9012B	WG946724	5	01/25/17 22:16	01/26/17 18:48	ASK
Wet Chemistry by Method 9056A	WG945124	1	01/20/17 12:04	01/20/17 12:04	SAM

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	294000		2820	10000	1	01/23/2017 14:11	WG945499

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	107000		2710	20000	1	01/21/2017 10:18	WG945370

Wet Chemistry by Method 9012B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide	U		1.80	5.00	1	01/26/2017 18:30	WG946724

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	01/20/2017 11:49	WG945124
Chloride	869	J	51.9	1000	1	01/20/2017 11:49	WG945124
Nitrate as (N)	1190		22.7	100	1	01/20/2017 11:49	WG945124
Sulfate	107000		387	25000	5	01/20/2017 16:26	WG945124

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U	J3	0.0490	0.200	1	01/21/2017 06:14	WG945230

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	15.3		1.70	5.00	1	01/23/2017 09:45	WG945508
Beryllium	U		0.700	2.00	1	01/23/2017 09:45	WG945508
Chromium	U		1.40	10.0	1	01/23/2017 09:45	WG945508
Cobalt	U		2.30	10.0	1	01/23/2017 09:45	WG945508
Molybdenum	13.1		1.60	5.00	1	01/23/2017 09:45	WG945508
Vanadium	U		2.40	20.0	1	01/23/2017 09:45	WG945508

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	01/30/2017 20:19	WG945535
Arsenic	0.369	J	0.250	2.00	1	01/30/2017 20:19	WG945535
Cadmium	U		0.160	1.00	1	01/30/2017 20:19	WG945535
Copper	4.55	J	0.520	5.00	1	01/30/2017 20:19	WG945535
Lead	U		0.240	2.00	1	01/31/2017 19:04	WG945535
Nickel	0.543	J	0.350	2.00	1	01/30/2017 20:19	WG945535
Selenium	1.48	J	0.380	2.00	1	01/30/2017 20:19	WG945535
Silver	U		0.310	2.00	1	01/30/2017 20:19	WG945535
Thallium	U		0.190	2.00	1	01/31/2017 19:04	WG945535
Zinc	23.7	J	2.56	25.0	1	01/30/2017 20:19	WG945535

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	960000		2820	10000	1	01/23/2017 14:11	WG945499

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	73800		2710	20000	1	01/21/2017 10:26	WG945370

Wet Chemistry by Method 9012B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Cyanide	11.2	J	9.00	25.0	5	01/26/2017 18:48	WG946724

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	01/20/2017 12:04	WG945124
Chloride	2010		51.9	1000	1	01/20/2017 12:04	WG945124
Nitrate as (N)	1810		22.7	100	1	01/20/2017 12:04	WG945124
Sulfate	94200		77.4	5000	1	01/20/2017 12:04	WG945124

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	0.0521	J J3	0.0490	0.200	1	01/21/2017 06:16	WG945230

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	24.8		1.70	5.00	1	01/23/2017 09:48	WG945508
Beryllium	U		0.700	2.00	1	01/23/2017 09:48	WG945508
Chromium	4.22	J	1.40	10.0	1	01/23/2017 09:48	WG945508
Cobalt	U		2.30	10.0	1	01/23/2017 09:48	WG945508
Molybdenum	10.6		1.60	5.00	1	01/23/2017 09:48	WG945508
Vanadium	U		2.40	20.0	1	01/23/2017 09:48	WG945508

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	01/30/2017 20:22	WG945535
Arsenic	1.37	J	0.250	2.00	1	01/30/2017 20:22	WG945535
Cadmium	U		0.160	1.00	1	01/31/2017 15:20	WG945535
Copper	2.64	J	0.520	5.00	1	01/30/2017 20:22	WG945535
Lead	0.265	J	0.240	2.00	1	01/31/2017 19:08	WG945535
Nickel	5.57		0.350	2.00	1	01/30/2017 20:22	WG945535
Selenium	1.02	J	0.380	2.00	1	01/30/2017 20:22	WG945535
Silver	U		0.310	2.00	1	01/30/2017 20:22	WG945535
Thallium	U		0.190	2.00	1	01/31/2017 19:08	WG945535
Zinc	3.04	J	2.56	25.0	1	01/30/2017 20:22	WG945535

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3192755-1 01/23/17 14:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L884813-05 Original Sample (OS) • Duplicate (DUP)

(OS) L884813-05 01/23/17 14:11 • (DUP) R3192755-4 01/23/17 14:11

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	608000	624000	1	2.60		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192755-2 01/23/17 14:11 • (LCSD) R3192755-3 01/23/17 14:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8780000	8690000	99.8	98.8	85.0-115			1.03	5

Method Blank (MB)

(MB) R3192044-1 01/21/17 08:14

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity	U		2710	20000

L884879-01 Original Sample (OS) • Duplicate (DUP)

(OS) L884879-01 01/21/17 08:36 • (DUP) R3192044-2 01/21/17 08:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	170000	171000	1	1.00		20

L885042-10 Original Sample (OS) • Duplicate (DUP)

(OS) L885042-10 01/21/17 11:40 • (DUP) R3192044-5 01/21/17 11:47

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	129000	129000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192044-3 01/21/17 09:52 • (LCSD) R3192044-4 01/21/17 11:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100000	102000	97900	102	98.0	85.0-115			4.00	20

Method Blank (MB)

(MB) R3193100-1 01/26/17 18:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Cyanide	U		1.80	5.00

L884958-01 Original Sample (OS) • Duplicate (DUP)

(OS) L884958-01 01/26/17 18:24 • (DUP) R3193100-6 01/26/17 18:25

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	3.94	1	0		20

L885180-06 Original Sample (OS) • Duplicate (DUP)

(OS) L885180-06 01/26/17 18:36 • (DUP) R3193100-7 01/26/17 18:37

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193100-2 01/26/17 18:12 • (LCSD) R3193100-3 01/26/17 18:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	100	106	108	106	108	85-115			2	20

L884893-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L884893-02 01/26/17 18:19 • (MS) R3193100-4 01/26/17 18:20 • (MSD) R3193100-5 01/26/17 18:23

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	200	ND	189	190	95	95	1	75-125			1	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3192366-1 01/20/17 07:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Bromide	U		79.0	1000
Chloride	U		51.9	1000
Nitrate	U		22.7	100
Sulfate	U		77.4	5000

L884690-03 Original Sample (OS) • Duplicate (DUP)

(OS) L884690-03 01/20/17 08:18 • (DUP) R3192366-4 01/20/17 09:40

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	ND	0.000	1	0		15
Chloride	8670	8600	1	1		15
Nitrate	ND	0.000	1	0		15
Sulfate	5930	5660	1	5		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192366-2 01/20/17 07:17 • (LCSD) R3192366-3 01/20/17 07:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromide	40000	39900	39800	100	100	80-120			0	15
Chloride	40000	39500	39300	99	98	80-120			0	15
Nitrate	8000	8080	8060	101	101	80-120			0	15
Sulfate	40000	39500	39400	99	98	80-120			0	15

L884958-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L884958-01 01/20/17 10:18 • (MS) R3192366-5 01/20/17 10:33

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50000	ND	49000	98	1	80-120	
Chloride	50000	90500	136000	92	1	80-120	E
Nitrate	5000	ND	4950	99	1	80-120	
Sulfate	50000	35400	83600	96	1	80-120	

L885042-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885042-14 01/20/17 13:21 • (MS) R3192366-6 01/20/17 13:36 • (MSD) R3192366-7 01/20/17 13:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50000	ND	49600	49000	99	98	1	80-120			1	15
Chloride	50000	26200	75400	75400	98	98	1	80-120			0	15
Nitrate	5000	2740	7770	7630	101	98	1	80-120			2	15
Sulfate	50000	45500	93200	93400	95	96	1	80-120			0	15

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3192001-2 01/21/17 05:44

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192001-6 01/21/17 08:59 • (LCSD) R3192001-3 01/21/17 05:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	3.19	2.58	106	86	80-120		J3	21	20

L884947-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L884947-01 01/21/17 05:51 • (MS) R3192001-4 01/21/17 05:53 • (MSD) R3192001-5 01/21/17 05:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	ND	3.06	2.87	102	96	1	75-125			7	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3192180-1 01/23/17 09:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Beryllium	U		0.700	2.00
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Molybdenum	U		1.60	5.00
Vanadium	U		2.40	20.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3192180-2 01/23/17 09:10 • (LCSD) R3192180-3 01/23/17 09:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Barium	1000	1020	1050	102	105	80-120			2	20
Beryllium	1000	1010	1030	101	103	80-120			2	20
Chromium	1000	1000	1030	100	103	80-120			3	20
Cobalt	1000	1030	1050	103	105	80-120			2	20
Molybdenum	1000	994	1030	99	103	80-120			3	20
Vanadium	1000	1010	1030	101	103	80-120			3	20

L885019-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885019-01 01/23/17 09:15 • (MS) R3192180-5 01/23/17 09:20 • (MSD) R3192180-6 01/23/17 09:29

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	79.1	1110	1100	103	102	1	75-125			0	20
Beryllium	1000	U	1020	1020	102	102	1	75-125			0	20
Chromium	1000	20.7	1030	1030	101	101	1	75-125			0	20
Cobalt	1000	U	1070	1070	107	107	1	75-125			1	20
Molybdenum	1000	28.1	1050	1040	102	101	1	75-125			1	20
Vanadium	1000	U	1020	1020	102	102	1	75-125			0	20

Method Blank (MB)

(MB) R3193678-1 01/30/17 18:10

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Cadmium	U		0.160	1.00
Copper	U		0.520	5.00
Lead	U		0.240	2.00
Nickel	U		0.350	2.00
Selenium	U		0.380	2.00
Silver	U		0.310	2.00
Thallium	U		0.190	2.00
Zinc	U		2.56	25.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193678-2 01/30/17 18:14 • (LCSD) R3193678-3 01/30/17 18:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	57.9	52.1	51.2	90	88	80-120			2	20
Arsenic	50.0	52.5	50.1	105	100	80-120			5	20
Cadmium	50.0	56.8	56.3	114	113	80-120			1	20
Copper	50.0	59.5	58.7	119	117	80-120			1	20
Lead	50.0	53.9	51.7	108	103	80-120			4	20
Nickel	50.0	57.6	54.7	115	109	80-120			5	20
Selenium	50.0	50.8	51.6	102	103	80-120			2	20
Silver	50.0	57.5	56.6	115	113	80-120			2	20
Thallium	50.0	53.2	51.6	106	103	80-120			3	20
Zinc	50.0	53.8	53.7	108	107	80-120			0	20

L885284-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885284-06 01/30/17 18:21 • (MS) R3193678-5 01/30/17 18:28 • (MSD) R3193678-6 01/30/17 18:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	57.9	U	52.8	51.1	91	88	1	75-125			3	20
Arsenic	50.0	0.316	51.9	48.5	103	96	1	75-125			7	20
Cadmium	50.0	U	58.5	55.9	117	112	1	75-125			5	20
Copper	50.0	3.93	62.5	58.6	117	109	1	75-125			6	20
Lead	50.0	U	53.6	51.6	107	103	1	75-125			4	20
Nickel	50.0	3.97	60.3	55.9	113	104	1	75-125			8	20
Selenium	50.0	U	53.0	50.3	106	101	1	75-125			5	20

L885284-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L885284-06 01/30/17 18:21 • (MS) R3193678-5 01/30/17 18:28 • (MSD) R3193678-6 01/30/17 18:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Silver	50.0	U	57.9	56.6	116	113	1	75-125			2	20
Thallium	50.0	U	52.8	51.6	106	103	1	75-125			2	20
Zinc	50.0	43.0	107	90.8	128	96	1	75-125	J5		16	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660
Alaska	UST-080
Arizona	AZ0612
Arkansas	88-0469
California	01157CA
Colorado	TN00003
Conneticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia [1]	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky [1]	90010
Kentucky [2]	16
Louisiana	AI30792
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico	TN00003
New York	11742
North Carolina	Env375
North Carolina [1]	DW21704
North Carolina [2]	41
North Dakota	R-140
Ohio–VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	221
South Carolina	84004
South Dakota	n/a
Tennessee [1,4]	2006
Texas	T 104704245-07-TX
Texas [5]	LAB0152
Utah	6157585858
Vermont	VT2006
Virginia	109
Washington	C1915
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

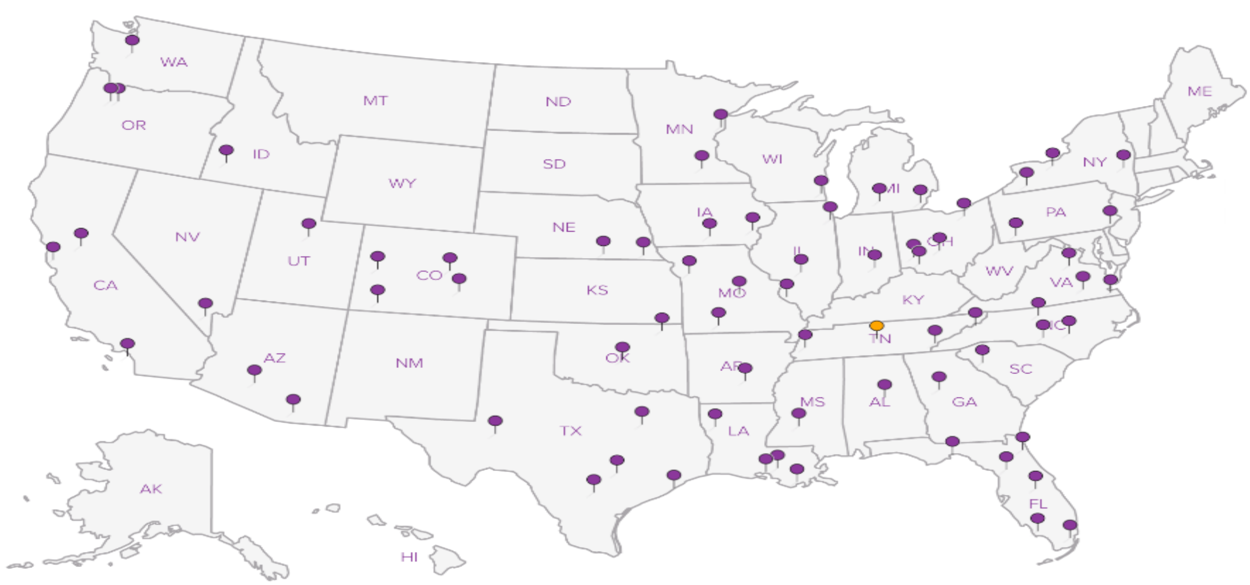
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01
A2LA – ISO 17025 [5]	1461.02
Canada	1461.01
EPA–Crypto	TN00003
AIHA	100789
DOD	1461.01
USDA	S-67674

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



2Z L2

Chain of Custody Page ___ of ___

ESC LAB SCIENCES

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L885022

J204

Acctnum: AMECSLCUT
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Company Name/Address: Amec Foster Wheeler, 9865 S 500 West, Sandy, UT 84070

Billing Information: Attn: Scott Wheeler, AMECSLCUT071513S

Report to: Scott Wheeler

Email To: Scott.Wheeler2@amecfw.com

Project Description: Bromide Mine

City/State Collected: Hanksville / UT

Phone: 801.999.2027
Fax: 801 999 2035

Client Project # 1781400453

Lab Project #

Collected by (print): Scott Wheeler

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Std TAT
Email? __No __Yes
FAX? __No __Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TDS 2540C / 250 ml HDPE / No Pres	Alkalinity 2320B / 250 ml HDPE / No pres	Cl, SO4, NO3, Br 9056 / 500 ml HDPE / No Pres	Cyanide / 250ml Amber Poly / NaOH	CAM 17 metals / 250ml HDPE / HNO3	Rem./Contaminant	Sample # (lab only)
HAR-EL	G	WT		1/18/17	12:10	5	X	X	X	X	X		-01
Pond1	G	WT		1/18/17	12:50	5	X	X	X	X	X		02

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ________

Remarks: WT - water Gold NOT Needed in Metals Analysis (Per Client)

pH ______ Temp ______
Flow ______ Other ______

Hold #

Condition: (lab use only) OK 7

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
[signature]	1/19/17	10:30	[signature]
Relinquished by: (Signature) [signature]	Date: 1/19/17	Time: 1300	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ SWA

Temp: 3.4 °C Bottles Received: 10

Date: 1-20-17 Time: 09:00

COC Seal Intact: ✓ Y ___ N ___ NA

pH Checked: <2, 7, 12

NCF:

ESC
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Cooler Receipt Form

Client:	AMELSLCUT	SDG#	L885022
Cooler Received/Opened On: 1/ 20 /17		Temperature Upon Receipt:	3.4 °c
Received By: Michael Witherspoon			
Signature: MWit			

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?	✓		
Were custody papers properly filled out?	✓		
Did all bottles arrive in good condition?	✓		
Were correct bottles used for the analyses requested?	✓		
Was sufficient amount of sample sent in each bottle?	✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	✓		
If applicable, was an observable VOA headspace present?			✓
Non Conformance Generated. (If yes see attached NCF)			

ANALYTICAL REPORT

July 13, 2017

AMEC Earth & Environmental - UT

Sample Delivery Group:	L920583
Samples Received:	07/06/2017
Project Number:	1781400453
Description:	Prolific Mine
Report To:	Ehad Ardon 9865 South 500 West Sandy, UT 84070

Entire Report Reviewed By: Daphne R Richards

Daphne Richards

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

12065 Lebanon Rd   Mount Juliet, TN 37122   615-758-5858   800-767-5859   www.esclabsciences.com

TABLE OF CONTENTS

POND-1 L920583-01 GW

Collected by: E. Ahron | Collected date/time: 07/03/17 12:30 | Received date/time: 07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996376	1	07/07/17 19:40	07/07/17 20:08	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 16:04	07/12/17 16:04	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:11	07/12/17 15:11	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 13:02	07/11/17 13:02	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 11:46	07/12/17 11:46	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 16:57	TRB
Metals (ICP) by Method 6010B	WG997134	1	07/09/17 20:21	07/09/17 23:25	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:04	VSS

POND-2 L920583-02 GW

Collected by: E. Ahron | Collected date/time: 07/03/17 12:35 | Received date/time: 07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996376	1	07/07/17 19:40	07/07/17 20:08	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 16:10	07/12/17 16:10	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:12	07/12/17 15:12	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 13:15	07/11/17 13:15	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 12:18	07/12/17 12:18	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 16:59	TRB
Metals (ICP) by Method 6010B	WG997134	9	07/09/17 20:21	07/09/17 23:28	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:16	VSS

CR-1 L920583-03 GW

Collected by: E. Ahron | Collected date/time: 07/03/17 12:20 | Received date/time: 07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996376	1	07/07/17 19:40	07/07/17 20:08	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 17:52	07/12/17 17:52	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:13	07/12/17 15:13	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 13:28	07/11/17 13:28	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 12:49	07/12/17 12:49	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 17:01	TRB
Metals (ICP) by Method 6010B	WG997134	1	07/09/17 20:21	07/09/17 23:31	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:20	VSS

CR-2 L920583-04 GW

Collected by: E. Ahron | Collected date/time: 07/03/17 11:50 | Received date/time: 07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996443	1	07/06/17 22:58	07/06/17 23:05	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 17:59	07/12/17 17:59	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:18	07/12/17 15:18	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 14:07	07/11/17 14:07	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 13:37	07/12/17 13:37	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 17:03	TRB
Metals (ICP) by Method 6010B	WG997134	1	07/09/17 20:21	07/09/17 23:40	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:23	VSS

HAR EL L920583-05 GW

Collected by	Collected date/time	Received date/time
E. Ahron	07/03/17 12:00	07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996443	1	07/06/17 22:58	07/06/17 23:05	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 16:29	07/12/17 16:29	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:19	07/12/17 15:19	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 14:20	07/11/17 14:20	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 13:53	07/12/17 13:53	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 17:06	TRB
Metals (ICP) by Method 6010B	WG997134	1	07/09/17 20:21	07/09/17 23:42	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:27	VSS

EL PADRE L920583-06 GW

Collected by	Collected date/time	Received date/time
E. Ahron	07/03/17 13:00	07/06/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG996443	1	07/06/17 22:58	07/06/17 23:05	EG
Wet Chemistry by Method 2320 B-2011	WG997640	1	07/12/17 18:06	07/12/17 18:06	MCG
Wet Chemistry by Method 353.2	WG997658	1	07/12/17 15:20	07/12/17 15:20	JER
Wet Chemistry by Method 9056A	WG997385	1	07/11/17 14:33	07/11/17 14:33	DR
Wet Chemistry by Method 9056A	WG997964	1	07/12/17 15:29	07/12/17 15:29	DR
Mercury by Method 7470A	WG996409	1	07/07/17 10:47	07/07/17 17:08	TRB
Metals (ICP) by Method 6010B	WG997134	9	07/09/17 20:21	07/09/17 23:45	ST
Metals (ICPMS) by Method 6020	WG996528	1	07/07/17 14:03	07/09/17 23:30	VSS

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	273000		2820	10000	1	07/07/2017 20:08	WG996376

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	102000		2710	20000	1	07/12/2017 16:04	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	2930		19.7	100	1	07/12/2017 15:11	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	07/12/2017 11:46	WG997964
Chloride	12000		51.9	1000	1	07/11/2017 13:02	WG997385
Sulfate	83700		77.4	5000	1	07/12/2017 11:46	WG997964

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 16:57	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	25.4		1.70	5.00	1	07/09/2017 23:25	WG997134
Beryllium	U		0.700	2.00	1	07/09/2017 23:25	WG997134
Chromium	U		1.40	10.0	1	07/09/2017 23:25	WG997134
Cobalt	U		2.30	10.0	1	07/09/2017 23:25	WG997134
Molybdenum	34.3		1.60	5.00	1	07/09/2017 23:25	WG997134
Vanadium	4.08	J	2.40	20.0	1	07/09/2017 23:25	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	1.94	J	0.754	2.00	1	07/09/2017 23:04	WG996528
Arsenic	0.360	J	0.250	2.00	1	07/09/2017 23:04	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:04	WG996528
Copper	5.75		0.520	5.00	1	07/09/2017 23:04	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:04	WG996528
Nickel	0.555	J	0.350	2.00	1	07/09/2017 23:04	WG996528
Selenium	1.06	J	0.380	2.00	1	07/09/2017 23:04	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:04	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:04	WG996528
Zinc	35.2		2.56	25.0	1	07/09/2017 23:04	WG996528

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	351000		2820	10000	1	07/07/2017 20:08	WG996376

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	106000		2710	20000	1	07/12/2017 16:10	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	5000		19.7	100	1	07/12/2017 15:12	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	07/12/2017 12:18	WG997964
Chloride	14600		51.9	1000	1	07/11/2017 13:15	WG997385
Sulfate	87200		77.4	5000	1	07/12/2017 12:18	WG997964

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 16:59	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	22.7	J	15.3	45.0	9	07/09/2017 23:28	WG997134
Beryllium	U		6.30	18.0	9	07/09/2017 23:28	WG997134
Chromium	U		12.6	90.0	9	07/09/2017 23:28	WG997134
Cobalt	U		20.7	90.0	9	07/09/2017 23:28	WG997134
Molybdenum	39.2	J	14.4	45.0	9	07/09/2017 23:28	WG997134
Vanadium	U		21.6	180	9	07/09/2017 23:28	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	2.21		0.754	2.00	1	07/09/2017 23:16	WG996528
Arsenic	0.439	J	0.250	2.00	1	07/09/2017 23:16	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:16	WG996528
Copper	3.56	J	0.520	5.00	1	07/09/2017 23:16	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:16	WG996528
Nickel	0.389	J	0.350	2.00	1	07/09/2017 23:16	WG996528
Selenium	1.23	J	0.380	2.00	1	07/09/2017 23:16	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:16	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:16	WG996528
Zinc	15.4	J	2.56	25.0	1	07/09/2017 23:16	WG996528

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	171000		2820	10000	1	07/07/2017 20:08	WG996376

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	47400		2710	20000	1	07/12/2017 17:52	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	1550		19.7	100	1	07/12/2017 15:13	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U	P1	79.0	1000	1	07/12/2017 12:49	WG997964
Chloride	1260		51.9	1000	1	07/11/2017 13:28	WG997385
Sulfate	84200		77.4	5000	1	07/11/2017 13:28	WG997385

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 17:01	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	13.2		1.70	5.00	1	07/09/2017 23:31	WG997134
Beryllium	U		0.700	2.00	1	07/09/2017 23:31	WG997134
Chromium	U		1.40	10.0	1	07/09/2017 23:31	WG997134
Cobalt	U		2.30	10.0	1	07/09/2017 23:31	WG997134
Molybdenum	10.4		1.60	5.00	1	07/09/2017 23:31	WG997134
Vanadium	U		2.40	20.0	1	07/09/2017 23:31	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	07/09/2017 23:20	WG996528
Arsenic	U		0.250	2.00	1	07/09/2017 23:20	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:20	WG996528
Copper	5.31		0.520	5.00	1	07/09/2017 23:20	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:20	WG996528
Nickel	U		0.350	2.00	1	07/09/2017 23:20	WG996528
Selenium	0.591	J	0.380	2.00	1	07/09/2017 23:20	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:20	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:20	WG996528
Zinc	23.9	J	2.56	25.0	1	07/09/2017 23:20	WG996528

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	189000		2820	10000	1	07/06/2017 23:05	WG996443

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	57200		2710	20000	1	07/12/2017 17:59	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	1580		19.7	100	1	07/12/2017 15:18	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	312	J	79.0	1000	1	07/12/2017 13:37	WG997964
Chloride	1650		51.9	1000	1	07/11/2017 14:07	WG997385
Sulfate	86400		77.4	5000	1	07/11/2017 14:07	WG997385

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 17:03	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	U		1.70	5.00	1	07/09/2017 23:40	WG997134
Beryllium	U		0.700	2.00	1	07/09/2017 23:40	WG997134
Chromium	U		1.40	10.0	1	07/09/2017 23:40	WG997134
Cobalt	U		2.30	10.0	1	07/09/2017 23:40	WG997134
Molybdenum	U		1.60	5.00	1	07/09/2017 23:40	WG997134
Vanadium	U		2.40	20.0	1	07/09/2017 23:40	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	07/09/2017 23:23	WG996528
Arsenic	U		0.250	2.00	1	07/09/2017 23:23	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:23	WG996528
Copper	3.74	J	0.520	5.00	1	07/09/2017 23:23	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:23	WG996528
Nickel	U		0.350	2.00	1	07/09/2017 23:23	WG996528
Selenium	0.674	J	0.380	2.00	1	07/09/2017 23:23	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:23	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:23	WG996528
Zinc	23.2	J	2.56	25.0	1	07/09/2017 23:23	WG996528

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	236000		2820	10000	1	07/06/2017 23:05	WG996443

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	110000		2710	20000	1	07/12/2017 16:29	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	673		19.7	100	1	07/12/2017 15:19	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	07/12/2017 13:53	WG997964
Chloride	1110		51.9	1000	1	07/11/2017 14:20	WG997385
Sulfate	99500		77.4	5000	1	07/11/2017 14:20	WG997385

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 17:06	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	13.0		1.70	5.00	1	07/09/2017 23:42	WG997134
Beryllium	U		0.700	2.00	1	07/09/2017 23:42	WG997134
Chromium	U		1.40	10.0	1	07/09/2017 23:42	WG997134
Cobalt	U		2.30	10.0	1	07/09/2017 23:42	WG997134
Molybdenum	12.6		1.60	5.00	1	07/09/2017 23:42	WG997134
Vanadium	3.03	J	2.40	20.0	1	07/09/2017 23:42	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	07/09/2017 23:27	WG996528
Arsenic	0.260	J	0.250	2.00	1	07/09/2017 23:27	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:27	WG996528
Copper	1.79	J	0.520	5.00	1	07/09/2017 23:27	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:27	WG996528
Nickel	U		0.350	2.00	1	07/09/2017 23:27	WG996528
Selenium	1.61	J	0.380	2.00	1	07/09/2017 23:27	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:27	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:27	WG996528
Zinc	98.7		2.56	25.0	1	07/09/2017 23:27	WG996528

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	174000		2820	10000	1	07/06/2017 23:05	WG996443

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	44000		2710	20000	1	07/12/2017 18:06	WG997640

Wet Chemistry by Method 353.2

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	827		19.7	100	1	07/12/2017 15:20	WG997658

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Bromide	U		79.0	1000	1	07/12/2017 15:29	WG997964
Chloride	1240		51.9	1000	1	07/11/2017 14:33	WG997385
Sulfate	98400		77.4	5000	1	07/11/2017 14:33	WG997385

Mercury by Method 7470A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Mercury	U		0.0490	0.200	1	07/07/2017 17:08	WG996409

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Barium	U		15.3	45.0	9	07/09/2017 23:45	WG997134
Beryllium	U		6.30	18.0	9	07/09/2017 23:45	WG997134
Chromium	U		12.6	90.0	9	07/09/2017 23:45	WG997134
Cobalt	U		20.7	90.0	9	07/09/2017 23:45	WG997134
Molybdenum	23.5	J	14.4	45.0	9	07/09/2017 23:45	WG997134
Vanadium	U		21.6	180	9	07/09/2017 23:45	WG997134

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Antimony	U		0.754	2.00	1	07/09/2017 23:30	WG996528
Arsenic	U		0.250	2.00	1	07/09/2017 23:30	WG996528
Cadmium	U		0.160	1.00	1	07/09/2017 23:30	WG996528
Copper	2.15	J	0.520	5.00	1	07/09/2017 23:30	WG996528
Lead	U		0.240	2.00	1	07/09/2017 23:30	WG996528
Nickel	U		0.350	2.00	1	07/09/2017 23:30	WG996528
Selenium	0.838	J	0.380	2.00	1	07/09/2017 23:30	WG996528
Silver	U		0.310	2.00	1	07/09/2017 23:30	WG996528
Thallium	U		0.190	2.00	1	07/09/2017 23:30	WG996528
Zinc	14.0	J	2.56	25.0	1	07/09/2017 23:30	WG996528

Method Blank (MB)

(MB) R3232851-1 07/07/17 20:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	5000	J	2820	10000

L920423-07 Original Sample (OS) • Duplicate (DUP)

(OS) L920423-07 07/07/17 20:08 • (DUP) R3232851-4 07/07/17 20:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	632000	634000	1	0.316		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3232851-2 07/07/17 20:08 • (LCSD) R3232851-3 07/07/17 20:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8710000	8860000	99.0	101	85.0-115			1.71	5

Method Blank (MB)

(MB) R3231760-1 07/06/17 23:05

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

L919246-02 Original Sample (OS) • Duplicate (DUP)

(OS) L919246-02 07/06/17 23:05 • (DUP) R3231760-4 07/06/17 23:05

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2640000	2770000	1	4.81		5

Sample Narrative:

OS: Original TDS result was reported over range and was re-ran out of hold , both runs reported

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231760-2 07/06/17 23:05 • (LCSD) R3231760-3 07/06/17 23:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8250000	8650000	93.8	98.3	85.0-115			4.73	5

Method Blank (MB)

(MB) R3232963-1 07/12/17 14:25

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity	U		2710	20000

L920876-05 Original Sample (OS) • Duplicate (DUP)

(OS) L920876-05 07/12/17 17:35 • (DUP) R3232963-5 07/12/17 17:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	108000	108000	1	0.000		20

L920318-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920318-01 07/12/17 14:34 • (DUP) R3232963-2 07/12/17 14:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	110000	111000	1	1.00		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3232963-3 07/12/17 15:32 • (LCSD) R3232963-4 07/12/17 16:55

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100000	106000	108000	106	108	85.0-115			1.00	20

Method Blank (MB)

(MB) R3232790-1 07/12/17 14:49

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Nitrate-Nitrite	U		19.7	100

L920467-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920467-01 07/12/17 14:52 • (DUP) R3232790-4 07/12/17 14:53

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	2480	2460	1	0		20

L920583-06 Original Sample (OS) • Duplicate (DUP)

(OS) L920583-06 07/12/17 15:20 • (DUP) R3232790-6 07/12/17 15:21

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	827	829	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3232790-2 07/12/17 14:50 • (LCSD) R3232790-3 07/12/17 14:51

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Nitrate-Nitrite	5000	5270	5220	105	104	90-110			1	20

L920508-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L920508-01 07/12/17 14:54 • (MS) R3232790-5 07/12/17 14:55

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate-Nitrite	5000	499	5340	97	1	90-110	

L920612-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920612-01 07/12/17 15:22 • (MS) R3232790-7 07/12/17 15:23 • (MSD) R3232790-8 07/12/17 15:24

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate-Nitrite	5000	344	4900	4940	91	92	1	90-110			1	20

Method Blank (MB)

(MB) R3232619-1 07/11/17 06:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Chloride	U		51.9	1000
Sulfate	U		77.4	5000

L920286-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920286-01 07/11/17 12:11 • (DUP) R3232619-4 07/11/17 12:23

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	35600	35700	1	0		15
Sulfate	5750	5720	1	0		15

L920661-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920661-01 07/11/17 14:45 • (DUP) R3232619-6 07/11/17 14:58

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	9160	9200	1	0		15
Sulfate	29200	29400	1	1		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3232619-2 07/11/17 07:07 • (LCSD) R3232619-3 07/11/17 07:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloride	40000	39600	39700	99	99	80-120			0	15
Sulfate	40000	39300	39100	98	98	80-120			1	15

L920403-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L920403-01 07/11/17 12:36 • (MS) R3232619-5 07/11/17 12:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	5860	52100	92	1	80-120	
Sulfate	50000	ND	49900	93	1	80-120	

Method Blank (MB)

(MB) R3232661-1 07/12/17 07:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Bromide	U		79.0	1000
Sulfate	U		77.4	5000

L920583-03 Original Sample (OS) • Duplicate (DUP)

(OS) L920583-03 07/12/17 12:49 • (DUP) R3232661-4 07/12/17 13:05

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	358	1	200	J P1	15
Sulfate	68700	90700	1	28	J3	15

L920876-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920876-01 07/12/17 15:45 • (DUP) R3232661-6 07/12/17 16:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	U	0.000	1	0		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3232661-2 07/12/17 07:29 • (LCSD) R3232661-3 07/12/17 07:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromide	40000	40100	40000	100	100	80-120			0	15
Sulfate	40000	39000	39800	98	100	80-120			2	15

L920583-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L920583-03 07/12/17 12:49 • (MS) R3232661-5 07/12/17 13:21

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50000	U	45000	90	1	80-120	
Sulfate	50000	68700	115000	93	1	80-120	E

L920876-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920876-01 07/12/17 15:45 • (MS) R3232661-7 07/12/17 16:16 • (MSD) R3232661-8 07/12/17 16:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromide	50000	U	11500	10200	23	20	1	80-120	J6	J6	12	15

Method Blank (MB)

(MB) R3231744-1 07/07/17 16:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.0490	0.200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231744-2 07/07/17 16:22 • (LCSD) R3231744-3 07/07/17 16:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	2.59	2.74	86	91	80-120			5	20

L920576-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920576-04 07/07/17 16:27 • (MS) R3231744-4 07/07/17 16:29 • (MSD) R3231744-5 07/07/17 16:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	ND	2.60	2.70	87	90	1	75-125			4	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3231921-1 07/09/17 23:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Barium	U		1.70	5.00
Beryllium	U		0.700	2.00
Chromium	U		1.40	10.0
Cobalt	U		2.30	10.0
Molybdenum	U		1.60	5.00
Vanadium	U		2.40	20.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231921-2 07/09/17 23:09 • (LCSD) R3231921-3 07/09/17 23:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Barium	1000	1030	1030	103	103	80-120			0	20
Beryllium	1000	1010	1010	101	101	80-120			0	20
Chromium	1000	982	980	98	98	80-120			0	20
Cobalt	1000	1020	1020	102	102	80-120			0	20
Molybdenum	1000	982	990	98	99	80-120			1	20
Vanadium	1000	968	981	97	98	80-120			1	20

L921175-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L921175-01 07/09/17 23:14 • (MS) R3231921-5 07/09/17 23:20 • (MSD) R3231921-6 07/09/17 23:22

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	1000	68.6	1090	1100	102	103	1	75-125			0	20
Beryllium	1000	ND	995	1010	99	101	1	75-125			2	20
Chromium	1000	ND	970	982	97	98	1	75-125			1	20
Cobalt	1000	ND	1020	1020	102	102	1	75-125			0	20
Molybdenum	1000	ND	987	985	99	99	1	75-125			0	20
Vanadium	1000	ND	962	990	96	99	1	75-125			3	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3231915-1 07/09/17 21:53

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Cadmium	U		0.160	1.00
Copper	U		0.520	5.00
Lead	U		0.240	2.00
Nickel	U		0.350	2.00
Selenium	U		0.380	2.00
Silver	U		0.310	2.00
Thallium	U		0.190	2.00
Zinc	U		2.56	25.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231915-2 07/09/17 21:56 • (LCSD) R3231915-3 07/09/17 22:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	48.7	48.8	97	98	80-120			0	20
Arsenic	50.0	46.9	47.2	94	94	80-120			1	20
Cadmium	50.0	47.8	48.0	96	96	80-120			0	20
Copper	50.0	44.9	45.4	90	91	80-120			4	20
Lead	50.0	47.8	48.4	96	97	80-120			1	20
Nickel	50.0	47.7	47.3	95	95	80-120			1	20
Selenium	50.0	45.6	46.1	91	92	80-120			1	20
Silver	50.0	46.2	46.5	92	93	80-120			1	20
Thallium	50.0	40.8	41.4	82	83	80-120			1	20
Zinc	50.0	52.2	46.4	104	93	80-120			12	20

L920457-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920457-01 07/09/17 22:03 • (MS) R3231915-5 07/09/17 22:10 • (MSD) R3231915-6 07/09/17 22:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	U	49.4	49.9	99	100	1	75-125			1	20
Arsenic	50.0	0.313	46.4	46.6	92	92	1	75-125			0	20
Cadmium	50.0	U	48.5	48.8	97	98	1	75-125			1	20
Copper	50.0	2.32	46.8	46.6	90	90	1	75-125			3	20
Lead	50.0	0.318	47.2	46.7	94	93	1	75-125			1	20
Nickel	50.0	5.00	47.1	46.2	84	82	1	75-125			2	20
Selenium	50.0	U	46.2	47.1	92	94	1	75-125			2	20

L920457-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920457-01 07/09/17 22:03 • (MS) R3231915-5 07/09/17 22:10 • (MSD) R3231915-6 07/09/17 22:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Silver	50.0	U	45.9	45.4	92	91	1	75-125			1	20
Thallium	50.0	U	40.3	39.7	81	79	1	75-125			1	20
Zinc	50.0	7.17	52.6	52.0	91	90	1	75-125			1	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1,4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
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Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

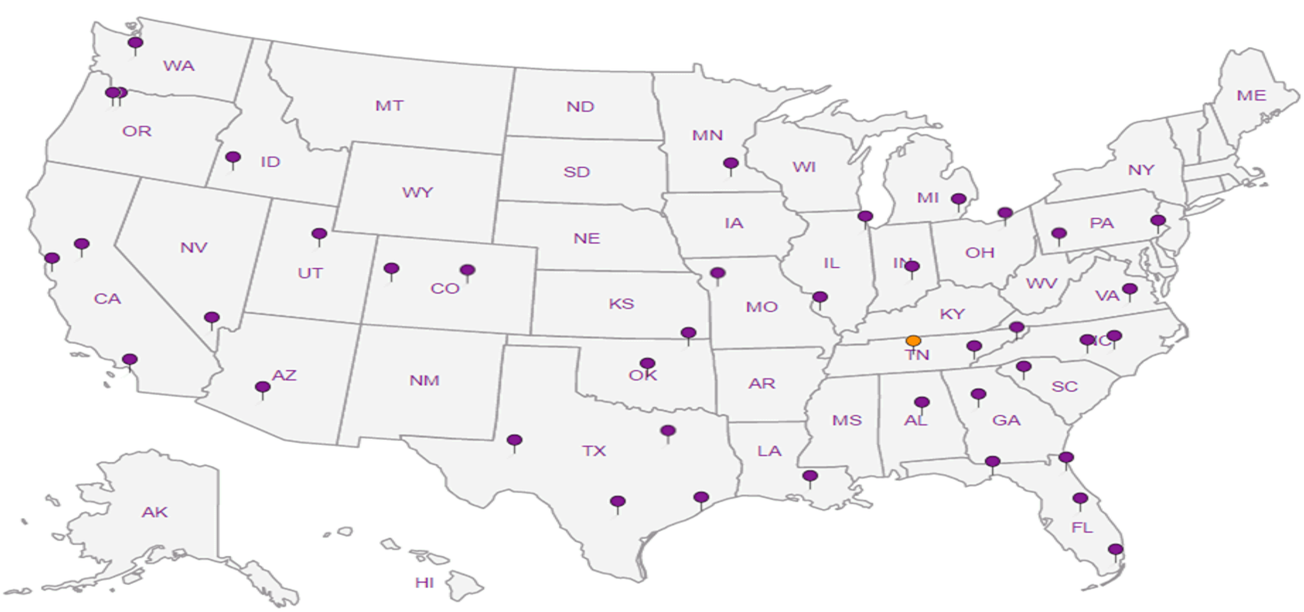
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



AMEC Foster Wheeler
9865 South 500 West
Sandy, UT 84070

Billing Information: AMECSLCUT

Pres Chk

Report to: Ehud Ardon

Email To: ehud.ardon@amecfw.com

Project Description: Prolific Mine

City/State Collected: Hanksville UT

Phone: 801-999-2027

Fax: n/a

Client Project #: 1781400453

Lab Project #:

Collected by (print): Ehud Ardon

Site/Facility ID #:

P.O. #:

Collected by (signature): Ardon

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #:

Date Results Needed: STD TAT

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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Phone: 800-767-5859
Fax: 615-758-5859

L# L920583
B214

Acctnum: AMECSLCUT
Template:
Prelogin:
TSR: Daphne Richards
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CAM 17 metals/(1) 125ml HDPE HNO3	Cl, SO4, CN, Br, ALK/(1) 1L HDPE No Pres	TDS/(1) 250ml HDPE No Pres	NO2NO3/(1) 250ml HDPE/H2SO4	Remarks	Sample # (lab only)
Pond-1	G	GW		7/3/17	12:30	4	X	X	X	X		-01
Pond-2	G	GW		-11-	12:35	4	X	X	X	X		-02
Cr-1	G	GW		-11-	12:20	4	X	X	X	X		-03
Cr-2	G	GW		-11-	11:50	4	X	X	X	X		-04
Har El	G	GW		-11-	12:00	4	X	X	X	X		-05
El Padre	G	GW		-11-	13:00	4	X	X	X	X		-06

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ________

Remarks:

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ______

Tracking # 7283 8836

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP _Y _N
COC Signed/Accurate: ✓Y _N
Bottles arrive intact: ✓Y _N
Correct bottles used: ✓Y _N
Sufficient volume sent: ✓Y _N
If Applicable
VOA Zero Headspace: _Y _N
Preservation Correct/Checked: ✓Y _N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	
Ardon	7/5/17	10:35	[signature]	Trip Blank Received: Yes / (No) HCL / MeoH TBR
Relinquished by: (Signature) [signature]	7/5/17	1700	Received by: (Signature)	Temp: 2.1 °C Bottles Received: 24
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Marina Malone	Date: 7-6-17 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

ESCSLCUT

ESC Lab Sciences
Non-Conformance Form

Login #: L920583	Client: AMECSLCUT	Date: 7/6/17	Evaluated by: Troy Dunlap

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	X	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Client is requesting CN. Did not receive a CN container.

Client informed by:		Call		Email	X	Voice Mail		Date:7/7/17	Time:1526
TSR Initials:DR	Client Contact: EA								

Login Instructions:

Notified client unable to analyze

Attachment 2: Hydrogeological Report

HYDROGEOLOGIC REPORT

STRUCTURAL GEOLOGY

The Henry Mountains consist of five intrusive masses, which have been described by G.K Gilbert (1877), C.B. Hunt and others (1953) and M.D. Jackson and D.D Pollard (1973). The core areas of the five prominent mountains of the Henry Mountains are composed of hypabyssal igneous masses that intruded into sedimentary rocks of the Colorado Plateau. Hunt (1953) describes the central core of the mountains as near-vertical cylindrical stocks which pushed upward to dome the overlying strata, producing a mushroom-shaped mass. The central stocks are surrounded by “shatter zones” through which tongues of magma invaded the sedimentary host rocks to form laccoliths and sills.

The Bromide Basin and surrounding ridges are composed predominantly multiple phases of the hypabyssal intrusive rocks which were emplaced in steeply dipping, north striking sheet-like bodies. Upper Paleozoic to Mesozoic sedimentary rocks form the east, west and south flanks of the ridges surrounding the basin and pendants of sediments occur locally on the ridge crest. The attitude of magmas forming the Bromide Basin do not appear to be laccoliths of cylindrical plugs, but instead, dike-like bodies, perhaps feeding toward or from the Mt. Ellen laccolith complex (Rodney, Blakestad 1999).

Based on geologic mapping (listed as **Figure 4** in original report), it is demonstrated that a series of north-trending steeply dipping tabular bodies of grey feldspar-hornblende andesite porphyry and fine-to-medium diorite constitute the wide-spread rock units in the Bromide Basin. A late felsic quarts-feldspar porphyry occurs in isolated dikes and irregular shaped masses, and is believed to be the source of structurally controlled, steeply dipping, gold-quartz-specularite bearing fractures and mineralized faults and shear zones on the property (Rodney, Blakestead, 1999). Fracture densities cannot be determined over large parts of the property due to regolith and soil cover.

Faults and shear zones are common in the basin; however, their distribution and attitudes are difficult to ascertain due to poor exposure. The most prominent shear zones trend N20-25^{o}W with steeply dipping NE-side up relative movement. A second set trends N15-20^{o}E with a vertical to steep, easterly dip and undetermined throw (Rodney, Blakestead, 1999).

STRATIGRAPHY AND SEDIMENTOLOGY

<u>Local Lithologic Information</u>

Six lithologies have been identified at Bromide Basin. The older rocks are Upper Paleozoic to Middle Mesozoic aged sedimentary rocks. Into these rocks have been intruded five distinct hypabyssal magmas of intermediate chemical composition. The sedimentary rocks are thin bedded, fine grained clastic and calciclastic rocks which form the flanks of the east, west and south ridges of Bromide Basin.

There are two principal igneous rock units forming the greater part of the Bromide Basin. Diorite constitutes the lithology with the greater surface area, followed closely by a grey and white feldspar-hornblende porphyry. Both units occur as steeply dipping, tabular dike-like bodies which strike northerly. The diorite is younger than the feldspar-hornblende porphyry locally. A fine grained grey andesite porphyry lithology is younger than the later feldspar-hornblende porphyry. The feldspar-hornblende porphyry also contains thin veins of quartz-magnetite and is host to massive magnetite accumulations at the Brinkerhoff Vein. The last and perhaps youngest unit identified at the Bromide Basin is a distinctive felsic rock with quartz and plagioclase phenocrysts and termed quartz porphyry.

Outcrops of sedimentary rock occur in isolated exposures along the west ridge of Bromide Basin and as the primary country rock surrounding the basin on the west, east and south sides. The isolated ridge-top exposures are relatively small and irregular in shape, and believed to be the roof of the pendants of the magma chamber; which hosted the intrusive rock units previously discussed. The sedimentary rocks are characterized by thin-bedded clastic and calciclastic sediments which include siltstone, fine grained sandstone and calcareous siltstone. Bedded layers are commonly 2-10 cm thick, with laminated bedding in some layers. Bedding is weakly undulatory and demonstrates attitudes of shallow dip. Dikes of diorite and gray porphyry up to one meter in thicknesses cut along bedding planes locally. The sediments are believed to be Upper Paleozoic to Middle Mesozoic, however no fossil evidence has ever been observed.

The local geology in the Bromide Basin is complicated. There has been little to no work on the stratigraphy in near the Prolific Mine. Based on the information recovered from the listed references, the regional geology has been addressed, however there is also a deficiency of information because there are no groundwater wells or reliable borehole information in an approximate 10 to 20-mile radius. It is assumed, based on regional geology, that the lithology is intrusive rock followed by the Mancos Shale Formation, Morrison Formation, Summerville Formation, Entrada Formation, and the Carmel Formation.

Regional Lithologic Information

The Henry Mountains are surrounded by Colorado Plateau sedimentary rocks. Around the Bromide Basin underlying formations have been identified through research of publications in the region. Below is a discussion of the regional sedimentary layers beginning with the youngest formations or units:

- Generally, the Henry Mountain intrusion is composed of Diorite Porphyry stocks, byamaliths and sills. The Diorite occurs as a light gray igneous rock, medium to fine grained with occurrences of xenoliths and quarts/magnetite veins. The age of the rock is 1.2 to 1.5 Million years old (ma) and the depth varies depending on the location. In the Bromide Basin, the thickness of the intrusive rock is approximately 1,000 to 1,500 feet thick.

- The Mancos Formation is composed of five members; Masuk, Emery Sandstone, Blue Gate, Ferron Sandstone and Tunuk. The units are generally composed of alternating layers of carbonaceous and sandy shale and thin to thick-bedded sandstone. The Mancos formation is approximately 2,800 to 3,700 feet thick.

- The Dakota Sandstone varies as friable to quarzitic coarse grains fluvial sandstone with minor interbedded carbonaceous shale and impure coal. The thickness ranges from 0 to 125 feet thick, but mainly occurs as discontinuous lenses.

- The Morrison Formation is composed of two members named the Brushy Basin Shale and the Salt Wash Sandstone. The Brushy Basin Shale is composed of bentonitic mudstone with cross-bedded sandstone and conglomerate lenses. The Salt Wash Sandstone is cross-bedded fine to coarse grained sandstone with thin interbedded conglomerates and massive gypsum at some locations. The Morrison Formation is approximately 0 to 400 feet thick, but near the Henry Mountains the occurrence is closer to 200 feet thick.

- The Summerville Formation is composed of thin bedded siltstone, mudstone and sandstone. The approximate thickness is 100 to 300 feet which extends around the Henry Mountains.

- The Entrada Sandstone is a thick bedded fine-grained sandstone with a substantial amount of clay and ranges in thicknesses from 300 to 800 feet.

- The Carmel Formation in this region is primarily limestone with interbedded siltstone and sandstone approximately 200 to 250 feet thick.

- The Navajo Sandstone surrounding the Henry Mountains at surface is not very prominent until some distance away. The structure contours of the Navajo Sandstone indicate it is at depth in the Bromide Basin of approximately 6,000 feet bgs (Weiss 1987). The Navajo Sandstone is mainly comprised of fine grained eolian sandstone with a calcareous cement.

TOPOGRAPHY

The Henry Mountains are located in the southeast portion of Utah and generally run in a north-south direction. The range is broken into two groups; the northern group which includes Mt. Ellen, Me, Pennell and Mt. Hillers; with the southern group including MT. Ellsworth and Mt. Holmes. The area of interest is the Prolific Mine located south of MT. Ellen in the Bromide Basin. Mt. Ellen is approximately 11,522 feet, above mean sea level (amsl) and the Bromide Basin maximum elevation is approximately 10,800 feet (amsl). The Bromide Basin is situated on the east-northeast facing slopes where the gradient is approximately 14% falling from 11,000 feet (amsl) to the ridge line at 6,000 feet (amsl). The Prolific Mine has approximately 60 acres of patented claims within the Bromide Basin. The central location of the mine where the Mill, offices and equipment are located, is at approximately 9,800 feet (amsl). The surrounding land uses are unpatented mining claims, Public BLM roads and BLM managed areas.

HYDROGEOLOGIC DESCRIPTION

The Henry Mountains surrounding Mt. Ellen and Bromide Basin is in a hydrological area of approximately 1,000 square miles, bounded by the Escalante Canyon on the west, the Fremont and the Dirty Devil Basin on the east and northeast and the Colorado River on the south.

The Prolific Mine in the Bromide Basin has very little hydrologic or hydrogeologic information. The actual depth to groundwater is not defined including the hydraulic gradient and local aquifer information. However recent exploration activities in the Bromide Basin have identified certain localities of groundwater approximately 80 feet bgs and 600 feet bgs in separate fracture zones. The quantity, availability, and distribution of hydrologic data in the Bromide Basin is inadequate to calculate any assumptions. The climate in the area ranges from arid to semiarid. At lower altitudes, annual precipitation is less than 6-inches/year; in the mountains, the annual precipitation can exceed 20-inches per year. Precipitation is quite variable; some snow or rain results from winter storms in November through April; and the rest results from summer thunderstorms (Weiss 1987).

Regionally, the Morrison, Entrada and Navajo Formations contain principal aquifers within the Mt. Ellen and Bromide Basin; the Navajo Sandstone is the most significant and deeper aquifer system. The three formations are underlain with less permeable layers which include shales, silicified sandstones, metamorphosed rocks and other intrusive formations which create artificial perched aquifers and frequent spring horizons at or near the impermeable layers. The Summerville Confining unit underlies the Morrison Formation, the Carmel Formation underlies the Entrada Sandstone, and the Chinle Formation underlies the Navajo Formation, part of the Glen Canyon Group (Blanchard, 1986).

For most of the region surrounding the Henry Mountains, faulting and folding are considered the main factors affecting hydraulic conductivity in the area. The intrusive rocks underlying the Henry Mountains create impermeable boundaries, and the sandstones are upturned and probably unsaturated except on the lower part of the domes (Blanchard, 1986). Fractures in the Henry Mountains area are common in the groundwater containing formations and affect water infiltration and inter-formational water movement (Weiss, 1987). Locally, on the east-northeast facing slopes of Henry Mountains where Bromide Basin is situated, groundwater movement is assumed to follow with local topography and near-surface intrusive formations, moving away from the peaks (Blanchard, 1986), and generally to the southeast.

The headwaters of Crescent Creek begin in the Bromide Basin at nearly 10,800 feet (amsl). The Crescent Creek flows in an easterly direction in the basin bottom following the topography. Crescent Creek continues to flow out of Bromide Basin, onto alluvial/fluvial sediments near the base of the mountains; the creek continues in an easterly direction and eventually flows over the steeply dipping Mancos Shale, Dakota Sandstone, Morrison Formation, Summerville and the Entrada Sandstone respectively. Crescent Creek flows year-round but is frozen in the winter months at higher elevations; but flows at low volumes near the base of the mountains. During the spring months, the Crescent Creek flow is at its highest due to snow melt between March and June.

In the Henry Mountains area, the Navajo sandstone is the most utilized aquifer, and most of the wells in the area are completed in the Navajo sandstone, although the Entrada sandstone is also utilized (Blanchard, 1986). The estimated saturated thickness of the Navajo varies from 250 to 1,000 feet. The saturated thickness of the Wingate is estimated at 250 feet. The hydraulic conductivity is estimated at 3-3.5 feet/day in the Navajo, 1 foot/day in the Wingate, and less than 1 foot/day in the Entrada (Blanchard, 1986). The aquifer storage varies with the saturated thickness and is estimated between16,000 and 64,000 acre-feet per square mile (Blanchard, 1986).

Recharge to the aquifer occurs by infiltration of precipitation into the aquifer from areas where the permeable formations are exposed at the surface. The Henry Mountains area sees the most precipitation in the area (20-25 in/yr). The form of precipitation (snow), low temperatures, and low evaporation make favorable conditions for recharge through infiltration. Recharge of the sandstones in the Henry

Mountains area occurs by downward movement of water from overlying formations on the flanks of the mountains, where those formations are significantly fractured (Weiss, 1987 and Blanchard, 1986).

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Attachment 3: Compliance Monitoring Plan

COMPLIANCE MONITORING PLAN

Groundwater Monitoring

The geological setting in the Bromide Basin area is assumed to consist of perched aquifers, unmapped fracture systems and an unspecified depth determination to the underlying aquifer system. Water infiltration at higher elevations of the Henry Mountains possibly travels along the interface of the confining rock layers, and perhaps through fracture sets, eventually interfacing the primary aquifer systems at lower topographic elevations.

Currently, there are no groundwater monitoring wells at the Site or within a 10-mile radius. However, Prolific Mining plans to install three groundwater monitoring wells in 2017/2018 during an exploration drilling program currently in process. Additional data will need to be collected to evaluate any potential impacts to public or private water users. Currently, a water sampling program is being developed by Prolific Mine with the assistance of the Utah Groundwater Protection Section; background water data is in the process of being established.

Source monitoring has not been conducted in the past, however sampling of the source water by way of Crescent Creek, and the on-site Adits is currently being monitored. The monitoring plan consists of maintaining a water balance, and monitoring the water quality of the influent water and current process water systems.

Leak detection monitoring will be established for the process water ponds which Prolific Mining is planning on constructing to replace the current process water ponds. A construction compliance schedule will be established upon selection of an engineering contractor.

Water Sampling

Water samples will be collected from the locations identified in Table 1 of this section. Water sampling will be conducted semi-annually, in the spring and fall of each year to monitor the concentrations of the constituents.

Table 1: Sampling Locations

Sample Location	Description
Crescent Creek (Upstream)	Creek water at location upstream from Mill
Crescent Creek (downstream)	Creek water at location downstream from Mill
Pond 1	Process water pond
Pond 2	Process water pond
Har-El Adit	Har-El Adit located immediately North of Mill
El-Padre Adit	El-Padre Adit located 1000' west of Mill

Samples will be collected following standard sampling procedures. Water quality field parameters will be recorded for temperature, pH, specific conductivity, dissolved oxygen, turbidity and oxidation/reduction potential (ORP). All samples will be analyzed for TDS, alkalinity, dissolved metals, and anions using approved analytical methods.

Quality assurance and quality control (QA/QC) measures for water sampling include sampling procedures, documentation, samples handling, and the collection of quality control samples. A field duplicate sample will be collected for quality control (once per sampling event). Samples will be collected in laboratory provided pre-preserved bottles and submitted to a State certified laboratory for analysis. Sample bottles will be labeled to identify sample ID, date, and time of collection, type of analysis, appropriate preservative, and sampler. A chain of custody form will be completed and processed at the time of sample collection. All samples will be collected as unfiltered grab samples, except for dissolved metals, which will be field filtered with a 45µm filter. Samples will be stored immediately after collection in ice filled coolers chilled to 4^{o} C.