GROUNDWATER HYDROLOGY AND WATER QUALITY ANALYSIS REPORT

FOR THE

IDAHO-MARYLAND MINE PROJECT

NEVADA COUNTY, CALIFORNIA

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GROUNDWATER HYDROLOGY AND WATER QUALITY ANALYSIS REPORT FOR THE IDAHO-MARYLAND MINE DEWATERING PROJECT NEVADA COUNTY, CALIFORNIA

EXECUTIVE SUMMARY

Rise Grass Valley, Inc. (Rise) proposes to reinitiate underground mining at the Idaho-Maryland gold mine, which has been closed since 1956 and is currently flooded with groundwater. This Groundwater Hydrology and Water Quality Analysis Report has been prepared by EMKO Environmental, Inc. (EMKO) to support Rise's application to Nevada County for approval of a Conditional Use Permit and Reclamation Plan to re-open, operate, and reclaim the mine (referred to as the "Project"). The Project would include the following primary actions:

- Dewatering of the existing underground mine workings, with treatment of the pumped water and discharge to South Fork Wolf Creek;
- Mining existing and new underground workings within the Mineral Lease Boundary;
- Processing gold mineralization and related rock;
- Placing engineered fill, consisting of barren rock and sand tailings, at the Brunswick and Centennial Industrial Sites; and
- Export of engineered fill from the Brunswick Industrial Site to support local construction projects.

The Conditional Use Permit and Reclamation Plan application proposes to allow:

- Operation of pumps and a water treatment facility to dewater the underground workings;
- Construction of a water pipeline to transport treated water to an outfall located in South Fork Wolf Creek;
- Construction of the necessary aboveground facilities at the Brunswick Industrial Site (e.g., headframes and hoists, surface structures, a mineral processing plant) to support underground mining and mineral processing;
- Construction of a new service shaft and ventilation shaft from the underground mine to surface at the Brunswick Industrial Site;
- Underground mining, including drilling, blasting, and ore removal;
- Ore and rock processing at the Brunswick Industrial Site and off-site transport of gold concentrate;
- Transport of engineered fill from the Brunswick Industrial Site and placement at the Centennial Industrial Site;
- Transport of engineered fill from the Brunswick Industrial Site to off-site customers;
- Placement of engineered fill at the Brunswick Industrial Site; and
- Construction of a potable water pipeline to residences along a portion of East Bennett Road.

The majority of aboveground facilities will be located on the 119-acre Brunswick Industrial Site. Ore processing would not involve the use of mercury or cyanide.

The Project site is located in the northern Sierra Nevada foothills, which have a lengthy and complex geologic history. There are several historic mines within the Project, including the Brunswick, Union Hill, Eureka, Idaho, and Maryland mines. The Brunswick and Union Hill mines occur within a metamorphosed andesitic volcanic unit known as the "Brunswick Porphyrite Block". The other historic mines are located around the northern contact of the porphyrite block within mafic igneous and metamorphic rocks referred to as gabbro and serpentine. The underlying rock types have some effect on existing water quality. The quality of the water that percolates through these different rock types in the engineered fill would also be potentially affected by the mineralogy of the rocks within the fill.

As part of the Project, water would be pumped from the existing underground workings at a rate up to 5.6 cubic feet per second (cfs), or about 2,500 gallons per minute (gpm) until the mine is dewatered. After initial dewatering, dry conditions in the mine would be maintained by pumping an average of 1.9 cfs, or about 850 gpm. The pumped water would be discharged to South Fork Wolf Creek. EMKO performed water quality testing of groundwater currently flooding the mine workings, water flowing from drains connected to the historic mines, and surface flows in Wolf Creek and South Fork Wolf Creek. Existing surface water meets applicable water quality criteria and is not adversely affected by the historic mining. Water within the underground workings already meets most water quality standards, with the primary exception of iron and manganese. A treatment plant will be constructed and operated to reduce the iron and manganese, and potential other trace constituents, to allowable levels prior to discharge. Treatment would occur under the requirements of the California Regional Water Quality Control Board (RWQCB) Low Threat Discharge Permit applicable to Tier 3 discharges from hard rock mines. Conventional water treatment processes, effective for the constituents of concern, are well understood and have been validated over years of application in facilities worldwide (Linkan, 2019).

EMKO and Itasca (2020b) evaluated the effects of mine dewatering on domestic water wells above the underground mine workings using analytical and numerical methods, respectively. The existing underground workings discharge water to Wolf Creek through several drains near Centennial Drive. The overall discharge rate is approximately 60 gpm to 125 gpm (0.13 cfs to 0.28 cfs), while the base flow in Wolf Creek may be 25 cfs to 30 cfs. The discharge from the drains is drawn from shafts that extend above the groundwater surface and act as wells that lower the groundwater surface over the area of the existing mine workings. Numerical modeling indicates that the current groundwater elevation in the area overlying the mine workings between East Bennett Drive and Idaho Maryland Road has been lowered up to 10 feet by the existing drainage through the mine workings (Itasca, 2020b).

EMKO evaluated aquifer properties within the fractured bedrock based on review of numerous well completion reports available from the California Department of Water Resources. The available data indicate that the hydraulic conductivity and transmissivity of the fractured bedrock decrease substantially with depth. The decreasing trend in aquifer properties with depth indicates that during dewatering, approximately 99 percent of the water will be pumped from the upper 550 feet of the mine workings, while most of the future mining will occur below a depth of 1,000 feet. Evaluations by EMKO and Itasca (2020b) indicate that in outlying areas, away from the current underground workings, drawdowns in existing wells will typically be less than a few feet, and appreciably less than the normal seasonal fluctuations in the water table of 20 feet to 50 feet per year. However, in the area overlying many of the

current underground workings, between East Bennett Road and Idaho Maryland Road, the additional drawdown could be up to 10 feet, in addition to the existing drawdown due to drainage through the existing shafts. To address any potential loss of well capacity in this area, Rise will install a pipeline under East Bennett Road that will be connected to the NID potable water system. Rise would connect any affected well owner to the potable system at no cost to that party.

Geomorphology evaluations of South Fork Wolf Creek (Balance, 2020) indicate that the base flow may be as low as 0.17 cfs. Dewatering of the mine could reduce the base flow by 0.1 cfs by decreasing the amount of groundwater that discharge to the creek (Itasca, 2020b). However, this reduction in base flow would be offset by discharge of 1.9 cfs to 5.6 cfs of treated water. Balance (2020) also determined that erosion and sedimentation within South Fork Wolf Creek would not occur at flows below 23 cfs. Thus, addition of up to 5.6 cfs during base flow conditions would not affect the streambed. During higher flows, the peak runoff in South Fork Wolf Creek would be reduced by appreciably more than 5.6 cfs by a storm water detention pond to be constructed on the Brunswick Industrial Site (see additional details in the next paragraph). Reduction in the base flow of Wolf Creek would be approximately 0.75 cfs (Itasca, 2020b), which is a very small fraction of the existing base flow.

As part of the Project, Rise proposes to construct storm water detention ponds to collect runoff from the engineered fill areas on both the Centennial and Brunswick Industrial Sites. The storm water detention facilities are designed to contain peak flows during storm events and allow the water to be released at a lower rate after peak flows in the creeks have passed. The detention pond at the Brunswick site is designed to reduce peak storm flows below those that currently leave the same site area by over 48 cfs for the 2-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm. Therefore, the flow in South Fork Wolf Creek would not be increased during storm events despite the addition of treated mine discharge of up to 5.6 cfs to the creek flow. The detention pond at the Centennial Industrial Site would reduce peak storm discharges to Wolf Creek by 25 cfs to 60 cfs below existing flows. The reduction in peak storm flows would also enhance the capacity of existing storm drain facilities under the City of Grass Valley.

As part of the Project, Rise will need to comply with a wide range of regulatory requirements and obtain several regulatory permits, besides County approval of a Conditional Use Permit and Reclamation Plan. These requirements and permits include preparation of Storm Water Pollution Prevention Plans in accordance with the Construction and Industrial General Storm Water Permits, obtaining a Clean Water Act 404 permit for the treated water discharge, along with related Streambed Alteration Agreement, which would prevent the release of pollutants, including sediment, prevent erosion, and prevent flood flows from being impeded or redirected, within both Wolf Creek and South Fork Wolf Creek. A Clean Water Act Section 401 Water Quality Certification will also need to be obtained from RWQCB to verify that the project complies with applicable water quality standards. Preparation of a Report of Waste Discharge (RoWD) and issuance of a Waste Discharge Requirements permit (WDRs) by the RWQCB will ensure that water quality is protected, and applicable standards are met for the engineered fill areas. These additional permits and regulatory requirements are necessary for the Project to move forward after the Conditional Use Permit and Reclamation Plan are approved. Thus, they are part of the Project and not mitigation measures. As such, compliance with these permits and requirements will prevent or

mitigate potentially significant environmental impacts related to hydrology and water quality, based on California Environmental Quality Act (CEQA) Appendix G criteria.

1.0 INTRODUCTION

Rise Grass Valley Inc. (Rise) proposes to reinitiate underground mining and ore processing of the Idaho-Maryland Mine in unincorporated Nevada County (County). The proposed facilities and operations will be located on two properties owned by Rise referred to as the Centennial Industrial Site and the Brunswick Industrial Site. The project comprises four primary elements: (1) dewatering the existing underground mine workings, (2) mining existing and new underground mine workings, (3) processing ore and rock, and (4) placing engineered fill at the Centennial and Brunswick Industrial Sites. Rise is seeking approval of a new use permit and reclamation plan to build and operate the facilities for these project elements. This use permit and reclamation plan proposes to allow:

- operation of pumps and a water treatment facility to dewater the underground workings;
- construction of a water pipeline to transport treated water to an outfall located in South Fork Wolf Creek;
- construction of the necessary aboveground facilities at the Brunswick Industrial Site (e.g., headframes and hoists, surface structures, a mineral processing plant) to support underground mining and mineral processing;
- construction of a new service shaft and ventilation shaft from the underground mine to surface at the Brunswick Industrial Site;
- underground mining, including drilling, blasting, and ore removal;
- ore and rock processing at the Brunswick Industrial Site and off-site transport of gold concentrate;
- transport of engineered fill from the Brunswick Industrial Site and placement at the Centennial Industrial Site;
- transport of engineered fill from the Brunswick Industrial Site to off-site customers;
- placement of engineered fill at the Brunswick Industrial Site; and
- construction of a potable water pipeline to residences along a portion of East Bennett Road.

The majority of aboveground facilities, including the treated water outfall structure and engineered fill placement, will be located on the 119-acre Brunswick Industrial Site. Engineered-fill placement will also occur on the 56-acre Centennial Industrial Site. Of the total 175 acres in surface land holdings, approximately 104 acres will be disturbed as a result of construction of the facilities proposed to support dewatering, mining, and processing at the Idaho-Maryland Mine. However, most of this acreage has already been disturbed by prior mining and other industrial activities, with paved surfaces and compacted soils present in many areas. In addition, Rise owns approximately 2,585 acres of subsurface rights that encompass the historic Idaho-Maryland Mine workings. Once the aboveground facilities are constructed, Rise will begin dewatering the mine, performing advanced exploration, and mining the underground workings.

The purpose of this report is to provide an analysis of hydrology and water quality conditions for the proposed project. This technical report provides a description of existing environmental setting, or baseline conditions, as well as a discussion of conditions that would occur as a result of the project, relative to hydrology and water quality. This report has been prepared to provide the appropriate

technical data and evaluations to support the environmental review of the proposed project under the California Environmental Quality Act (CEQA).

Section 2.0 of this report provides a summary of the proposed project. Section 3.0 describes the environmental setting. Section 4.0 includes a discussion of conditions that would occur as a result of the proposed project. Section 5.0 provides an analysis of potential environmental impacts based on Appendix G of the CEQA Guidelines, as amended in December 2018.

2.0 PROJECT DESCRIPTION

2.1 Background

The Idaho-Maryland Mine is a historic, past-producing, underground gold mine. The mine produced 2,414,000 ounces of gold between 1866 and 1956. The mine has been inactive since its closure in 1956 and was inactive for several periods during its production period. In 1901 the mine was allowed to flood with water, and then the mine was dewatered in 1904. In 1914 it was again allowed to flood, and then it was dewatered in 1919. The mine was allowed to flood again after its final closure in 1956.

During its operation, the Idaho-Maryland Mine was one of California's and the United States' most important mines. In 1941, the mine employed approximately 1,000 workers and was California's largest lode gold mine and the United States' second-largest lode gold mine by annual production. The Idaho-Maryland Mine encompasses an extensive system of 73 miles of underground tunnels, many raises, four inclined shafts, and two vertical shafts. The historic mining operation had extensive surface infrastructure adjacent to the Centennial Industrial Site and at the Brunswick Industrial Site, most of which has been dismantled and removed.

The Idaho-Maryland Mine has three distinct sections (Idaho #1, Idaho #3, and Brunswick Mines), which are connected by underground workings. The Union Hill mine is a smaller mine that was closed in 1918 and has been flooded with groundwater since then. The Union Hill mine is not connected to the Idaho-Maryland Mine, but is near the Brunswick Mine. The ore veins of the Union Hill Mine are believed to be part of the Brunswick vein system. Rise Gold is proposing to dewater the Idaho-Maryland Mine, but not the Union Hill Mine.

In 1995, in an effort to reopen the Idaho-Maryland Mine, Emgold Mining Corporation acquired a use permit from Nevada County to dewater the mine. This permit was allowed to expire and no work was completed on the dewatering project. In 2005, Emgold submitted an application to the City of Grass Valley to dewater the Idaho-Maryland Mine and restart mining and processing operations. Between 2005 and 2011, the City of Grass Valley implemented environmental review of the application consistent with the California Environmental Quality Act. Emgold subsequently abandoned the use permit application because it could not pay the fees required for continued processing. Rise has no affiliation with Emgold.

2.2 Dewatering

Activities necessary to dewater the Idaho-Maryland Mine would take place using access provided by the New Brunswick shaft to the underground workings. Currently, groundwater has filled the underground workings to approximately 260 feet below ground surface at the location of the New Brunswick shaft. The groundwater must be removed to access the underground workings for mining. The Idaho-Maryland Mine encompasses a system of underground tunnels, many raises, numerous winzes, four inclined shafts, and two vertical shafts. An estimated equivalent of 72.8 miles (117km) of underground tunnel occur at the I-M Mine, assuming typical drift dimensions of 7.5ft x 8.5ft (W x H). (AMEC 2017)

Initial dewatering of the underground workings would be accomplished using a submersible pump. The pumping rate to dewater the existing underground workings is anticipated to be approximately 5.6 cubic feet per second (cfs), or about 2,500 gallons per minute (gpm). Approximately 2,500 acre-feet[1] (approximately 815 million gallons) of water would be pumped from the underground workings over an approximately 6-month period. The water would be pumped via a pipeline to an existing 40 acre-foot clay-lined settling pond (Vector, 1989) on the project site for treatment prior to discharge.

After treatment, the water would be pumped from the site water treatment area across land owned by Rise to a discharge point located along South Fork Wolf Creek. The discharge location is identified on Sheets 1 and 2. Discharge would occur in compliance with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit, which would be obtained from the California Regional Water Quality Control Board, Central Valley Region (RWQCB). Sheets 1 and 2 shows the treated water pipeline route and approximate location of the outfall structure.

2.3 Underground Mining

Exploration and mining of the underground workings would begin once dewatering is complete.

To provide access to the gold ore, an extensive network of tunnels and raises will be constructed throughout the life of the mine. These tunnels are constructed in the nonmineralized rock, which, at the mine, is typically meta-andesite volcanic rock. Mine development in nonmineralized "barren" rock (i.e. nongold bearing) is expected to result in the production of approximately 500 tons per day (182,500 tons per year) of barren rock. The barren rock will be transported from the tunnel face to the mine shaft (using electric or diesel-powered load/haul/dump vehicles, rail cars, and/or conveyors) to underground rock bins located adjacent to the shaft. The rock will then be loaded into the shaft skips, hoisted to the surface, and dropped into one of the compartments of the concrete silo located on the surface. The barren rock will then be transported by trucks on the surface for use as engineered fill.

Ore production through tunneling and long-hole blasting produces 1,000 tons per a day (365,000 tons per year) of ore. Approximately 50 percent of the ore will be returned to the underground mine as backfill after processing and the remainder will be used for engineered fill on the Centennial and Brunswick Industrial Sites.

Blasting would occur using ammonium nitrate fuel oil (ANFO) and/or bulk emulsion explosives. Small capacity explosives magazines would be located underground to store explosives consistent with federal, state, and local requirements.

Groundwater is anticipated to continue to seep into the underground workings at a rate averaging approximately 1.9 cfs, or 850 gpm, once initial dewatering is complete. Operational dewatering during exploration and mining would require the use of centrifugal pumps and sumps at various elevations during the production life of the mine. Similar to the initial dewatering effort, groundwater would be pumped

[1] An acre-foot is the volume of water that would cover an area of one acre to a depth of one foot. It is equivalent to 43,560 cubic feet or approximately 326,000 gallons.

to the clay-lined settling pond for treatment, prior to discharge to South Fork Wolf Creek in compliance with the NPDES permit.

Mining of ore creates voids that must be filled as mining progresses to ensure the stability of the underground workings. Sand tailings produced by mineral processing on the surface will be blended with cement and water and pumped back into the mine to backfill mined voids. Approximately 50 percent of the sand tailings (500 tons per day) will be placed underground as cemented paste fill.

2.4 Aboveground Facilities Construction and Operations

To support dewatering and underground mining, aboveground structures and processing facilities will need to be constructed and installed. As shown on Sheet 2, approximately 15 acres of previously disturbed land on the northeast side of the Brunswick Industrial Site will be graded to construct the ventilation system, headframe and hoist, water treatment plant, collar replacement, mineral processing plant, and service shaft. Site grading will create a flat pad with a 1- to 2-percent grading towards a storm drain system and detention pond to collect sheet flow. Areas will be covered with asphalt or concrete as necessary to support facilities construction.

2.5 Centennial Industrial Site Development

The 56-acre Centennial Industrial Site was historically used by the Idaho-Maryland Mine to deposit mine tailings. These mine tailings were never compacted. Some of the materials used to build the tailings berm and small quantities of gold ore brought in from other mines in the region by the historic operator for processing contains elevated metals. As a result, under existing conditions, the majority of the property cannot be developed because of unstable soils and/or contamination. Rise is working with the California Department of Toxic Substances Control (DTSC) to develop a plan that consolidates and caps the contaminated soils in a manner consistent with current federal and state regulations.

Rise will use the engineered fill generated as waste by-product of the gold mining process described above to fill and grade the Centennial Industrial Site. The fill and grading activities will disturb approximately 44 of the 56-acre Centennial Industrial Site. The remaining 12 acres will be avoided, which includes Wolf Creek, a minimum approximately 100-foot setback, and special-status plant species.

2.6 Potable Water Pipeline

A buried potable water pipeline will be added to provide water to residences along a portion of East Bennett Road. The existing NID potable water pipeline will be extended on East Bennet Road to provide potable water service to residences currently on wells that may be affected by the project.

The pipeline will be installed within the County right-of-way and stubbed at the property owner's property boundary in a location designated by the County. If the property owner decides to connect to the potable water line, Rise will fund the permitting and construction costs.

2.7 Water Consumption and Supply

The Idaho-Maryland Mine will have a surplus of water from the natural groundwater flow into the underground workings. Once dewatering is completed, approximately 1.9 cfs, or 850 gpm (approximately 1,224,000 gallons per a day), are estimated to be pumped to the surface and settling pond. This water will support non-potable project-related water demand (i.e., mining and processing activities). The ore processing plant will run on a closed circuit.

Groundwater consumed during operations is estimated to be 123,000 gallons per day. Water consumption includes water vapor in ventilation air, cemented paste backfill, concentrates and engineered fill, and dust control and compaction of engineered fill. The following list provides a description of project elements consuming groundwater:

- Underground mining service water: This includes water use for dust suppression in rock drills and blasted rock piles, which is piped into the mine workings. No net consumption of water will result from these activities because water in underground workings is pumped to the surface for reuse.
- Water Vapor in Ventilation: Ventilation air flow through the mine working will become saturated with water vapor, consuming approximately 40,000 gallons per day of water.
- Cemented Paste Backfill: Water is needed to transport and bind the cemented paste backfill underground. This water is permanently retained in the backfill or used in the hydration of cement. Backfilling will consume approximately 20,000 gallons of water per day, assuming a 15 percent water content by mass and 500 tons per day of backfill placed.
- Gold Concentrates and Engineered Fill: Concentrates and engineered fill shipped off-site will contain approximately 24,000 gallons of water per day.
- Dust Control and Compaction: Active fill areas and unpaved surfaces require water to control fugitive dust and engineered fill placed at the Brunswick Industrial Site must be compacted to meet design standards. These activities are estimated to consume up to 42,000 gallons per day of water.

An average of approximately 5,700 gallons per day of potable water will be purchased from NID through already-existing connections for sinks, toilets, and showers installed in buildings at the Brunswick Industrial Site.

Water needed for compaction and dust suppression during activity at the Centennial Industrial Site will be purchased from NID. Approximately 42,000 gallons of water per day may be required for dust suppression and compaction. Compacting 8 hours per day and 5 days per week requires water service of up to 125 gallons per minute.

2.8 Reclamation & Closure

Upon completion of underground mining, access to underground workings will be closed consistent with federal and state regulations. Upon completion of aboveground ore processing and off-site sale of engineered fill, the Brunswick Industrial Site will be reclaimed. A majority of the aboveground facilities and structures will remain to support the site's postmining industrial land use. All paved surfaces,

including access roads, parking areas, and driveways, will remain to facilitate access to the site and buildings. The Brunswick and Centennial Industrial Sites fill slopes will be revegetated with an erosion-control seed mix to reduce erosion and maintain fill slope stability. The fill pads will be maintained until they are used or sold for future industrial purposes.

Dewatering would cease and the underground workings would be allowed to fill back up with groundwater.

3.0 ENVIRONMENTAL SETTING

The existing environmental setting is described in this section. The environmental setting provides the information to identify baseline conditions for comparison with Project effects (Section 4.0) in the impact analysis (Section 5.0).

3.1 Geology

The project site is located in the northern Sierra Nevada foothills, which have a lengthy and complex geologic history, much of which has been described by Johnston (1940) and Clark (1976). Additional information regarding geologic conditions in the Project area is provided by Kulla (2017). The information described below has been summarized from these references.

The northern Sierra Nevada foothills are part of a belt of metamorphic rocks that extends approximately 180 miles from the area of Yosemite Valley to north of Nevada County. The metamorphic belt is approximately 20 to 40 miles wide, being bounded on the east by granitic intrusive rocks of the Sierra Nevada batholith and plunging beneath younger sedimentary rocks of the Central Valley on the west. (Clark, 1976)

The rocks within the metamorphic belt were initially deposited as sedimentary and volcanic rocks in the Paleozoic and Mesozoic eras. The sedimentary and volcanic rocks were deposited in a subsiding sea adjacent to an island arc terrain that formed due to subduction of the Pacific tectonic plate beneath the North American tectonic plate. Tectonic activity, including compression, the intrusion of granodiorite as part of the Sierra Nevada batholith, and faulting, caused the sedimentary and volcanic rocks to undergo regional and contact metamorphism. In the project area, the rocks are part of an unnamed metamorphic complex located to the west of the more well-known Calaveras Complex (or Formation) and Shoo Fly Formation. Following uplift and erosion of the Sierra Nevada, Tertiary volcanic and volcaniclastic deposits were deposited over the eroded surface of the metamorphic belt. Subsequent erosion has removed areas of the Tertiary volcanic and volcaniclastic deposits, exposing the underlying older metamorphic and intrusive rocks. (Clark, 1976).

The general near-surface stratigraphy in the project area is summarized as follows:

At or near surface – Quaternary – Soils, sand, sand, and gravel deposits formed during recent, post glacial weathering and erosion.

At or near surface – Tertiary – In areas where erosion has not exposed the older bedrock, tertiary deposits remain. The principal rock types of the Tertiary formation are rhyolite, rhyolite tuff and breccia, andesite, andesite tuff, breccia, and mud flows; and interbedded stream sands and gravels. In places, the tertiary rocks cover older deposits of sand, gravel, and weathered bedrock. (Johnston, 1940)

Near surface – Weathered Rock – A zone of weathered bedrock extends to depths of approximately 100 – 120 feet below surface. The weathered bedrock is highly broken and oxidized. The contact between weathered and unweathered bedrock is distinct and typically grades from oxidized rubble into highly fractured rocks and into solid and competent bedrock. Photos of Rise drillholes in the Brunswick and Union

Hill areas illustrating the weathered rock zones are displayed in Appendix E-G. Rise compiled geology from mapping presented by Johnston (1940), historic geological mapping of the underground mine workings, and recent core drilling. Figure 3.1 shows generalized geological units in relation to the mineral claims. More detailed geological plans prepared by Rise are provided in Sheets 4-7.

The Brunswick and Union Hill mining areas occur within meta-andesite rocks, which is a metamorphosed andesitic volcanic unit. The degree of metamorphism may vary in this unit, such that parts of it have been referred to as amphibolite schist, porphyrite, diabase, and quartz porphyrite (Johnston, 1940, Plate 1). This metamorphic unit is referred to as the "Brunswick Porphyrite Block" for the purposes of this study.

The Eureka, Idaho, and Maryland mine areas are mostly located on the contact of the Brunswick block and within mafic intrusive and metamorphic rocks, including gabbro and serpentinite. The gabbro and serpentinite tend to form a band around the northwest end of the Brunswick Porphyrite Block, as shown on Figure 3.1.

To the east of the Brunswick Porphyrite Block are fine-grained metasediments (slates, argilites) of the Mariposa Formation. Younger, tertiary andesite volcanic rocks are present to the east and southwest of the Brunswick Porphyrite Block. Based on geological mapping and well log information (see Section 3.3.2), the tertiary andesite deposits are typically less than a few hundred feet thick, forming a relatively thin mantle that obscures the underlying bedrock geology and faulting.

In mineralized areas quartz fills faults, fractures, and fracture zones. The gold-bearing quartz veins strike in all directions and range from horizontal to vertical. Gold is hosted in discrete veins and in stockworks consisting primarily of massive to banded, sheared, and brecciated milky white quartz ± carbonate. Gold occurs as native gold, ranging from very fine grains to large nuggets within the quartz. Sulfide minerals from 1% to 4% are commonly associated with gold mineralization. Sulfides are primarily pyrite with lesser galena and chalcopyrite. Pyrite is the dominant accessory mineral and constitutes up to 2% of the vein mineralization. Sphalerite and arsenopyrite are rarely observed. Scheelite is common in the Union Hill area of the Brunswick veins. Gangue minerals include quartz, carbonate (ankerite, calcite, dolomite, and ferrodolomite), sericite, chlorite, mariposite, and albite. Ankerite is a common alteration mineral and may occur in the mafic and ultra-mafic rocks and the meta-volcanic rocks. The mineralized wallrock is strongly carbonate altered (AMEC, 2017).

Important ore controls at the Idaho-Maryland and Brunswick deposits bound the Brunswick Block on the East, North, and West side of the Brunswick Block. The information discussed below is summarized from AMEC (2017).

Idaho Fault Zone

The Idaho Fault Zone lies along the northern boundary of the Brunswick Block as a continuous fault system and is a major control of the Idaho-Maryland gold mineralization. The fault zone is poorly exposed on surface but is intersected in much of the underground workings. The zone strikes 275° to 290° and dips 60° to 70° south, possibly shallowing with depth, and is interpreted to have reverse movement. The Idaho fault zone is traceable underground for 3 km along strike and is shown on mine level plans down to I2700

level, a vertical depth of 3,000ft (914m). At the western end it is a single fault on the footwall of a diabase dike separating the Brunswick Block from gabbro and serpentinite to the north. In the eastern area of the mine the Fault splits into several main, and minor branches. The fault in the eastern area is also associated with a diabase dike on the outside margin of the Brunswick Block and is comprised of both linear and non-linear fault members. The non-linear faults are sigmoidal link faults that trend north-easterly, dipping 20° to 40° SE.

The Idaho fault zone is generally associated with the diabase dikes within the serpentinite, but fault splays are known to intersect the Brunswick Block. Post-mineral reactivation of the faults reportedly shows 15 m of normal displacement in some cases.

6-3 Fault Zone

The 6-3 Fault forms the eastern termination of the Brunswick Block and is a major control on the gold mineralization hosted within the Brunswick Block. The 6-3 Fault is poorly exposed on surface but is intersected in many underground workings and drill holes. The fault strikes 330° to 350°, dipping 70° NE and is interpreted as a reverse fault. No significant gold mineralization is noted within or east of the 6-3 Fault.

The Morehouse Fault

The Morehouse Fault lies on the southwestern margin of the Brunswick Block and is a control on mineralization. It has been intersected in underground workings and drilling but is not well exposed on surface. Underground it is represented by several fault intersections and veins, such as the Morehouse, 16, and 52 Veins, that suggest it strikes northwesterly and dips around 40 degrees NE. Slickensides and mullions suggest reverse movement. The relationship between the Morehouse and Idaho fault systems is unclear. The Morehouse fault may splay into to the Idaho Fault in a northwesterly direction or may follow the westerly nose of the Brunswick Block in an arc to merge into the E-W trending Idaho fault. The easterly trend and orientation of the Morehouse fault is not well known due to limited drilling and underground development on the southern side of the Brunswick Block, and due to the poor surface expression of these faults. Bateman has suggested the Morehouse structure may continue easterly to the 6-3 Fault and to depth until it intersects the Idaho fault.

Figure 3-1 Project Area Geologic Map

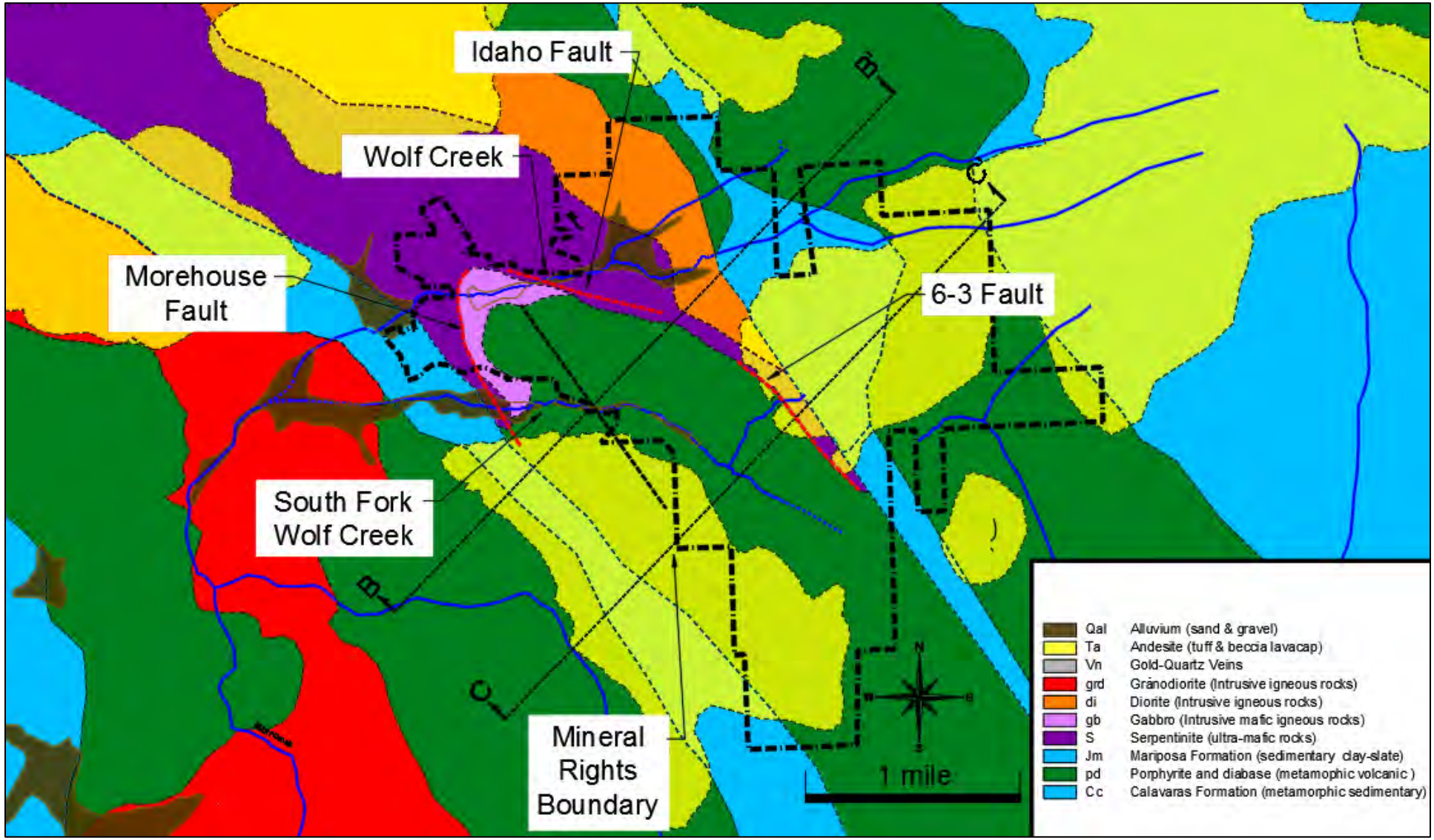


Figure 3-2 Southwest to Northeast Geologic Cross Section from Johnston (1940)

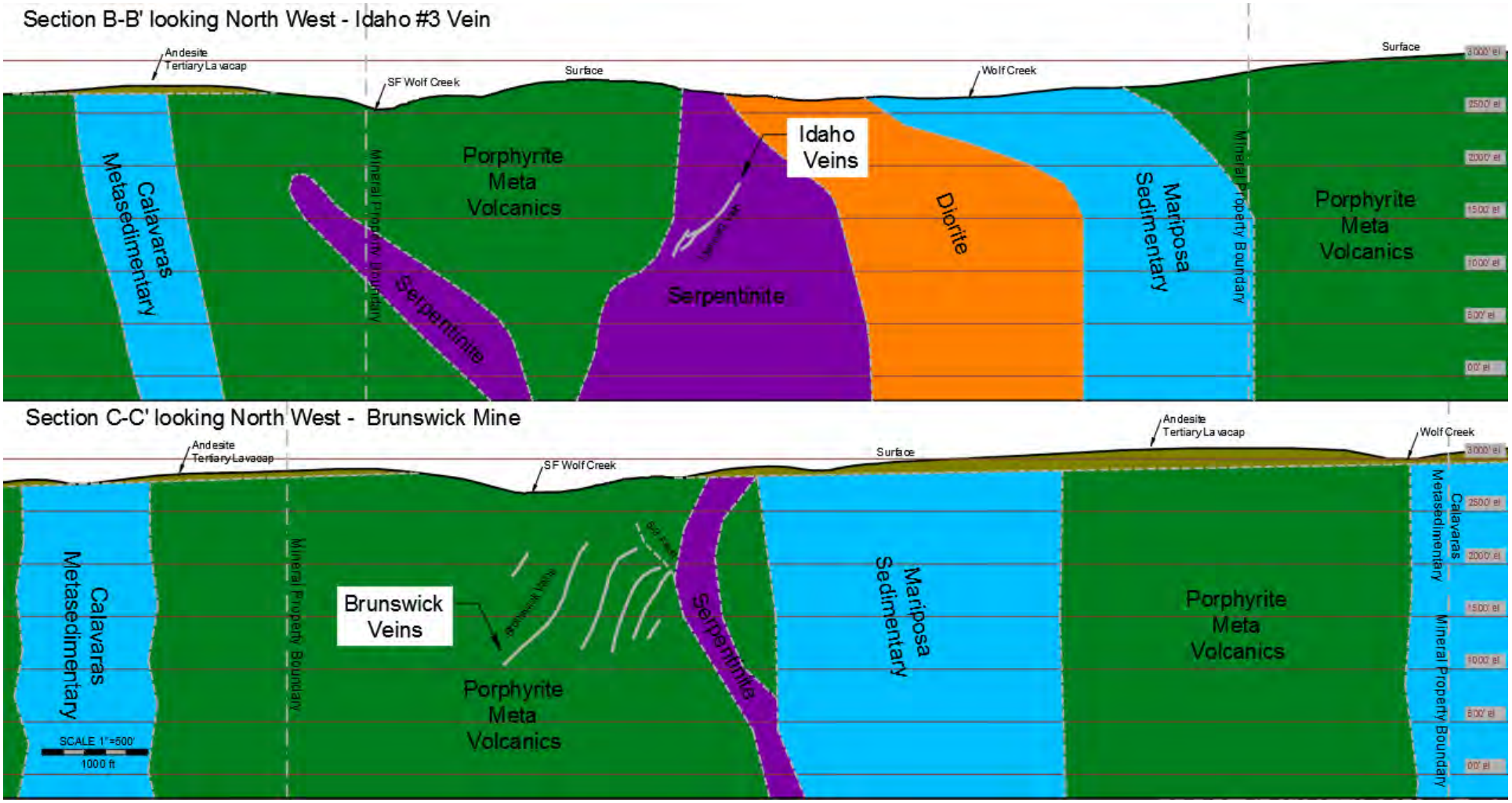


Figure 3.2 presents a series of geologic cross sections compiled by Rise based on mapping and cross sections presented by Johnston (1940) and field data obtained as part of subsurface investigation for this Project. The section lines are shown on Figure 3.1. The Brunswick Porphyrite Block is shown in green to the northeast of the Calaveras metasedimentary deposits. The cross sections illustrate the relationship between the porphyritic metavolcanics that are the primary lithology hosting the Brunswick veins with the serpentinite unit, which is the primary lithology hosting the veins of the Idaho #1 and Idaho #3 Mines. The Tertiary andesite deposits are also depicted as a thin, horizontal mantle capping the underlying near-vertical metamorphic rocks.

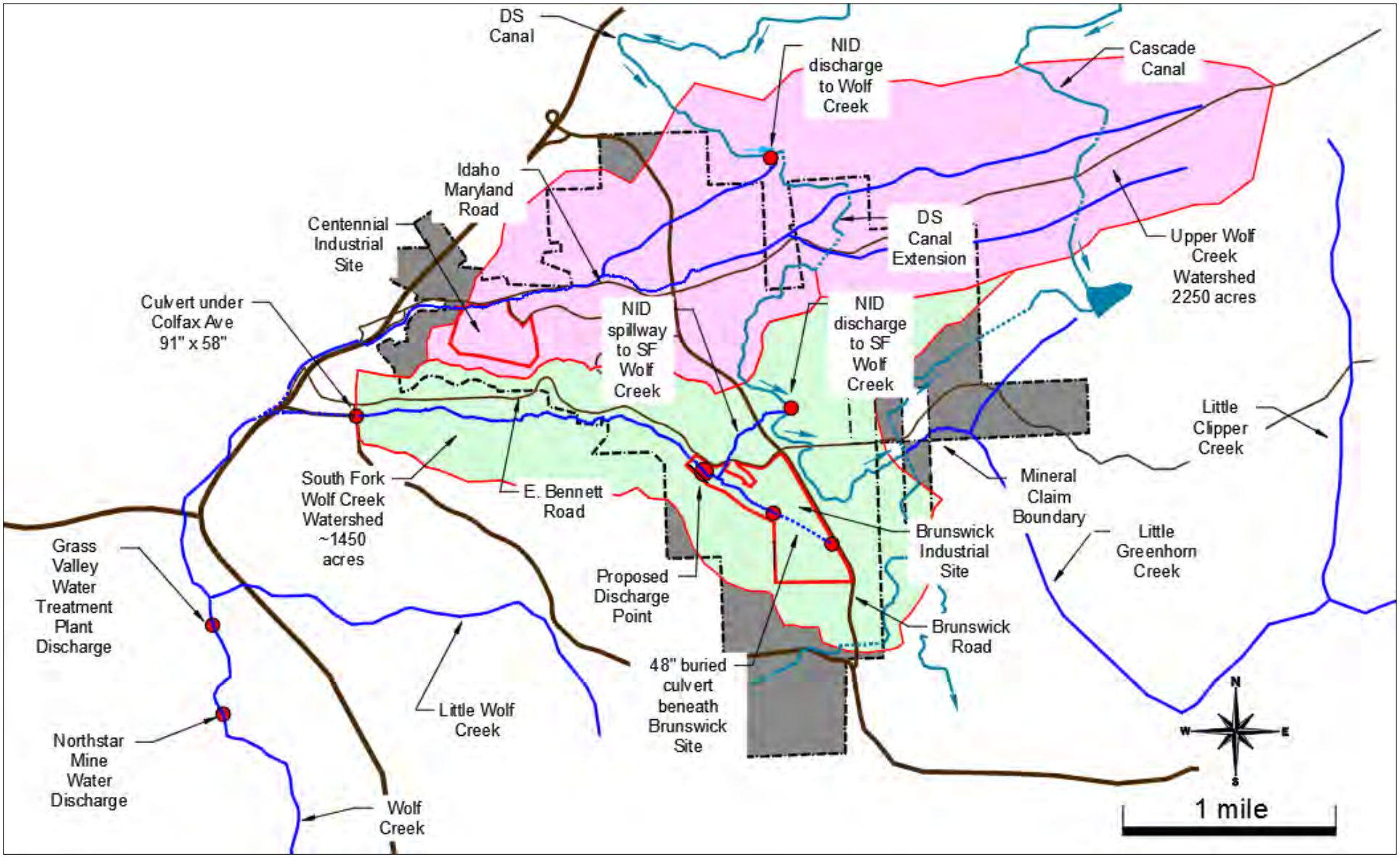
As discussed further in Section 3.4, the different mineral content of the varying metamorphic rock types in the project area can influence the chemical signature of the dissolved solids in groundwater and surface water. For example, minerals that may occur in mafic rocks such as serpentinite and gabbro, such as certain minerals in the olivine, pyroxene, and serpentine groups, may contain high proportions of magnesium (Heinrich, 1965). On the other hand, minerals that may occur in more intermediate meta-volcanic rocks, such as the meta-andesite porphyry, may contain higher proportions of calcium, including some pyroxene and feldspar minerals (Heinrich, 1965). Rise also reports the occurrence of many calcite veinlets throughout the Brunswick Porphyrite Block (personal communication, electronic mail message from Ben Mossman to Andy Kopania, February 27, 2019). Calcite consists of calcium and carbonate. Recent test work on core samples from the meta-andesite rocks confirm high carbonate content with net neutralization potentials of approximately 200 tons CaCO3 per 1000 tons of solids (see discussion in Section 4.5). Thus, variations in the calcium, magnesium, and carbonate content from different sample locations can provide an indication of the host rock through which groundwater has passed.

3.2 Surface-Water Hydrology

The project site is located within two watershed areas. The Upper Wolf Creek watershed is the larger of the two, encompassing approximately 2,250 acres upstream from the western end of the Centennial Industrial Site. The southeast part of the project area is within approximately 1,450 acres of the South Fork Wolf Creek watershed upstream of a culvert where the creek passes underneath part of the City of Grass Valley. Figure 3.3 and Sheet 1 shows an overview of the Upper Wolf Creek and South Fork Wolf Creek watersheds.

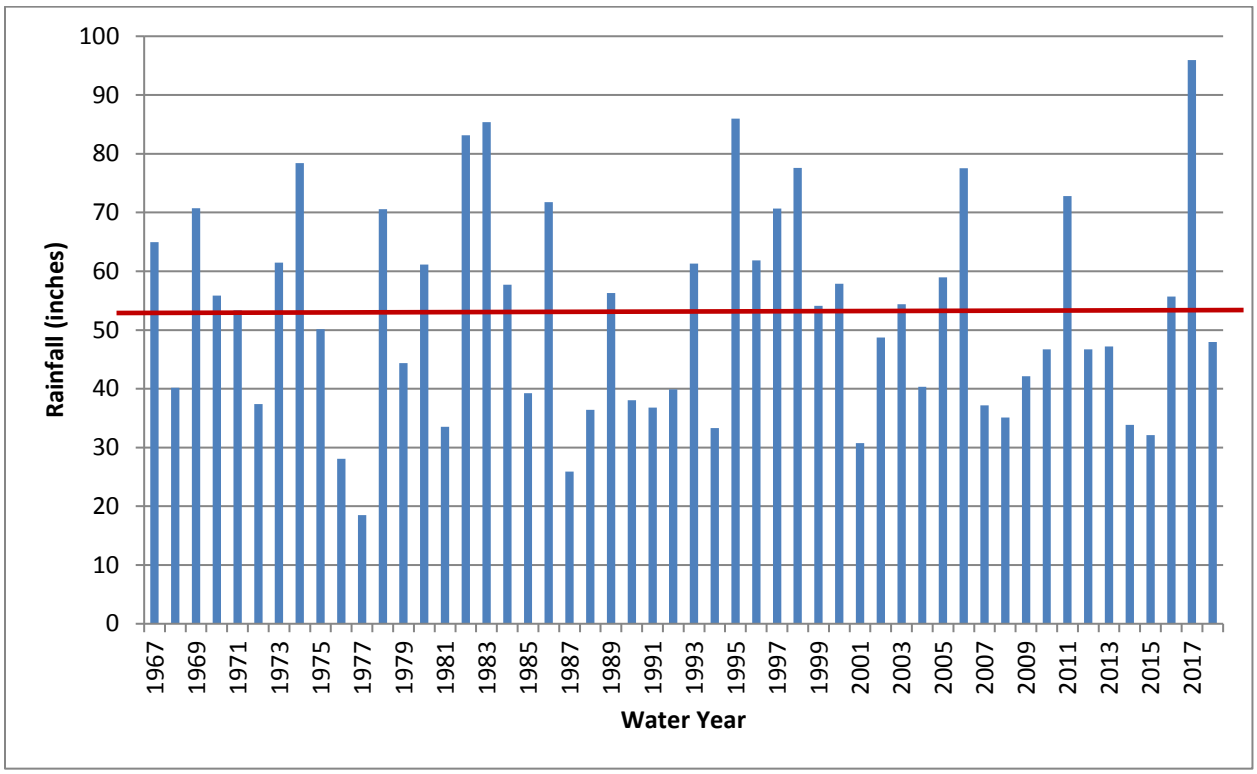
Approximately 4,500 feet west of the Idaho-Maryland Mine underground workings, both Wolf Creek and South Fork Wolf Creek flow under the City of Grass Valley within culverts. South Fork Wolf Creek merges with the main channel of Wolf Creek within these culverts. Wolf Creek is tributary to the Bear River. On the downstream side of the City of Grass Valley, outflows from the City of Grass Valley wastewater treatment plant and from the Northstar Mine water treatment system flow into Wolf Creek. Both of these discharges occur under permits from the RWQCB.

Figure 3-3 Upper Wolf Creek and South Fork Wolf Creek Watershed Map



Precipitation data are available from the Western Region Climate Center (WRCC, 2019) for the Grass Valley 2 station from 1967 through 2018. Rainfall data were evaluated for a water year, not a calendar year. A water year begins on October 1 and extends to September 30 of the next calendar year. This time period better-represents the seasonal rainfall patterns in California than does a calendar year. In this report, a water year is designated by the year in which it ends. For example, the period from October 1, 1976 through September 30, 1977 is designated as the 1977 water year. The annual water-year rainfall from 1967 to 2018 for Grass Valley is shown on Figure 3.4. The average water-year rainfall for this period is 52.81 inches. The maximum water year rainfall was 95.93 inches in 2017, while the minimum water year rainfall was 18.48 inches in 1977. The average annual rainfall amount is plotted as the red line on Figure 3.4.

Figure 3-4 Annual Water Year Rainfall in Grass Valley



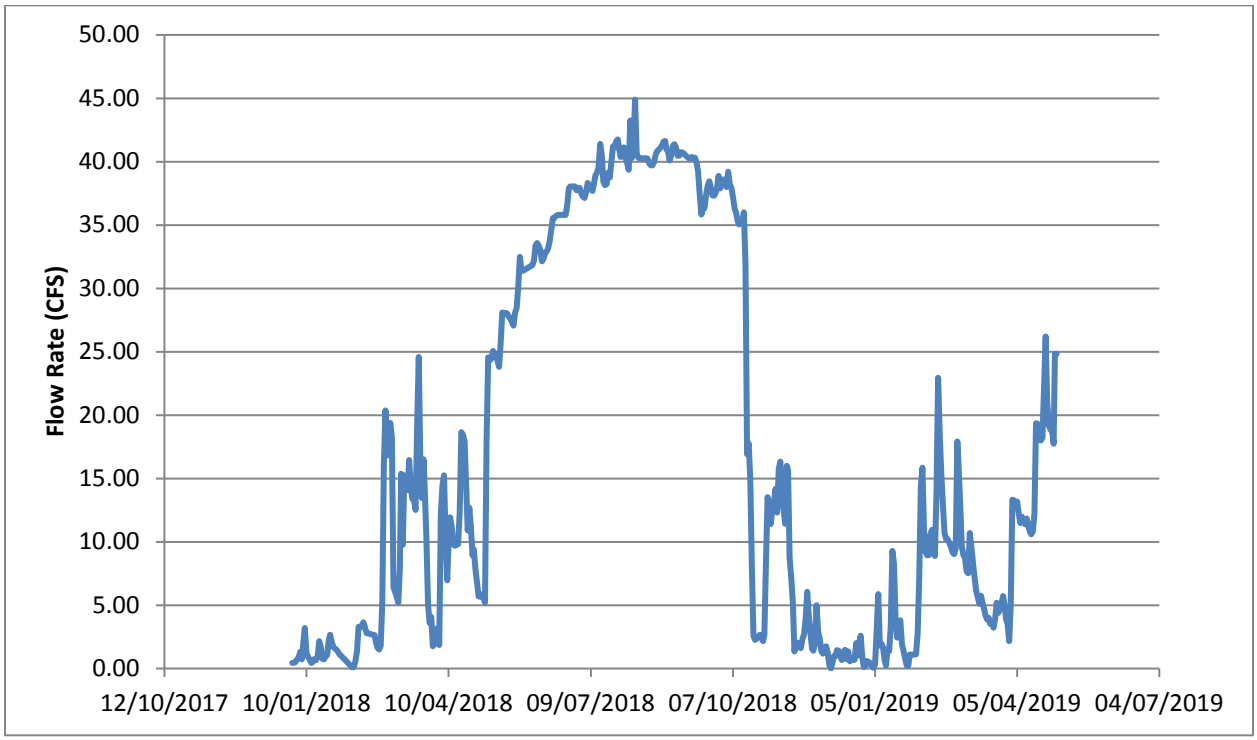
Much of the flow within Wolf Creek is due to releases of water by Nevada Irrigation District (NID) from the DS Canal at the DS Canal Wolf Creek Release, located near the southwest end of Success Cross Road (NID, 2013). The NID Phase II Raw Water Master Plan (RWMP; NID, 2013) indicates that the average annual release of water from the DS Canal into Wolf Creek in 2007 was about 35 cubic feet per second (cfs) and is projected to increase to over 50 cfs by 2032. The DS Canal becomes the DS Canal Extension downstream of the Wolf Creek Release. NID reports that there is no consistent flow of water maintained within the DS Canal Extension (NID, 2013), so almost all of the flow from the DS Canal is discharged to Wolf Creek at the release location. The water from the DS Canal is NID "Upper Division" water sourced from higher elevations of the Deer Creek watershed above Scotts Flat Reservoir (NID, 2013). Water

released by NID to Wolf Creek is eventually diverted to the Tarr Canal downstream of the City of Grass Valley.

Flow data from NID gauge DC 146 were obtained from NID. Gauge DC 146 is located along the DS Canal upstream of the Wolf Creek Release. Daily releases from the DS Canal into Wolf Creek from January 2018 through April 2019 are shown on Figure 3.5. In 2018, the releases to Wolf Creek averaged approximately 36 cfs. On April 17, 2019, EMKO measured the flow in Wolf Creek at the Centennial Drive bridge (at the intersection with Idaho-Maryland Road) at approximately 50 cfs. On that date, NID reports that the flow at DC 146 was 19.36 cfs. Thus, at the time of the measurements, almost 40 percent of the flow in Wolf Creek at Centennial Drive was due to NID releases from the DS Canal and the rest was due to natural runoff and groundwater discharge.

EMKO also measured the flow in Wolf Creek at the Centennial Drive bridge on August 8, 2019. At that time, the flow was estimated to be approximately 75 cfs.

Figure 3-5 NID DS Canal Releases to Wolf Creek



Although NID does not maintain flows within the DS Canal Extension, water is occasionally diverted through that canal section for maintenance purposes. According to NID, water used to flush a segment of the DS Extension in 2018 was released through the DS Canal Extension Spill II into a natural creek that flows under Brunswick Road and East Bennett Road before entering South Fork Wolf Creek (Matt Halvorson, NID, personal communication, November 15 and 19, 2018). Data provided by NID indicates that in 2018, NID made the following releases of water to South Fork Wolf Creek through the DS Canal Extension:

- March 6 to10, 2018 – 8.78 cfs to 10.63 cfs;
- March 26 to April 4, 2018 – 6.15 cfs to 8.17 cfs; and
- April 24 to May 4, 2018 – 3.58 cfs to 13.64 cfs.

During the last period listed above, flows of 13.64 cfs were maintained for six consecutive days, while flows above nine cfs were maintained for 11 consecutive days.

On April 17, 2019, EMKO measured the flow in South Fork Wolf Creek upstream of the natural creek discussed above at approximately 3.7 cfs, and downstream of the natural creek discussed above at approximately 6.5 cfs. Thus, the flow from the natural creek was approximately 2.8 cfs at that time. The DS Canal Extension was dry on April 17, 2019 so the flow consisted entirely of natural runoff and groundwater discharge.

On August 8, 2019, EMKO again measured the flow in South Fork Wolf Creek downstream of the natural creek. The flow on that date was less than one cfs. There was no flow in the natural creek at that time. Due to the lack of any measurable rainfall during the summer in the region, the flow in South Fork Wolf Creek at the time of the August 8, 2019 measurement is anticipated to consist entirely of groundwater discharge.

Additional evaluation of runoff from the South Fork Wolf Creek watershed has been conducted for the Project by Balance Hydrologics, Inc (Balance, 2020). In September 2019, Balance (2020) measured the flows just downstream of the natural creek described above and at Ophir Street, where the creek enters a box culvert, at 0.17 cfs and 0.40 cfs, respectively. In January 2020, Balance (2020) measured the flows at the same two locations at 1.5 cfs and 2.5 cfs, respectively. Balance (2021) installed a gaging station on the South Fork of Wolf Creek on Rise property on January 24, 2020. Measurements were recorded at 15-minute intervals to determine instantaneous flow and daily peak, average, and minimum flows. In addition, manual measurements were made 19 times between January 24, 2020 and January 20, 2021 to verify the readings from the gaging station. Details regarding the gaging station and the measurements made are provided in Appendix I. Based on the stream gaging data and manual measurements made in 2019 to January 2021, base flows range from 0.07 cfs in the summer to 6.5 cfs in the winter. Peak flow during the monitoring period occurred on April 5, 2020 at 33.4 cfs in response to a two-day rainfall event totaling approximately 10 inches.

Peak flow rates for a 10-year, 24-hour storm event and a 100-year, 24-hour storm event have been reported by Cranmer Engineering, Inc. (Cranmer, 1986) as part of the development of the Storm Drainage Master Plan for the City of Grass Valley. For South Fork Wolf Creek at Hennessy School (i.e. the 2.75 square mile area of the watershed upstream of Highway 49), Cranmer (1986) calculated a peak flow rates of 658 cfs for the 10-year, 24-hour storm and 1,087 cfs for the 100-year, 24-hour storm. Thus, peak flow rates during significant storm events may be as much as two to three orders of magnitude (100 times to 1,000 times) greater than the base flow in or the NID discharges to South Fork Wolf Creek.

Nevada City Engineering, Inc. (NCE, 2019) has conducted an evaluation of the runoff from the Brunswick and Centennial Industrial Sites using the unit-hydrograph method for estimating peak runoff and volumes,

consistent with the Nevada County Land Use and Development Codes, Chapter XVII Road Standards. The Brunswick Industrial Site includes two catchment areas with a combined area of approximately 124 acres. The catchment areas at the Brunswick Industrial Site are shown on Sheet 10. The peak flow rate, in cfs, and total runoff volume, in acre-feet, from the combined catchment areas were evaluated by NCE (2019) for storms with recurrence intervals of two years, 10 years, 25 years, and 100 years. The results of the unit-hydrograph evaluation for the point where the combined runoff from the two catchment areas discharge to South Fork Wolf Creek are provided in Table 3-1. The peak runoff from the two catchments that include the Brunswick Industrial Site under existing conditions ranges from approximately 80 cfs for a two-year, 24-hour storm up to almost 230 cfs for a 100-year, 24-hour storm (NCE, 2020).

The Centennial Industrial Site has a single catchment area that encompasses approximately 70 acres (NCE, 2019), as shown on Sheet 11. The results of the unit-hydrograph evaluation from the Centennial Industrial Site to Wolf Creek for storms with recurrence intervals of 10 years and 100 years are provided in Table 3-1. The peak runoff from the Centennial Industrial Site under existing conditions ranges from approximately 70 cfs for a 10-year, 24-hour storm up to slightly more than 120 cfs for a 100-year, 24-hour storm (NCE, 2019).

Upper Division water from higher-elevation watersheds is conveyed through both Upper Wolf Creek and South Fork Wolf Creek watersheds by NID through irrigation canals, including the DS Canal, Cascade Canal, and Rattlesnake Canal. NID estimates that leakage from its canals is approximately 15 percent of the water conveyed through the system (NID, 2013). Total water demand over NID's 287,000-acre service area is approximately 165,000 acre-feet per year (afy) (NID, 2013). Fifteen percent of this demand is about 24,750 afy, or 0.086 acre-feet per acre across the service area. Based on these figures, the average rate of seepage from the NID canal system into the subsurface across the entire service area is about 0.7 inches. This value is very small compared to the average annual rainfall of 52.81 inches.

Previous evaluations conducted in the region (EMKO, 2011) and estimates conducted for this study (see Section 3.5.1) suggest that the rate of groundwater recharge overall in the Grass Valley area is approximately 10 to 12 inches per year, or about 20 percent of the total rainfall amount. Thus, the total recharge over the 287,000-acre NID service area is approximately 240,000 to 290,000 AF/yr. As discussed in Section 3.2.2.2, water level data from private domestic wells indicates that the amount of recharge due to percolation of rainfall into the fractured bedrock remains relatively constant and is not substantially affected by wet and dry climatic cycles. Comparing the amount of leakage from the NID canal system with the estimated amount of rainfall that recharges groundwater indicates that the leakage from the canals contributes only about 10 percent of the total groundwater recharge in the area.

Table 3-1 Existing and Project Peak Flows from Industrial Site Areas

Brunswick Industrial Site Storm Water Flows to South Fork Wolf Creek			
Return Period (years)	Existing Peak Runoff (cfs)	Project Peak Runoff (cfs)	Reduction Due to Project (cfs)
2	79	31	48
10	140	79	61
25	195	153	42

100	227	201	26
Centennial Industrial Site Storm Water Flows to South Fork Wolf Creek			
Return Period (years)	Existing Peak Runoff (cfs)	Project Peak Runoff (cfs)	Reduction Due to Project (cfs)
10	72	45	27
100	121	76	45

3.3 Groundwater Occurrence

Groundwater occurs within the near surface Quaternary and Tertiary deposits and in fractured bedrock at and near the project site. According to the California Department of Water Resources (DWR) Sustainable Groundwater Management Act (SGMA) Basin Prioritization Dashboard (DWR, 2019), there are no alluvial groundwater basins in the vicinity of the Project site. The nearest groundwater basin is the South Yuba portion of the Sacramento Valley groundwater basin (DWR Basin No. 5-21.61), located more than 15 miles west of Grass Valley.

3.3.1 Regional Groundwater Occurrence within Fractured Bedrock

Based on a review of driller logs in the area (see Section 3.3.2), groundwater within the fractured bedrock occurs under both unconfined and confined conditions within the Project area. The groundwater surface generally mimics the topography, but with the depth to water being somewhat greater along ridges and near drainage divides and somewhat shallower at lower elevations and near drainages. Thus, groundwater tends to flow from the ridge areas down toward the main drainages, such that the surface topography of the watersheds also defines individual groundwater flow zones within the fractured bedrock aquifer system. The primary source of recharge is percolation of local rainfall, as discussed in Section 3.2 and evidenced by seasonal fluctuations in groundwater levels. As described in Section 3.3.2, the amount of recharge each year also appears to be relatively constant since almost all of the wells maintain a consistent magnitude of seasonal fluctuation from year to year and there are no long-term trends observed in most of the wells that can be correlated to variations in annual water-year rainfall.

Several studies of groundwater conditions within fractured bedrock have been conducted in the area of the project. The U.S. Geological Survey (Page et al., 1984) conducted a study covering a 148 square mile area of southwestern Nevada County, including the segment of the Wolf Creek watershed from Grass Valley to the Bear River. The underlying bedrock consisted of similar rock types to those encountered at the project site (see Section 3.1), including hard, dense metavolcanic and igneous rocks of pre-Tertiary age. The study results found that the degree of fracturing in the bedrock, and thus the well yield, decreases with depth, with most of the available groundwater occurring above a depth of 215 ft bgs. At depths shallower than 215 ft bgs, 70 percent of the wells evaluated produced more than five gpm. However, at depths deeper than 215 ft bgs, 75 percent of the wells produced five gpm or less.

EMKO (2011) conducted a study for NID in the Banner Mountain area between the DS Canal and the Lower Cascade Canal. The study area extended from Red Dog Road on the north to Idaho-Maryland Road on the south. Wells included in the study ranged from 30 feet to 560 feet deep. Wells shallower than 100 feet

deep produced groundwater at up to 17 gpm. In wells deeper than 100 feet, the rate of groundwater production did not exceed 3.5 gpm.

3.3.2 Groundwater Occurrence in Private Domestic Wells in the Project Area

Over 1,200 Water Well Driller Reports (also known as Well Completion Reports) available from DWR's online database (DWR, 2020) for private domestic wells located within approximately one to two miles of the project site. Domestics water wells are relatively sparse over the mineral rights and increase in number and density past the eastern border of the mineral rights. EMKO located 38 well reports which included well draw down in pumping tests in a 1 to 2 mile vicinity of the project and compiled well report data for wells located in the project watersheds. Sheet 12 displays the location of the domestic wells and highlights those that are closest to the underground mine workings within the Wolf Creek and South Fork Wolf Creek watersheds. Section views of well locations and well depths relative to the mine workings are included in Sheets 13-14.

3.3.2.1 Private Domestic Well Areas

As discussed in Section 3.3.1, groundwater within the fractured bedrock tends to flow from the ridge areas down toward the main drainages. Due to this flow pattern, the surface topography of the watersheds also tend to define the groundwater flow zones, or local fractured bedrock groundwater "basins". The private domestic wells that occur in the Wolf Creek and South Fork Wolf Creek watersheds are primarily located in four distinct areas, as shown on Figure 3.6 and described below.

1) East Bennett Area – A residential area located west of the Brunswick site and adjacent to East Bennett Road. The properties in this area are currently not connected to NID's potable water supply system.

2) Beaver Drive Area – A residential area south of the Brunswick site. This small residential area is not served by NID's potable water supply system. However, the residential areas to the west and south of Beaver Drive are connected to the NID potable water supply system.

3) Greenhorn Area – A residential and agricultural area east of the Brunswick site on the east side of Brunswick Road. This area is zoned for residential-agricultural uses (RA-3) and most properties with wells in this area are not served by the NID potable water supply system.

4) Woodrose Area – A residential area east of the Brunswick site on the east side of Brunswick Road. This area is zoned for residential-agricultural uses (RA-3) and most properties with wells in this area are not served by the NID potable water supply system.

In addition to the three main areas listed above, there are a few additional areas inside or close to the boundaries of the mineral rights where groundwater supply wells are present:

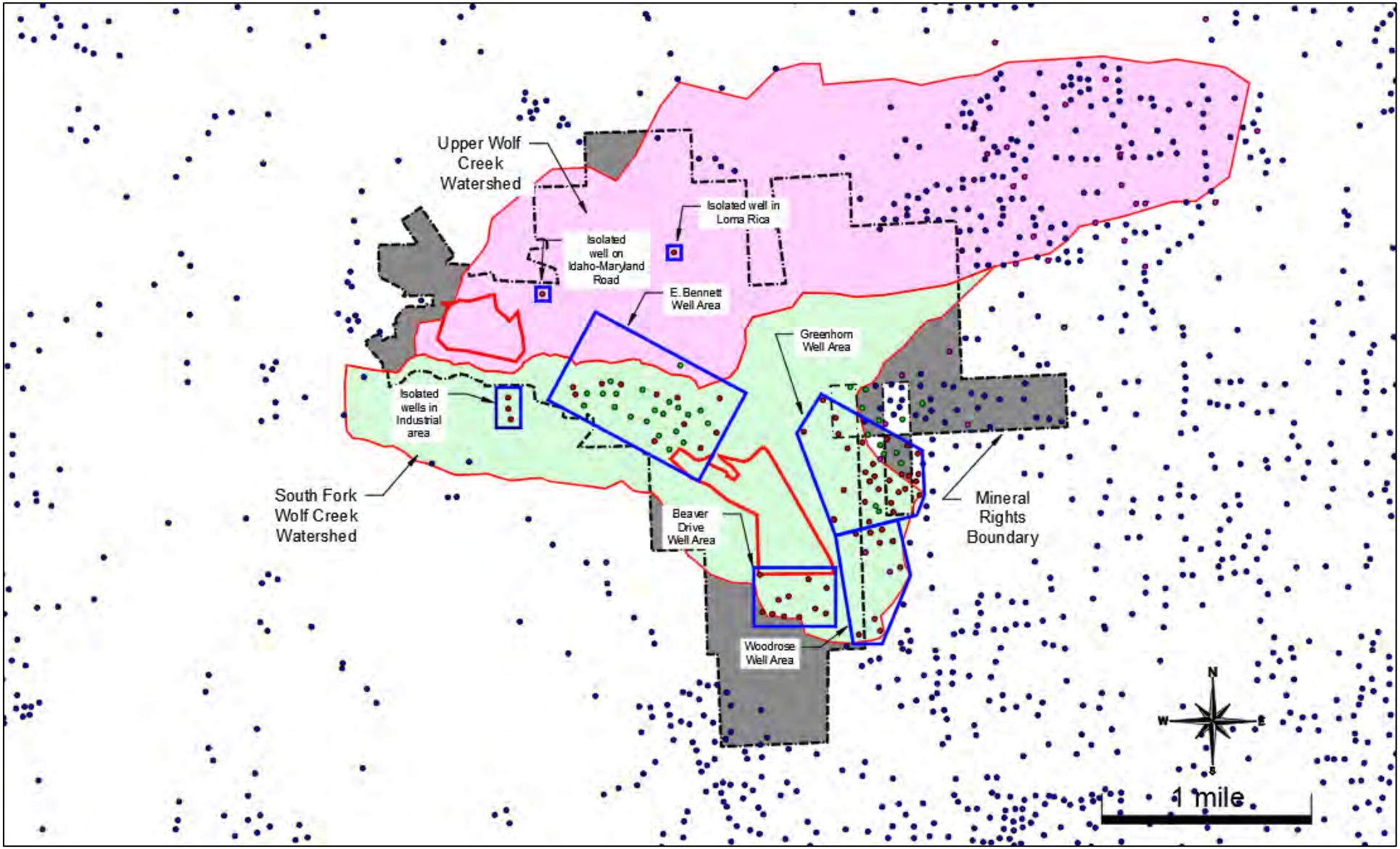
1) There are several wells located on industrial-zoned land south of the Centennial Industrial Site. This area is not served by NID's potable water supply system.

2) There is one well on industrial-zoned land east of the Centennial Industrial Site. This area is in the city limits of Grass Valley and is served with potable water.

3) There is one well in the Loma Rica ranch area which lies above the Mitchell Crosscut on the Idaho-1000 level. This area is within the city limits of Grass Valley but is largely vacant land currently.

The locations of the wells within these three areas are shown on Figure 3.6.

Figure 3-6 Map of Domestic Supply Wells and Underground Mine Workings



EAST BENNETT AREA

The wells along East Bennett Road are primarily within the South Fork Wolf Creek watershed, although a few of them in the northeast part of this area are within the Wolf Creek watershed. This area generally overlies the main area of underground mine workings in the project vicinity. These wells are completed in the meta-andesite that forms the Brunswick Porphyrite Block.

Well drilling reports are available for 11 wells which include lithology, water levels, and well yields. An additional 21 wells are noted by previous studies by Emgold and provide additional data for static water levels, limited production rate data, and no lithology data.

The primary characteristics of this area include:

- The majority of wells draw water from the fractured bedrock and the remaining wells draw water from the weathered bedrock.
- The lowest producing well, W1, which notes quartz veining present and a production rate of 0.5 gpm, is drilled to 420 feet and within 200 feet of the Brunswick mine. Well W15, drilled to 400 feet and within 200 feet of the Brunswick mine workings was reported to have no water or water production.
- Static water levels in wells WS201, WS44, W19, WS235 indicate a drawdown cone at the Old Brunswick shaft.
- Well WS201, drilled 425 feet deep, passes within feet of the Old Brunswick Shaft. The static water level is approximately 270 ft bgs or about 2,590 ft msl, which is approximately 90 feet above the water level in the flooded mine. WS201 produces approximately 3.5 gpm.
- Well WS29 passes within feet of the B300L of the Old Brunswick mine and is reported to produce 10 gpm. No information is available for static water for this well.
- The highest producing wells, W19, W16, W7 with productions rates from 30-40 gpm and depths from 100-220 feet are located close to the Brunswick mine workings. Well W7 is located directly above the main mine working of the Brunswick Mine. W16 draws water from weathered rock and the other wells draw from fractured rock.
- Ground surface elevations at the well locations generally range from approximately 2,700 feet above mean sea level[2] (ft msl) to 2,850 ft msl.
- Total depth of the wells in this area ranges from 100 ft bgs to 700 ft bgs.

[2] Any reference to mean sea level (ft msl) used in this report is intended to be in reference to the survey datum used, not necessarily to sea level at or near the project location. For example, the datum point for the North American Vertical Datum of 1988 (NAVD88) is located in Quebec, Canada (https://www.ngs.noaa.gov/datums/vertical/index.shtml), whereas the datum for the National Geodetic Vertical Datum of 1929 (NGVD29) is based on 26 separate tide gauges in the US and Canada (https://www.ngs.noaa.gov/datums/vertical/national-geodetic-vertical-datum-1929.shtml). Due to the wide range of data sources used for this report, the vertical datum used is not always known, but most likely would be NAVD88 or NGVD29. In the project area, NAVD88 elevations are 2.54 feet higher than NGVD29 elevations (https://www.ngs.noaa.gov/datums/vertical/index.shtml). Given the large elevation ranges related to this project, on both the ground surface and in the subsurface, the difference between NAVD88 and NGVD29 elevations is inconsequential for the purposes of this report.

- The depth to first water at the time a well was drilled ranges from 80 feet below ground surface to 370 ft bgs, and elevations ranging from approximately 2,377 ft msl to 2,717 ft msl.
- Static water elevations range from a few feet to 130 ft bgs and approximately 2,546 ft msl to 2,766 ft msl..
- Initial production rates reported at the time a well was drilled range from 0.5 gpm to 40 gpm, with a median rate of 6.5 gpm.

BEAVER DRIVE AREA

The Beaver Drive area is located within the South Fork Wolf Creek watershed. The wells in this area are located over 1,700 feet laterally southeast of the main underground mine workings. However, there is one lateral drift that extends under the northwest corner of the Beaver Drive domestic well area. This drift is at the B1300 level at an elevation of approximately 1,480 ft msl and approximately 1,380 to 1,470 feet below the ground surface in the Beaver Drive area. Many of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit and are completed in the meta-andesite porphyry.

Well drilling reports are available for 11 wells which include lithology, water levels, and well yields.

The primary characteristics of the Beaver Drive area include:

- Eight of the eleven wells draw water from the weathered rock aquifer, one well draws water from the Tertiary aquifer and one from the Quaternary.
- The lowest producing well is W38. This well was initially drilled in 1984 to 350 feet and has production of 2 gpm from the weathered rock aquifer. In 1992 it was deepened to 700 feet in the greenstone bedrock and yielded no (0 gpm) water production.
- The highest producing well, W35, with a production rate of 30 gpm and depth of 125 feet bgs draws water from weathered bedrock.
- Well W35 is located approximately 280 feet east of well W38; thus, the highest producing well and the lowest producing well in the Beaver Drive area are adjacent to each other.
- Ground surface elevations at the well locations range from approximately 2,865 ft msl to 2,950 ft msl.
- Total depth of the wells in the Beaver Drive area ranges from 125 ft bgs to 700 ft bgs.
- The depth to first water at the time a well was drilled ranges from 45 ft bgs to 190 ft bgs, and elevations ranging from approximately 2,709 ft msl to 2,900 ft msl.
- The depth to static water at the time a well is only recorded in two of the well logs at 45-78 ft bgs or approximately 2,821 – 2,900 ft msl.
- Initial production rates reported at the time a well was drilled range from 0 gpm to 30 gpm, with a median rate of 4 gpm.

GREENHORN AREA

The wells in the Greenhorn area are located east of Brunswick Road. They extend from the eastern edge of the South Fork Wolf Creek watershed into the Greenhorn Creek watershed. The wells in this area are located over 1000 feet laterally from the main underground mine workings. However, there is one lateral drift that extends into the northern part of the Greenhorn area. This drift is at the B1100 level at an elevation of approximately 1,700 ft msl and approximately 1,100 to 1,300 feet below the ground surface east of Brunswick Road. Although some of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit into the underlying bedrock units.

Well drilling reports are available for 32 wells which include lithology, water levels, and well yields.

The primary characteristics of the Greenhorn area include:

- The lowest producing wells (W61, W65, W68, W72, W73, W75) have production rates of 2-4 gpm and depths from 125-500 feet.
- The highest producing wells (W43, W45, W51, W62, W67) have productions rates of 100-150 gpm and depths from 105-175 feet.
- Deper wells producing water from fractured bedrock (W56, W70) produce 7-25 gpm and are 300-380 feet deep.
- Ground surface elevations at the well locations range from approximately 2,800 ft msl to 2,995 ft msl.
- Total depth of the wells ranges from 75 ft bgs to 780 ft bgs.
- The depth to first water at the time a well was drilled ranges from 17 ft bgs to 435 ft bgs, and elevations ranging from approximately 2,532 ft msl to 2,952 ft msl.
- The depth to static water at the time a well was drilled ranges from 10 ft bgs to 255 ft bgs, or elevations ranging from approximately 2,532 ft msl to approximately 2,884 ft msl..
- Initial production rates reported at the time a well was drilled range from 2 gpm to 150 gpm, with a median rate of 25 gpm.

WOODROSE AREA

The wells in the Woodrose area are located east of Brunswick Road and near the southeastern edge of the South Fork Wolf Creek watershed. The wells in this area are located over 3000 feet laterally from the main underground mine workings. Although some of the wells in this area encountered the Tertiary andesite at ground surface, they all extend below this unit and are typically completed in the underlying bedrock.

Well drilling reports are available for 12 wells which include lithology, water levels, and well yields.

The primary characteristics of the Woodrose area include:

- Five of the 12 wells are completed in the fractured bedrock, five are completed in the weathered bedrock, and two are completed within the Tertiary units.

- The lowest producing wells (W90, W83, W82) draw water from fractured bedrock and have production rates of 0.5-1.5 gpm and depths from 560-720 feet bgs.
- The highest producing wells (W78, W79, W80, W81, W91) produce 20-40 gpm at depths from 100-300 feet bgs in weathered bedrock and fractured bedrock.
- Ground surface elevations at the well locations range from approximately 2,809 ft msl to 2,980 ft msl.
- Total depth of the wells ranges from 100 ft bgs to 720 ft bgs.
- The depth to first water at the time a well was drilled ranges from 10 ft bgs to 410 ft bgs, and elevations ranging from approximately 2,597 ft msl to 2,887 ft msl.
- The depth to static water at the time a well was drilled ranges from 10 ft bgs to 150 ft bgs, or elevations ranging from approximately 2,777 ft msl to approximately 2,910 ft msl..
- Initial production rates reported at the time a well was drilled range from 0.5 gpm to 40 gpm, with a median rate of 10 gpm.

ISOLATED AREAS

Well completion reports are available for three wells in the E. Bennett Industrial Area, south of the Centennial Industrial Site. This area is located over 2500 feet latterly from the main underground mine workings. Two wells draw water from fractured rock and one from weathered rock, have well depths from 100-200 feet, and production from 6-50 gpm.

Well drilling reports are available for 1 well on industrial zoned land within the City of Grass Valley on Idaho-Maryland road. This well is located close to the original Idaho #1 mine and is logged as greenstone with quartz veining. Production is reported at 3 gpm and well depth at 560 feet.

One well completion report is available for the Loma Rica Ranch area, which lies above the Mitchell Crosscut on the Idaho-1000 level. This area is within the city limits of Grass Valley but is largely vacant land. This well reportedly is 100 feet deep, completed within the weathered bedrock, and is reported to produce 40 gpm.

3.3.2.2 Water Level Monitoring in Private Domestic Wells

The Idaho-Maryland Mining Corporation (IMMC) and its predecessors monitored water levels in up to 79 private domestic wells from 1995-2001 and again from 2003-2007 in accordance with conditions included in Use Permit U84-107 based on mitigation program requirements identified in a 1995 Environmental Impact Report (EIR) (IMMC, 2007). Groundwater quality data were not collected as part of the mitigation monitoring program as these data were considered to be confidential to each well owner. The IMMC hydrographs are included in Appendix B. Review of the water-level hydrographs from the mitigation monitoring program indicates the following:

EAST BENNETT AREA

The groundwater levels generally follow the topography but are somewhat muted, with the depth to water being greater along ridges and near drainage divides and shallow at lower elevations and near

drainages. The water levels in most wells follow a seasonal pattern, with annual fluctuations typically ranging from 5 feet to 25 feet in different wells between dry months and wet months. Within individual wells, the magnitude of the seasonal fluctuation remains consistent throughout the monitoring period. No long-term increasing or decreasing trends are observed and there are no apparent annual variations due to drought or above-normal rainfall years.

BEAVER DRIVE AREA

There is not as much apparent topographic influence on the groundwater levels in this area, potentially because there is less variation in topography between well locations, in comparison to the East Bennett Area and the wells east of Brunswick Road. The seasonal fluctuations in the Beaver Drive area are larger than those in the other areas, ranging from 20 feet to 50 feet per year. While there are no long-term trends observed in the hydrographs, some of the wells may show annual differences due to variations in water-year rainfall totals. Wells along the southwest drainage divide for the South Fork Wolf Creek watershed tend to have more variable and irregular data and do not exhibit the consistent seasonal variations that are observed in other wells in this area.

GREENHORN AREA

Groundwater levels in the wells in the Greenhorn area east of Brunswick Road tend to vary with the topography, as in the East Bennett Area. The hydrographs show seasonal variations, with annual water level fluctuations ranging from 10 feet to 30 feet but remaining very consistent within individual wells. No long-term trends and no variations with changes in annual water-year rainfall are observed. Several NID canals traverse the area east of Brunswick Road. Comparison of the hydrographs for wells adjacent to canals and wells more distant from the canals does not indicate any direct influence of the canals on groundwater elevations or on seasonal fluctuations.

Wells in the Woodrose and isolated areas were not monitored by IMMC.

Due to the nature of groundwater within fractured bedrock, in some areas there may be a zone of unfractured (i.e. non-water bearing) bedrock above a zone with water-producing fractures. Under these conditions, the static water level in a well will be higher than the elevation of the water-bearing fractures (for example, as demonstrated by a difference between the depth of first-encountered groundwater and the depth of the static water surface in the well after drilling is completed), which is consistent with the behavior of confined aquifer conditions. However, the static groundwater surface generally mimics the topography, but with the depth to water being somewhat greater along ridges and near drainage divides and somewhat shallower at lower elevations and near drainages.

The primary source of recharge is percolation of local rainfall, as evidenced both by the seasonal fluctuations in the groundwater levels and by the fact that groundwater levels in the wells monitored are typically higher than the elevation of the nearest creek within the same watershed. Thus, the areas along ridges and near drainage divides, in addition to the slopes above the creeks, act as recharge areas while groundwater discharge may occur through fractures that are present at or near the elevation of the creeks. Groundwater recharge through fractures that are present at the ground surface in the higher

parts of a watershed can produce the hydrostatic pressures that may be observed when those same fractures are encountered at depth in a well, creating the apparent confined aquifer conditions.

The water levels in the private domestic wells have seasonal fluctuations that may range from 10 feet to 50 feet between wet and dry times of the year but remain relatively consistent from year to year within each individual well. During the monitoring period, several years with below normal rainfall occurred (2001, 2004, and 2007), multiple years with above normal rainfall occurred (1995-1998 and 2006), and several years of near-normal rainfall occurred (1999, 2000, 2002, 2003, 2005), as indicated on Figure 3-4. Despite large variations in annual rainfall from year to year, the seasonal water level cycles in individual wells remain consistent over time and the overall water levels shown on the hydrographs for each well do not fluctuate based on wet or dry climatic cycles.

Based on the lack of changes in the individual well hydrographs between wet and dry climatic cycles, the amount of recharge, as described in Section 3.2, appears to be consistent from year to year and is not affected substantially by drought or wet cycles. The consistent annual recharge may be due to the limitations of recharge in fractured bedrock, where the annual rainfall amount may be greater than the capacity of the fractures to accept additional flow. In this situation, increases or decreases in the annual rainfall due to climatic cycles does not have an appreciable effect on the amount of water that can be recharged because the capacity of the fractures to transmit water to the subsurface is already at its maximum.

3.3.3 Groundwater Occurrence within Mine Workings

As discussed in Section 2.0, there are two separate systems of underground mine workings in the project site, the Union Hill mine and the Idaho-Maryland mine workings. Both sets of mine workings are currently flooded with water.

3.3.3.1 Mine Connections to Surface

There are fourteen shafts or tunnels which connect the underground workings of the Idaho-Maryland mine to the ground surface, as listed in Table 3.2. Only the New Brunswick shaft is on Rise property. The majority of the historic mine workings have been covered by road pavement or structures.

Table 3-2 List of Idaho-Maryland Mine Connections to Ground Surface

	IM Mine Workings to Surface	Location – APN	Status and Comments	Known Water Discharge	Estimated Surface Elevation (ft msl)
1	Eureka Shaft	009-201-022 or 009-201-035	Covered by Building - Eagle Automotive	NO	2532
2	Eureka Vertical Shaft	Nevada County - Spring Hill Drive	Covered by street pavement - Spring Hill Drive	NO	2514
3	Eureka Drain	009-201-023 & 009-201-022	Unknown drain drift or culvert from Eureka Shaft. Covered in earth	YES	2502
4	East Eureka Shaft	009-550-041	Open - Under Building - Navo & Sons	YES	2501
5	East Eureka Drain	009-550-041	24-inch culvert from E. Eureka shaft to Wolf Creek	YES	2497
6	Idaho Drain Tunnel	009-680-021	Covered by earth grading - Grass Valley Recycle	NO	2516
7	Idaho Pump Shaft	009-680-021	Covered by earth grading - Grass Valley Recycle	NO	2524
8	Idaho Shaft	009-680-021	Covered by earth grading - Grass Valley Recycle	NO	2526
9	Old Air Raise	Nevada County - Centennial Drive	Covered by street pavement - Centennial Drive	NO	2572
10	Roundhole Shaft	009-690-037	Remains in place. Covered by concrete cap. Likely caved	NO	2670
11	Old Brunswick Incline Shaft	009-581-019	In close proximity to residential house. Previously created sinkhole due to residential use. Unknown mitigation	NO	2854
12	Old Brunswick Shaft #2	009-581-053	In vacant wooded area. Buried under old rock dump	NO	2816
13	Old Brunswick drain tunnel	009-581-053	In vacant wooded area. Unknown if tunnel has been sealed	NO	2742
14	New Brunswick Shaft	009-630-039	Steel Cover - To be re-used by Rise	NO	2756

It should be noted that only the surface connections at an elevation of 2,502 ft msl or lower discharge water to the surface.

3.3.3.2 Mine Water Quantities

The total amount of water currently present within the Idaho-Maryland mine underground workings is estimated at 1,183 acre-feet. The amount of water was estimated by Rise based on the calculated volumes of mine workings. Mine tunnels or drifts were assumed to be 100% open voids. Mine stopes were estimated to have 75% of their volumes backfilled. The backfill itself is assumed to have a porosity of 40%. Tables 3.3 and 3.4 show the calculated water volumes for the Idaho-Maryland mine based on area and elevation.

Table 3-3 Water Volume Estimates in Stopes

	Idaho 1 Stopes	Idaho 3 Stopes	Brunswick Stopes
Longsection Area of ore mining (ft^2)	2,292,473	1,267,966	2,825,806
Total Volume of stoping (ft^3)	11,736,000	14,580,000	34,440,000
Development ore mined	9%	30%	30%
Stoping volume (ft^3)	10,631,435	10,206,000	24,108,000
Voids in fill	0.40	0.40	0.40
Percentage of stopes backfilled	0.75	0.75	0.75
Water in stopes (ft^3)	5,847,289	5,613,300	13,259,400

Table 3-4 Mine Workings Water Volumes by Depth

	Water Contained in Stopes (ft^3)			Water in	Total Water		
	Idaho 1	Idaho 3	Brunswick	Drifts (ft^3)	ft^3	acre-ft	gallons
Surface to 580 Level	544,000	0	587,000	1,259,000	2,390,000	55	17,878,000
580-900 Level	1,687,000	390,000	3,888,000	4,206,000	10,171,000	233	76,084,000
900-1300 Level	1,297,000	1,427,000	4,470,000	7,091,000	14,285,000	328	106,859,000
1300-1600 Level	1,244,000	1,487,000	4,319,000	3,277,000	10,327,000	237	77,251,000
1600-1880 level	1,075,000	1,065,000	583,000	3,241,000	5,964,000	137	44,614,000
1880-2300 Level	0	1,244,000	0	3,474,000	4,718,000	108	35,293,000
2300-3280 Level	0	0	0	3,661,000	3,661,000	84	27,386,000
	5,847,000	5,613,000	13,847,000	26,209,000	51,516,000	1,183	385,365,000

3.3.3.3 Water Levels in the New Brunswick Shaft

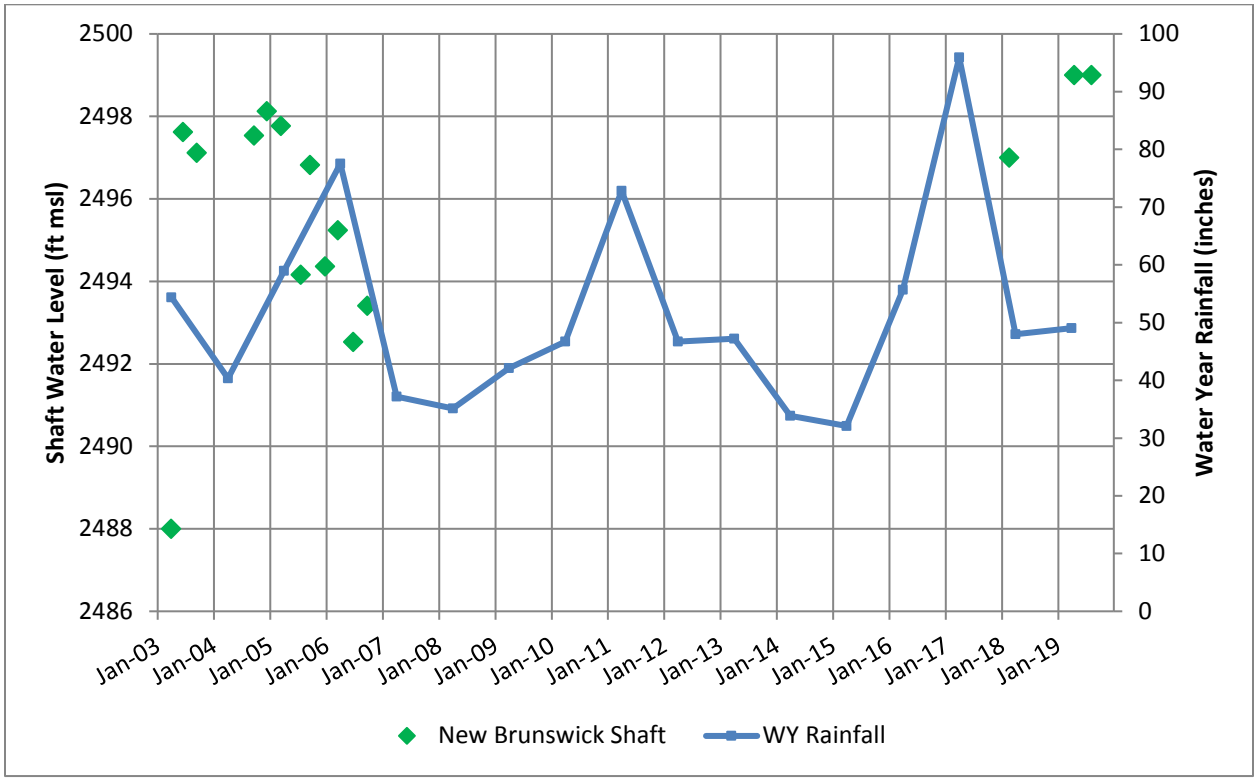
EMKO measured the depth to water in the New Brunswick shaft in February 2018, April 2019, and August 2019. In February 2018, the water in the shaft was 259 feet below the top of the collar (i.e. ground surface). In April 2019 and August 2019, the water in the shaft was 257 feet below the top of the collar. The collar is at an elevation of 2,756 ft msl. Thus, the water surface in the shaft was at 2,497 ft msl in February 2018 and at 2,499 ft msl in April 2019 and August 2019.

IMMC measured water levels in the New Brunswick shaft at least 13 times between March 2003 and September 2006 (IMMC, 2007). The water level generally varied from 2,488 ft msl to 2,498 ft msl, with a

median value of approximately 2,497 ft msl[3,4]. Thus, over a 16-year period, the water level in the New Brunswick shaft has varied by approximately 11 feet, from 2,488 ft msl to 2,499 ft msl. These elevations are lower than the groundwater levels reported for wells along East Bennett Road, which are reported to range from 2,525 ft msl to 2,765 ft msl, as discussed in Section 3.3.2.

Figure 3.7 compares the water levels in the New Brunswick Shaft with annual water-year rainfall from 2003 through 2019. The data presented on Figure 3.7 demonstrate that the variations in the water level in the shaft do not occur on a seasonal basis and that there is not a consistent correlation between water levels in the shaft and rainfall. These observations from the underground mine workings contrast with those from the domestic wells, discussed in Section 3.3.2.2, where there is a seasonal fluctuation between wet and dry parts of the year that remains constant over many years. The differences in the magnitude and cyclicity of the water level fluctuations in the measurements from the New Brunswick Shaft versus those from the domestic wells indicate that there are not any direct connections (e.g. via fractures) between the domestic wells and any of the underground mine workings.

Figure 3-7 Comparison of Shaft Water Levels with Rainfall



[3] IMMC used an estimated collar elevation of 2,750 ft msl. Since the collar elevation has been confirmed at 2,756 ft msl, the water elevations reported by IMMC (2007) have been increased by six feet in this report.

[4] One measurement, from June 2004, had a reported elevation of 2,581 ft msl, or about 100 feet higher than the other 12 measurements made by IMMC (2007). Review of the data presented by IMMC (2007) suggests that the anomalous June 2004 elevation may be due to a data recording or reporting error. Thus, it is not considered further in this report.

3.3.3.4 Water Levels in the Union Hill Mine

The Union Hill mine is a smaller mine than the others in the project area. It was closed in 1918 and has been flooded with water since that time. The Union Hill mine is not connected to any of the other underground mine workings in the area but is in close proximity to the workings of the Brunswick Mine. The Union Hill mine workings are completely within the South Fork Wolf Creek Watershed.

At the Union Hill mine, the water level has been observed to fluctuate seasonally, from approximately one to 10 feet below the collar of the Union Hill shaft (Tessa Brinkman, personal communication, March 14, 2019). On April 17, 2019, EMKO observed the water level in the Union Hill shaft to be approximately 18 inches below the top of the shaft, while on August 8, 2019 it was approximately four feet below the top of the shaft. The top of the Union Hill shaft is at approximately 2666 ft msl so the water level in the Union Hill Mine ranges from approximately 2,665 ft msl to 2,656 ft msl. On April 17, 2019, the water level in the Union Hill shaft was 165 feet higher than the water level in the New Brunswick shaft.

The water levels in the Union Hill Mine are within the range of the water levels observed in the wells in the East Bennett Area, which range from 2,525 ft msl to 2,765 ft msl, as discussed in Section 3.3.2. However, the water levels in the Union Hill Mine are lower than the water levels in the wells in the Beaver Drive Area and in the area east of Brunswick Road, which are all greater than 2,700 ft msl.

The elevation of the bank of South Fork Wolf Creek at a location closest to the Union Hill shaft is approximately 2,658 ft msl. The bottom of the channel is a few feet below the bank. During the rainy season, the water level in the Union Hill Mine tends to be slightly higher than the elevation of South Fork Wolf Creek adjacent to the Union Hill shaft, whereas during the dry season, the water level in the Union hill shaft may be comparable to the water level in South Fork Wolf Creek. Thus, the groundwater in the fractures that intersect the Union Hill Mine may provide flow to South Fork Wolf Creek at certain times of the year.

The Union Hill mine workings are within 95 feet to 180 feet of workings of the Brunswick Mine at three to four different levels (Sheet 14). During the post WWII period, the combined Idaho-Maryland Mine workings were completely dewatered. In 1956, the water level at the Union Hill Mine was reported to be within 20 feet of the top of the shaft[5] (Clark, 2005), suggesting that the complete dewatering of the adjacent mine workings resulted in no more than 10 to 20 feet of water level decline in the Union Hill Mine.

3.3.4 Groundwater Flow from Drains

Several drains have been observed along Wolf Creek in the area of the East Eureka and Idaho shafts (Condor, 1994). In February 2018, EMKO verified that the same drains are still present and that

[5] It is unclear if the reference to water level is on a vertical or inclined basis as the Union Hill is an inclined shaft at approximately 63 degrees.

groundwater is continuing to discharge from these drains. For this report, the historic naming of these drains that was used in previous studies has been retained. Drain locations are shown on Sheet 3.

The drains present along Wolf Creek include:

3.3.4.1 ED-1 – Eureka Drain

Located at the northwest corner of Idaho-Maryland Road and Spring Hill Road. Although the flow from this drain has been reported to be in the range of 100 gpm (Condor, 1994), field observations made by EMKO in February 2018 and December 2018 indicate that the drain was flowing at a rate of only a few gallons per minute at the time of those observations. On April 17, 2019, EMKO observed flows in the range of 20 to 25 gpm from this drain. The flow enters a culvert that passes under Idaho-Maryland Road and discharges to Wolf Creek. It is assumed that this seep is occurring from the original Eureka shaft.

3.3.4.2 IMD-1 – *East Eureka Shaft Drain*

A 24-inch galvanized culvert drains water into Wolf Creek from the East Eureka shaft, which is located under the Roto-Rooter plumbing shop at 815 Idaho-Maryland Road, to the east of Centennial Drive. Todd Engineers (2007) reports the flow from this drain to be about 60 gpm. EMKO observed this drain to be flowing at a rate that was consistent with that reported by Todd Engineers (2007) on several occasions between February 2018 and December 2018. On April 17, 2019, EMKO measured the flow from this drain at approximately 100 gpm.

3.3.4.3 IMD-2 – *East Eureka Shaft*

A small steel pipe originates at a sump adjacent to the East Eureka shaft under the east end of the Roto-Rooter plumbing shop. EMKO observed water in the shaft at a depth of less than two feet below the top of the shaft in February 2018. Flow from this drain was minimal, in the range of 1-2 gpm, in February 2018.

3.3.4.4 D-1 – *Unknown Origin*

Located along the north side of Idaho-Maryland Road across the street from the Roto-Rooter plumbing shop. A small box culvert allows water to discharge into the gutter from beneath the business park area up the hill from the drain. The water flows down the gutter to a drop inlet just east of Spring Hill Road, where it flows through a culvert under the road and into Wolf Creek. Field observations made in February 2018, December 2018, and April 2019 indicate that this drain flows consistently at a rate of only a few gallons per minute. As discussed further in Section 3.4, water quality data indicate that the discharge from D-1 may not be related to the underground mine workings in the area. No workings with connection to the Idaho-Maryland mine are noted in this area on the historic mine maps (Sheet 8).

3.3.5 Bedrock Properties Related to Groundwater Flow

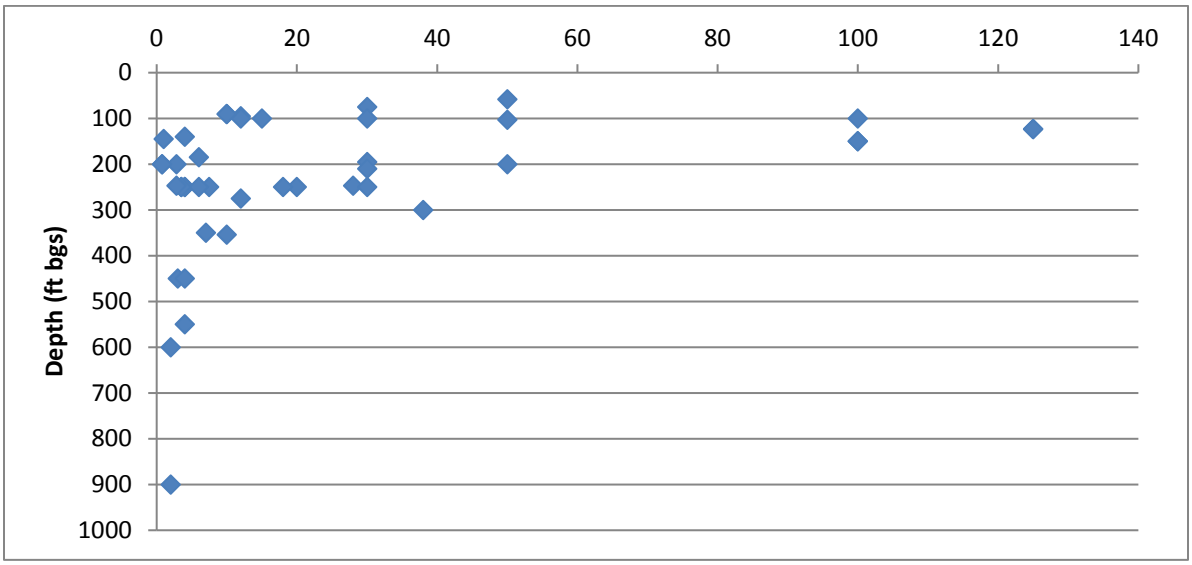
The primary physical properties that define groundwater flow include the transmissivity and hydraulic conductivity. The transmissivity is a parameter that measures how much groundwater an aquifer may transmit for a given decrease in water level, for example when a well is pumped. The hydraulic

conductivity is related to the permeability of the overall aquifer zone. The derivation of these properties primarily relates to porous media, such as sand and gravel-type aquifers (Domenico and Schwartz, 1990), but they are often applied to fractured bedrock aquifers when there is a sufficient degree of fracturing and interconnection between fractures.

Aquifer properties are typically estimated by measuring the rate and total amount of decline in the groundwater surface elevation that occurs when a well is pumped. This decline in the groundwater surface as a result of pumping is commonly referred to as drawdown. As discussed in Section 3.3.2, EMKO reviewed 38 well completion reports which contained information regarding the total drawdown that occurred and the pumping rate achieved during initial testing of the wells immediately after they were drilled.

Figure 3.8 shows the pumping rate versus total depth drilled for these 38 wells. There is a clear correlation between pumping rate and depth. The maximum pumping rate achieved was 125 gpm in a well with a total depth of 123 ft bgs. In contrast, at depths of 200 feet or deeper, the maximum reported pumping rate is 50 gpm. Below a depth of 300 feet, the maximum pumping rate reported was 10 gpm, and below a depth of 450 feet, the maximum pumping rate reported was only four gpm.

Figure 3-8 Pumping Rate (GPM) VS Depth

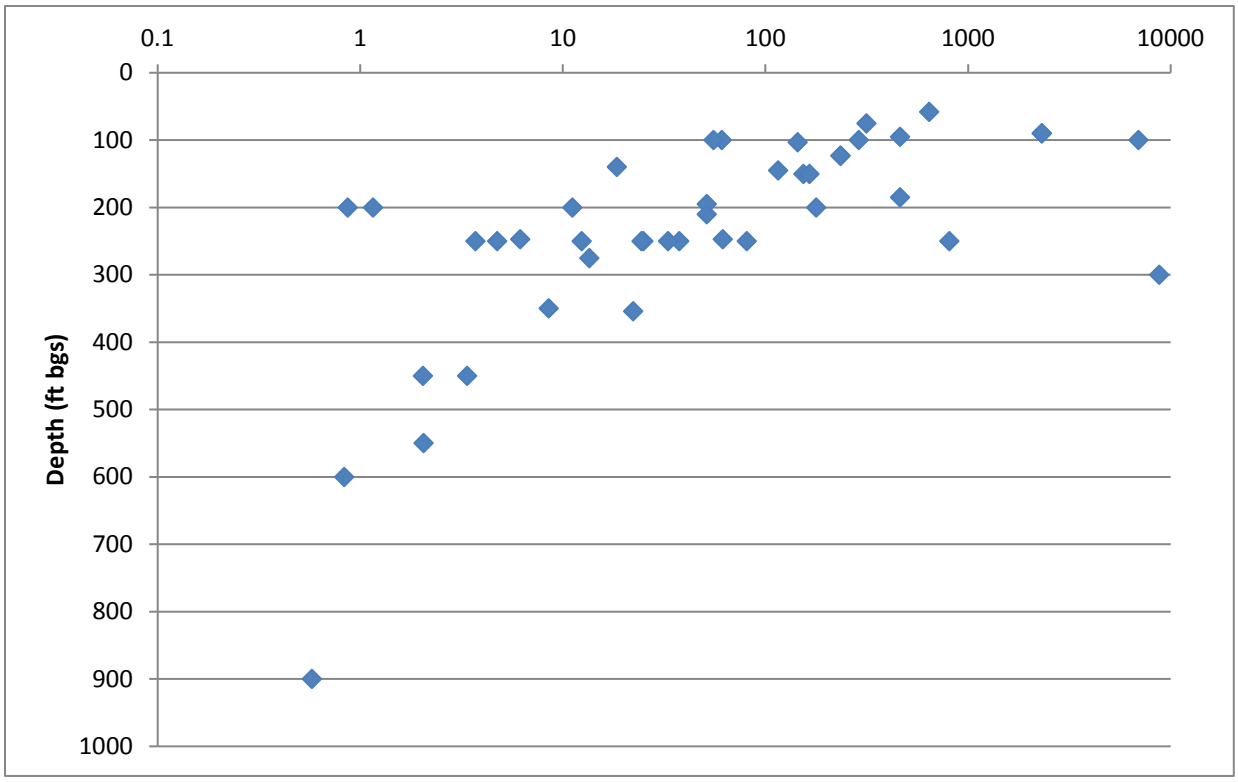


The information from the well completion reports can also be used to estimate the transmissivity in the fractured bedrock. Dividing the pumping rate, in gpm, by the drawdown that occurred as a result of the pumping, in feet, yields a value referred to as the Specific Capacity of the well. Several empirical relationships have been developed between the specific capacity and transmissivity (Thomasson, et al., 1960; Driscoll, 1986). Figure 3.9 shows the transmissivity values, calculated from the specific capacity values based on the 38 driller's logs referred to above, versus the total depth of the well. The

transmissivity values in Figure 3.9 have been converted to units of feet squared per day (ft^2/day) to be consistent with the values used for the calculations described in Section 4.

As expected from the pumping rates, there is also a clear correlation between the transmissivity and depth. The two highest transmissivity values are approximately 8,780 ft^2/day and 6,930 ft^2/day, from wells that are 300 feet and 100 feet deep, respectively. The average transmissivity for wells shallower than 250 feet is 153 ft^2/day. Between depths of 250 feet and 400 feet, the average transmissivity is 15 ft^2/day. For wells between depths of 400 feet and 550 feet, the average transmissivity is 2.5 ft^2/day, while below a depth of 550 feet, the average transmissivity is 0.7 ft^2/day.

Figure 3-9 Transmissivity (Ft^2/day) VS Depth



Similarly, Todd Engineers (2007) developed a relationship between the hydraulic conductivity and depth based on information from approximately 300 driller reports. The hydraulic conductivity was estimated by first calculating the specific capacity, using the empirical relationships described above to convert the specific capacity values to transmissivities, and then dividing the transmissivity by the total thickness of the saturated interval of the well (i.e. the total depth of the well minus the depth of the groundwater level in the well) (Todd Engineers, 2007). Figure 3.10 shows the relationship between hydraulic conductivity, in gallons per day per square foot (gpd/ft^2) and well depth developed by Todd Engineers.

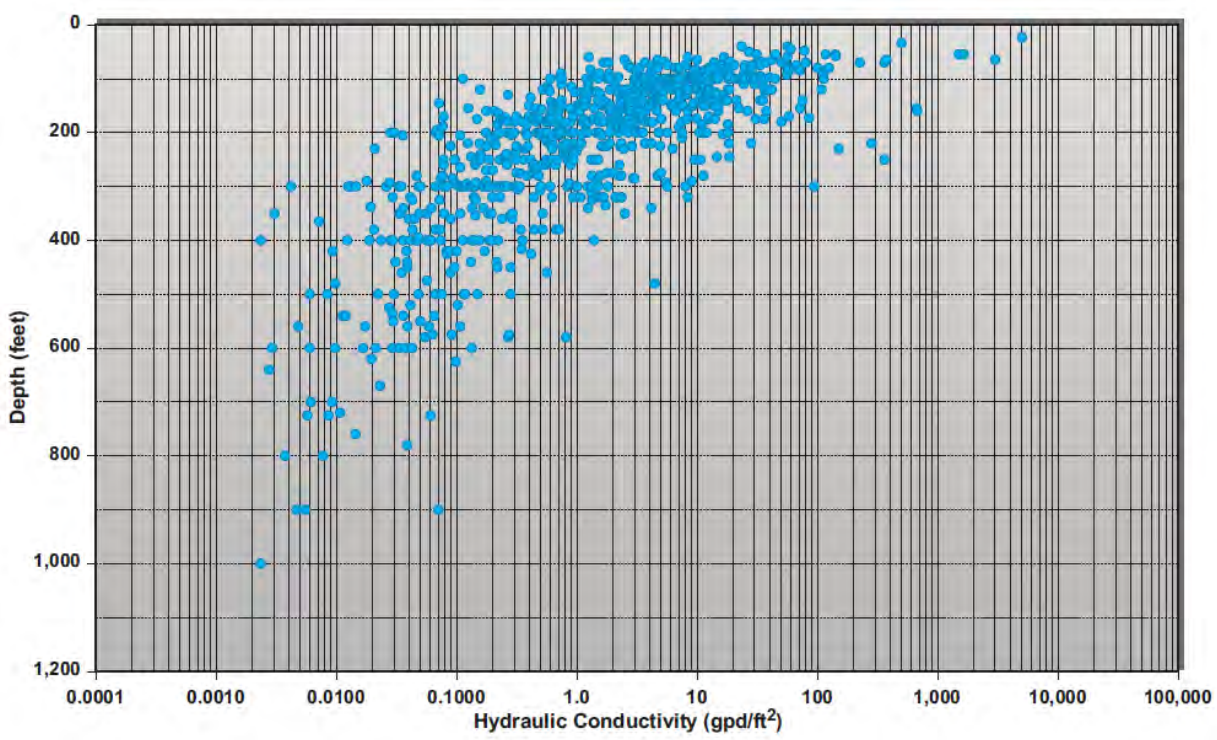
Todd Engineers (2007) found that the hydraulic conductivity of the fractured bedrock penetrated by the domestic supply wells in their study area varied significantly with depth, with greater values at shallower

depths where more fractures are prevalent, and with much lower values at deeper depths, where fractures may be either less common or have smaller aperture (open) widths, as can be seen in Figure 3.10.

The hydraulic conductivity values estimated by Todd Engineers (2007) ranged from a maximum of 5,000 gpd/ft^2 to a minimum of approximately 0.002 gpd/ft^2. Thus, the hydraulic conductivity varies by a factor of 2.5X10^6, or 2.5 million, which is very significant since groundwater flow rates and well production rates are directly proportional to the hydraulic conductivity. Overall, the transmissivity values shown on Figure 3.10 and the hydraulic conductivity values shown on Figure 3.10 indicate that 99 percent of the groundwater flow in the project area occurs above a depth of 550 ft bgs.

The range of aquifer properties with depth in the fractured bedrock are part of the existing environmental setting, but can be used to estimate the effect of dewatering of the mine workings as part of the proposed project on groundwater levels in wells adjacent to and above the underground mine workings, as discussed in Sections 4.0 and 5.0.

Figure 3-10 Distribution of Hydraulic Conductivity with Depth (Todd Engineers, 2007)



3.3.6 Historic Ground Water Inflow in Underground Mine Workings

The Idaho-Maryland Mine encompasses a system of underground tunnels, many raises, numerous winzes, four inclined shafts, and two vertical shafts. An estimated equivalent of 72.8 miles (117km) of

underground tunnel occur at the I-M Mine, assuming typical drift dimensions of 7.5ft x 8.5ft (W x H). (AMEC 2017)

The estimated groundwater inflow rate during the final years of the mines operation (i.e. the overall Idaho-Maryland Mine including the Brunswick underground workings) prior to mine closure around 1955 is reported to have ranged from 500 gpm to 1,200 gpm seasonally, with an average of approximately 850 gpm (JAA, 1991).

It has been reported by previous manager of the historic mine, who worked at the mine during the period until the closure in 1955, that there were no specific areas in the mine working which produced large quantities of water. (Wildan 1995).

Before exploration and mining can proceed, the volume of water contained in existing workings must be removed from the underground workings. Removal of the static water within the flooded mine workings is referred to as the "initial dewatering". As the water level in the mine is lowered during the initial dewatering, groundwater will flow into the mine workings through fractures and contribute to the volume of water that must be pumped during the initial period. Thus, the initial dewatering rate, typically reported in gallons per minute (gpm), is a combination of removal of the static water and removal of groundwater that flows into the newly dewatered mine workings. Once the initial dewatering is completed, continued pumping is necessary to remove the groundwater that will constantly flow into the mine through fractures within the bedrock. For the purposes of this report, this is referred to as "maintenance dewatering".

There are several records of past dewatering from the Idaho-Maryland portion of the mine complex and from the Brunswick mine.

In the early part of the 1900s, mine workings at the Idaho-Maryland mine extended to a depth of approximately 1,900 feet and was not connected to the Brunswick Mine. Maintenance dewatering is reported to have ranged from approximately 250 gpm for 10 months of the year to approximately 500 gpm for the remaining two months of the year, for an annual average pumping rate of approximately 300 gpm (Mine and Mineral Resources of Nevada County, California, 1918).

The mine was subsequently allowed to flood and again dewatered in 1919-1920. At this time the initial dewatering of the upper 1,000 feet of the mine occurred from September 24th 1919 to March 31st 1920, a period of approximately 190 days, where 89,500,000 gallons of water was handled at a dewatering rate averaging approximately 330 gpm over the period. (Idaho Maryland Mines Company, 1920).

Initial dewatering of the Brunswick mine in 1933, before it was connected to the Idaho-Maryland Mine, to a depth of approximately 950 feet bgs occurred at a rate of between 720-800 gpm over approximately 90 days (Clark, 2005).

3.4 Water Quality

EMKO has conducted water sampling on three separate occasions for this project. Sample locations are shown on Sheets 2 and 3. In February 2018 water sampling was conducted to identify overall water quality

parameters, including general mineral and metal concentrations. EMKO collected water samples from the drains and directed collection of water samples from various depths in the New Brunswick shaft at that time. Samples were labeled based on their level below ground surfaces (samples NBS-265 through NBS-2300). Field parameters were also measured in Wolf Creek, South Fork Wolf Creek, and from a pond on the Brunswick Industrial Site. The February 2018 sampling in the shaft was conducted by Advanced Marine Services Corporation of Carson City, Nevada, using a Niskin bottle to obtain depth-discrete samples. The Niskin bottle is shown in Plate 1, below.

Plate 1 – Niskin bottle set up to sample at the New Brunswick Shaft.



In December 2018 EMKO conducted water sampling to obtain data to support a National Pollutant Discharge Elimination System (NPDES) discharge permit application for the dewatering program. Additional water samples were obtained from and field parameters measured in the New Brunswick Shaft and Wolf Creek.

Sample locations are shown on Sheets 2 and 3.

In April 2019 EMKO measured field parameters and conducted water sampling on South Fork Wolf Creek, the East Eureka Drain (IMD-1), and on Wolf Creek.

In August 2019 EMKO measured field parameters at the Centennial Drive bridge on Wolf Creek and at two locations on South Fork Wolf Creek.

In September 2019, December 2019, and January 2020, Balance (2020) measured water temperature, conductance, pH and turbidity in two reaches of South Fork Wolf Creek. The upstream measurements were made at the location of the proposed discharge point of the treated water from the mine. The downstream measurements were made at the location where the creek enters a box culvert at Ophir Street in the City of Grass Valley.

Water samples were submitted to California Laboratory Services (CLS) in Rancho Cordova, California. CLS is certified with the California State Water Resources Control Board through the Environmental Laboratory Accreditation Program (ELAP). Laboratory Analytical Reports are included in Appendix C.

Table 3.5 shows the field parameters measured in the drains and for the water samples from the New Brunswick shaft. Tables 3.6 and 3.7 present the laboratory analytical results from the samples collected in February 2018 and December 2018, respectively. Table 3.8 provides the field parameters measured at surface water locations, while Table 3.9 presents the laboratory analytical results from the samples collected in April 2019. Table 3.10 summarizes the field measurements made by Balance (2020) along South Fork Wolf Creek.

3.4.1 General Water Chemistry Conditions

The evaluation of water chemistry conditions presented below addresses two specific sets of observations. Water chemistry data from the New Brunswick shaft and from the drains provides an indication of existing conditions in groundwater related to these features. Surface water chemistry data provides insight into seasonal variations in water quality related to different water sources, including local stormwater runoff, releases from the DS Canal system, discharge from the drains, and discharge of groundwater through fractures in the bedrock.

3.4.1.1 Water Chemistry in the New Brunswick Shaft and Drains

The water within the New Brunswick shaft and flowing from the drains is groundwater that has entered the mine workings through the fractures in the subsurface. Field measurements indicate that the pH values measured from water samples from the New Brunswick shaft are relatively consistent at 6.83 to 7.20 (Table 3.5). The pH values at the drains range between 6.97 and 7.67 (Table 3.5).

Oxidation-reduction potential (ORP) measurements from the New Brunswick shaft and the ED-1, IMD-1 and IMD-2 drains are all strongly reducing (i.e. negative), with ORP values ranging from -47 millivolts (mV) to -120 mV (Table 3.5). The ORP for the D-1 drain indicates oxidizing conditions at +53.2 mV (Table 3.5). The appreciably different ORP value at D-1 suggests that the water seeping from that drain is not related to the groundwater within the underground mine workings.

Table 3-5 Water Quality Field Measurements, Drains and Shaft Samples, Idaho-Maryland Mine Project

Field Parameters	Units	IMD-1		IMD-2	D-1	ED-1	NBS-300	NBS-1300	NBS-Pump
		15/02/2018	17/04/2019	15/02/2018	13/02/2018	13/02/2018	16/02/2018	15/02/2018	18/12/2018
Temperature	Degrees C	15.5	15.6	15.3	15.8	15.8	14.6	14.3	14.52
Specific Conductance (EC)	umhos/cm	452	268	457	320	475	410	408	338
Dissolved Oxygen	Percent Saturation	33.8	20.7	29.6	78.3	22	24.3	48	NM
Dissolved Oxygen	mg/L	3.37	1.88	2.95	7.74	2.18	2.44	4.84	NM
pH	std units	7.17	7.11	7.16	7.67	6.97	7.12	7.2	6.83
Oxidation-Reduction Potential	mV	-116.6	-47	-90.4	53.2	-120.4	-111.2	-114.6	-64

Locations:

IMD-1: Corrugated steel culvert in Wolf Creek just west of Roto-Rooter building

IMD-2: East Eureka Shaft under Roto-Rooter building

D-1: Unnamed drain on north side of Idaho-Maryland Rd across from Roto-Rooter building

ED-1: Eureka Drain at northwest corner of Idaho-Maryland Rd and Spring Hill Dr

NBS-XXXX: New Brunswick Shaft (XXXX = sample depth below collar)

NBS-Pump: New Brunswick Shaft from pump (appx. 260 ft below collar)

The total dissolved solids (TDS) level within all of the samples from the New Brunswick shaft and from the drains is within a relatively narrow range of 200 milligrams per liter (mg/L) to 230 mg/L (Tables 3.6 and 3.7). These TDS concentrations are not substantially elevated, especially for groundwater within mineralized bedrock formations. The lack of elevated TDS concentrations in the water in the shaft and from the drains could be due to the relatively young age of the groundwater (see discussion of stable isotope findings in Section 3.5) and the resulting short contact time of the water with the bedrock.

Acute toxicity tests measure the rate of survival of specified fish species, such as rainbow trout or fathead minnows, within a sufficiently large water sample. The tests are intended to assess whether the water contains any salts, minerals, or contaminants that could be acutely harmful to aquatic organisms. Rainbow trout are generally more sensitive than other species used for acute toxicity tests and, thus, provide a conservative or protective assessment of overall water quality relative to aquatic life. Discharge permits that may apply to this project (see Section 4.6) typically require that the acute toxicity tests have a survival rate of at least 70 percent for a single test and a median of 90 percent for three consecutive tests. Acute toxicity tests conducted on the December 2018 sample from the New Brunswick shaft had a 100 percent survival rate for rainbow trout (Table 3.7).

Table 3-6 February Laboratory Analytical Results, Idaho-Maryland Mine Project

Laboratory Parameters	Units	D-1	ED-1	IMD-1	IMD-2	NBS-265	NBS-900	NBS-1300	NBS-1600	NBS-2300	Regulatory Standards
		2/13/2018	2/13/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	
General Chemistry											
Ammonia as N	ug/L	<100	50	<100	240	<100	NA	NA	NA	66	25
Bicarbonate as Ca CO3	mg/L	210	220	220	220	190	200	190	200	180	
Biochemical Oxygen Demand	mg/L	<3.0	8	15	2	6.6	NA	NA	NA	8.3	
Calcium	mg/L	12	47	47	48	53	53	54	52	55	
Carbonate as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Chloride	mg/L	2.9	2.4	2.3	2.5	2.2	2.2	2.2	2.2	2.2	
Cyanide (amenable)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cyanide (total)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0052
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	2
Hardness as CaCO3	mg/L	220	210	200	210	190	190	190	190	200	
Hydroxide as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Magnesium	mg/L	46	22	20	21	14	14	14	14	14	
MBAS	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Nitrate as N	mg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	10
Nitrite as N	mg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	1
pH (lab)	std units	7.70	7.09	7.25	7.09	7.22	7.25	7.27	7.27	7.22	6.5 - 8.5
Potassium	mg/L	<1.0	2.4	2.3	2.5	1.7	1.6	1.7	1.6	1.7	
Sodium	mg/L	2.7	13	13	13	7.7	7.5	7.7	7.4	7.9	
Specific Conductance (lab)	umhos / cm	420	420	410	410	360	360	370	360	360	900
Sulfate as SO4	mg/L	13	<0.50	0.55	0.83	0.62	<0.50	<0.50	<0.50	<0.50	
Total Alkalinity	mg/L	210	220	220	220	190	200	190	200	180	
Total Dissolved Solids	mg/L	210	230	220	230	210	200	220	200	200	
Total Suspended Solids	mg/L	<5.0	11	<5.0	180	<5.0	NA	NA	NA	<5.0	10
Petroleum Hydrocarbons											

Laboratory Parameters	Units	D-1	ED-1	IMD-1	IMD-2	NBS-265	NBS-900	NBS-1300	NBS-1600	NBS-2300	Regulatory Standards
		2/13/2018	2/13/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	
TPH as Diesel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
TPH as Motor Oil	mg/L	<0.050	<0.050	<0.050	<0.050	0.83	<0.050	<0.050	<0.050	<0.050	
TPH as Gasoline	ug/L	<50	<50	<50	<50	<50	<50	<50	<50	NA	
Metals											
Aluminum	ug/L	<50	290	<50	<50	<50	<50	<50	<50	<50	200
Antimony	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	6
Arsenic	ug/L	6.6	59	41	37	<2.0	<2.0	<2.0	<2.0	<2.0	10
Barium	ug/L	<100	130	130	130	<100	<100	<100	<100	<100	1000
Beryllium	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4
Boron	ug/L	<100	140	140	140	<100	<100	<100	<100	<100	
Cadmium	ug/L	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	1.8 (HD)
Chromium	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	150 (HD)
Copper	ug/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	6.5 (HD)
Iron	ug/L	<100	4800	2200	1600	1600	1600	1600	1600	1600	300
Lead	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.8 (HD)
Manganese	ug/L	<20	310	200	210	270	230	230	230	240	50
Mercury	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.05
Molybdenum	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Nickel	ug/L	24	<10	<10	<10	<10	<10	<10	<10	<10	36 (HD)
Selenium	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5
Silver	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	1.9 (HD)
Thallium	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.7
Vanadium	ug/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
Zinc	ug/L	<50	94	<50	<50	66	<50	<50	<50	<50	83 (HD)
Bacteriological											
E. Coli	MPN / 100 mL	<1.8	<1.8	<1.8	2	<1.8	NA	NA	NA	<1.8	Present
Fecal Coliform	MPN / 100 mL	<1.8	<1.8	<1.8	2	<1.8	NA	NA	NA	<1.8	Present
Total Coliform	MPN / 100 mL	>1600	140	2	17	2	NA	NA	NA	<1.8	>1X

Laboratory Parameters	Units	D-1	ED-1	IMD-1	IMD-2	NBS-265	NBS-900	NBS-1300	NBS-1600	NBS-2300	Regulatory Standards
		2/13/2018	2/13/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	2/15/2018	
Organic Priority Pollutants											
PCBs	ug/L	All <0.50	All <0.50	All <0.50	All <0.50	All <0.50	All <0.50	All <0.50	All <0.50	All <0.50	
SVOCs	ug/L	All ND	All ND	All ND	All ND	All ND	All ND	All ND	All ND	NA	
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	2.4	1.8	2.4	3.1	NA	6/ND
Toluene	ug/L	<0.50	<0.50	<0.50	1.1	<0.50	<0.50	<0.50	<0.50	NA	150
All other VOCs	ug/L	All ND	All ND	All ND	All ND	All ND	All ND	All ND	All ND	NA	
Radiological											
Gross Alpha	pCi/L	0.057+/-0.936	0.784+/-1.20	0.980+/-1.27	1.78+/-0.810	1.02+/-1.24	NA	NA	NA	0.986+/-1.25	15/5
Radium 226	pCi/L	0.000+/-0.047	0.096+/-0.115	0.000+/-0.046	0.094+/-0.113	0.047+/-0.092	NA	NA	NA	0.117+/-0.122	3
Uranium	pCi/L	0.229+/-0.450	0.000+/-0.329	0.459+/-0.551	0.000+/-0.329	0.229+/-0.450	NA	NA	NA	0.229+/-0.450	20
Radium 228	pCi/L	0.000+/-0.584	0.143+/-0.654	0.000+/-0.588	0.113+/-0.645	0.000+/-0.546	NA	NA	NA	0.001+/-0.672	2

See Sheets 2 & 3 for sample locations.
Yellow highlighted cells are results that exceed MCLs or anticipated NPDES discharge standards.
ND = Not detected above laboratory reporting limit
NA = Not analyzed

Table 3-7 December 2018 NPDES Laboratory Analytical Results, Idaho-Maryland Mine Project

Laboratory Parameters	Units	NBS-Pump	WC-Up	WC-Mid	WC-Down	NPDES
		12/18/2018	12/18/2018	12/18/2018	12/18/2018	Limits
General Chemistry						
Ammonia as N	ug/L	NA	NA	NA	NA	25
Bicarbonate as Ca CO3	mg/L	190	87	50	67	
Biochemical Oxygen Demand	mg/L	NA	NA	NA	NA	
Calcium	mg/L	51	16	11	12	
Carbonate as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0	
Chloride	mg/L	2.2	4.5	3	3.2	
Cyanide (amenable)	mg/L	NA	NA	NA	NA	
Cyanide (total)	mg/L	0.0022 (J)	0.0026 (J)	0.0018 (J)	<0.0050	0.0052
Fluoride	mg/L	NA	NA	NA	NA	
Hardness as CaCO3	mg/L	180	100	64	69	
Hydroxide as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0	
Magnesium	mg/L	14	15	9.2	9.5	
MBAS	mg/L	NA	NA	NA	NA	
Nitrate as N	mg/L	NA	NA	NA	NA	10
Nitrite as N	mg/L	NA	NA	NA	NA	10
pH (lab)	std units	NA	NA	NA	NA	6.5 - 8.5
Potassium	mg/L	1.4	1.5	1.3	1.1	
Sodium	mg/L	7.7	5.5	4.2	4.3	
Specific Conductance (lab)	umhos/cm	400	200	140	170	900
Sulfate as SO4	mg/L	NA	NA	NA	NA	
Total Alkalinity	mg/L	190	87	50	67	
Total Dissolved Solids	mg/L	210	140	91	82	
Total Phosphorus, as P	mg/L	<0.050	<0.050	<0.050	<0.050	
Turbidity	NTU	4.7	2.5	2.4	1.9	5
Total Anions	meq/L	3.9	2	1.6	1.6	
Total Cations	meq/L	4.1	2.1	1.5	1.6	
Ion Balance RPD	%	6	4	9.8	3	
Total Suspended Solids	mg/L	NA	NA	NA	NA	10
Metals						
Aluminum	ug/L	16 (J)	110	130	100	200
Antimony	ug/L	<5.0	<5.0	<5.0	<5.0	6
Arsenic	ug/L	2.1	1.3	1.8	4.0	10
Barium	ug/L	NA	NA	NA	NA	
Beryllium	ug/L	<1.0	<1.0	<1.0	<1.0	4
Boron	ug/L	26 (J)	10 (J)	10 (J)	18 (J)	
Cadmium	ug/L	<0.25	<0.25	<0.25	<0.25	1.8 (HD)

Laboratory Parameters	Units	NBS-Pump 12/18/2018	WC-Up 12/18/2018	WC-Mid 12/18/2018	WC-Down 12/18/2018	NPDES Limits
Hexavalent Chromium	ug/L	<1.0	<1.0	<1.0	<1.0	10
Chromium	ug/L	0.32 (J)	0.77 (J)	0.67 (J)	0.76 (J)	150 (HD)
Copper	ug/L	0.40 (J)	2	1.3	1.4	6.5 (HD)
Iron	ug/L	1400	240	250	310	300
Lead	ug/L	<0.50	<0.50	<0.50	<0.50	1.8 (HD)
Manganese	ug/L	230	15 (J)	16 (J)	35	50
Mercury	ug/L	<0.050	<0.050	<0.050	<0.050	0.05
Molybdenum	ug/L	NA	NA	NA	NA	
Nickel	ug/L	<5.0	4.5 (J)	3.2 (J)	3.4 (J)	36 (HD)
Selenium	ug/L	<5.0	<5.0	<5.0	<5.0	5
Silver	ug/L	<1.0	<1.0	<1.0	<1.0	1.9 (HD)
Thallium	ug/L	0.12 (J)	<1.0	<1.0	<1.0	1.7
Vanadium	ug/L	NA	NA	NA	NA	
Zinc	ug/L	5.5 (J)	7.2 (J)	3.2 (J)	4.7 (J)	83 (HD)
Acute Toxicity (96-hr bioassay with Rainbow Trout						
Percent Survival	%	100	100	100	100	
Organic Priority Pollutants						
PCBs & Pesticides (EPA 608)	ug/L	All ND	All ND	All ND	All ND	
BEP	ug/L	5.3	<1.5	<1.5	<1.5	
All Other SVOCs (EPA 625)	ug/L	All ND	All ND	All ND	All ND	
PAHs (EPA 610)	ug/L	All ND	All ND	All ND	All ND	
2,3,7,8-TCDD (EPA 1613)	pg/L	<0.233	<0.233	<0.233	<0.233	0.013
cis-1,2-Dichloroethylene	ug/L	4.2	<0.50	<0.50	<0.50	10 (T)
All other VOCs (EPA 624)	ug/L	All ND	All ND	All ND	All ND	

See Sheets 2 & 3 for sample locations.
Yellow highlighted cells are results that exceed anticipated NPDES discharge standards.
ND = Not detected above laboratory reporting limit
NA = Not analyzed
BEP = bis(2-ethylhexyl)phthalate
meq/L = milliequivalents per liter
RPD = Relative Percent Difference
ug/L = micrograms per liter
mg/L = milligrams per liter
pCi/L = picocuries per liter
umhos/cm = micromhos per centimeter
MPN/100 mL = Most Probable Number per 100 milliliters
(J) = Analyte detected below the laboratory reporting limit
NTU = Nephelometric Turbidity Units
2,3,7,8-TCDD = 2,3,7,8-tetrachloro-dibenzo(p)dioxin
pg/L = picograms per liter
HD = Hardness-dependent metal limits (based on hardness of WC-Mid sample)

The primary constituents of interest in the water samples from the New Brunswick shaft and the drains are iron and manganese. Within the New Brunswick shaft, the iron concentration ranges from 1,400 micrograms per liter (μg/L) to 1,600 μg/L (Tables 3.6 and 3.7). While iron is not present in drain D-1, in

the other three drains, the iron concentration ranges from 1,600 μg/L up to 4,800 μg/L (Table 3.6). The secondary drinking water maximum contaminant level (MCL) an the NPDES effluent limit for iron are both 300 μg/L.

Within the New Brunswick shaft, the manganese concentration ranges from 230 μg/L to 270 μg/L (Tables 3.6 and 3.7). Similar to iron, manganese is not present in drain D-1, while in the other three drains, the manganese concentration ranges from 200 μg/L up to 310 μg/L (Table 3.6). The MCL and the NPDES effluent limit for manganese are both 50 mg/L.

Arsenic has been detected above its MCL and NPDES effluent limit of 10 μg/L in three of the drain samples, ranging from 37 μg/L in IMD-2 to 41 μg/L in IMD-1 to 59 μg/L in ED-1 (Table 3.6). The arsenic concentration at D-1 is 6.6 μg/L. The arsenic concentration does not exceed the MCL or NPDES effluent limit in any of the samples from the New Brunswick shaft or from Wolf Creek (Tables 3.6, 3.7, and 3.9).

The compound cis-1,2-dichloroethylene (cis-1,2-DCE) is detected in all samples from the New Brunswick shaft at concentrations ranging from 1.8 μg/L to 4.2 μg/L (Tables 3.6 and 3.7). This compound generally occurs as a breakdown product of the industrial solvent trichloroethylene (TCE) or the dry-cleaning solvent tetrachloroethylene (PCE). Neither of these parent compounds were detected in any of the water samples. The presence of cis-1,2-DCE in the water samples from the New Brunswick shaft could be due to two potential sources. One potential source is historic solvent use within the New Brunswick mine for equipment repair or maintenance. Any residual solvent could have broken down into cis-1,2-DCE within the reducing conditions that occur within the water in the mine. The second potential source is seepage of shallow groundwater into the New Brunswick shaft from the adjacent former SPI Mill site, located to the southeast. The Mill site was known to have industrial solvent impacts, including cis-1,2-DCE, in shallow groundwater in the past (SPI, 1999). The shaft has a general downward flow path to allow water seeping into the shaft from shallow depths to flow toward the other mines through tunnels at greater depths (see discussion in Section 3.5). The consistent presence and relatively uniform concentration of the cis-1,2-DCE indicates that if the source was due to historic solvent use in the New Brunswick mine, then the solvent use would have had to occur primarily within the shaft above the shallowest mine workings connected to the shaft, at the 580FT level of the mine, or occurred relatively uniformly throughout the entire mine, both of which seem unlikely. Thus, the most likely source for the cis-1,2-DCE in the New Brunswick shaft is seepage of shallow groundwater from the Mill site into the upper part of the shaft and downward movement of this seepage within the shaft.

Previous water quality sampling was conducted in 1991 from the drains and the New Brunswick shaft (Condor, 1994). In 2006, IMMC conducted groundwater sampling at several depths from the New Brunswick shaft, as reported by Walker and Associates, Inc. (2008). The reported water quality from 1991 and 2006 is consistent with the findings presented in this report. Thus, there does not appear to be any significant change in the water quality in the shaft, drains, or creeks over the last two to three decades.

3.4.1.2 Surface Water Chemistry

Surface water within Wolf Creek and South Fork Wolf Creek may come from three distinct sources. These sources are stormwater runoff from within the respective watersheds, discharge of groundwater through fractures and drains, and transfer of water from other watersheds through the NID canal system. Each of these water sources is expected to have a different water chemistry. As a result, the water chemistry measured in the creeks may vary seasonally or over time, depending primarily on the amount of local rainfall and the magnitude and duration of NID canal releases.

During February 2018, NID releases to Wolf Creek from the DS Canal were low, in the range of 2.5 cfs (see Figure 3.5). Rainfall in February 2018 was 0.75 inches. During December 2018, NID releases to Wolf Creek from the DS Canal were very low, typically 1.5 cfs or less (see Figure 3.5). Rainfall in December 2018 was 4.72 inches. During April 2019, NID was increasing the rate of water releases to Wolf Creek from the DS Canal, with flows increasing from 5 cfs to over 19 cfs from April 1, 2019 to April 17, 2019 (see Figure 3.5). Rainfall in April 2019 was 2.89 inches.

Based on the NID releases to Wolf Creek and rainfall amounts, the flows in Wolf Creek in February 2018 were most likely a combination of groundwater discharge and local stormwater runoff. The flows in Wolf Creek in December 2018 were also most likely a combination of groundwater discharge and local stormwater runoff. In contrast, the discharges from the DS Canal in April 2019 indicate that almost 40 percent of the total 50 cfs flow at the Centennial Drive bridge was canal water from NID Upper Division sources at higher elevations, as described in Section 3.2.

Field measurements indicate the pH in Wolf Creek ranges from 6.8 to 7.53 (Table 3.8). However, looking at individual sampling events on Wolf Creek, in February 2018 the pH ranged from 7.06 to 7.33, in December 2018 the pH ranged from 7.45 to 7.53, and in April 2019 the pH ranged from 7.19 to 7.50. In addition, the pH in Wolf Creek tends to decrease slightly from upstream to downstream during individual sampling events. As reported in Section 3.4.1.1, above, the pH levels in the groundwater in the New Brunswick shaft and flowing from the drains are generally lower than the pH at the upstream sample location on Wolf Creek. Thus, the decreasing pH trend in the downstream direction is consistent with groundwater discharge mixing with the upstream flow in Wolf Creek.

Table 3-8 Water Quality Field Measurements, Surface Water Sites, Idaho-Maryland Mine Project

Field Parameters	Units	WC-Up	Wolf Creek at IMD-1		Wolf Creek at Centennial Drive Bridge			Wolf Creek where D-1 discharge enters creek	WC-Down
		18/12/2018	15/02/2018	17/04/2019	18/12/2018	17/04/2019	08/08/2019	13/02/2018	18/12/2018
Temperature	Degrees C	9.73	5.6	9.64	8.53	9.07	13.05	7.3	9.42
Specific Conductance (EC)	umhos/cm	180	69	76	115	53	35	92	126
Dissolved Oxygen	Percent Saturation	105.7	83.9	88.8	111.9	88.4	110.8	91.6	101.3
Dissolved Oxygen	mg/L	11.99	10.57	9.4	13.07	9.26	10.54	11.05	11.58
pH	std units	7.53	7.33	7.5	7.49	7.27	6.8	7.06	7.45
Oxidation-Reduction Potential	mV	103.6	-7.3	32	-13.5	155.5	148	-13.3	59.7

Field Parameters	Units	Wolf Creek at Vet Hospital below DiMartini	South Fork Wolf Creek along Brunswick Rd prior to entering SPI culvert	Clay-Lined Pond at SPI	Culvert discharge to South Fork Wolf Creek (SPI discharge)			South Fork Wolf Creek below SPI Site	South Fork Wolf Creek at Drill Pad	
		17/04/2019	15/02/2018	15/02/2018	15/02/2018	17/04/2019	08/08/2019	15/02/2018	17/04/2019	08/08/2019
Temperature	Degrees C	12.17	8.4	8.1	8.8	12.24	14.75	8.7	12.22	15.21
Specific Conductance (EC)	umhos/cm	65	46	209	68	54	85	68	79	93
Dissolved Oxygen	Percent Saturation	95.8	95	90.3	99.9	93.3	86.7	109	95.7	98.9
Dissolved Oxygen	mg/L	9.4	11.1	10.67	11.6	9.03	7.87	12.6	9.29	9.1
pH	std units	7.19	5.78	7.1	6.68	6.55	6.79	6.78	7.17	7.00
Oxidation-Reduction Potential	mV	79.9	60.8	22.9	-28.3	98.7	12	-22.4	88	108.4

Locations:

IMD-1: Corrugated steel culvert in Wolf Creek just west of Roto-Rooter building

D-1: Unnamed drain on north side of Idaho-Maryland Rd across from Roto-Rooter building

SPI Site: Former Sierra Pacific Industries sawmill

WC-Up: Wolf Creek east of intersection of Idaho-Maryland Rd and Sutton Way

WC-Down: Wolf Creek east of driveway to RV sales lot

In the South Fork Wolf Creek, field pH values tend to be slightly more acidic than they are in Wolf Creek, ranging from 5.78 to 7.17 (Table 3.8). Within individual sampling events, the pH in South Fork Wolf Creek ranged from 5.78 to 6.78 in February 2018, from 6.55 to 7.17 in April 2019, and from 6.79 to 7.00 in August 2019. However, due to limited overlap in the sampling locations and only two repeat sample locations along South Fork Wolf Creek between the February 2018 and August 2019 measurements, there is currently insufficient data to make definitive conclusions about the variability of pH over time. For both sampling events, though, the pH level increased from upstream to downstream. As reported in Section 3.4.1.1, above, the pH levels in the groundwater in the New Brunswick shaft are consistently higher than the pH at the upstream sample location on South Fork Wolf Creek. Thus, the increasing pH trend in the downstream direction is consistent with groundwater discharge mixing with the upstream flow in South Fork Wolf Creek.

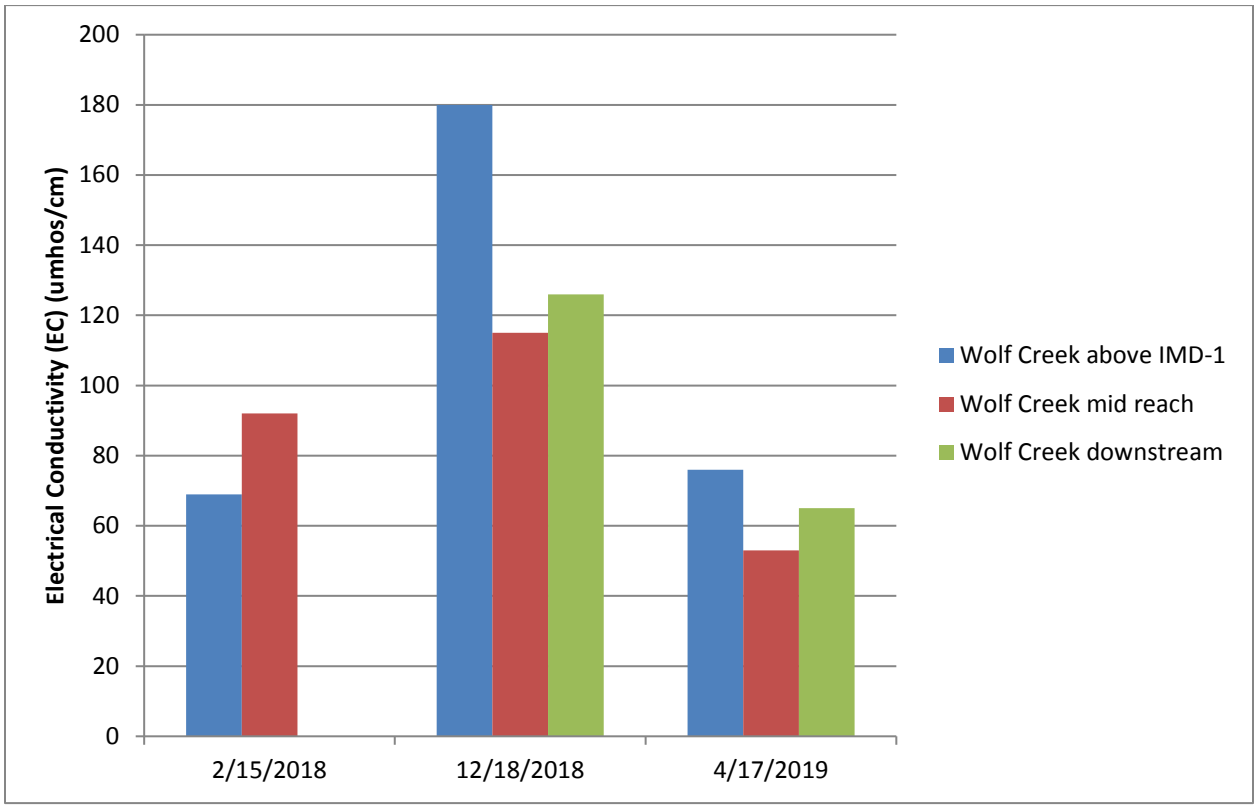
Similar to pH, ORP values vary by location upstream and downstream, and by measurement event. In Wolf Creek, the ORP levels were consistently negative (i.e. reducing) in February 2018 (Table 3.8). In December 2018, the ORP was positive in the upstream sample location, negative at the Centennial Drive bridge, and positive again at the downstream sample location (Table 3.8). In April 2019 and August 2019, the ORP values were positive at all locations monitored (Table 3.8). As discussed in Section 3.4.1.1, above, the ORP in the New Brunswick shaft and in the water from the drains is strongly reducing (i.e. very negative). Based on the ORP values, in February 2018 the flow in Wolf Creek was strongly influenced by groundwater and water from the drains. In December 2018, only the segment of Wolf Creek near Centennial Drive had an observable groundwater component. In April 2019 and August 2019, the large flow contribution from the DS Canal was apparently greater than any discharge of groundwater and flow from the drains, since the ORP values were consistently positive.

Along South Fork Wolf Creek, the ORP values vary by measurement event (see Table 3.8). In February 2018, the ORP was positive at a location upstream of the Mill site along Brunswick Road, but the ORP was negative in the water flowing out of the culvert that passes under the former SPI site and at a location downstream from the end of the culvert. In April 2019 and August 2019, the ORP in South Fork Wolf Creek was positive in the flow coming out of the end of the culvert and at a location downstream from the culvert. The ORP results from South Fork Wolf Creek suggest the following:

- Groundwater discharge and surface runoff from the upstream areas emanating from the Tertiary andesite that caps the underlying metamorphic rocks and from the Mariposa Formation has a positive ORP value;
- During February 2018, groundwater discharge was a major contributor to the flow within South Fork Wolf Creek downstream of Brunswick Road, as evidenced by the negative ORP values;
- During April 2019, surface runoff dominated the flow in South Fork Wolf Creek, based on the positive ORP values; and
- The negative ORP values in the water flowing from the end of the culvert that passes under the Mill site in February 2018, compared with the positive ORP values upstream of the culvert on the same date, indicate that the culvert is “leaky” and groundwater may readily enter the culvert as it passes under the Mill site.

The effect of surface runoff, discharge from the drains and of groundwater, and NID releases from the DS Canal are also apparent in the electrical conductivity (EC) measurements from Wolf Creek. Figure 3.11 shows the available field EC values for upstream, mid-stream, and downstream locations relative to the Idaho site. Higher EC values are most prevalent in December 2018, most likely due to a greater proportion of groundwater discharge and flow from the drains compared to local runoff early in the rainy season. Lower EC values in April 2019 reflect the high proportion of flow due to NID releases to Wolf Creek from the DS Canal.

Figure 3-11 Changes in EC in Wolf Creek Over Time



Acute toxicity tests conducted on the three samples from Wolf Creek collected in December 2018 all had a 100 percent survival rate for rainbow trout (Table 3.7).

For samples collected from Wolf Creek in December 2018, the iron concentration ranged from 240 µg/L in the upstream sample to 310 µg/L in the downstream sample and the manganese concentration ranged from 15 µg/L in the upstream sample to 35 µg/L in the downstream sample (Table 3.7). The increasing concentration from upstream to downstream is indicative of the increasing proportion of groundwater discharge and flow from the drains as Wolf Creek passes through the project site area. A downstream sample was also collected from Wolf Creek in April 2019, with iron present at 220 µg/L and manganese present at 21 µg/L (Table 3.9). The lower iron and manganese concentrations in the downstream sample

in April 2019 reflect the greater proportion of flow due to releases from the DS Canal into Wolf Creek at that time, compared to December 2018.

Table 3-9 April 2019 Laboratory Analytical Results, Idaho-Maryland Mine Project

Laboratory Parameters	Units	IMD-1	SF Culvert	SF Pad	WC-D
		4/17/2019	4/17/2019	4/17/2019	4/17/2019
General Chemistry					
Ammonia as N	ug/L	87	40	<100	<100
Bicarbonate as Ca CO3	mg/L	240	23	32	27
Calcium	mg/L	46	4.6	7.1	5.1
Carbonate as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0
Chloride	mg/L	2.3	2.7	2.4	2
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10
Hardness as CaCO3	mg/L	120	11	18	13
Hydroxide as CaCO3	mg/L	<5.0	<5.0	<5.0	<5.0
Magnesium	mg/L	18	1.8	2.9	2.8
MBAS	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrate as N	mg/L	<0.40	<0.40	<0.40	<0.40
pH (lab)	std units	7.2	6.82	7.38	7.55
Potassium	mg/L	2.4	1.7	1.5	<1.0
Sodium	mg/L	11	3.1	2.9	2.5
Specific Conductance (lab)	umhos/cm	450	68	82	69
Sulfate as SO4	mg/L	0.91	1.3	2.5	2.3
Total Alkalinity	mg/L	240	23	32	27
Total Dissolved Solids	mg/L	250	58	64	56
Metals					
Aluminum	ug/L	<50	210	130	130
Antimony	ug/L	<4.0	<4.0	<4.0	<4.0
Arsenic	ug/L	38	<2.0	<2.0	<2.0
Barium	ug/L	130	<100	<100	<100
Beryllium	ug/L	<1.0	<1.0	<1.0	<1.0
Boron	ug/L	110	<100	<100	<100
Cadmium	ug/L	<1.0	<1.0	<1.0	<1.0
Chromium	ug/L	<10	<10	<10	<10
Copper	ug/L	<50	<50	<50	<50
Iron	ug/L	1800	940	310	220
Lead	ug/L	<5.0	<5.0	<5.0	<5.0
Manganese	ug/L	180	140	57	21
Mercury	ug/L	<1.0	<1.0	<1.0	<1.0
Nickel	ug/L	<10	<10	<10	<10
Selenium	ug/L	<5.0	<5.0	<5.0	<5.0
Silver	ug/L	<10	<10	<10	<10
Thallium	ug/L	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/L	<3.0	<3.0	<3.0	<3.0
Zinc	ug/L	<50	<50	<50	<50

Within South Fork Wolf Creek, the samples from April 2019 contained iron at 940 μg/L in the sample collected from the downstream end of the culvert passing under the former SPI site and 310 μg/L in the sample collected downstream near the drill pad location (Table 3.9). The manganese concentration ranged from 140 μg/L in the sample collected from the downstream end of the culvert passing under the former SPI site to 57 μg/L in the downstream sample (Table 3.9). The higher iron and manganese concentration in the water flowing out of the culvert may be reflective of groundwater seeping into the "leaky" culvert, as described above, whereas the lower concentrations downstream may be due to dilution by surface water flows from the smaller creek that joins the South Fork between these two locations (see discussion in Section 3.2).

The arsenic concentration does not exceed the MCL or NPDES effluent limit in any of the samples from Wolf Creek and South Fork Wolf Creek (Tables 3.7 and 3.9).

Table 3-10 Streamflow and General Water Quality Parameters, South Fork Wolf Creek (Balance, 2020)

Date (MM/DD/YYYY)	Location	Flow (cfs)	Temp (deg C)	Specific Conductance (μsiemens)	pH	Turbidity (NTU)	Flow Condition
9/25/2019	Reach B	0.17	13	93	7.57	NM	Summer Baseflow
	Reach F	0.4	15.3	156	7.8	NM	
12/10/2019	Reach B	NM	NM	NM	NM	NM	Post-storm
	Reach F	3.11	6.7	123	6.68	2.2	
1/24/2020	Reach B	1.56	10.5	126	7.7	9.4	Winter Baseflow
	Reach F	2.53	9.3	174	7.46	4.5	
1/26/2020	Reach B	11.0	8.7	76	7.34	125	Storm Rising Limb
	Reach F	15.3	8.6	97	7.31	115	
1/26/2020	Reach B	9.76	NM	NM	NM	79	Peak Storm Flow (1)
	Reach F	17.3	8.6	99	7.67	48	

Reach B - location of proposed treated water discharge
Reach F - at entrance to box culvert at Ophir Street
NM - Not Measured
(1) - Storm was appx. 1.25 inches in 12 hours

Measurements made by Balance (2020) in South Fork Wolf Creek during different flow conditions indicate that turbidity tends to increase with increases in flow, as expected due to the increasing flow velocity of the water in the creek (Table 3.10). During non-storm periods, the turbidity was less than 10 NTU. During the relatively minor storm event that was monitored, turbidity increased to as much as 125 NTU. The turbidity values were also higher in the upstream location, at the proposed treated water discharge point, than they were at the downstream location. This finding suggests that there are existing sources of fine sediment located upstream of the proposed discharge location and additional runoff that enters South Fork Wolf Creek as the flow moves downstream tends to dilute the turbidity from upstream.

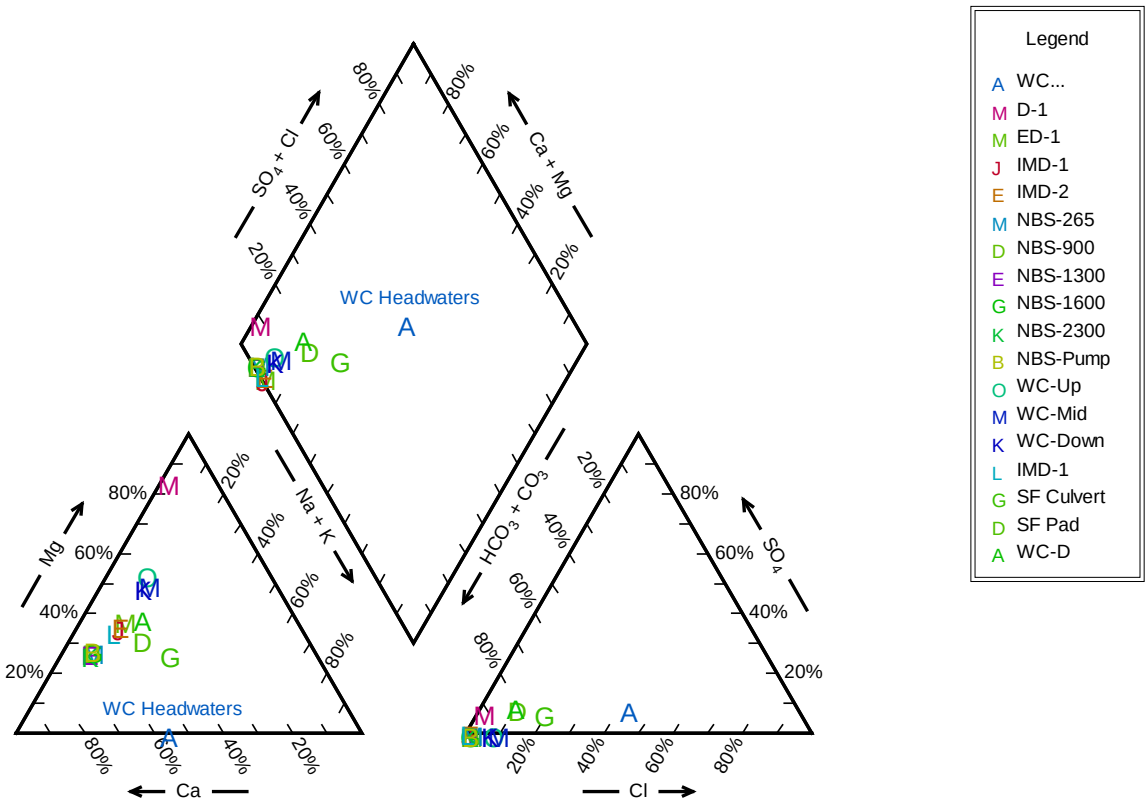
Specific conductance and pH do not appear to be correlated to flow rates in South Fork Wolf Creek (Table 3.10). However, the specific conductance does tend to be higher at the downstream sample location. The higher conductance is indicative of increasing levels of dissolved solids in the water within the creek as it flows downstream. Higher levels of dissolved solids could be due to increased contribution to the flow from groundwater discharge.

3.4.2 Water Chemistry Graphical Interpretation

Graphical interpretation of water quality can be conducted using methods such as Piper Diagrams and Stiff Plots. These graphical formats are standard methods for the interpretation of water types and water quality, as described by the U.S. Geological Survey (Hem, 1989). The plots compare the relative abundance of the positively-charged ions (referred to as cations) of magnesium, calcium, sodium, and potassium in a water sample with the relative abundance of the negatively-charged ions (referred to as anions) of sulfate, bicarbonate, carbonate, and chloride in the same sample.

Figure 3.12 is a Piper Diagram showing all of the water samples collected by EMKO. In addition to the February 2018, December 2018, and April 2019 samples described above, the Piper Diagram also includes the data from a sample collected from the headwaters of Wolf Creek (labeled "WC Headwaters" on Figure 3.12) near Dobbins Drive and north of Idaho-Maryland Road. The headwater sample location is approximately 3 miles upstream (northeast) of the intersection of Centennial Drive and Idaho-Maryland Road (EMKO, 2011). Two of the samples on the Piper Diagram appear to be outliers. One is the sample from the headwaters of Wolf Creek. Whereas the other samples are primarily magnesium or calcium-bicarbonate waters, the headwaters sample contains appreciable levels of sodium and chloride. The other outlier is the sample from the D-1 drain, based on its plotted position relative to other sample locations in the lower left-hand triangle on the Piper Diagram (Figure 3.12). The sample from the D-1 drain contains a substantially greater proportion of magnesium compared to calcium than in the other drain, shaft, and creek samples. Therefore, the water from D-1 appears to be from a different source than the water from the other three drain samples, which is consistent with the observation regarding the ORP value from D-1 as discussed in Section 3.4.1.1.

Figure 3-12 Piper Diagram of Water Quality Data



Samples collected from all depths within the New Brunswick shaft plot in the same position on each of the three components of the Piper Diagram (Figure 3.12). The Stiff Plots for the shaft water samples (Figures 3.13 and 3.14) show a distinctive calcium-bicarbonate plot shape that is nearly identical for all sample depths. The virtually identical water chemistry signature at all depths in the shaft is consistent with the conceptual model discussed in Section 3.5, below. Percolation of rainfall through the shallow fractures within the Brunswick Porphyrite Block would become enriched in calcium and carbonate-related chemical species (in this case, bicarbonate), in accordance with the mineralogy of the rock and veining, as described in Section 3.1. Continued downward movement through the shaft toward the B2300 and B3280 levels would maintain a consistent water chemistry signature, as reflected in the Stiff Plots on Figures 3.13 and 3.14. If the water was not continuously moving downward through the shaft, the deeper water would have a higher mineral content due to longer contact time with the surrounding rock, resulting in more elongated Stiff Plots in the deeper shaft samples than in the shallow shaft samples.

Figure 3-13 Stiff Plots for New Brunswick Shaft Samples NBS-265, NBS-900, and NBS-1300

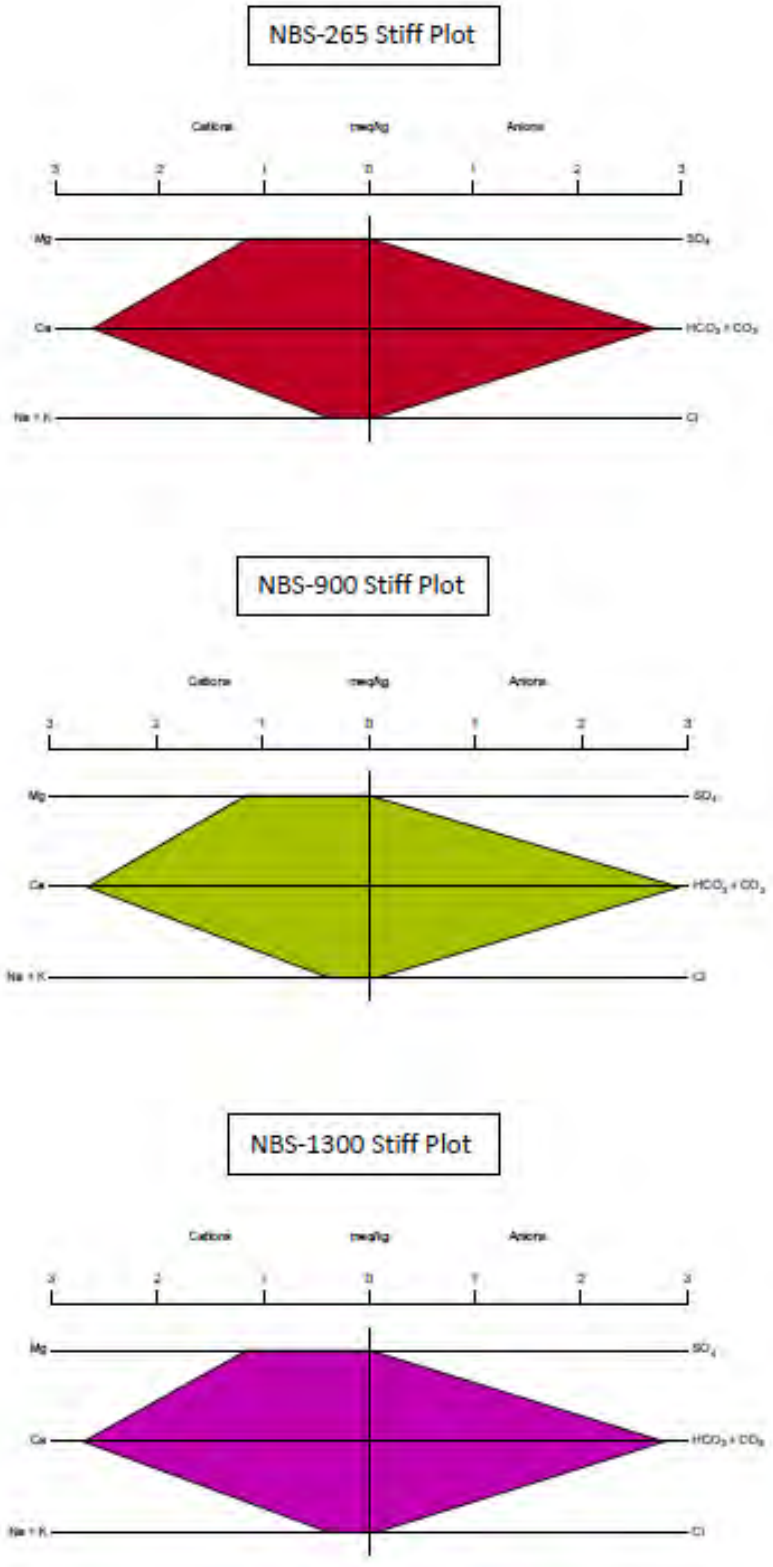
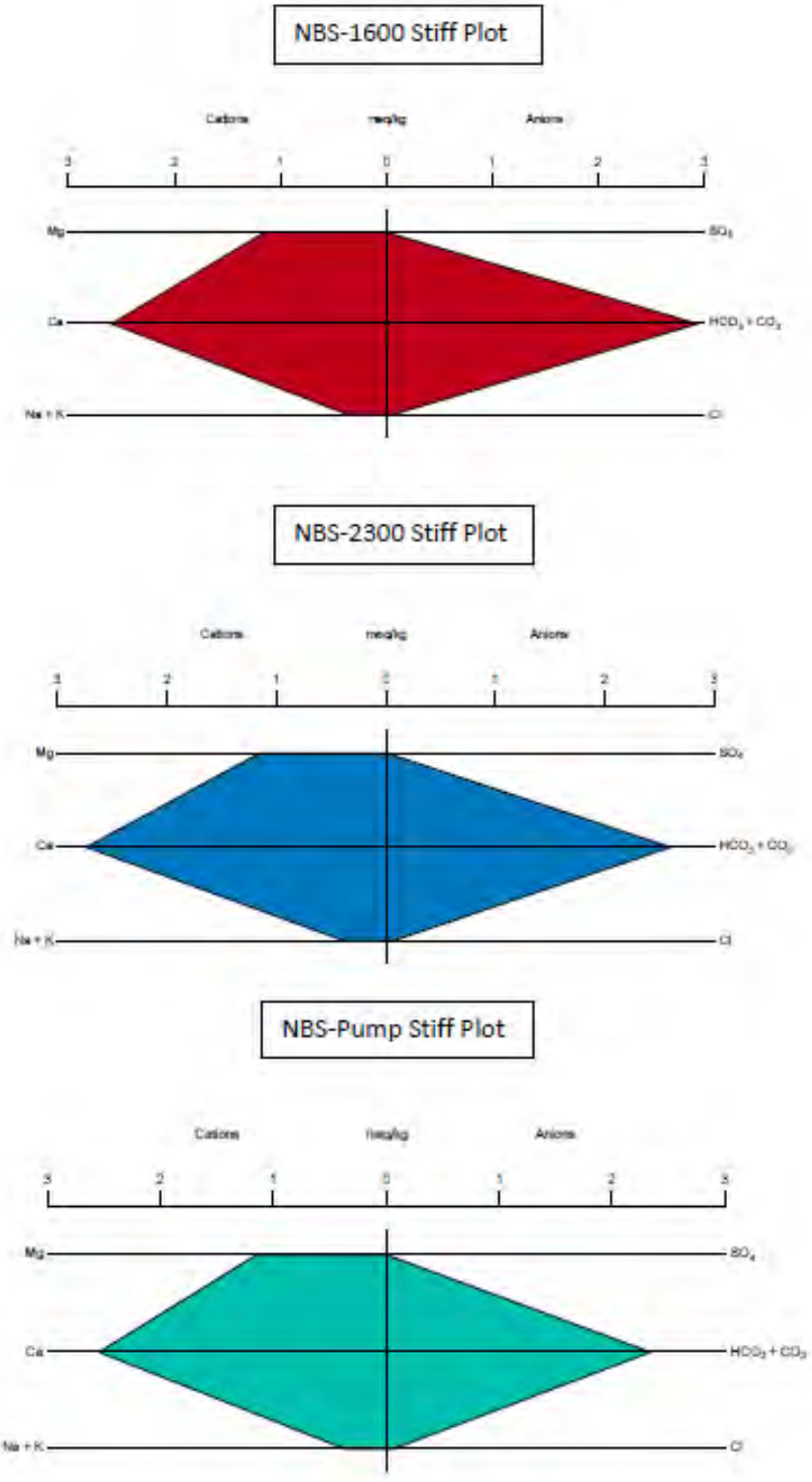


Figure 3-14 Stiff Plots for New Brunswick Shaft Samples NBS-1600, NBS-2300, and NBS-Pump



Samples collected from the ED-1, IMD-1, and IMD-2 drains plot in the same position on each of the three components of the Piper Diagram (Figure 3.12). The Stiff Plots for these three drain samples (Figures 3.15 and 3.16) show a mixed calcium and magnesium-bicarbonate water type, with the Stiff Plot shape being almost identical for all three drain samples and for both sample events for IMD-1. The nearly identical water chemistry signature from the three drains indicates that they are all sourced from the same underground mine workings. As discussed in Section 3.3.3, the water flowing from the drains is interpreted to be coming from the combined Eureka-Idaho-Maryland-Brunswick underground workings. As discussed above, the water that is entering the underground workings via the New Brunswick shaft is a calcium-bicarbonate water due to the mineralogy of the surrounding rock. Much of the Eureka, Idaho, and Maryland underground workings are within more mafic gabbro and serpentinite rocks, which have a higher magnesium content, as described in Section 3.1. Thus, as the calcium-bicarbonate water from the New Brunswick shaft area moves into the other underground workings, the Stiff Plots suggest that the magnesium content of the water increases due to the change in rock type through which the water is passing. The transition from a calcium-bicarbonate water in the New Brunswick shaft to a mixed calcium and magnesium-bicarbonate water is consistent with and supports the conceptual model of groundwater movement through the underground workings, as described in Section 3.4.5, below.

Figure 3-15 Stiff Plots for Drain Samples – ED-1 and IMD-2 February 2018

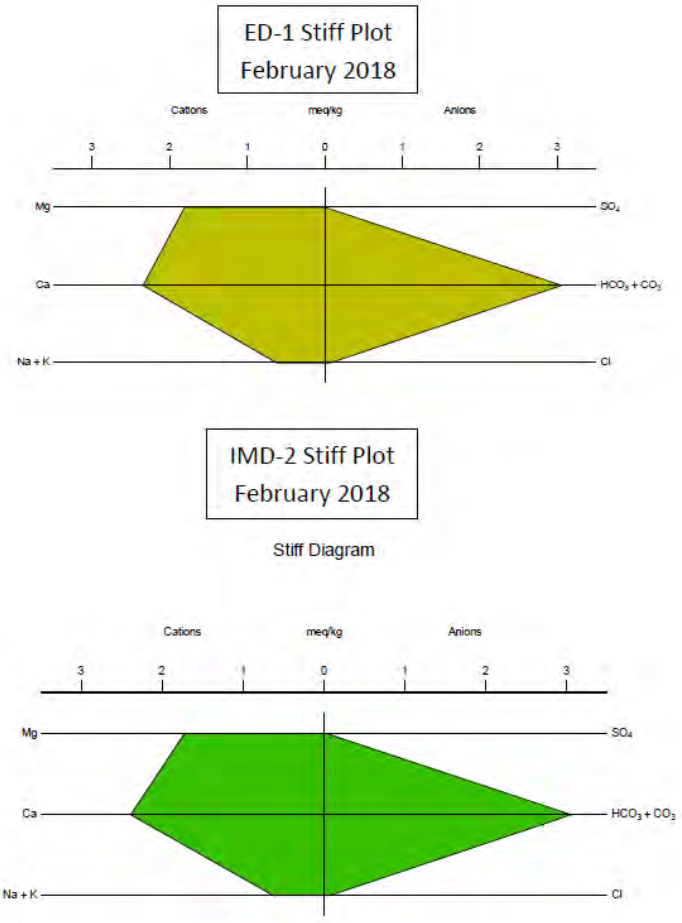
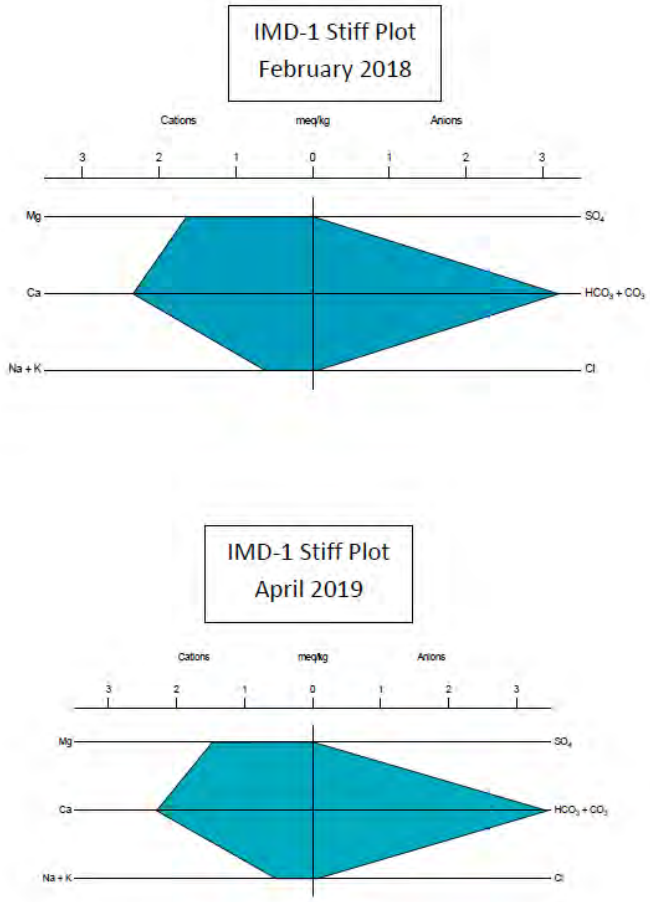


Figure 3-16 Stiff Plots for Drain Samples – IMD-1 February 2018 and April 2019



The three different samples collected along Wolf Creek in the project area in December 2018 plot in the same position on each of the three components of the Piper Diagram (Figure 3.12). However, the downstream sample collected in April 2019 plots in a slightly different position on the Piper Diagram. The Stiff Plots on Figures 3.17 and 3.18 for the Wolf Creek samples show that the December 2018 samples are all a magnesium-bicarbonate water type, with a relatively high proportion of calcium and little or no sulfate. Immediately upstream of and within the Project area, Wolf Creek flows over the gabbro and serpentinite deposits described in Section 3.1. These geologic units, along with discharge of groundwater and water from the drains, apparently impart a magnesium signature on the water and alter it from that observed in the headwaters sample, described above. However, the April 2019 sample from the downstream location has an appreciably lower TDS level than the December 2018 samples from Wolf Creek, with a decrease in the proportion of magnesium to calcium, and an increase in sulfate. The change in the general water chemistry within Wolf Creek in April 2019 can be attributed to the release of water from the DS Canal, as described in Section 3.2.

Addition of the water from the drains into Wolf Creek also alters other water chemistry parameters, beyond just the proportion of calcium relative to magnesium. As can be seen in Tables 3.7 and 3.8, the

most upstream sample from Wolf Creek has the highest pH, temperature, and concentration of total dissolved solids (TDS). In the midstream and downstream samples, the addition of the water from the drains appears to slightly reduce the pH and temperature and to appreciably reduce the TDS concentration, which are all positive effects on water quality. With respect to metals, the addition of the drain water to the creek slightly increases the levels of arsenic, iron, and manganese, while slightly decreasing the levels of copper, nickel and zinc. Despite these changes, the reported concentrations of all metals and other constituents in the Wolf Creek samples are well below the NPDES water quality standards.

Figure 3-17 Stiff Plots for Wolf Creek Samples – WC-Up and WC-Mid December 2018

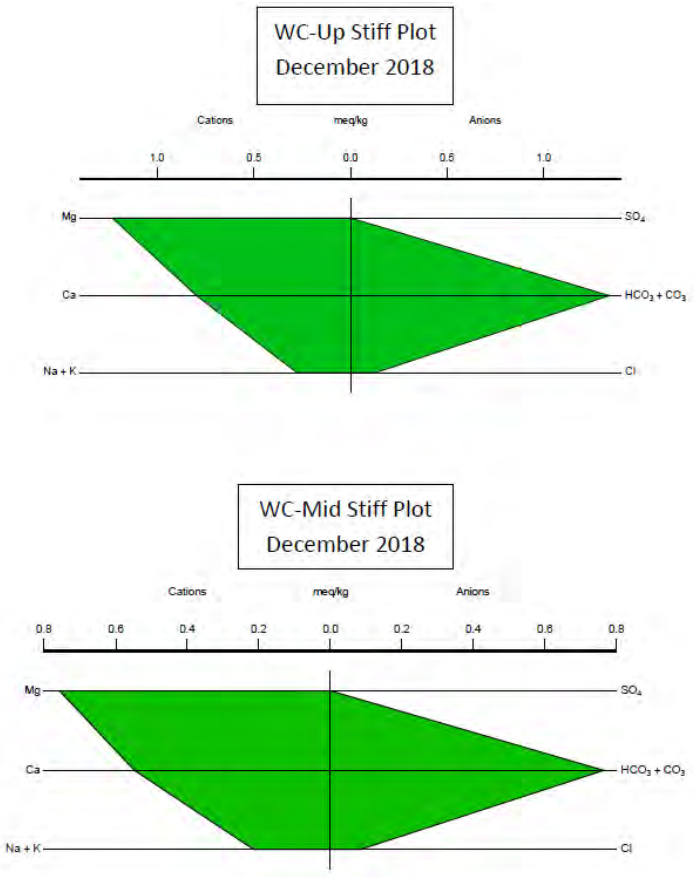
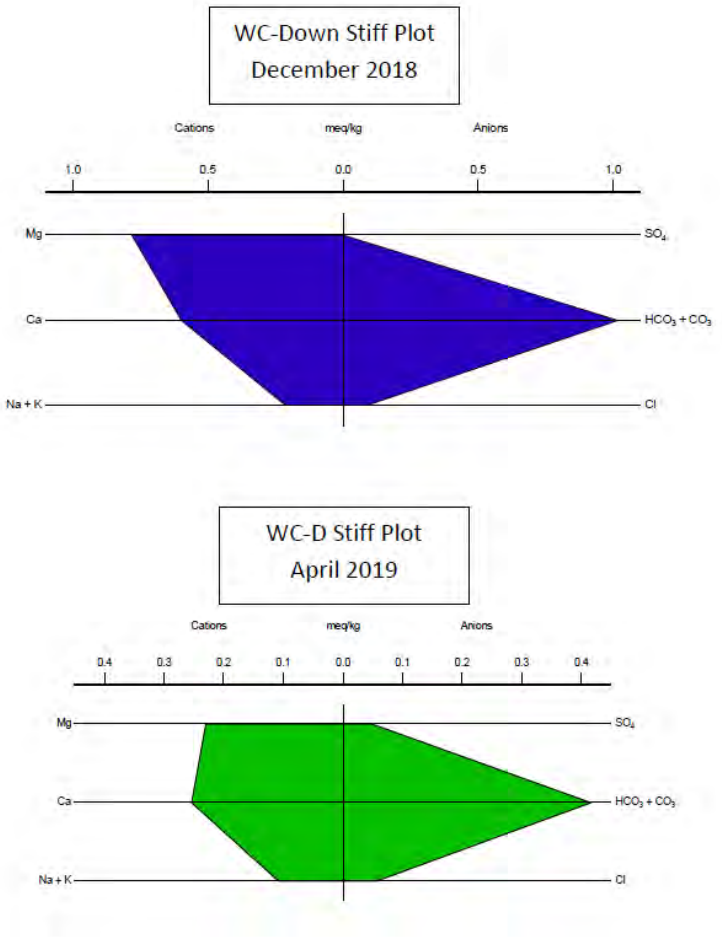
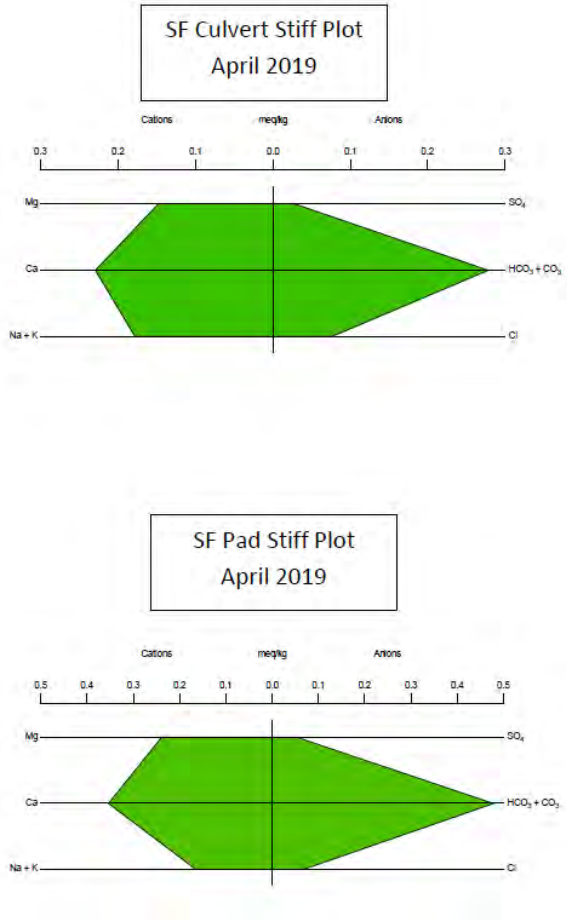


Figure 3-18 Stiff Plots for Wolf Creek Samples – WC-Down December 2018 and WC-Down April 2019



The two samples collected in April 2019 from South Fork Wolf Creek plot near each other on the Piper Diagram but are not identical (Figure 3.12). As indicated on the Stiff Plots on Figure 3.19, both samples are predominantly a calcium-bicarbonate water type. However, the sample from the culvert that passes under the former SPI site contains a higher proportion of sodium and chloride than the downstream sample collected near the drill pad location (see Sheet 2 for locations). The water chemistry of the culvert sample is consistent with mixing of upstream water from the area of Tertiary andesite and the Mariposa Formation (similar to the WC Headwaters sample) and groundwater that is seeping into the "leaky" culvert. In the downstream sample from near the drill pad, the sodium and chloride are diluted by surface inflows from the tributary creek and additional groundwater discharge to South Fork Wolf Creek.

Figure 3-19 Stiff Plots for South Fork Wolf Creek Samples – SF Culvert and SF Pad, April 2019



3.5 Conceptualization of Groundwater Movement

The existing geology, surface water, and groundwater conditions, as described in Sections 3.1 through 3.4, above, have been used to develop a conceptual model of groundwater movement in the fractured bedrock and existing underground mine workings. The conceptual model described below encompasses the environmental setting and provides a framework for evaluation of potential project effects with respect to hydrology and water quality.

3.5.1 Groundwater Flow in Fractured Bedrock

The primary mechanism of groundwater recharge is percolation of local rainfall through fractures in the bedrock. Since these fractures are open from the ground surface down to the water table, these same fractures would also allow groundwater to discharge to the surface in locations where the ground surface elevation is below the elevation of the groundwater.

The groundwater surface elevation in the three areas of private domestic wells in the Wolf Creek and South Fork Wolf Creek watersheds, as described in Section 3.3.2.1, is consistently above the elevation of

the creeks within the watersheds. The groundwater surface elevations in the East Bennett, Beaver Drive, and Greenhorn areas range from 2,700 ft msl in the west (downslope) part of the East Bennett area to as high as 3,000 ft msl in the east (upslope) part of the Greenhorn area. At the Union Hill shaft, the elevation of the creek bed of South Fork Wolf Creek is approximately 2,655 ft msl. Thus, at that location South Fork Wolf Creek is 45 feet to 345 feet lower than the groundwater surface elevation at the domestic well locations. At Centennial Drive, the elevation of the creek bed of Wolf Creek is approximately 2495 ft msl. Only the northwestern part of the East Bennett area is within the Wolf Creek watershed. As such, Wolf Creek along the Centennial site area is 205 feet to 355 feet lower than the groundwater surface elevation in parts of the East Bennett area where groundwater may flow toward Wolf Creek.

EMKO estimated the baseline, or existing, groundwater volumes that may flow through the fractured bedrock toward the creeks. Groundwater flow is calculated using Darcy's Law (Domenico and Schwartz, 1990), which states that the flow (Q) is equivalent to the hydraulic conductivity of the aquifer (K) times the hydraulic gradient (i), which is the slope of the groundwater surface, times the area (A) across which the groundwater is flowing:

$$Q = K * i * A$$

The data presented on Figure 3.10 indicate that the average hydraulic conductivity of the shallow bedrock (above a depth of 200 ft bgs) is approximately 10 gpd/ft^2 (Todd Engineers, 2007). In the South Fork Wolf Creek watershed, the average height of the groundwater surface above the creek is about 250 feet while the median distance from the domestic wells to the creek is about 5,000 feet, indicating that the hydraulic gradient is about 0.05 ft/ft. The total area across which groundwater may be flowing toward South Fork Wolf Creek is estimated to be 10,000 feet wide, around the upper perimeter of the watershed, by 200 feet high. Based on these parameters, the average discharge of groundwater to South Fork Wolf Creek from the three areas of domestic supply wells is approximately 1,000,000 gallons per day, or about 1.5 cfs.

For Wolf Creek, the average height of the groundwater surface above the creek elevation is about 275 feet while the distance from the New Brunswick shaft to Wolf Creek is approximately 7,800 feet. Thus, the hydraulic gradient is approximately 0.035 ft/ft. The length along Wolf Creek where groundwater from the project area may discharge is up to 2,000 feet long and up to 275 feet high, or 550,000 ft^2. Applying Darcy's Law, as defined above, the total outflow of groundwater to Wolf Creek from the project area under existing conditions is approximately 192,500 gallons per day, or about 0.3 cfs.

As discussed in Section 3.2, groundwater recharge averages about 10 to 12 inches per year in the project area, or about one acre-foot per acre. The area of the South Fork Wolf Creek watershed above the box culvert that starts at Ophir Drive in the City of Grass Valley is approximately 1,500 acres (see Section 3.2). Thus, groundwater recharge is in the range of 1,250 to 1,500 acre-feet per year. There may be approximately 80 domestic supply wells in the South Fork Wolf Creek watershed above the project area (see Section 3.3.2.2). The consumptive water use related to the domestic supply wells is unknown but could be in the range of one to two acre-feet per year per well, on average, considering that some of the properties in the Greenhorn area are zoned agricultural. Discounting the potential domestic and

agricultural water use, the net groundwater recharge may be equivalent to an average annual rate of about 1.50 cfs to 1.75 cfs, which is within the range of the rate of groundwater discharge to South Fork Wolf Creek, as described above. Since the rate of groundwater discharge, calculated using Darcy's Law, and the rate of groundwater recharge are generally within the same range, the groundwater in storage within the bedrock fractures is in balance and there should be no long-term trends of increasing or decreasing groundwater levels, outside of normal seasonal fluctuations. As discussed in Section 3.3.2.1, the groundwater levels in the domestic wells are stable over time and do not exhibit long-term increasing or decreasing trends, which is consistent with the discharge and recharge calculations.

The area that discharges to Wolf Creek parallel to and north of East Bennett Drive, overlying much of the existing underground mine workings, is about 225 acres, so that annual average groundwater recharge for this area is in the range of 185 to 225 acre feet per year. This volume of groundwater recharge is equivalent to an average annual rate of about 0.3 cfs, which is consistent with the rate of groundwater discharge to Wolf Creek within the project area. Thus, the rates of groundwater discharge and groundwater recharge are in balance in the part of the Wolf Creek watershed that includes the project area, consistent with the trends observed in the domestic supply wells.

While the rate of groundwater discharge to the creeks may remain relatively constant from year to year, the proportion of groundwater within the creeks will vary seasonally, depending on the amount of local runoff and the amount of NID canal water released to the creeks. As discussed in Section 3.4, the groundwater has a distinct chemistry signature dominated by reducing conditions and elevated levels of iron and manganese. Thus, the water quality within the creeks will vary seasonally depending on the proportion of groundwater that makes up the total flow in the creeks. As discussed in Section 3.4.1.3, these variations are most apparent in the EC and the ORP values measured in the creeks, but will also occur in other parameters, such as iron and manganese.

3.5.2 Groundwater Movement in Mine Workings

As discussed in Section 3.3.4, the transmissivity and hydraulic conductivity of the fractured bedrock decrease rapidly with depth. Based on the transmissivity values shown on Figure 3.9 and the hydraulic conductivity values shown on Figure 3.10, at least 99 percent of natural groundwater flow in the bedrock fractures occurs above a depth of 500 ft bgs in the project area. However, the extensive underground mine workings, as described in Section 3.3.3, provide another mechanism for groundwater to move through the project area.

The elevation of the water in the New Brunswick shaft averages 2,497 ft msl, as discussed in Section 3.3.3.3. This elevation is about 25 feet to 265 feet below the static water level in the domestic supply wells in the East Bennett area (see Section 3.3.2.1). Thus, the underground workings connected to the New Brunswick shaft must have a connection to a point that allows the workings to be drained, resulting in a lower water level in the shaft than in the wells in the surrounding bedrock.

Groundwater in the Brunswick Mine, as observed in the New Brunswick shaft, has a pathway to flow to the drains along Wolf Creek through the B2300 and B3280 levels (see Figure 3.20). Due to the direct hydraulic connection of relatively large open voids, the static water level in all the interconnected mine

workings should be at approximately the same elevation. The elevations of the East Eureka drain (IMD-1) and Eureka drain (ED-1) range from approximately 2,497 ft msl to 2,502 ft msl, respectively. These elevations are comparable to the water levels measured by EMKO in the New Brunswick shaft in February 2019 and April 2019, and to the median water level for the measurements made by IMMC from 2003 to 2006, as described in Section 3.3.3.3. Field observations made by EMKO in 2018 and 2019 as part of this investigation and descriptions by Todd Engineers (2007) indicate that the total flow from the drains may range from 60 gpm to 125 gpm (0.13 cfs to 0.28 cfs).

EMKO observed groundwater seeping into the New Brunswick shaft during sampling activities conducted in February 2018. To maintain a relatively constant water level in the underground mine workings, as reflected by the water level measurements reported from the New Brunswick shaft, the rate of water seepage into the shafts must be comparable to the rate that water is flowing from the drains. Otherwise, the water level in the shaft would increase or decrease over time, depending on whether the rate of inflow was greater than or less than the rate of discharge from the drains.

There are several vertical shafts that are part of the interconnected Eureka-Idaho-Maryland-Brunswick underground workings, as depicted on Figure 3.20. Todd Engineers (2007) has estimated that groundwater is seeping into each of the shafts at an average rate of approximately 20 gpm each. Observations made by EMKO in 2018 are consistent with this estimated rate of inflow for the New Brunswick shaft. If groundwater seepage is occurring from three or four shafts, as depicted on Figure 3.20, then the total rate of seepage into the shafts is in the same range as the outflow from the drains. Thus, groundwater that is seeping into the shafts above the water surface in the underground workings most likely migrates through the mine workings and eventually discharges at the drains along Wolf Creek.

This conceptualization of flow through the underground workings is also supported by the water chemistry data (Section 3.4). The overall general chemistry of the water sampled from the New Brunswick shaft and from the drains is comparable, especially with regard to TDS and ORP measurements (see Section 3.4.1.2). However, the concentrations of iron, manganese, and arsenic are higher in the drain samples than in the New Brunswick shaft. The increased metals concentrations at the drains could be a result of both longer contact time with the bedrock and different geochemistry in the gabbro and serpentinite in the Idaho Mine area compared to the geochemistry of the Brunswick Porphyrite Block, as discussed in Section 3.1. In particular, the relatively larger proportion of magnesium in the drain samples, compared to the samples from the New Brunswick shaft (see Section 3.4.2 and Figures 3.13 and 3.14 vs Figures 3.15 and 3.16), is consistent with the chemical composition of the gabbro and serpentinite.

Furthermore, Todd Engineers (2007) conducted an isotopic analysis of water samples from depths ranging between 580 ft bgs and 1,405 ft bgs in the New Brunswick shaft. The isotopic data indicates that the age of the groundwater in the shaft (i.e. time since recharge occurred) at all depths was less than five to 10 years. If the water in the shaft was static, and not constantly moving through the underground workings to the drains along Wolf Creek, then the water at deeper depths, below the zone of observed seepage, would be much older than the water in the shallower depths within the shaft. In addition, the young age of the groundwater in the shaft indicates that the groundwater in the shaft has not had a long contact

time with the surrounding bedrock, consistent with the relatively modest TDS concentrations (see Section 3.4.2).

Since the water level in the shafts appears to be consistently below the static groundwater levels in the wells in the East Bennett area, groundwater will continually seep into the shafts. As a result, the shafts act as "wells" that constantly draw groundwater from the surrounding shallow bedrock (i.e. above a depth of 500 feet, where the transmissivity is highest). The inflow of water into the shafts should create a local depression in the groundwater table surface around the shafts, referred to as a drawdown cone, or cone of depression.

EMKO prepared an analytical model to simulate the drawdown that might occur around the New Brunswick shaft (or any other vertical or near-vertical shaft in the East Bennett area) due to the constant seepage into the shaft. The analytical model is based on the Theis equation (Domenico and Schwartz, 1990). Based on the properties of the fractured bedrock discussed in Section 3.3.4, the analytical model indicates that the current seepage into the shaft results in drawdowns of the water table of 20 feet at the shaft location, about 8 feet at a distance of 500 feet from the shaft, and about 3.5 feet at a distance of 2,000 feet from the shaft. The overall profile of the drawdown cone is shown on Figure 3.21. The drawdown cones around the shafts are part of the existing environmental setting for the project.

Figure 3-20 Groundwater Movement in Mine Workings

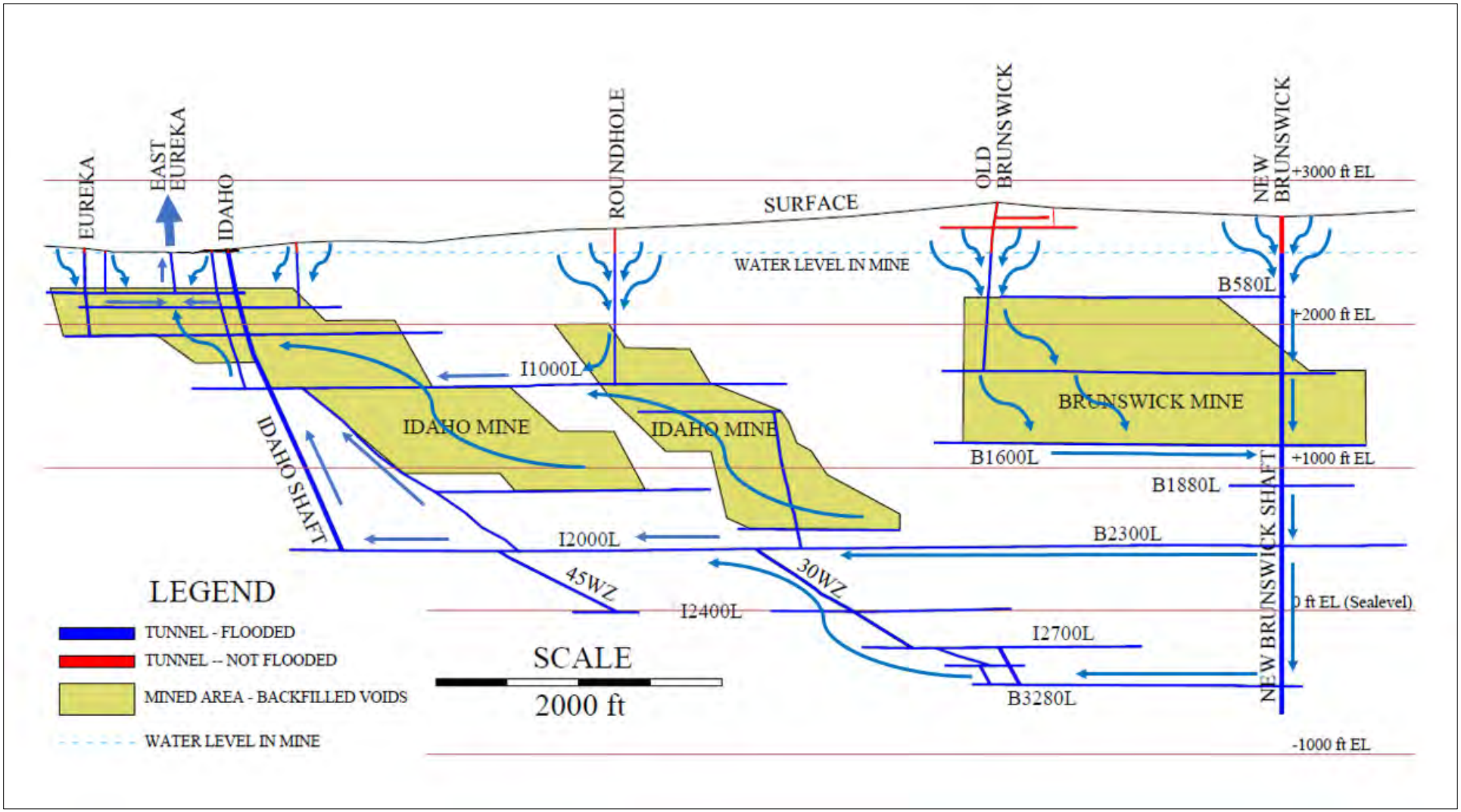
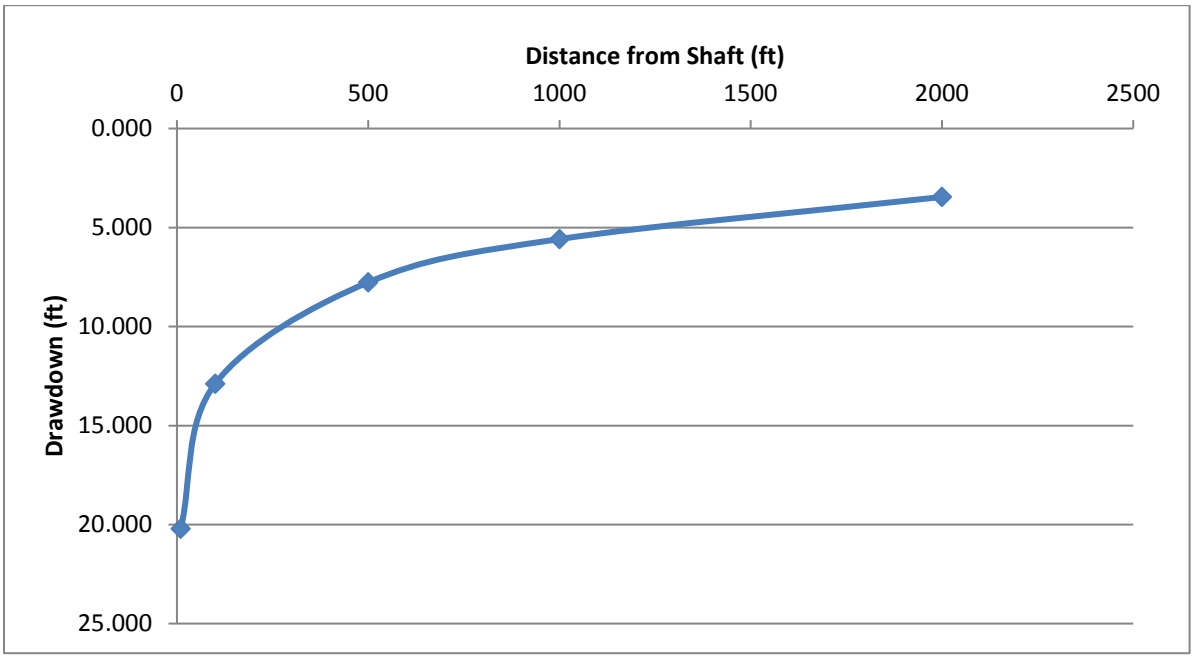
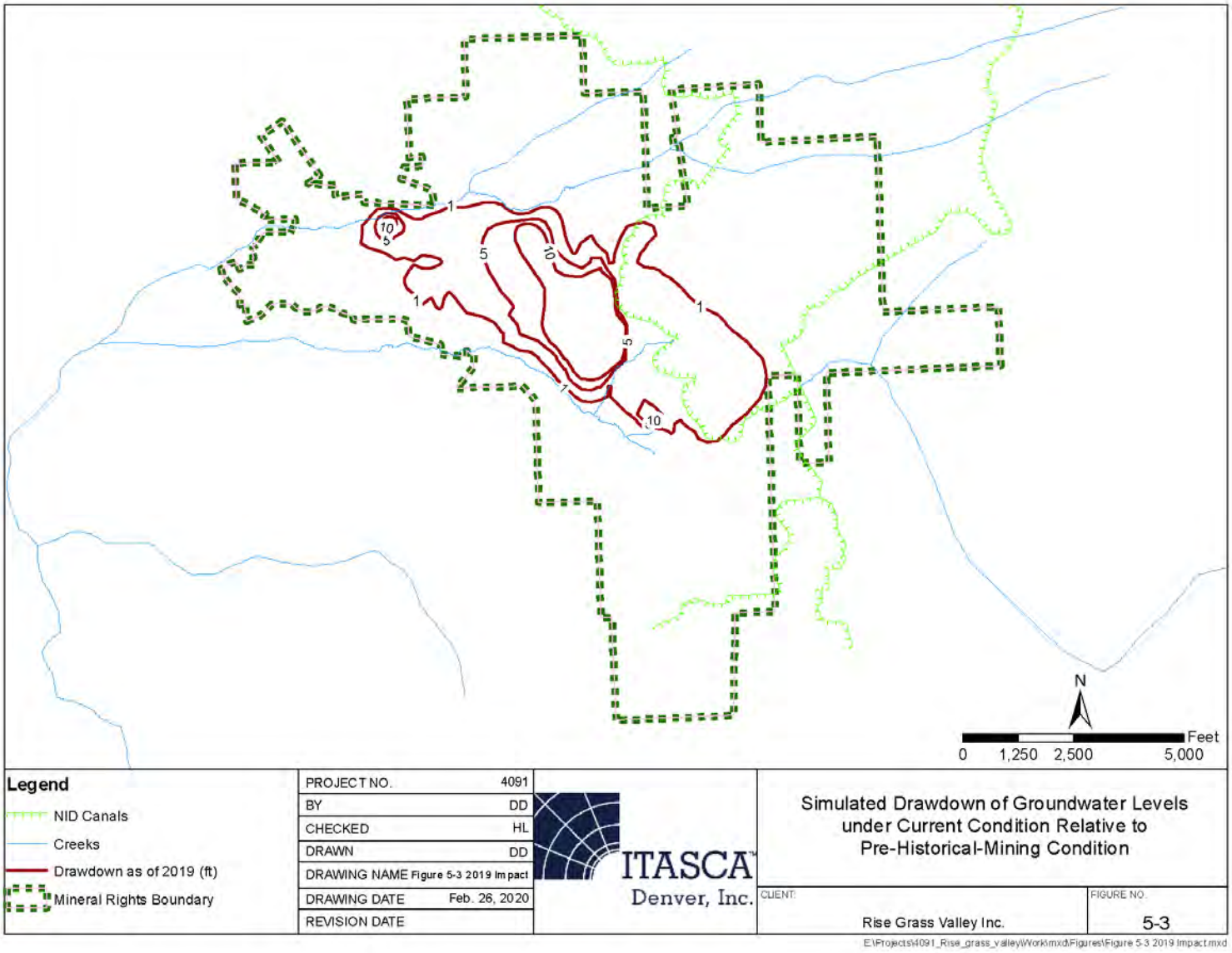


Figure 3-21 Existing Drawdown Profile for New Brunswick Shaft



Itasca Denver, Inc. (Itasca, 2020b) used a numerical model (see additional discussion in Section 4.2) to evaluate the effects of mining on groundwater levels. As part of that effort, Itasca (2020b) simulated to drawdown of the groundwater surface under current conditions due to seepage into the shafts and other underground workings and the related discharge to Wolf Creek through the drains. The model results indicate that there is a small drawdown cone in the area of the New Brunswick shaft and Union Hill Mine of between five and 10 feet, a broad area of drawdown greater than 10 feet overlying an area along Brunswick Road extending from near the intersection with East Bennett Road northward to Idaho-Maryland Road, and a small drawdown cone in the area of the Idaho shaft near Centennial Drive and Wolf Creek. The simulated drawdowns are shown on Figure 3.22 (Figure 5-3 of Itasca, 2020b). The reductions of the groundwater surface simulated by the Itasca (2020b) numerical model are in the same range as those predicted by the analytical model discussed above and shown on Figure 3.22.

Figure 3-22 Simulated Drawdown of Groundwater Levels under Current Conditions Relative to Pre-Historical Mining Conditions



4.0 PROJECT EFFECTS

As discussed above, the purpose of this report is to provide an analysis of hydrology and water quality conditions for the proposed Project. This section describes the anticipated conditions that will occur related to surface water runoff, groundwater levels, and water quality during mining and after mining is completed.

4.1 Surface Water Runoff

Section 3.2, above, describes the existing hydrologic conditions in the Wolf Creek and South Fork Wolf Creek watersheds. Surface water runoff could be affected by the construction of buildings, pads, and other impermeable surfaces, by the placement of waste rock and tailings in and around the Brunswick and Centennial Industrial Sites, and by dewatering of the underground mine workings. Stormwater detention basins will be constructed as part of the Project improvements for the Brunswick and Centennial industrial sites.

At the Brunswick Industrial Site, a detention basin will be constructed at the downstream toe of the fill slopes, above South Fork Wolf Creek (see Sheet 2). The detention basin will have a surface area of 1.45 acres, a maximum depth of 10.6 feet, and a working volume of 12.1 acre-feet with a minimum freeboard of 3.4 feet. The basin design incorporates an outlet structure that would allow the pond to completely drain between storms (NCE, 2019). Table 3.1 shows the design peak flows from the outlet structure for the two-year, 10-year, 25-year, and 100-year storm events, compared to the existing runoff to South Fork Wolf Creek from the same catchment areas. The detention basin and outlet structure reduce the peak discharge to South Fork Wolf Creek by over 48 cfs for the 2-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm.

At the Centennial Industrial Site, a detention basin will be constructed at the downstream toe of the site, above Wolf Creek (see Sheet 3). The detention basin will have a surface area of 0.94 acre, a maximum depth of 7.7 feet, and a working volume of 6.2 acre-feet with a minimum freeboard of 6.3 feet. The basin design incorporates an outlet structure that would allow the pond to completely drain between storms (NCE, 2019). Table 3.1 shows the design peak flows from the outlet structure for the 10-year and 100-year storm events, compared to the existing runoff to Wolf Creek from the site. The detention basin and outlet structure reduce the peak discharge to Wolf Creek by over 27 cfs for the 10-year storm and by over 44 cfs for the 100-year storm.

Initial dewatering of the Idaho-Maryland Mine will occur at a rate of 2,500 gpm, or 5.6 cfs. If this rate of dewatering is achieved it would take approximately 160 days (5.3 months) to dewater the underground workings, assuming an average groundwater inflow rate into the existing mine workings of 850 gpm and total water currently in the mine workings of 385 million gallons. After that time, the dewatering will continue at a rate equal to the groundwater inflow into the mine, ranging from approximately 500 gpm to 1200 gpm seasonally and averaging approximately 850 gpm or about 1.9 cfs. The maximum discharge rate permitted will be 2,500 gpm, which will allow flexibility for unexpected seasonal inflows, operational issues, and increased groundwater inflows from the expansion of the mine during operations.

After treatment (see discussion in Section 4.4), the water pumped from the mine would be discharged to South Fork Wolf Creek downstream of the natural creek that NID uses to discharge water from the DS Canal Extension. The discharge location is shown on Sheet 2.

As reported by Cranmer (1986), a 10-year storm event may result in a peak flow of 658 cfs in South Fork Wolf Creek, with larger storm events having substantially higher peak flow rates. However, as discussed above in this section, the detention pond that will be installed at the Brunswick Industrial Site would reduce peak storm discharges by at least 25 cfs to 60 cfs, depending on the magnitude of the storm event (NCE, 2019). The reductions in peak storm flows due to the detention pond are greater than the proposed maximum discharge of treated water from the mine. Therefore, the Project would result in reduced peak storm flows within South Fork Wolf Creek compared to existing conditions.

As discussed in Section 3.2, base flow in South Fork Wolf Creek may range from 0.07 cfs in the summer to 6.5 cfs in the winter between storm events, at the location of the proposed discharge of the treated mine water. During field monitoring in January 2020, Balance (2020) noted that storm flows of 11 cfs upstream of the proposed discharge location and 17.3 cfs downstream of the proposed discharge location did not produce any evidence of bed sediment transport, meaning that there was no erosion or sedimentation occurring in the stream bed during the monitored storm flows. Sediment pebble count analysis conducted by Balance (2020) indicate that the flow rate at which sediment within the channel may become mobilized ranges from 20 cfs to 90 cfs. The combination of creek base flows plus the maximum proposed discharge of treated water at 5.6 cfs is well below the 11 cfs to 17.3 cfs flow at which no bed sediment transport was observed. During larger storm events, the proposed detention pond would reduce the peak flows within South Fork Wolf Creek by much more than 5.6 cfs. Thus, under Project conditions the overall peak storm flows would be lower than they are under existing conditions, resulting in less potential for erosion and sediment transport than under existing conditions.

Groundwater modeling conducted by Itasca (2020b) evaluated the potential reduction in discharge of groundwater to the surface creeks that might occur when the water table is lowered as a result of mine dewatering. Itasca (2020b) reports that by the end of the mining period, the base flow within Wolf Creek may be reduced by 0.75 cfs. This change would be imperceptible compared to the NID discharges from the DS Canal, which average 35 cfs, and winter storm flows from the upstream watershed. Although the number of measurements is limited, the observed baseflow in Wolf Creek at the Centennial Drive bridge ranges from about 40 to 100 times greater than the projected decrease in baseflow of 0.75 cfs.

Itasca (2020b) estimates that the base flow within South Fork Wolf Creek may be reduced by approximately 0.1 cfs. The reduction in base flow in Wolf Creek is nominal compared to the measured flows reported in Section 3.2, above, and the routine discharges to Wolf Creek by NID. The potential reduction of groundwater discharge to South Fork Wolf Creek during the time the Project would be operating because any loss of base flow would be offset by the discharge of 1.9 cfs to 5.6 cfs of treated water produced during dewatering.

4.2 Groundwater Levels during Exploration and Mining

As described in Section 2.2, the Idaho-Maryland Mine consists of a substantial volume of underground workings, with an estimated equivalent of 72.8 miles (117km) of underground tunnels, assuming typical drift dimensions of 7.5ft x 8.5ft (W x H) (AMEC 2017). The total volume within these workings has been estimated at 532 million gallons by JAA (1991). Rise has estimated the total volume of the mine workings at 540 million gallons, which is very similar to JAA's estimate. However, based on historic documentation describing backfilling of some of the workings, Rise assumed that 75 percent of the stopes were backfilled and that the backfill material has a porosity of 40 percent. After accounting for the backfilled areas, the total volume of water needing to be removed from the mine is estimated by Rise at 385 million gallons (see Section 3.3.3.2).

Before exploration and mining can proceed, the water within the underground workings must be removed. Removal of the static water within the flooded mine workings is referred to as the "initial dewatering". As the water level in the mine is lowered during the initial dewatering, groundwater will flow into the mine workings through fractures and contribute to the volume of water that must be pumped during the initial period. Thus, the initial dewatering rate, typically reported in gallons per minute (gpm), is a combination of removal of the static water and removal of groundwater that flows into the newly-dewatered mine workings. Once the initial dewatering is completed, continued pumping is necessary to remove the groundwater that will constantly flow into the mine through fractures within the bedrock and maintain a dry mine. For the purposes of this report, this is referred to as "maintenance dewatering".

The estimated maintenance dewatering rate for the combined and expanded mines (i.e. the overall Idaho-Maryland Mine including the Brunswick underground workings) prior to mine closure around 1955 is reported to have ranged from 500 gpm to 1,200 gpm seasonally, with an average of approximately 850 gpm (JAA, 1991).

As dewatering begins at the initial rate of up to 2,500 gpm (5.6 cfs), water from the surrounding fractured bedrock would also flow into the mine workings at approximately 850 gpm. Thus, the net dewatering rate during the initial dewatering period would be approximately 1,650 gpm. At this net initial dewatering rate, it would take 162 days to dewater the underground mine workings. After that time, pumping of groundwater that seeps into the mine workings would continue at the inflow rate averaging 850 gpm.

As described in Section 3.3, the groundwater level within the New Brunswick shaft is lower than the groundwater level in the surrounding fractures within the bedrock aquifer, as reflected by the groundwater levels measured in the wells in the East Bennett Road area. The shafts connected to the Idaho-Maryland Mine interconnected underground workings are interpreted to be acting as pumping wells, whereby the rate that water is entering the shafts has equilibrated with the rate that water is discharging from the drains near Wolf Creek. The groundwater flow into the shafts creates some small amount of drawdown in the groundwater surface in the area around the shafts. The current water levels within the wells in the East Bennett Road area, ranging from approximately 2,525 ft msl to 2,765 ft msl,

reflect whatever drawdown is occurring due to the flow of groundwater into the shafts and through the underground mine workings.

As dewatering occurs, the water level within the underground workings would decrease from its current depth of approximately 250 ft bgs down to the maximum depth of the New Brunswick shaft at about 3,460 ft bgs. These depths are equivalent to elevations of approximately 2,500 ft msl and -700 ft msl, respectively. Thus, the water level within the mine workings would eventually decrease as much as 3,200 feet due to the Project. As discussed in Section 3.3.4, the transmissivity of the fractured bedrock decreases by several orders of magnitude at deeper depths, due to a reduction in the number of fractures and a decrease in the width of the fracture openings caused by increased lithostatic pressures at depth. As a result, dewatering of deeper tunnels and drifts would have less impact on groundwater levels in the fractured bedrock than would dewatering of shallower mine workings.

Itasca (2020b) developed a numerical model to assess dewatering rates and the effects of mine dewatering on groundwater levels and creek base flow. The groundwater flow model that was constructed by Itasca utilizes the numerical code *MINEDW*, which was developed by Itasca (2012) to solve 3-D groundwater flow problems with an unconfined (or phreatic) surface using the finite-element method. *MINEDW* has several attributes that were specially developed to address conditions that are often encountered in mine dewatering. This modeling code has been used for numerous mining projects throughout the world. *MINEDW* is a commercially available software package that has been approved by the Nevada Division of Environmental Protection[6] for use in permitting applications.

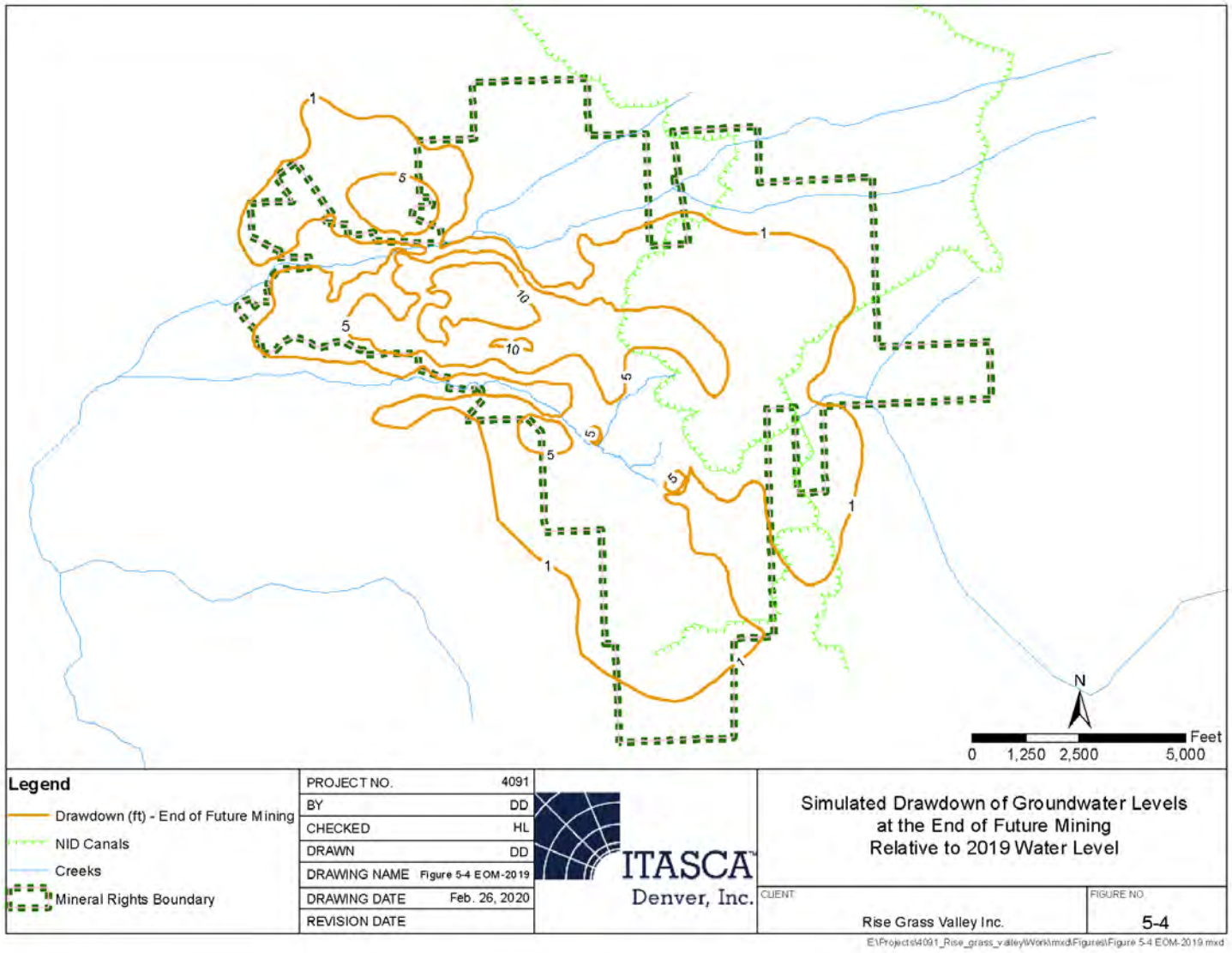
The modeling effort (Itasca, 2020b) evaluated the base case conditions with 25 years of mining, along with following scenarios:

1) Sensitivity analysis evaluating increasing the hydraulic conductivity in the transition zone between the weathered zone and the underlying bedrock by a factor of five;
2) Sensitivity analysis evaluating increasing the hydraulic conductivity of the fault zones by a factor of 10;
3) Sensitivity analysis excluding the fault zones from the model;
4) Sensitivity analysis increasing recharge rate by 50% (18 inches per year);
5) Sensitivity analysis decreasing the recharge rate by 50% (6 inches per year); and
6) Expanded mining scenario with additional mining occurring in certain areas below a depth of 1,000 feet for an additional 40 years.

[6] California does not have an equivalent program for approval of modeling packages for mine permitting.

The discussions presented in Sections 4.2.1 and 4.2.2, below, are based on the maximum predicted drawdown in the groundwater surface that would occur under the worst-case sensitivity analysis result for the 25-year mining period. Section 4.2.3 discusses the predicted effects on the groundwater surface for the expanded mining scenario, where exploration and mining would extend into additional areas within the mineral claim boundary for an additional 40 years.

Figure 4-1 Simulated Drawdown of Groundwater Level at the End of Future Mining Relative to 2019 Water Level (Itasca, 2020b)



4.2.1 Dewatering Effects in the East Bennett Area

There are a substantial number of underground mine workings within the East Bennett area. Sheet 9 shows the mine workings within 600 feet of the ground surface, whereas Sheet 8 shows all of the mine workings of the Idaho-Maryland Mine. The shallower (within 600 feet of ground surface) workings are concentrated in the Brunswick mine area, the Union Hill mine area, and between the East Eureka Shaft and the Idaho Shaft in the Idaho #1 mine area near Wolf Creek. Based on historical accounts of dewatering, it appears that approximately two-thirds of the maintenance dewatering will come from the Brunswick mine area while one-third of the maintenance dewatering will come from the Eureka-Idaho-Maryland mine area. In addition, based on the variation in the transmissivity and hydraulic conductivity of the fractured bedrock, 99 percent of groundwater inflow will occur within 550 feet of the ground surface, as discussed in Section 3.3.5.

Based on the fractured bedrock aquifer properties and the maintenance dewatering rates, it is anticipated that the drawdown near the mine area will cause the water levels in several of the wells in the East Bennett area to be affected. The range of the drawdown and the effect on the well will vary depending on well depth, distance from the mine workings, and the current well productivity (e.g. pumping rate in gpm). Figure 4-1 (Itasca Figure 5-4) shows the modeled drawdown that is predicted to occur at the end of the proposed mining period. The predicted drawdowns are those that would occur in addition to the existing drawdown due to groundwater inflow to the mine under existing conditions, discussed in Section 3.4.5 and shown on Figure 3-22. Throughout the East Bennett Area, the predicted drawdowns range from approximately five to 10 feet.

Table 4-1 Well Parameters and Potential Effects of Mine Dewatering, East Bennett Area

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Yield (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
1		1 - E. Bennett Area	2,747	420	0.5	400	8	8	2.0%	2.0%
2	WS33	1 - E. Bennett Area	2,690	700	3	625	7	8	1.1%	1.3%
5	WS30	1 - E. Bennett Area	2,644	230	10	155	5	5	3.2%	3.2%
6	WS31	1 - E. Bennett Area	2,685	320	3	215	8	8	3.7%	3.7%
7	WS80	1 - E. Bennett Area	2,797	100	30	17.4	7	7	40.2%	40.2%
8	WS45	1 - E. Bennett Area	2,769	300	6.5	218	5	6	2.3%	2.8%
9	WS32	1 - E. Bennett Area	2,747	400	6	295	9	9	3.1%	3.1%
15		1 - E. Bennett Area	2,829	400	0	315	4	4	1.3%	1.3%
16		1 - E. Bennett Area	2,826	140	30	80	5	6	6.3%	7.5%
17		1 - E. Bennett Area	2,684	150	20	70	1	1	1.4%	1.4%
18		1a - Idaho Maryland Area	2,530	560	3	555	2	2	0.4%	0.4%
19	WS122	1 - E. Bennett Area	2,779	220	40	90	2	4	2.2%	4.4%
	WS116	1 - E. Bennett Area	2700	208	15	125.4	2	3	1.6%	2.4%
	WS113	1 - E. Bennett Area	2645	55	ND	54.5	1	1	1.8%	1.8%
	WS114	1 - E. Bennett Area	2710	208	ND	125.4	1	3	0.8%	2.4%
	WS119	1 - E. Bennett Area	2780	145	15	60	3	5	5.0%	8.3%
	WS44	1 - E. Bennett Area	2810	225	4.5	42	3	5	7.1%	11.9%
	WS29	1 - E. Bennett Area	2788	425	10	342.4	5	10	1.5%	2.9%
	WS233	1 - E. Bennett Area	2640	90	ND	56.7	1	1	1.8%	1.8%
	WS235	1 - E. Bennett Area	2805	200	20	81	2	4	2.5%	4.9%
	WS236	1 - E. Bennett Area	2635	199	ND	168	1	1	0.6%	0.6%
	WS240	1 - E. Bennett Area	2650	199	ND	164	4	5	2.4%	3.0%
	WS242	1 - E. Bennett Area	2695	155	15	97	4	4	4.1%	4.1%
	WS121	1 - E. Bennett Area	2690	155	15	72.4	1	3	1.4%	4.1%
	WS201	1 - E. Bennett Area	2860	425	3.5	151	5	5	3.3%	3.3%
	WS216	1 - E. Bennett Area	2770	199	ND	117	8	8	6.8%	6.8%

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Yield (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
	WS90	1 - E. Bennett Area	2590	72	ND	39.75	2	2	5.0%	5.0%
	WS124	1 - E. Bennett Area	2730	208	4	103	10	10	9.7%	9.7%
	WS125	1 - E. Bennett Area	2670	120	13	53	5	5	9.4%	9.4%
	WS243	1 - E. Bennett Area	2640	131	20	49	5	5	10.2%	10.2%
	WS118	1 - E. Bennett Area	2665	200	5	115	6	6	5.2%	5.2%
	WS237	1 - E. Bennett Area	2620	200	5	126	1	2	0.8%	1.6%
	WS110	1 - E. Bennett Area	2830	208	9	125.4	6	6	4.8%	4.8%
129		2 - E. Bennett Industrial Area	2515	140	50	130	1	1	0.8%	0.8%
130	WS95	2 - E. Bennett Industrial Area	2510	100	8	90	1	1	1.1%	1.1%
135		2 - E. Bennett Industrial Area	2535	200	6	180	2	2	1.1%	1.1%

Well Parameter Data Compiled from Well Completion Reports
Downloaded from California Department of Water Resources Database: https://data.cnra.ca.gov/dataset/well-completion-reports

Bright yellow highlight indicates drawdown percentages greater than 10 percent of the existing water column in the well

Pale yellow highlight indicates drawdown percentages between 7.5 percent and 10 percent of the existing water column in the well

See discussion in Section 4.2.1 for explanation of the effects of these drawdown percentages

Table 4-1 lists the known wells in the East Bennett Area (including the Bennett Industrial Area), along with the surface elevation, well depth, well yield, and water column height. Table 4-1 also specifies the predicted drawdown from the Itasca (2020b) model for each well, under the base case scenario and maximum drawdown under the most sensitive case. The predicted drawdown ranges from one foot to 10 feet in the East Bennett Area, or from less than one percent of the total water column height to 40 percent of the total water column height. However, the maximum predicted drawdown does not necessarily correlate with the highest percent of the total water column since wells with smaller water columns may have a higher percent effect than wells with large water columns.

Drawdowns within wells completed in unconfined aquifer conditions are sensitive to the amount of drawdown that occurs as a percent of the total water column. This sensitivity is due to the reduction in the effective transmissivity that occurs as the height of the water column decreases in unconfined aquifers[7]. Simulations using the Theis equation, described in Section 3.5.2 and in Section 4.2.2, indicate that reductions in the water column of 20 percent to 40 percent could cause the production rate of the well to become unstable by incrementally decreasing the water column much more than would occur under existing conditions. For this analysis, a 100 percent factor of safety is applied to the potential reduction resulting in unstable conditions, such that a criterion of 10 percent of the water column is used to define wells that might be substantially affected by dewatering of the underground mine workings. Of the approximate 36 wells in the East Bennett and Bennett Industrial Areas, there are three wells that have at least 10 percent reduction in the water column, under either the base case or most sensitive case, as highlighted in yellow in Table 4-1. There are also four wells that are predicted to have a reduction in the water column of between 7.5 percent and 10 percent. These four wells are highlighted in pale yellow in Table 4-1, to identify wells that could marginally be affected. Sheet 12 shows the locations of the wells in the East Bennett and Bennett Industrial Areas, including the affected wells and marginally affected wells.

As described in Section 2.6, Rise will provide a potable water pipeline in the East Bennett Area and pay for the hookup to the pipeline for wells users that elect to be connected to the potable supply from NID.

4.2.2 Dewatering Effects in Perimeter Areas

Two independent evaluations of the potential effects of mine dewatering on private supply wells outside of the East Bennett Area have been conducted. In the Beaver Drive, Greenhorn, and Mitchell Cross-cut areas, there is a single drift or tunnel near the private wells. For these three areas, the drawdown analysis considers the well that is closest (both in terms of distance and depth) to the existing mine working. This analysis approach contrasts with that used for the East Bennett area, where the mine workings are nearly ubiquitous and include stopes and shafts in addition to the horizontal mine workings. For the first independent evaluation of the Beaver Drive, Greenhorn, and Mitchell Cross-cut areas, a three-step evaluation was conducted by EMKO to estimate the potential magnitude of mine dewatering on the nearest wells. The underlying equations used in this analysis are based on an assumption of uniform flow.

[7] In confined aquifers, a reduction in hydrostatic head does not necessarily result in a reduction in the transmissivity because the elevation of the water surface within the well is above the top of the confined aquifer, so reductions in the water column in the well do not result in a change in the effective thickness of the confined aquifer.

To account for differences between uniform flow and preferential flow within fractured bedrock, specific modifications are made as part of the three-step evaluation to account for the non-uniform distribution of fractures in the subsurface and account for the potential for preferential flow from the mine workings to a specific well location. These modifications are explained below in the description of the individual steps in the process. However, it is important to note that the seasonal patterns in water levels observed in the wells are not reflected in the water levels measured in the mine. The lack of a seasonal pattern in the mine water levels indicates that the mine workings are not directly connected to the wells by through-going fractures but are instead interconnected by a complex pattern of many fractures present throughout the bedrock. As described below, the modifications to account for fracture flow are very conservative assumptions that result in an over-estimate of the potential effects on individual wells.

The second independent evaluation was conducted by Itasca (2020b) using the *MINEDW* numerical model.

The first step in the EMKO evaluation involves determining what fraction of the total maintenance dewatering rate affects the area of the well. This step includes consideration of both the quantity of mine workings in the area of interest and their depth. The depth consideration is based on the variation in the transmissivity of the fractured bedrock with depth, as discussed in Section 3.3.4. The second step identifies what fraction of the groundwater inflow into the horizontal mine working nearest the well comes from above the drift or tunnel, and thus affects the water level in the nearby well, compared to water that would enter the mine working from below, and would not affect the well, since the perimeter wells are shallower than the mine workings in the same area. The third step involves scaling the overall maintenance dewatering rate to the local well condition and estimating the drawdown that would occur at that specific location. The three-step evaluation approach for each of the three perimeter areas is described in Sections 4.2.2.1, 4.2.2.2, and 4.2.2.3, below. The analytical solution calculations are presented in Appendix A.

4.2.2.1 Beaver Drive Area

The discussion below summarizes the application of the three-step analysis process to the estimation of drawdown at the nearest well to the underground mine workings in the Beaver Drive area. The wells in the Beaver Drive Area are listed in Table 4-2. The nearest well to the mine workings is designated as Well 31 (WS4 in the 1995 EIR).

STEP 1:

The drift that extends under the Beaver Drive area is approximately 2,000 to 3,000 feet long, which is less than one percent of the 71 miles of total horizontal underground mine workings. As a conservative assumption, it is assumed that one percent of the total volume of mine workings is present under the wells in this area, within the single drift at a depth of approximately 1,450 feet below ground surface. The nearest well to this drift is 295 feet deep. Based on the difference between the depth of the well nearest to the mine working and the depth of the mine working, the transmissivity at the mine working was assumed to be 10 percent of transmissivity at the depth of the well (see Figure 3.10). Thus, the overall fraction of the total maintenance dewatering rate that occurs in the Beaver Drive area is 0.001 (calculated

by multiplying one percent of the mine workings [0.01] by 10 percent of the transmissivity [0.1]). That fraction multiplied by the average maintenance dewatering rate of 850 gpm indicates that the total volume of groundwater inflow into the drift below the Beaver Drive area is 0.85 gpm.

Use of the nearest well to the mine workings provides an indication of what the potential effects might be on wells farther away, if those farther wells were connected to the mine by a dominant fracture set. Thus, the conditions at the closest well provide a surrogate for conditions for other wells in the Beaver Drive area that might be affected by preferential groundwater flow through the non-uniform distribution of fractures but are farther from the mine workings.

STEP 2:

Because the mine workings are generally horizontal (as opposed to a vertical boring or shaft), the proportion of the flow into the drift that comes from below and the proportion that comes from above needs to be estimated. Only the flow from above the drift is presumed to affect water levels in the wells in the Beaver Drive area. The distance between the bottom of the nearest well at Beaver Drive and the underlying drift is about 1,160 feet. Using different fractured bedrock transmissivity values for the depth of the well and the depth of the drift, (see Figure 3.10) the drawdown at a distance of 1,160 feet was calculated for both the drift and the well at the local maintenance dewatering rate of 0.85 gpm. The pumping rate for the drift was then adjusted until the drawdown at 1,160 feet due to pumping from the drift is equivalent to the drawdown at 1,160 feet from pumping the well at 0.85 gpm. That evaluation indicated that approximately 68 percent of the groundwater entering the drift comes from above the drift. Thus, the effective maintenance dewatering rate from the drift affecting the well is about 68 percent of 0.85 gpm, or about 0.58 gpm.

STEP 3:

Once the effective maintenance dewatering rate from the drift affecting the well is estimated, then the drawdown due to the dewatering is calculated. The drift under the Beaver Drive area is horizontal, or nearly so, such that the effects of pumping are actually spread out along the full length of the underground opening. However, to estimate the effect on the nearest well, it was assumed that the mine working was a vertical well that exists within the Beaver Drive area. The drawdown from that hypothetical well was then calculated at various distances to determine the presumed effect at the distance that is equivalent to the nearest well, in this case 1,160 feet. Assuming that the mine working behaves like a vertical well is an extremely conservative assumption because the calculations place the entire groundwater outflow due to dewatering in one location, as opposed to being spread out over several thousand feet along the length of the mine working.

Assuming that the horizontal drift is a vertical well is equivalent to assuming that all of the water pumped from the drift comes from a fracture, or fracture set, that directly connects the well and the drift. This modification simulates preferential flow through non-uniform fractures. As with the use of the nearest well, as discussed in Step 1, this modification simulates the potential effect on any well in the Beaver Drive area that might be directly connected to the horizontal drift by through-going fractures.

FINDINGS:

The procedure used to estimate the effects of maintenance dewatering on the Beaver Drive area is based on multiple conservative assumptions along with modifications to account for the potential for preferential fracture flow. Each of these conservative assumptions and modifications result in an over-estimate of the total drawdown at the nearest well. The use of multiple conservative assumptions and the modifications indicates that the actual effect at any well in the Beaver Drive area would be appreciably less than that calculated by this approach. Notwithstanding these assumptions and modifications, the estimated drawdown in the groundwater surface at the nearest well to the drift, Well 31, would be approximately 0.26 foot (3.1 inches) after one year and approximately 1.9 feet (23 inches) after 25 years. Well 31 has a total depth of 295 feet and a total water column of 250 feet (Table 4-2). The conservatively-estimated drawdowns are extremely small compared to the length of the water column and indicate that after 25 years, the available height of water in the well would decrease by less than 0.8 percent. This change is also much smaller than the normal seasonal fluctuations in groundwater levels of 20 to 50 feet per year observed in the wells in the Beaver Drive area, as described in Section 3.3.2.2, and therefore would not alter the available groundwater supply at the well location.

Table 4-2 also shows the drawdowns that are predicted by the Itasca (2020b) numerical model for the wells in the Beaver Drive Area. The base case drawdowns range from one foot to three feet, while the maximum drawdowns under the worst-case sensitivity analysis range from two to three feet. These drawdowns are consistently less than five percent of the total water column height, with the maximum predicted drawdown being less than two percent of the total water column in all but two wells. There are no wells in the Beaver Drive Area where the total predicted drawdown would exceed, or even approach, 10 percent of the total water column.

Table 4-2 Well Parameters and Potential Effects of Mine Dewatering, Beaver Drive Area

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
29	WS10	3 - Beaver Drive	2,949	250	4	205	2	3	1.0%	1.5%
30		3 - Beaver Drive	2,949	400	2	355	2	3	0.6%	0.8%
31	WS4	3 - Beaver Drive	2,932	295	3	250	3	3	1.2%	1.2%
32	WS7	3 - Beaver Drive	2,948	350	3.25	288.5	2	2	0.7%	0.7%
33	WS22	3 - Beaver Drive	2,919	300	4	255	2	3	0.8%	1.2%
34	WS6	3 - Beaver Drive	2,877	250	4	188.5	1	2	0.5%	1.1%
35		3 - Beaver Drive	2,865	125	30	47	1	2	2.1%	4.3%
36	WS21	3 - Beaver Drive	2,916	325	6	280	2	3	0.7%	1.1%
38		3 - Beaver Drive	2,899	250	0	Well deepened				
38	WS25	3 - Beaver Drive	2,899	350	2	Well deepened				
38		3 - Beaver Drive	2,899	700	0	622	2	2	0.3%	0.3%
40	WS85	3 - Beaver Drive	2,945	175	7.5	130	2	3	1.5%	2.3%
42		3 - Beaver Drive	2,862	200	5.5	122	1	2	0.8%	1.6%

Well Parameter Data Compiled from Well Completion Reports
Downloaded from California Department of Water Resources Database: https://data.cnra.ca.gov/dataset/well-completion-reports

4.2.2.2 Greenhorn Area

The same procedure described above for the Beaver Drive area was also used to evaluate the potential for maintenance dewatering to affect groundwater levels in wells in the Greenhorn area east of Brunswick Road. A full discussion of each step in the evaluation for the Greenhorn area is not provided here, but the main parameters used and the findings are summarized below.

Similar to the Beaver Drive area, a single lateral drift is present under the Greenhorn area, extending approximately 2,000 feet northeast from the Brunswick mine. The drift is approximately 1,185 feet below ground surface, while the nearest well, Well 45 (WS75 in the 1995 EIR, see Table 4-3) extends to a depth of 140 feet. The distance between the bottom of the well and the drift is approximately 1,040 feet. It was assumed that the lateral drift is approximately one percent of the total underground mine working volume and that the transmissivity of the fractured bedrock at the depth of the drift is 10 percent of the transmissivity at the depth of the well. Thus, the maintenance dewatering rate is conservatively assumed to be 0.001 times the full dewatering rate of 850 gpm, or 0.85 gpm. However, due to the shallower depth of the nearest well, compared to that in the Beaver Drive area, the fraction of the maintenance dewatering rate that is estimated to affect the well is about 89 percent of the total maintenance dewatering rate from the drift.

Using the same set of multiple conservative assumptions and modifications described above, the actual effect at Well 45 in the Greenhorn area would be appreciably less than that calculated by this approach. Notwithstanding the use of multiple conservative assumptions and modifications, the estimated drawdown in the groundwater surface at Well 45 would be approximately 0.19 foot (2.3 inches) after one year and approximately 0.43 foot (5.2 inches) after 25 years. Well 45 has a total water column of 100 feet. The conservatively-estimated drawdowns are extremely small compared to the length of the water column and indicate that after 25 years, the available height of water in the well would decrease by less than 0.5 percent. This change is also much smaller than the normal seasonal fluctuations in groundwater levels of 10 to 30 feet per year observed in the wells in the Greenhorn Drive area, as described in Section 3.3.2.2, and therefore would not alter the available groundwater supply at the well location.

Table 4-3 also shows the drawdowns that are predicted by the Itasca (2020b) numerical model for the wells in the Greenhorn Area. The base case drawdowns range from one foot to five feet, while the maximum drawdowns under the worst-case sensitivity analysis range from one to six feet. These drawdowns are consistently less than seven percent of the total water column height for the base case scenario. For the worst-case sensitivity analysis, one well (Well 180) has a predicted drawdown of eight percent (highlighted in pale yellow on Table 4-3). The location of Well 180 is shown on Sheet 12. Wells 179 and 180 were drilled at the same address according to the well completion reports. Well 179 was drilled in 1981 with a reported depth to water of 80 feet. Well 180 was drilled in 2000 and the reported depth to water was 150 feet. Wells 179 and 180 are located near Well WS188 and at a similar surface elevation. The reported depth to water in Well WS188 is 75 feet. Thus, the deeper water level reported at the time Well 180 was drilled may not be representative of the actual static water level at this location. In either case, a reduction in the water column of eight percent is less than the 10-foot criterion with 100 percent factor of safety described in Section 4.2.1.

There are no other wells in the Greenhorn Area where the total predicted drawdown would exceed, or even approach, 10 percent of the total water column.

Table 4-3 Well Parameters and Potential Effects of Mine Dewatering, Greenhorn Area

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
43		4 - Greenhorn	2,924	175	150	135	4	5	3.0%	3.7%
44	WS230	4 - Greenhorn	2,966	175	45	135	5	6	3.7%	4.4%
45	WS75	4 - Greenhorn	2,896	140	150	100	4	5	4.0%	5.0%
46		4 - Greenhorn	2,883	110	30	75	5	5	6.7%	6.7%
47	WS221	4 - Greenhorn	2,818	90	50	70	2	2	2.9%	2.9%
48	WS94	4 - Greenhorn	2,801	400	12	370	1	2	0.3%	0.5%
49	WS93	4 - Greenhorn	2,801	400	15	370	1	2	0.3%	0.5%
50		4 - Greenhorn	2,846	160	25	140	2	2	1.4%	1.4%
51		4 - Greenhorn	2,870	105	100	90	3	5	3.3%	5.6%
52		4 - Greenhorn	2,842	240	20	190	2	2	1.1%	1.1%
56		4 - Greenhorn	2872	300	7	285	2	2	0.7%	0.7%
57		4 - Greenhorn	2850	75	60	60	2	2	3.3%	3.3%
58		4 - Greenhorn	2842	175	60	160	2	2	1.3%	1.3%
59		4 - Greenhorn	2880	175	6	85	2	2	2.4%	2.4%
61		4 - Greenhorn	2870	125	3	100	2	2	2.0%	2.0%
62		4 - Greenhorn	2870	150	100	100	2	2	2.0%	2.0%
63		4 - Greenhorn	2866	125	60	80	2	2	2.5%	2.5%
64	WS66	4 - Greenhorn	2855	150	60	140	2	2	1.4%	1.4%
65	WS91	4 - Greenhorn	2867	500	3	490	2	2	0.4%	0.4%
66		4 - Greenhorn	2860	150	100	140	2	2	1.4%	1.4%
67		4 - Greenhorn	2896	155	100	145	2	2	1.4%	1.4%
68	WS81	4 - Greenhorn	2906	300	4	290	2	2	0.7%	0.7%
69		4 - Greenhorn	2906	280	ND	270	2	2	0.7%	0.7%
70		4 - Greenhorn	2919	380	25	230	2	2	0.9%	0.9%
71		4 - Greenhorn	2936	230	40	62.5	2	2	3.2%	3.2%
72		4 - Greenhorn	2961	250	3.5	65	2	2	3.1%	3.1%

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
73		4 - Greenhorn	2954	247	5	127	2	2	1.6%	1.6%
74		4 - Greenhorn	2947	195	30	95	2	2	2.1%	2.1%
75		4 - Greenhorn	2938	130	3	30	2	2	6.7%	6.7%
76		4 - Greenhorn	2994	100	8	Unknown	2	2		
77		4 - Greenhorn	2994	340	20	85	2	2	2.4%	2.4%
100		4 - Greenhorn	2967	780	6	345	2	2	0.6%	0.6%
101		4 - Greenhorn	2951	450	7.5	300	2	2	0.7%	0.7%
163		4 - Greenhorn	2860	280	25	155	1	1	0.6%	0.6%
164		4 - Greenhorn	2860	110	5	Unknown	1	1		
165		4 - Greenhorn	2920	330	20	170	1	1	0.6%	0.6%
166		4 - Greenhorn	2930	480	4	180	1	1	0.6%	0.6%
167		4 - Greenhorn	2800	440	12	290	1	1	0.3%	0.3%
168		4 - Greenhorn	2850	270	0	145	2	2	1.4%	1.4%
169		4 - Greenhorn	2780	540	30	440	1	1	0.2%	0.2%
170		4 - Greenhorn	2760	200	25	130	1	1	0.8%	0.8%
171		4 - Greenhorn	2780	280	20	240	1	1	0.4%	0.4%
172	WS20	4 - Greenhorn	2800	75	75	65	1	1	1.5%	1.5%
173		4 - Greenhorn	2860	123	125	123	2	2	1.6%	1.6%
174		4 - Greenhorn	2870	100	100	70	2	3	2.9%	4.3%
175	WS19	4 - Greenhorn	2880	100	10	70	2	3	2.9%	4.3%
176		4 - Greenhorn	2890	120	100	90	3	4	3.3%	4.4%
177		4 - Greenhorn	2900	120	60	100	3	4	3.0%	4.0%
178		4 - Greenhorn	2920	110	15	70	3	4	4.3%	5.7%
179		4 - Greenhorn	2985	150	25	70	3	4	4.3%	5.7%
180		4 - Greenhorn	2985	200	30	50	3	4	6.0%	8.0%
181		4 - Greenhorn	2910	100	12	60	2	3	3.3%	5.0%
182		4 - Greenhorn	2910	100	11	70	2	3	2.9%	4.3%
183		4 - Greenhorn	2880	250	15	215	2	2	0.9%	0.9%

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)	Drawdown - Sensitivity Max (%)
184		4 - Greenhorn	2850	275	25	235	1	1	0.4%	0.4%
185		4 - Greenhorn	2850	250	40	200	1	1	0.5%	0.5%
186		4 - Greenhorn	2895	300	12	100	2	2	2.0%	2.0%
187		4 - Greenhorn	2840	320	30	220	2	2	0.9%	0.9%
188		4 - Greenhorn	3000	250	9	175	2	2	1.1%	1.1%
189		4 - Greenhorn	2905	260	20	60	2	3	3.3%	5.0%
190		4 - Greenhorn	2905	300	12	100	2	3	2.0%	3.0%
191		4 - Greenhorn	2870	300	30	270	2	2	0.7%	0.7%
192		4 - Greenhorn	2870	265	17	235	2	2	0.9%	0.9%
193		4 - Greenhorn	2820	150	13	130	1	1	0.8%	0.8%
194		4 - Greenhorn	2910	200	3-4	Well deepened				
194		4 - Greenhorn	2910	300	20	250	2	2	0.8%	0.8%

Well Parameter Data Compiled from Well Completion Reports
Downloaded from California Department of Water Resources Database: https://data.cnra.ca.gov/dataset/well-completion-reports
Pale yellow highlight indicates drawdown percentages between 7.5 percent and 10 percent of the existing water column in the well
See discussion in Section 4.2.1 for explanation of the effects of these drawdown percentages

4.2.2.3 Other Outlying Areas

Additional outlying areas are described in Section 3.3.2.1. Table 4-4 lists the wells in these outlying areas and provides the primary well parameters. The nearest underground working to these outlying areas is a single lateral drift, referred to as the Mitchell Cross-cut, which extends approximately 1,500 feet north of the Idaho #3 mine. The drift is approximately 1,030 feet below ground surface. Based on the methods described above for the Beaver Drive and Greenhorn Areas, it was assumed that the lateral drift is approximately one percent of the total underground mine working volume and that the transmissivity of the fractured bedrock at the depth of the drift is 10 percent of the transmissivity at the shallower well depths. Thus, the maintenance dewatering rate is conservatively assumed to be 0.001 times the full dewatering rate of 850 gpm, or 0.85 gpm. As seen in the discussions above for the Beaver Drive and Greenhorn Areas, a local groundwater dewatering rate of 0.85 gpm would not affect the water column in the Outlying Area wells by more than one percent of the total water column height, which would be less than one foot to less than 6.2 feet of total drawdown, depending on the well (see Table 4-4). Although hydrographs showing seasonal change in wells in the Outlying Areas are not available, the estimated drawdowns are much smaller than the normal seasonal fluctuations in groundwater levels observed in other areas in the vicinity of the Idaho-Maryland Mine, which may range from 10 to 50 feet per year, as described in Section 3.3.2.2.

Table 4-4 also shows the drawdowns that are predicted by the Itasca (2020b) numerical model for the wells in the Outlying Areas. The base case drawdowns range from zero to two feet, while the maximum drawdowns under the worst-case sensitivity analysis range from one to two feet. These drawdowns are consistently less than five percent of the total water column height. As discussed in Section 4.2.1, drawdowns of at least 20 percent of the well column are generally required to potentially affect the use of a groundwater well and for this analysis, a 100 percent factor of safety has been applied such that any drawdowns that are at least 10 percent of the total water column are further evaluated. There are no wells in the Outlying Areas where the total predicted drawdown would exceed, or even approach, 10 percent of the total water column.

Table 4-4 Well Parameters and Potential Effects of Mine Dewatering, Outlying Areas

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)
78		5- Wood Rose	2809	100	20	70	1	2	1.4%
79		5- Wood Rose	2842	100	40	90	2	2	2.2%
80	WS217	5- Wood Rose	2871	100	30	85	2	2	2.4%
81		5- Wood Rose	2869	300	38	208	1	2	0.5%
82		5- Wood Rose	2897	720	1.5	620	2	2	0.3%
82		5- Wood Rose	2897	560	1	Well deepened			
82	WS26	5- Wood Rose	2897	180	5	Well deepened			
85		5- Wood Rose	2893	100	10	90	2	2	2.2%
86		5- Wood Rose	2970	350	6	290	1	2	0.3%
87		5- Wood Rose	2970	350	10	170	1	2	0.6%
94		5- Wood Rose	2980	480	12	300	1	2	0.3%
162		5- Wood Rose	2830	460	3.5	415	1	1	0.2%
89		6 - Burma Rd	2958	420	4	270	1	2	0.4%
90		6 - Burma Rd	2967	600	0.5	500	1	2	0.2%
91		6 - Burma Rd	2900	110	20	Unknown	1	2	
150		6 - Burma Rd	2900	125	60	83	1	1	1.2%
151		6 - Burma Rd	2930	180	10	138	1	1	0.7%
152		6 - Burma Rd	2930	300	3-4	258	1	1	0.4%
153		6 - Burma Rd	2945	160	30	110	1	1	0.9%
154		6 - Burma Rd	2915	325	8.5	275	1	1	0.4%
155		6 - Burma Rd	2900	125	40	105	1	1	1.0%
156		6 - Burma Rd	2910	100	100	70	1	1	1.4%
157		6 - Burma Rd	2920	100	20	50	1	1	2.0%
158		6 - Burma Rd	2900	120	24	80	1	1	1.3%
159		6 - Burma Rd	2920	120	10	90	1	1	1.1%

Rise Well ID	1995 EIR Well ID	General Location	Elevation (ft) (Top of Well)	Well Depth (ft)	Well Test (gal/min)	Water Column (ft)	Drawdown - Basecase (ft)	Drawdown - Max Sensitivity (ft)	Drawdown - Basecase (%)
160		6 - Burma Rd	2960	150	15	90	1	1	1.1%
161		6 - Burma Rd	2880	500	8	400	1	1	0.3%
145		7 - Leduc Acres	2865	110	30	50	1	1	2.0%
146		7 - Leduc Acres	2865	105	60	45	1	1	2.2%
147		7 - Leduc Acres	2880	120	60	60	1	1	1.7%
148		7 - Leduc Acres	2860	100	12+	40	1	1	2.5%
149		7 - Leduc Acres	2805	300	6	260	1	1	0.4%
140		8 - Cedar Ridge	2830	100	30	60	1	2	1.7%
141		8 - Cedar Ridge	2795	540	2	500	1	1	0.2%
142		8 - Cedar Ridge	2815	80	75	40	1	1	2.5%
143		8 - Cedar Ridge	2840	400	6.5	360	1	1	0.3%
144		8 - Cedar Ridge	2850	140	12-15	100	1	1	1.0%
195		9-North Brunswick	2790	120	25	60	0	1	0.0%
196		9-North Brunswick	2845	140	15	80	0	1	0.0%
197		9-North Brunswick	2820	200	20	140	0	1	0.0%
198		9-North Brunswick	2790	120	15	60	0	1	0.0%

Well Parameter Data Compiled from Well Completion Reports
Downloaded from California Department of Water Resources Database: https://data.cnra.ca.gov/dataset/well-completion-reports

4.2.3 Future Exploration and Mining

Additional exploration and mining may occur as part of the project within the mineral rights boundary owned by Rise. The Itasca (2020b) finite element 3-D computer modelling was used to assess a range of possible future mining scenarios. The future scenarios would extend from 26 years to 60 years after project approval, if they were implemented. Sheet 15 shows the locations and extent of the potential future mining scenarios that were evaluated by Itasca (2020b).

Sheet 12 shows the drawdown contours predicted by the Itasca (2020b) model for the different sensitivity analyses and the potential future mining. Relatively shallow mining of pillars and remnant mineralization near the existing mine workings would occur at depths greater than 500 ft bgs or approximately 2,100 ft msl. However, the majority of the potential future mining would occur at depths greater than 1,000 ft bgs, or approximately 1600 ft msl. At these depths, the hydraulic conductivity and transmissivity of the fractured bedrock is very low, as discussed in Section 3.3.5, and would not result in substantial additional dewatering (Itasca, 2020b). With only one minor exception, the predicted drawdowns from the potential future mining fall within the area of the maximum drawdowns under the worst-case sensitivity analysis. In the one area that falls outside of the maximum sensitivity contours, referred to as the North Brunswick Area in Table 4-4 (see Sheet 12 for outline of the North Brunswick Area and related well locations), the additional drawdown due to future mining ranges from zero to one foot, or no more than 1.7 percent of the total water column height in the four wells in the area. Therefore, the potential additional future mining would not alter the predicted maximum drawdowns discussed in Section 4.2.2 above.

4.3 Post-Mining Groundwater Conditions

Once mining is completed, dewatering would cease and groundwater would begin to accumulate again within the underground mine workings. If the drains that currently exist along Wolf Creek are not sealed while the mine is dewatered, then water from within the mine would begin to discharge from those drains again once the water level in the mine reaches an elevation of approximately 2,500 ft msl. While substantial additional underground workings are anticipated to be constructed as part of the project, these new workings will be below 2,500 ft msl. Thus, once the mine fills with water again, the additional underground workings would be below the water level and would not contribute inflow into the mine as a passive "well", as illustrated on the top part of Figure 3.20. As a result, the rate of drainage would be expected to be the same as the current rate at which the drains flow, which is approximately 60 to 70 gpm, or 0.13 cfs to 0.16 cfs. Groundwater levels in the wells would recover to their approximate pre-project levels.

If the drains along Wolf Creek were sealed, for example by sealing the shafts or tunnels that lead to the area of the drains, then water would no longer flow through the underground mine workings toward the drains. Since the mine workings would no longer be connected to the drains, the water level in the shafts would rise until they reached the same elevation as the surrounding groundwater in the fractured bedrock in the area of the shafts. As discussed in Section 3.4.5, the Itasca (2020b) numerical model simulated the drawdown of the groundwater surface under current conditions due to seepage into the shafts and other underground workings and the related discharge to Wolf Creek through the drains. The model results indicate that there is five to 10 feet of drawdown under current conditions in the area of the New Brunswick shaft and Union Hill Mine and a broad area of drawdown greater than 10 feet overlying an area along Brunswick Road extending from near the intersection with East Bennett Road northward to Idaho-Maryland Road (see Figure 3.22 (Figure 5-3 of Itasca, 2020b)). Therefore, if the drains are sealed, the final static water levels in the fractured bedrock in the East Bennett Road area may be five to 10 feet higher than they are currently.

As discussed in Sections 3.3.1 and 3.3.4, groundwater is recharged due to local percolation of rainfall into the fractures within the bedrock. In addition, the groundwater tends to flow from topographically high areas to topographically low areas, for example from ridges and upslope areas down toward the creeks and drainages. Thus, if the drains are sealed, groundwater would continue to flow downslope from the East Bennett Road area toward Wolf Creek and South Fork Wolf Creek. Sealing of the drains would not alter the overall net discharge of groundwater to the creeks.

EMKO estimated the groundwater flow volume that may occur through the fractured bedrock toward the drainages. Groundwater flow is calculated using Darcy's Law (Domenico and Schwartz, 1990), which states that the flow is equivalent to the hydraulic conductivity of the aquifer (K) times the hydraulic gradient (i), which is the slope of the groundwater surface, times the area (A) across which the groundwater is flowing:

$$Q = K * i * A$$

As discussed in Section 3.3.5, the hydraulic conductivity of the shallow bedrock (above a depth of approximately 200 ft bgs) may range from 1.0 gpd/ft^2 to 30 gpd/ft^2 (Todd Engineers, 2007). The elevation to which groundwater would rise in the upper part of the East Bennett Road area would be in the range of 2,770 ft msl, while the elevation of Wolf Creek near the drain locations is approximately 2,500 ft msl. The distance from the New Brunswick shaft to Wolf Creek is approximately 7,800 feet. Thus, the hydraulic gradient would be approximately 0.035 ft/ft. Since fractures are present that allow rainfall to percolate to groundwater, those same fractures would allow groundwater that rises to the elevation of the ground surface to discharge as springs and flow to surface drainages. In the Wolf Creek area, the total area of such drainage could be 2,000 feet long and up to 270 feet high, or 540,000 ft^2. Applying Darcy's Law, as defined above, the total outflow of groundwater that may discharge to Wolf Creek and/or South Fork Wolf Creek after mining is completed and if the drains were sealed could vary from 12.5 gpm to 375 gpm, or approximately 0.03 cfs to 0.84 cfs. This range brackets the current estimated discharge rate of the drains along Wolf Creek of approximately 60 to 70 gpm, or 0.13 cfs to 0.16 cfs

As described in Section 3.2, the base flow rate in Wolf Creek may range from 10 cfs to 50 cfs while the base flow rate in South Fork Wolf Creek may be less than one cfs. The peak storm flows on South Fork Wolf Creek are estimated to range from 650 cfs to 1,100 cfs. Based on the larger watershed size, peak storm flows on Wolf Creek in the vicinity of the Centennial Industrial Site could range from 800 cfs to 1,800 cfs. Thus, the flow rates in the creeks are substantially higher than the potential discharge rates from either the drains or groundwater seepage that would occur after mining is completed.

4.4 Mined Material Geochemistry

As described in Section 2.3, the mine will produce two mining waste materials. Mine development in nonmineralized "barren" rock (i.e. nongold bearing) is expected to result in the production of approximately 500 tons per day (182,500 tons per year) of barren rock. The barren rock would be crushed to a size of 6-inch underground, brought to surface and then used as engineered fill on the Centennial and Brunswick Industrial Sites.

Ore production through tunneling and long-hole blasting produces 1,000 tons per day (365,000 tons per year) of ore. The mineral process plant removes gold and most sulfide minerals which are sold as gold concentrates. The remaining processed ore results in sand tailings. Approximately 50 percent of the sand tailings, or about 500 tons per day, will be returned to the underground mine as backfill after processing. The other half of the sand tailings, again about 500 tons per day, will be used for engineered fill on the Centennial and Brunswick Industrial Sites.

Approximately 1,000 tons per day of engineered fill would be produced by the mine, which would be composed of approximately 500 tons of Barren Rock and 500 tons of Sand Tailings. Barren Rock and Sand Tailings used as engineered fill would be blended and compacted. Geotechnical Reports prepared by NV5 (NV5, 2019) recommend that a blend of either 100% sand tailings or a blend of up to 2 parts Barren Rock to 1 part Sand Tailings be used as engineered fill.

4.4.1 Barren Rock Used as Engineered Fill

Most of the underground work that would occur as part of the project would be tunneling to access the ore deposit and to provide access routes to move material and provide ventilation. These workings would be almost exclusively within barren meta-andesite rock. Cross cuts into the mineralized veins would produce some altered meta-andesite, as well as diabase and serpentinite in some of the Idaho vein areas. Table 4-5 shows the estimated daily barren rock production by geologic material type. The mass and percentages generally represent the amount of barren rock material that would be placed in the waste rock pile each day.

Table 4-5 Estimated Daily Barren Rock Production

Material Type	Tons per Day	Percent of Material Produced
Meta-Andesite	481	96
Altered Meta-Andesite	12	2
Diabase	5	1
Serpentinite	2	1
TOTAL	**500**	**100**

There are some areas where blocks of meta-sedimentary rocks are present in the meta-andesite unit. This rock type has not been included in the estimated barren rock but could be present in minor volumes in future mining during the project.

Rise completed 19 drill exploration drill core holes, totaling 67,500 linear feet, from 2017-2019. Exploration drilling was designed to test a variety of mineralization throughput the deposit in areas where mining is expected to occur. Drill core was logged by company geologists in Grass Valley. The core was sawed in half in zones of interest and sent to ALS Laboratories in Reno, Nevada to be assayed. ALS Laboratories crushed and homogenized the sample to -2mm size, split a 1 kg sample, pulverized the split sample, and assayed a split of the pulverized sample.

A California-licensed Professional Geologist from Benchmark Resources collected six drill core samples in Grass Valley on October 29, 2019 from barren rock intervals as shown in Table 4-6. Core sample locations and depth intervals are shown on Sheets 5, 6, and 7.

Table 4-6 Core Samples Collected by Benchmark Resources

Sample Name	Description	Date	Time	Bag #	Hole #	Elevation Interval
MA-1	Meta Andesite/Porphyrite	29/10/2019	10:45 AM	Y973551	I-19-13	167'-177'
MS-1	Meta Sediment/Porphyrite	29/10/2019	11:00 AM	Y973560	I-19-13	1,067’-1,077'
MA-2	Meta Andesite/Porphyrite	29/10/2019	11:05 AM	Y973594	I-19-13	3,959.7-3,969.7
MAA-1	Meta Andesite Altered/Porphyrite	29/10/2019	11:20 AM	core box	I-19-13	3,357'-3,360'
S-1	Serpentinite	29/10/2019	11:25 AM	core box	I-18-11	4,725.6'-4,725.7'
MA-3	Meta Andesite Altered/Porphyrite	29/10/2019	11:45 AM	core box	I-18-10	3,265'-3,266'

The barren rock samples were sent to ACZ Laboratories in Steamboat Springs, Colorado. ACZ Laboratories performed total metals analysis and leaching tests using deionized water (DI-WET), using EPA methods in a California Certified lab, on each of the samples. The DI-WET test is intended to simulate leaching from the waste rock pile by rainfall. Static Acid-Based Accounting (ABA) tests were also conducted by ACZ. Table 4-7 provides a summary of total metals and DI-WET results. Certified laboratory reports are provided in Appendix D.

As indicated in Table 4-7, the barren rock samples did not leach most heavy metals, including cadmium, chromium, cobalt, copper, mercury, and zinc. Other metals did not leach at concentrations that exceed water quality standards, except for arsenic in the altered meta-andesite and serpentinite samples. Arsenic is present in the meta-andesite and meta-sediment samples at total concentrations ranging from 0.2 milligrams per kilograms (mg/kg, equivalent to parts per million or ppm) to 6.1 mg/kg, which is generally within or below typical natural background levels of arsenic in California (DTSC, 2018; USGS, 2013). However, in the altered meta-andesite and the serpentinite, the total arsenic concentrations were 34.8 mg/kg and 36.8 mg/kg. The DI-WET results show that the arsenic within the meta-andesite and meta-sediments will leach at concentrations of 0.005 milligrams per liter (mg/L, equivalent to parts per million, or ppm) or less, which is one-half of the typical water quality standard for arsenic of 0.01 mg/L. In contrast, the altered meta-andesite leached arsenic at 0.0148 mg/L, which is 50 percent greater than the water quality standard. The serpentinite sample leached arsenic at 0.169 mg/L, which is almost 17 times greater than the water quality standard. However, as shown in Table 4-5, the altered meta-andesite and serpentinite are anticipated to comprise only two percent and one percent, respectively, of the barren rock volume that would be placed in the waste rock pile. Based on the arsenic DI-WET leaching concentrations in Table 4-7 and the material percentages shown in Table 4-5, the bulk average arsenic concentration in rainfall that would percolate through the waste rock pile, assuming it included no sand tailings, would be 0.004 mg/L, which is only 40 percent of the water quality standard. The DI-WET test uses a much finer particle size of -2mm crushed material than the -6 inch barren rock that will be produced from the mine. Thus, the barren rock used in the engineered fill will have a substantially smaller surface area to volume ratio than the crushed material used for the DI-WET analysis. The smaller surface area to volume ratio should result in lower concentrations of metals leaching from the engineered fill than identified in the DI-WET leaching tests.

The DI-WET leaching data indicate that the water that percolates through the barren rock in the engineered fill would be a calcium-sodium-bicarbonate water with a specific conductance of approximately 70 micromhos per centimeter (μmhos/cm), a hardness of about 15 mg/L, an alkalinity of 30 mg/L, and a pH of 9.7. The low specific conductance, hardness, and alkalinity are consistent with limited water contact with hard rock. The relatively high pH value, however, is inconsistent with the pH values measured in the New Brunswick shaft, the drains, and in surface water. As indicated in Section 3.4.1, the existing pH in water within and draining from the underground mine workings, and within the creeks flowing across the bedrock, ranges from 5.78 to 7.8 (see Tables 3-5, 3-6, 3-8, 3-9, and 3-10). The elevated pH from the DI-WET analyses may be a result of the fine crushing of the samples for the leaching tests. Whatever the reason, the pH results from the DI-WET tests are not consistent with site-specific measurements made under actual field conditions.

The ABA results are presented in Table 4-8. Both the alkaline nature of the host rock and the presence of carbonate veins result in a relatively strong net acid neutralization potential.

In addition to the barren rock samples, Rise provided 48 crushed core samples, taken from -2mm assay rejects, for trace element test work. This material provides information on the variability of trace metals that may be present in the rock that would be produced from tunneling in barren rock in different lithologies. Forty samples were from meta-andesite, five samples were from meta-sediment, one sample was from diabase, and one sample was from serpentinite. These samples were analyzed for trace elements by ACZ in Colorado using EPA methods by a California Certified Lab. Table 4-9 summarizes the analytical results from ACZ for the 48 rock samples. For most metals, the concentration in the crushed core samples were similar to or less than the concentrations in the barren rock samples. All sample locations are shown on Sheets 5, 6, and 7.

4.4.2 Sand Tailings Used as Engineered Fill

Rise Grass Valley Inc. prepared a metallurgical sample composite for testwork and preparation of a tailings sample, representative of expected tailings to be produced by the IM Mine Project.

Rise completed 19 exploration drill core holes, totaling 67,500 feet, from 2017-2019. Exploration drilling was designed to test a variety of mineralization throughput the deposit in areas where mining is expected to occur. Drill core was logged by company geologists in Grass Valley. Mineralized core was sawed in half and assayed for gold at ALS Laboratories in Reno, Nevada. ALS Laboratories crushed and homogenized the sample to -2mm size, split a 1 kg sample, pulverized the split sample, and assayed a split of the pulverized sample.

Rise selected mineralized samples for metallurgical testwork by reviewing drill logs and maps. Samples were selected to represented materials representative of future mining. Factors considered in selection were gold grades, minimum mining widths, mineralization style, and locations throughout the potential mining areas. Sample locations and depth intervals are shown on Sheets 5, 6, and 7.

A composite sample was prepared from 76 samples of the -2mm material remaining from assaying. A portion of the material from each sample was weighed to represent the interval length and merged to make the metallurgical sample. Sufficient material was available for most samples, except for five samples where no material was available from the assay lab. The 76 samples created a composite metallurgical sample of approximately 46 kilograms (kg) (about 100 pounds).

The 46 kg metallurgical sample was shipped in July 2019 to McClelland Laboratories in Reno, Nevada for testwork. McClelland homogenized the sample and then split the sample into approximately 12 kg sub-samples. McClelland processed each sub-sample with a process designed to simulate that planned to be used for mineral processing at the IM Mine Project. Each sample was crushed and ground with gravity concentration of gold followed by sulfide flotation. The testwork resulted in four flotation tailings samples, labeled F1-F4, which were done at progressively coarser grind sizes. Testwork results showed acceptable

gold recoveries and concentrate grades for each grind size tested. The McClelland Metallurgical Testing Report is included in Appendix H.

Flotation tailings samples (F1-F4) were shipped by McClelland Labs to a California-licensed Professional Geologist from Benchmark Resources in November 2019 who then submitted the samples to ACZ Laboratories in Steamboat Springs, Colorado.

ACZ Laboratories performed total metals analysis and DI-Wet testing, using EPA methods in a California Certified lab, on each of the tailings samples as shown in Table 4-7. As indicated in Table 4-7 the tailings samples did not leach most heavy metals, including barium, beryllium, cadmium, chromium, cobalt, iron, lead, manganese, mercury, molybdenum, and zinc. Other metals did not leach at concentrations that exceed water quality standards, including arsenic. Arsenic is present in the tailings samples at total concentrations ranging from 1.2 mg/kg to 2.0 mg/kg, which is below typical natural background levels of arsenic in California (DTSC, 2018; USGS, 2013). The DI-WET arsenic concentrations from the tailings samples was less than 0.002 mg/L in all four samples, which is less than 20 percent of the water quality standard. Thus, using the sand tailings within the engineered fill would not result in metals leaching from the fill material at concentrations that exceed regulatory limits.

The DI-WET leaching data indicate that the water that percolates through the sand tailings in the engineered fill would be a calcium-bicarbonate water with a specific conductance of approximately 110 μmhos/cm, a hardness of about 35 mg/L, an alkalinity of 45 mg/L, and a pH of 9.4. As with the barren rock, discussed above, the relatively high pH value is inconsistent with the pH values measured in the New Brunswick shaft, the drains, and in surface water, where the existing pH values range 5.78 to 7.8 (see Tables 3-5, 3-6, 3-8, 3-9, and 3-10). The elevated pH from the DI-WET analyses of the sand tailings may be a result of the fine crushing of the samples for the leaching tests.

ACZ also completed Static Acid Based Accounting testwork on the samples as shown in Table 4-8. As with the barren rock, the alkaline nature of the host rock and the presence of carbonate veins result in a relatively strong net acid neutralization potential.

Table 4-7 Tailings & Barren Rock Samples - Total Metals and DI-WET Results

Constituent	Test Type	Units	Tailings Samples				Rock Samples					
			F-1	F-2	F-3	F-4	MA-1	MA-2	MA-3	MAA-1	MS-1	S-1
METALS												
Aluminum	Total	mg/Kg	16100	16300	16300	16300	23000	24400	31100	421	22900	41300
	DI-WET	mg/L	0.17	0.18	0.26	0.28	0.94	1.08	0.6	0.49	0.99	0.32
Antimony	Total	mg/Kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	<0.2	0.6
	DI-WET	mg/L	0.0018	0.0015	0.0031	0.0020	0.0006	0.0041	0.0016	0.0104	0.0021	0.1050
Arsenic	Total	mg/Kg	1.7	1.4	2.000	1.2	0.2	6.1	0.5	34.8	0.7	36.8
	DI-WET	mg/L	0.0018	0.0013	0.0019	0.0014	<0.0002	0.0051	0.0014	0.0148	0.0005	0.1690
Barium	Total	mg/Kg	18.4	16.6	17.9	17.6	2.3	9.4	122	1.6	18.3	1.1
	DI-WET	mg/L	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.23	<0.007	<0.007	<0.007
Beryllium	Total	mg/Kg	0.23	0.22	0.22	0.22	0.07	0.16	0.09	<0.04	0.13	<0.04
	DI-WET	mg/L	<.00008	<.00008	<.00008	<.00008	<.00008	<.00008	<.00008	<.00008	<.00008	<.00008
Boron	Total	mg/Kg	<2	<2	<2	<2	<2	<2	<2	<2	<2	7
	DI-WET	mg/L	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	0.13
Cadmium	Total	mg/Kg	0.61	0.62	0.62	0.59	0.29	0.18	0.25	0.35	0.37	<0.03
	DI-WET	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Chromium	Total	mg/Kg	73	75	88	88	144	43	152	<1	54	1740
	DI-WET	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	Total	mg/Kg	13	13	13	13	24	18	27	6	22	76
	DI-WET	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	Total	mg/Kg	86	86	87	84	141	43	87	27	89	30
	DI-WET	mg/L	<0.01	0.01	0.02	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	Total	mg/Kg	35500	36000	35200	35200	45600	42100	54900	15500	33700	36800
	DI-WET	mg/L	<0.03	<0.03	<0.03	<0.03	0.05	0.08	0.20	<0.03	<0.03	0.33
Lead	Total	mg/Kg	11.80	9.34	10.20	8.88	1.45	4.44	0.59	22.80	1.08	1.92
	DI-WET	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0002
Manganese	Total	mg/Kg	1000	1010	990	994	604	747	1230	311	696	176

Constituent	Test Type	Units	Tailings Samples				Rock Samples					
			F-1	F-2	F-3	F-4	MA-1	MA-2	MA-3	MAA-1	MS-1	S-1
	DI-WET	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	Total	ng/g	39.9	45.1	41.9	71.3	25.9	35.1	11.4	43.4	19.0	25.7
	DI-WET	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	Total	mg/Kg	22	33	42	37	<2	<2	<2	271	<2	3
	DI-WET	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02
Nickel	Total	mg/Kg	31.1	31.5	30.3	29.9	51.0	26.8	52.5	3.0	32.4	1810.0
	DI-WET	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.012
Selenium	Total	mg/Kg	0.11	0.12	0.13	0.11	1.07	0.12	0.26	0.96	0.40	0.20
	DI-WET	mg/L	0.0003	0.0002	0.0003	0.0003	0.0001	<0.0001	<0.0001	0.0004	0.0003	<0.0001
Silver	Total	mg/Kg	0.23	0.21	0.23	0.2	0.12	0.42	0.74	0.59	0.17	<0.05
	DI-WET	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium	Total	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DI-WET	mg/L	<0.0001	<0.0001	0.0003	0.0001	<0.0001	<0.0001	0.0010	0.0002	0.0001	<0.0001
Vanadium	Total	mg/Kg	72.0	73.2	73.4	73.0	126.0	167.0	147.0	4.9	129.0	63.4
	DI-WET	mg/L	0.008	0.010	0.018	0.014	0.030	0.035	0.029	0.007	0.040	0.031
Zinc	Total	mg/Kg	65	63	63	63	60	59	82	11	47	17
	DI-WET	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
GENERAL CHEMISTRY PARAMETERS												
Bicarbonate	DI-WET	mg/L	40.7	40.2	43.5	44.6	21.6	26.2	28.0	32.4	19.9	<2
Calcium	DI-WET	mg/L	9.0	8.5	7.5	8.3	6.0	4.6	4.5	8.8	4.1	<0.1
Carbonate	DI-WET	mg/L	4.5	3.2	2.6	3.1	2.8	4.4	3.0	14.4	9.9	73.6
Chloride	DI-WET	mg/L	1.7	1.9	2.8	2.5	4.4	3.3	0.7	6.6	1.4	0.7
Conductivity	DI-WET	umhos/cm	105	100	115	118	61	67	74	106	57	200
Fluoride	DI-WET	mg/L	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.1	<0.1	0.2	<0.1
Hardness	DI-WET	mg/L	38	36	33	36	18.0	14.0	15.0	38.0	12.0	4.5
Hydroxide	DI-WET	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	30
Magnesium	DI-WET	mg/L	3.8	3.5	3.5	3.8	0.6	0.6	0.9	3.9	0.3	1.1
Nitrate	DI-WET	mg/L	0.06	0.08	0.28	0.24	<0.02	<0.02	0.05	<0.02	<0.02	<0.02

Constituent	Test Type	Units	Tailings Samples				Rock Samples					
			F-1	F-2	F-3	F-4	MA-1	MA-2	MA-3	MAA-1	MS-1	S-1
Nitrite	DI-WET	mg/L	0.03	0.03	0.06	0.05	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
pH	DI-WET	std units	9.4	9.3	9.3	9.3	9.7	9.6	9.7	9.7	10.0	10.6
Potassium	DI-WET	mg/L	3.8	4.2	7.8	7.4	1.2	3.0	1.8	<0.2	1.6	2.7
TDS	DI-WET	mg/L	64	72	78	78	76	72	68	86	54	178
Sodium	DI-WET	mg/L	3.7	3.6	5.1	4.7	4.9	6.9	8.6	7.4	6.7	38.7
Sulphate	DI-WET	mg/L	8.4	6.3	8.5	8.7	3.3	1.4	6.6	1.9	1.1	2.8
Total Alkalinity	DI-WET	mg/L	45.2	43.4	46.1	47.7	24.4	30.6	31.0	46.7	29.8	104.0

Table 4-8 Tailings & Barren Rock Samples - ABA Results

Parameter	Units	Tailings Samples				Rock Samples					
		F-1	F-2	F-3	F-4	MA-1	MA-2	MA-3	MAA-1	MS-1	S-1
Acid Generation Potential	t CaCO3/Kt	1.25	1.56	1.88	1.88	35.3	12.5	1.25	60.9	6.25	4.38
Acid Neutralization Potential	t CaCO3/Kt	199	194	204	189	241	150	134	83	200	36
Acid-Base Potential	t CaCO3/Kt	198	192	202	187	206	138	133	22.1	194	31.6
ANP to AGP Ratio	t CaCO3/Kt	159	124	109	101	6.82	12	107	1.36	32	8.23
Neutralization Potential as CaCO3	%	19.9	19.4	20.4	18.9	24.1	15	13.4	8.3	20	3.6
pH, Saturated Paste											
Max Particle Size	um	250	250	250	250	250	250	250	250	250	250
pH	units	8.6	8.3	8.9	8.7	9.4	9.4	9.3	9.7	9.8	10.1
Sulfur Forms											
Sulfur HCl Extractable	%	<0.01	<0.01	<0.01	<0.01	0.94	0.11	0.01	<0.01	0.11	<0.01
Sulfur HNO3	%	0.04	0.04	0.06	0.05	0.02	0.27	0.04	1.78	0.06	0.13
Extractable											
Sulphur Hot H2O	%	<0.01	0.01	<0.01	0.01	0.13	<0.01	<0.01	0.16	<0.01	<0.01
Sulphur Residual	%	<0.01	<0.01	<0.01	<0.01	0.04	0.03	<0.01	0.04	0.05	0.02
Sulphur Total	%	0.04	0.05	0.06	0.06	1.13	0.4	0.04	1.95	0.2	0.14

Table 4-9 Barren Rock Crushed Core Samples – Total Metals Results

Rock Type	Hole ID	Sample ID	From	To	Length	Al	Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	Se	Ag	Th	V	Zn
			ft	ft	ft	mg/kg																			
Dia	I-18-11	Y973586	4107.8	4117.6	9.8	23500	<0.2	7.4	0.9	<0.04	31	<0.03	319	99	75	59200	0.53	830	<2	1400	0.23	<0.05	<0.05	18	20
MA	B-18-02	Y973583	948.0	958.0	10.0	23100	<0.2	2.2	4.7	0.05	<2	0.47	112	25	220	35900	0.59	666	<2	35.3	0.26	0.13	<0.05	125	42
MA	I-18-10	Y973584	2926.0	2936.0	10.0	26100	<0.2	5.6	4.6	0.06	<2	0.28	122	23	65	33700	0.92	571	<2	51.5	<0.05	0.06	<0.05	103	48
MA	I-18-10	Y973585	3104.4	3114.4	10.0	26300	<0.2	0.8	13.8	0.08	<2	0.26	135	25	67	35700	0.85	741	<2	53.1	0.2	0.06	<0.05	124	63
MA	I-18-10	Y973587	3332.0	3342.0	10.0	26700	<0.2	1.5	2.3	<0.04	<2	0.39	156	35	66	45000	0.27	847	<2	55.4	0.22	0.06	<0.05	136	56
MA	I-18-12	Y973589	3665.7	3675.7	10.0	24500	<0.2	1.9	14.7	0.05	<2	0.45	142	31	99	39400	0.37	737	<2	43.5	0.23	0.13	<0.05	106	49
MA	I-18-12	Y973588	3819.9	3829.9	10.0	26900	<0.2	0.5	14.7	0.05	<2	0.49	93	33	98	44300	0.32	768	<2	47.7	0.24	0.13	<0.05	129	50
MA	I-19-13	Y973551	167.0	177.0	10.0	19800	<0.2	0.4	4.9	0.05	<2	0.42	100	21	54	32900	1.19	590	<2	36	0.45	0.09	<0.05	97.8	50
MA	I-19-13	Y973552	267.0	277.0	10.0	21700	<0.2	0.5	6.7	0.04	<2	0.3	115	20	49	28800	0.59	640	<2	41	<0.05	0.06	<0.05	109	43
MA	I-19-13	Y973553	367.0	377.0	10.0	26500	<0.2	0.5	5.7	<0.04	<2	0.47	160	23	64	35200	0.96	603	<2	64.6	0.1	0.08	<0.05	123	46
MA	I-19-13	Y973554	467.0	477.0	10.0	21900	<0.2	1.3	4.1	<0.04	<2	0.4	81	23	75	35100	0.65	550	<2	40.9	0.25	0.09	<0.05	102	48
MA	I-19-13	Y973555	567.0	577.0	10.0	22000	<0.2	4.3	4.7	0.05	<2	0.38	150	24	58	32100	0.74	557	<2	63.3	0.12	0.08	<0.05	109	43
MA	I-19-13	Y973556	667.0	677.0	10.0	25000	<0.2	1.3	5.1	0.07	<2	0.4	156	25	58	35800	0.69	633	<2	54.1	0.12	0.08	<0.05	117	48
MA	I-19-13	Y973557	767.0	777.0	10.0	33100	<0.2	7.0	11.9	0.13	<2	0.41	126	31	79	51200	0.88	933	<2	48.6	0.36	0.11	<0.05	191	72
MA	I-19-13	Y973558	867.0	877.0	10.0	25000	<0.2	3.1	4.5	0.05	<2	0.34	82	25	61	38200	0.73	598	<2	36.8	0.27	0.08	<0.05	114	56
MA	I-19-13	Y973564	1467.0	1477.0	10.0	27600	<0.2	1.6	6.6	0.09	<2	0.51	122	24	58	40200	0.63	611	<2	43.6	0.34	0.09	0.07	162	60
MA	I-19-13	Y973565	1577.0	1587.0	10.0	17400	<0.2	1.8	6.7	0.16	<2	0.92	139	35	19	57700	0.74	778	<2	37.1	0.11	0.1	<0.05	200	69
MA	I-19-13	Y973566	1677.0	1687.0	10.0	25200	0.3	2.0	12.4	0.2	<2	0.68	143	41	15	63600	1.23	1130	<2	53.4	0.12	0.07	0.08	172	103
MA	I-19-13	Y973567	1777.0	1787.0	10.0	22900	<0.2	2.8	14.8	0.16	<2	0.96	137	42	23	47400	0.94	1050	<2	56	0.11	0.1	0.08	188	101
MA	I-19-13	Y973568	1890.0	1900.0	10.0	22100	<0.2	1.9	7.9	0.12	<2	0.7	169	39	34	47800	0.38	815	<2	54	0.09	0.08	0.06	173	69
MA	I-19-13	Y973569	1977.0	1987.0	10.0	27700	<0.2	4.9	11.7	0.12	<2	0.77	196	42	29	38400	0.37	1090	<2	69.6	0.08	0.08	0.06	179	81
MA	I-19-13	Y973570	2077.0	2087.0	10.0	33900	<0.2	2.7	20.2	0.16	<2	0.61	210	44	23	45200	0.29	1080	<2	75.8	0.2	0.08	0.15	208	88
MA	I-19-13	Y973571	2187.0	2197.0	10.0	28500	<0.2	2.2	6.8	0.15	<2	0.69	163	41	72	63500	0.17	1140	<2	56.8	0.1	0.09	0.14	235	75
MA	I-19-13	Y973572	2277.0	2287.0	10.0	21700	<0.2	2.2	2.7	0.06	3	0.76	45	28	57	27700	0.16	519	<2	33.5	0.42	0.09	<0.05	94.8	35
MA	I-19-13	Y973573	2387.0	2397.0	10.0	30000	<0.2	0.9	2.1	0.11	<2	0.52	152	32	52	41200	0.52	878	<2	49.4	0.1	0.11	<0.05	160	53
MA	I-19-13	Y973574	2477.0	2487.0	10.0	32000	<0.2	2.4	3.5	0.11	<2	0.47	146	35	51	44500	0.57	853	<2	52.9	0.14	0.08	<0.05	144	66
MA	I-19-13	Y973575	2587.0	2597.0	10.0	27500	<0.2	1.4	2	0.07	<2	0.48	177	32	62	44500	0.22	773	<2	49.1	0.24	0.07	<0.05	153	85
MA	I-19-13	Y973576	2677.0	2687.0	10.0	31500	<0.2	1.3	33	0.06	<2	0.41	313	47	52	46100	0.18	801	<2	260	0.07	<0.05	0.19	120	53
MA	I-19-13	Y973577	2757.0	2767.0	10.0	31400	<0.2	1.5	8.5	0.13	<2	0.48	118	38	57	56400	0.42	952	<2	38.7	0.29	0.06	<0.05	176	55
MA	I-19-13	Y973578	2837.0	2847.0	10.0	28800	<0.2	0.7	2.5	0.05	<2	0.39	138	35	81	46000	0.28	762	<2	46.7	0.35	0.06	<0.05	142	40
MA	I-19-13	Y973579	2917.0	2927.0	10.0	29300	<0.2	0.8	2.7	0.05	<2	0.39	137	35	83	44500	0.27	770	<2	49	0.39	0.06	<0.05	143	38

Rock Type	Hole ID	Sample ID	From	To	Length	Al	Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	Se	Ag	Th	V	Zn
			ft	ft	ft	mg/kg																			
MA	I-19-13	Y973580	3017.0	3027.0	10.0	29400	<0.2	1.5	1.2	0.06	<2	0.38	137	33	88	41000	0.76	761	<2	61.5	0.19	0.08	<0.05	98.4	48
MA	I-19-13	Y973581	3117.0	3127.0	10.0	17600	<0.2	0.9	11.1	0.09	<2	0.52	29	18	110	32200	0.59	496	<2	14.9	0.23	0.09	<0.05	130	42
MA	I-19-13	Y973582	3217.0	3227.0	10.0	32600	<0.2	3.7	3.2	0.05	<2	0.24	158	35	57	45500	0.8	795	<2	60.4	0.22	0.07	<0.05	136	46
MA	I-19-13	Y973590	3583.0	3593.0	10.0	40100	<0.2	2.0	6.3	0.08	<2	0.24	204	40	71	60800	0.93	1100	<2	79.6	0.41	0.13	<0.05	201	56
MA	I-19-13	Y973591	3687.0	3697.0	10.0	27200	<0.2	0.5	3.3	0.08	<4	0.25	170	27	52	35500	0.56	628	<2	51	0.11	0.05	<0.05	125	38
MA	I-19-13	Y973592	3781.2	3791.2	10.0	29800	<0.2	1.8	1.6	0.09	<4	0.25	124	33	51	41000	0.29	704	<2	43.1	0.18	<0.05	<0.05	134	35
MA	I-19-13	Y973593	3878.3	3888.3	10.0	34300	<0.2	2.0	2.6	0.17	<4	0.39	174	37	88	47000	0.53	846	<2	48	0.23	0.07	<0.05	175	93
MA	I-19-13	Y973594	3959.7	3969.7	10.0	23900	<0.2	6.1	7.6	0.2	<4	0.24	73	22	115	39700	4.01	587	<2	28.8	0.13	0.13	<0.05	168	57
MA	I-19-13	Y973595	4313.0	4323.0	10.0	33900	<0.2	3.2	11.8	0.19	<4	0.25	228	27	38	39900	1.42	610	<2	89.4	0.07	<0.05	<0.05	174	53
MA	I-19-13	Y973596	4767.9	4772.7	4.8	37800	<0.2	1.2	6.8	0.29	<4	0.46	162	38	46	65300	0.47	945	<2	52.4	0.2	0.07	<0.05	247	75
MS	I-19-13	Y973559	967.0	977.0	10.0	16400	<0.2	1.1	11.2	0.11	<2	0.68	74	17	60	32800	2.71	541	<2	30.2	1.89	0.2	<0.05	102	72
MS	I-19-13	Y973560	1067.0	1077.0	10.0	26600	<0.2	5.6	31.1	0.12	<2	0.6	80	26	75	42000	1.69	744	<2	35.9	0.69	0.13	<0.05	139	60
MS	I-19-13	Y973561	1157.0	1167.0	10.0	23000	<0.2	1.0	25.6	0.09	<2	0.29	63	19	63	31200	1.39	527	<2	26	0.43	0.1	<0.05	99	50
MS	I-19-13	Y973562	1267.0	1277.0	10.0	6620	<0.2	0.6	14.2	0.07	<2	0.47	21	6	26	11000	0.88	276	<2	10.2	0.85	0.11	<0.05	31	42
MS	I-19-13	Y973563	1367.0	1377.0	10.0	16700	<0.2	0.6	48	0.07	<2	0.52	35	12	27	25200	1.42	438	<2	17	0.36	0.14	<0.05	80.8	55
S	I-19-13	Y973597	4772.7	4774.6	1.9	76200	<0.2	1.0	2.1	0.21	<10	0.04	746	42	<5	76800	0.31	1060	<2	550	<0.05	<0.05	<0.05	130	100

Notes:
Dia = Diabase, MA = Meta-Andesite, MS = Meta-Sediments, S = Serpentinite

4.4.3 Sand Tailings Used as Underground Cemented Paste Backfill

Rise intends to backfill some of the mine workings with cemented paste backfill (CPB). CPB typically consists of tailings mixed with cement and water. Use of CPB for backfilling has several advantages, including:

- Introduction of lime in the cement, which can act to offset any acid generation potential from sulfide minerals in the mine wall rock;
- Reduction of the above-ground land surface area needed for tailings storage and disposal and potential related impacts; and
- Lower porosity and permeability in the tailings material, reducing the potential to mobilize metals and other constituents in the tailings.

There are two primary water-quality concerns related to the use of CPB. The first is that it can potentially increase the pH in the surrounding water when the mine is re-flooded. The second is that some cement materials have been documented to leach hexavalent chromium (Cr^{+6}). Rise retained Itasca (2020a) to conduct a desktop study of CPB use for the project, its potential impacts on water quality, and site-specific considerations for use in the Idaho-Maryland Mine.

Itasca (2020a) determined that use of CPB for the project is an environmentally favorable method for tailings disposal because it can significantly reduce any potential release of metals from the tailings and will minimize the area of above-ground surface disturbance needed for tailings disposal. Itasca (2020a) recommends that additional testing and engineering be conducted prior to implementation to select the proper source of the Portland cement binding agent to minimize the presence of Cr^{+6} in the mixture, and identify the minimum time that should be allowed for the mixture to cure before allowing it to become inundated in the mine workings.

Chromium is a naturally-occurring trace component of the materials used to make cement and can also be imparted to the cement from impurities in the refractory bricks used in some cement kilns (Estokova et al., 2018). Cr^{+6} is typically less than 2 percent of the total chromium content in cement (Estokova et al., 2018), while the total chromium itself is a very small component in the finished cement (appx 200 ppm, Estokova et al., 2012). Thus, the fraction of Cr^{+6} in cement is usually only about 0.000004 (or 0.0004 percent) of the total mass of the cement before forming any admixtures (e.g. concrete or CPB). Studies also show that the amount of Cr^{+6} that leaches from admixtures, such as CPB, is much lower than that which leaches from neat cement (Estokova et al., 2018).

Itasca (2020a) concludes that, based on the available data, the use of CPB composed of tailings, Portland cement, and water is an environmentally favorable disposal alternative for tailings because, when used properly, it significantly limits solute release and reduces the surface footprint of the mine. The CPB will contribute additional net neutralization potential to the backfilled areas and is not anticipated to negatively affect groundwater as a result of solute leaching because of the low metals content, low sulfide content, and net-neutralizing character of the CPB materials.

4.5 Water Quality

As discussed in Section 3.4, the water within the underground mine workings, as measured in samples collected from the New Brunswick shaft and from the drains, has elevated levels of iron and manganese which exceed both the secondary drinking water standards and the NPDES effluent limits for these metals. Arsenic has been detected on a few occasions in water from the shaft at concentrations below its MCLs and NPDES effluent limit. However, elevated levels of arsenic have been detected in water samples collected from some of the drains. The laboratory water quality data from the drains and shaft are summarized in Tables 3-6, 3-7, and 3-9.

As described in Section 2.0, water would initially be pumped from the New Brunswick shaft at a rate of about 2,500 gpm for approximately six months to dewater the existing underground mine workings. Pumping would then occur at a rate averaging approximately 850 gpm to remove groundwater that would enter the existing and new underground mine workings (i.e. maintenance dewatering). Over the life of the operation the maintenance dewatering could increase as new mine workings are constructed. However, since most of the proposed new mine workings are at depths where the transmissivity and hydraulic conductivity are very low, the incremental additional inflow of groundwater into the mine will be a small percentage of the overall maintenance dewatering rate. Itasca estimated that groundwater inflow, for the base case mine plan, would reach a maximum value of 1,100 gpm with the stable predicted inflow being 900 gpm. With additional water entering historic shafts during the rainy season total pumping could range up to 1,400 gpm. In Itasca's sensitivity analysis, with increased mining areas, the groundwater inflow was predicted to increase by an additional 100 gpm (Itasca,2020b). Thus, the maximum permitted discharge of 2,500 gpm would be sufficient for the life of the project and would provide flexibility during operations.

For the dewatering operations, the water would initially be pumped to an existing clay-lined pond to the southeast of the shaft. The water would then be treated by a series of oxidation and filtration steps before being discharged. Based on a 2019 survey by NCE, the volume of the pond with two feet of freeboard below the elevation of the emergency overflow spillway is 23 acre-feet. The freeboard volume is 6.6 acre-feet. The spillway is also two feet below the lowest point on the berm surrounding the pond. At the maximum mine dewatering rate of 2,500 gpm, the pond has the capacity to hold the volume of water that would be dewatered during two days of pumping. At the maintenance dewatering rate of 850 gpm, the pond has the capacity to hold the volume of water that would be pumped over more than six days. The total runoff from the 6.4 acre watershed for the pond resulting from a 100-year, 24-hour storm would be approximately 5.7 acre-feet. Thus, the freeboard volume is more than adequate to retain the runoff from an extreme storm event. Overall, the existing clay-lined pond has more than adequate capacity to accommodate operational flexibilities for dewatering and water treatment, and to retain stormwater runoff from the area surrounding the pond.

Linkan Engineering prepared a water treatment plant design report which included bench testing of water samples from the Brunswick Shaft (Linkan, 2019). The treated water would be discharged to South Fork Wolf Creek downstream of the natural creek that NID uses to convey water from the DS Canal Extension to the creek. The water treatment system would be designed to lower the concentrations of iron,

manganese, and any elevated arsenic to the MCL and NPDES effluent limits or less. The oxidation and filtration would remove cis-1,2-DCE and other constituents that might potentially exceed the NPDES effluent limits on occasion, such as ammonia. The oxidation process would also raise the dissolved oxygen content of the water to be within the allowable NPDES limits. The treatment would occur within a closed system with appropriate containment structures. Treatment residuals would be managed in accordance with applicable federal, state, and local waste management requirements.

The temperature of the water within the mine workings and the drains remains relatively constant, between 14 and 15 degrees C (see Table 3.5). The water temperature in South Fork Wolf Creek varies seasonally, from about 9 degrees C in the winter, to 12 degrees C in the spring, to 15 degrees C in late summer. The NPDES requirements indicate that the discharge should not alter the temperature of the receiving water by more than 5 degrees F, which is about 2.8 degrees C. During the summer, the temperature of the discharge from the mine would be comparable to the temperature of the receiving water in South Fork Wolf Creek. During the winter and early spring, the temperature of the water in the mine would be more than 2.8 degrees C warmer than the creek. However, after being pumped from the mine, the water would be stored within a surface pond before treatment and discharge. During the winter and early spring, the ambient temperature should cool the water in the pond. In addition, the rate of discharge would be less than the typical flow rates in South Fork Wolf Creek during the winter and early spring, such that the discharge should not alter the temperature in the creek by more than 2.8 degrees C. Therefore, the discharge would comply with the temperature criteria in the NPDES permit.

Blasting will occur within the underground mine workings. The water treatment system has been designed to treat for ammonia to prevent any potential impacts to water quality from blasting residuals or material that did not completely detonate.

Once mining is completed, the underground workings would be allowed to fill with water. Due to the nature of the geology, reducing conditions would occur within the water that fills the mine workings, just as they occur now. The reducing conditions would prevent oxidation of any sulfide minerals present and, therefore, conditions that would be potentially conducive to the formation of acid mine drainage would not develop. The laboratory testing conducted on the drill core samples (Section 4.4.1) demonstrates that all of the lithologies have high ratios of neutralization potential versus acid generation potential, ranging from a ratio of 6.5 to 300 times greater. The analytical testing completed on the tailings samples(Section 4.4.2), which would be used as underground backfill, also shows acid neutralization up to 204 times greater than acid generation potential.

The water within the underground workings is currently deficient in oxygen, as demonstrated by the reducing conditions and the DO levels measured in the samples from the shaft and the drains (Table 3-5). As a result, there is insufficient oxygen present to oxidize sulfide minerals that may be exposed within the surfaces of the underground workings. However, once the mine is dewatered, oxygen would be available in the air within the mine to potentially oxidize sulfide minerals. Any potential acid generated during the oxidation would be quickly neutralized by the carbonate minerals in the host rock. However, the process of sulfide oxidation and subsequent neutralization has the potential to create elevated TDS levels in the water that is seeping into the mine and being removed by the maintenance dewatering (Gomo, 2018).

Oxidation of pyrite in the presence of carbonate minerals (e.g. calcite and dolomite) may occur based on the following formula (Equation 5 of Gomo, 2018):

$$FeS_2 + CaMg(CO_2) + 3.75O_2 + 1.5H_2O = Fe(OH)_3 + 2SO_4^{2-} + Ca^{2+} + Mg^{2+} + 2CO_2$$

The resulting oxidation results in elevated levels of sulfate, calcium, and magnesium in the water. The iron hydroxide ($Fe(OH)_3$) is insoluble at neutral to alkaline pH levels and will precipitate out of the water. The carbon dioxide (CO_2) will potentially increase the alkalinity or could become a gas. Since the carbonate minerals neutralize the oxidation of the pyrite, acidic pH is not generated and acid mine drainage does not occur. However, the increase in sulfate, calcium, and magnesium would increase the TDS and electrical conductivity of the water in the mine workings in areas where sulfide minerals are present. As discussed in Section 4.4, the percentage of the mine workings that may encounter altered and mineralized rock is anticipated to be only a small fraction of the volume of the new underground workings to be constructed as part of the project. In addition, backfilling of stopes and other mineralized areas with CPB will reduce the number of exposed surfaces that may contain sulfide mineralization within the dewatered mine workings. However, if elevated TDS and conductivity levels are generated during dewatering, the treatment system would be adjusted to meet applicable discharge standards (see Section 4.6), in accordance with the permit requirements. The Report of Waste Discharge submitted to RWQCB would address this potential issue, provide a quantitative analysis of its potential, and define the measures that would mitigate such an occurrence if identified during operation of the treatment system.

Once mining is completed and the underground workings are allowed to flood with groundwater, the same reducing conditions that occur now within the mine workings will develop again. Once reducing conditions are re-established, oxidation of sulfide minerals will no longer occur in the subsurface, such that elevated TDS and conductivity will not be generated. The DI-WET leaching tests indicate that the general water type will not be altered by the additional mining. The same general pH, TDS, and other water quality conditions that have been consistently measured in samples from the shafts, drains, and creeks since the early 1990s are expected to persist after mining is completed due to the geologic conditions in the subsurface and along the creek beds.

Once the underground workings fill with water above an elevation of approximately 2,500 ft msl, discharge through the drains, if they are not plugged once mining is completed, or by seepage through fractures that reach the ground surface, would occur. The discharge from the drains or fractures would be expected to have similar characteristics to the water that currently flows from the drains, unless parts of the underground workings that may be prone to mobilization of certain elements, such as arsenic, are sealed. In any case, the existing geologic and water quality conditions indicate that any future discharge would have elevated iron and manganese levels comparable to those observed now, as discussed in Section 3.4.

4.6 Discharge Requirements

As described in Section 2.2, the water produced during dewatering would be treated prior to discharge to South Fork Wolf Creek. It is anticipated that the discharge would occur in compliance with California Regional Water Control Board Central Valley Region Order No. R5-2016-0076, NPDES No. CAG995002,

which was adopted on October 14, 2016. This order is a general Waste Discharge Requirements permit for Limited Threat Discharges to Surface Water. The discharge of treated water from the mine would be covered as a Tier 3 discharge of hard rock mine wastewater. Under Table 3 of the Limited Threat Discharge permit, Tier 3 discharges to surface water that are greater than 250,000 gallons per day (greater than 175 gpm) and/or that are longer than four months are allowed if the water to be discharged (with or without treatment) meets the applicable screening levels in the permit.

Effluent limitations are listed in Section V and screening levels are listed in Attachment I of the Low Threat Discharge permit. Table 4-10 summarizes these values and provides a comparison with existing water quality data from the New Brunswick shaft and the proposed water treatment criteria. With the proposed treatment described in Sections 2.2 and 4.5, all parameters would meet the screening levels and effluent limitations. Rise will be required to file a Notice of Intent (NOI) for coverage under the Limited Threat Discharge permit, which will include a detailed description of the dewatering, treatment, and discharge components of the project. The water quality and geochemical data presented in Sections 3.4 and 4.4 of this report were developed based, in part, on the requirements of the Limited Threat Discharge permit.

In addition to the numerical limits listed in Table 4-10. The Low Treat Discharge permit also has narrative limits, including the following:

- Acute toxicity – 70 percent survival rate for any one bioassay and a 90 percent median survival rate for three consecutive bioassays;
- Dissolved oxygen – the discharge shall not cause i. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass; ii. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; and iii. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time for waterbodies designated as warm freshwater habitat (WARM); or iv. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time for waterbodies designated as cold freshwater habitat (COLD) and/or spawning, reproduction, and/or early development (SPWN).
- Temperature – the natural temperature shall not increase by more than 5 degrees Fahrenheit; and
- Turbidity - i. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU; ii. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs; iii. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs; iv. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor v. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

The above limits, and other general surface water limitations, are detailed in Section VIII. Receiving Water Limitations of the Low Threat Discharge permit.

Table 4-10 Low Threat Discharge Permit Limits, Current Concentrations, and Treatment Goals

Tier 3 Constituent	Units	Screening Level	Tier 3 Effluent Limit		Existing Shaft	After Treatment
			Average Monthly	Maximum Daily		
Aluminum	ug/L	200	310	620	16	
Ammonia, as N	ug/L	NA	25	25	<100	<25
Iron	ug/L	300	470	930	1400	<300
Manganese	ug/L	50	80	160	230	<50
Nitrate + Nitrite	mg/L	10	10	20	<0.40	
pH	std units	6.5-8.5	6.0-9.0	6.0-9.0	6.8	
Settleable Solids	mL/L	0.1	--	0.1	NM	<0.1
Specific Conductance (EC)	umhos/cm	900			400	
Total Dissolved Solids (1)	mg/L	500	1000	1500	210	
Total Suspended Solids	mg/L	10	20	30	NM	<10
Turbidity	NTU	5			NM	<5
Antimony	ug/L	6	6	12	<5	
Arsenic	ug/L	10	10	20	2.1	<10
Beryllium	ug/L	4	4	8	<1.0	
Cadmium	ug/L	3.4	50	100	<0.25	
Chrome +3	ug/L	290	270	540	0.32	
Chrome +6	ug/L	10	8	16	NM	
Copper	ug/L	13	150	300	0.4	
Lead	ug/L	5.3	300	600	<0.50	
Mercury	ug/L	0.05	1	2	<0.050	
Nickel	ug/L	74	69	140	<5.0	
Selenium	ug/L	5	4.1	8.2	<5.0	
Silver	ug/L	8.2	3.1	6.3	<1.0	
Thallium	ug/L	1.7	1.7	3.4	0.12	
Zinc	ug/L	170	750	1500	5.5	
Cyanide	ug/L	5.2	4.3	8.5	2.2	
cis-1,2-DCE	ug/L	--	--	0.5	4.2	<0.5

NOTES:

Screening Levels and Effluent Limits are for Receiving Waters with Municipal and Domestic Supply Beneficial Use (MUN)

(1) TDS levels are part of the salinity standard. The values shown are the secondary MCL, upper level, and short-term maximum.

For hardness-dependent metals, limits are based on the measured hardness of 180 mg/L from the pumped sample from the shaft (NBS Pump) (see Table 3-7)

pH, TSS, cadmium, copper, lead, mercury, and zinc effluent limits are based on Table 12 of the Low Threat Discharge Permit

After Treatment levels only shown for constituents that currently exceed screening levels or effluent limits

4.7 Additional Permitting Requirements Related to Water Quality

In response to Rise's application for a conditional use permit and reclamation plan for the project, the RWQCB submitted two letters to the Nevada County Planning Department outlining permitting and regulatory compliance requirements for the proposed project activities. Any discharge of material to the ground surface, to waters of the U.S., or to waters of the state must be consistent with the Water Quality Control Plan for the Sacramento and San Joaquin Valley Basin (Basin Plan). The Basin Plan ensures protection of beneficial uses of water and includes programs to achieve water quality objectives. Discharges must comply with the state Antidegradation Policy (State Water Board Resolution 68-16) to maintain the highest water quality possible consistent with the maximum benefit to the people of California. Historical and on-going discharges of mercury related to mining in the Sierra Nevada foothills has resulted in the development of a total maximum daily load (TMDL) for mercury. The project must comply with this TMDL. However, as documented in Tables 3-6, 3-7, and 3-9, mercury has not been detected in any of the water samples from the New Brunswick shaft, and has not been detected in any of the drains, nor in Wolf Creek, or in South Fork Wolf Creek. Mercury was also not detected in the DI-WET leachate samples from the barren rock and tailings samples.

In addition to the to the Low Threat Discharge Permit discussed in Section 4.6, the following additional permits will be a necessary part of the project to meet regulatory requirements:

- Construction Storm Water General Permit – Order No. 2009-009-DWQ. Compliance is required for all construction projects that disturb more than one acre. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that defines Best Management Practices (BMPs) and monitoring requirements. Rise will need to file a Notice of Intent (NOI) to comply with the Construction General Permit using the California Stormwater Multiple Application and Report Tracking System (SMARTS) online tool (https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml).
- Industrial Storm Water General Permit – Order No. 2014-0057-DWQ. Storm water discharges from industrial sites must be managed in accordance with this permit. For the Industrial General Permit, a SWPPP must be prepared and an NOI filed using the SMARTS online tool, similar to what is required for the Construction General Permit.
- Federal Clean Water Act Section 404 Permit. Work within or adjacent to Waters of the U.S. that may involve the discharge of dredged or fill material may require a Section 404 permit from the U. S. Army Corps of Engineers. Re-alignment of the culvert under the Brunswick Industrial Site, the treated water discharge outfall into South Fork Wolf Creek, and the storm water detention pond outfalls into Wolf Creek and South Fork Wolf Creek may require permitting. The Section 404 permit, along with a Streambed Alteration Agreement (see below), ensure that facilities built in or adjacent to a stream would not violate any water quality standards, create substantial erosion or siltation, or exacerbate flooding.
- Section 1600 Streambed Alteration Agreement. Work that may alter the bed or bank of a river, stream or lake requires a Streambed Alteration Agreement (SAA) from the California

Department of Fish and Wildlife. For this project, the SAA would generally parallel the Section 404 Permit and have similar requirements.

- Federal Clean Water Act Section 401 Permit – Water Quality Certification. If a Section 404 or other federal permit must be obtained for this project, then a Water Quality Certification must also be obtained from the RWQCB.
- Waste Discharge Requirements (WDRs). Rise will need to submit a Report of Waste Discharge (RoWD) to the RWQCB to obtain WDRs for use of the engineered fill, which is a mining waste, to create the elevated pad areas at the Centennial and Brunswick Industrial Sites. The WDRs will specify discharge limits to protect groundwater and surface water quality.

As stated above, compliance with the above permits is a required component of the project. These permits are intended to ensure that construction activities, on-going operations from the project, and reclamation activities minimize or avoid effects on water supply, water quality, and surface water.

5.0 IMPACT ANALYSIS

5.1 Threshold Criteria

Chapter 3 of Title 14 of the California Code of Regulations provides guidelines for the implementation of CEQA. As amended in December 2018, Appendix G of the CEQA guidelines provides an Environmental Checklist Form with criteria that are relevant to the evaluation of a project's potential environmental effects. Section X provides criteria related to Hydrology and Water Quality. These criteria address whether a project would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    i) Result in substantial erosion or siltation on- or off-site;
    ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    iii) Create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv) Impede or redirect flood flows.
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

These criteria are evaluated below for the proposed project.

5.2 Project Evaluation

A. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

STORMWATER

The Project will involve grading and construction activities at the New Brunswick shaft, the Brunswick Industrial Site, the treated water discharge location along South Fork Wolf Creek, along East Bennett Road for installation of the potable water supply pipeline, and at the Centennial Industrial Site. Construction work in each of these areas would result in disturbance of more than 1 acre of land. Thus, compliance with the State Water Resources Control Board (SWRCB) general permit to discharge storm water associated with construction activity is required. The general permit is known as the SWRCB, Order No. 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), National Pollutant Discharge Elimination System General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit). Rise would be required to submit a Notice of Intent (NOI) for coverage under the Construction General Permit and prepare a construction Stormwater Pollution Prevention Plan (C-SWPPP).

The C-SWPPP would need to address any Project-related activities that have the potential to release pollutants, including sediment, in stormwater, such as:

- Excavation work;
- Material stockpiling;
- Waste and soil screening;
- Loading and hauling of materials; and
- Winterization of incomplete activities.

The C-SWPPP must identify the Best Management Practices (BMP)s that would be implemented during construction and the final closure fieldwork to ensure that polluted stormwater runoff does not leave the site. The C-SWPPP would also need to include a monitoring program to document the effectiveness of the BMPs. Compliance with the C-SWPPP and implementation of the BMPs will prevent degradation of surface water quality during construction activities.

On-going operations at the New Brunswick shaft, the water treatment facility, and the ore processing area will also require compliance with the Industrial General Permit, known as SWRCB Order No. 2014-0057-DWQ, National Pollutant Discharge Elimination System General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Industrial Activity. Rise would be required to submit a Notice of Intent (NOI) for coverage under the Industrial General Permit and prepare an industrial Stormwater Pollution Prevention Plan (I-SWPPP). The I-SWPPP would address any activities that would have the potential to release pollutants to stormwater, including material and chemical storage, vehicle operation and maintenance, and material handling and transport.

Both the C-SWPPP and the I-SWPPP would need to address any Project-related activities that have the potential to release pollutants

DEWATERING AND SURFACE WATER

Water that would be pumped from the underground mine workings would contain certain constituents that exceed existing water quality standards, in particular iron and manganese. However, prior to discharge to South Fork Wolf Creek, the water would be treated to reduce the levels of these compounds to meet or exceed water quality standards (Linkan, 2019), as described in Section 4.6. The water treatment system would also remove or lower the concentration of other constituents such as arsenic, cis-1,2-DCE, and ammonia, which may not exceed water quality standards but could contribute in some way to a cumulative reduction in surface water quality. The project would be required to obtain coverage under an applicable NPDES permit, such as Central Valley Regional Water Quality Control Board Order No. R5-2016-0076 (NPDES No. CAG995002) for Limited Threat Discharges to Surface Waters. This permit would also include Waste Discharge Requirements for the project as a Tier 3 discharge, which include discharges of wastewater from hard rock mines. Section 4.6, above, presents the narrative water quality standards in the Limited Threat Discharge permit. Table 4-10 lists the discharge limits, current concentrations within the water in the underground workings, and the treatment goals for discharges of treated water from the mine. It is expected that the discharge would meet the dissolved oxygen and temperature requirements of the NPDES permit. If necessary, pH would need to be adjusted prior to discharge. Compliance with the water quality standards and waste discharge requirements in Order No. R5-2016-0076 would prevent any degradation of surface water quality due to dewatering.

WATER WITHIN THE UNDERGROUND WORKINGS

During mining, there will be a net inflow of groundwater into the underground workings due to the on-going dewatering. Any residual constituents associated with blasting would be contained within the water pumped from the mine workings and would not affect the quality of the groundwater outside of the mine workings. The treatment plant is designed to treat ammonia and other blasting residuals that might occur due to incomplete detonation. The net inflow of groundwater into the underground workings would also ensure that mining activities such as blasting, backfilling with CPB, or sealing of drains would not have the potential to affect domestic supply wells during the active mining and dewatering period.

Approximately 50 percent of the sand tailings would be used to backfill the underground workings. The backfill would be placed as Cemented Paste Backfill (CPB). Use of CPB for the project is an environmentally favorable method for tailings disposal because it can significantly reduce any potential release of metals from the tailings and will minimize the area of surface disturbance needed for tailings disposal. However, the Portland cement used for the CPB must be low in Cr^{+6} to prevent potential leaching of hexavalent chromium into the surrounding water. Evaluations of the minimum cure time are also necessary to determine how long the CPB should be in place before becoming inundated in the mine workings once dewatering ceases.

After approval of the Use Permit by Nevada County but prior to commencing any backfill, Rise will be required to obtain a Waste Discharge Requirements permit (WDRs) from the Regional Water Quality

Control Board (RWQCB). Test work will be completed on CPB samples as part of the process for obtaining the WDRs and other permits. It is anticipated that such test work would include comparison of cements from different manufacturers to verify that leaching of Cr^{+6} will not exceed water quality standards and use of the selected cement and CPB admixture would meet applicable regulatory requirements. Thus, the potential water quality effects related to chromium would be addressed through selection of the appropriate cement source and product, along with the proper CPB mixture, rather than by water treatment (i.e. any potential impact would be avoided rather than creating the need for treatment or mitigation).

Water currently within the flooded mine workings has low DO levels, creating reducing conditions. The low oxygen levels and reducing conditions prevent the oxidation of sulfide minerals, such as pyrite, that are exposed within the surfaces of the underground workings. After dewatering, though, oxygen would be available from the air within the underground workings, potentially resulting in oxidation of sulfide minerals. Any acid generated during the oxidation would be quickly neutralized by the carbonate minerals in the host rock. However, the process of sulfide oxidation and subsequent neutralization would potentially create elevated TDS levels in the water that would seep from the limited areas of sulfide mineralization that would be exposed but not removed from the mine, due to dissolution of calcium, magnesium, and sulfate. If elevated TDS levels are generated during dewatering, the treatment system would need to be adjusted to meet applicable discharge standards and antidegradation requirements.

Once mining is completed and the underground workings are allowed to flood with groundwater, the same reducing conditions that occur now within the mine workings will develop again, preventing oxidation of sulfide minerals. Water quality in the re-flooded mine workings would then have the same general pH, TDS, and other water quality conditions that occur under existing conditions. The underground workings are anticipated to refill relatively quickly. Thus, any seepage from drains and fractures within the bedrock would have a comparable water quality to the current discharge from the drains along Wolf Creek.

The reducing conditions would also prevent the leaching of Cr^{+6} from the CPB, since Cr^{+6} can only form under oxidizing conditions. Any Cr^{+6} that had previously leached from the CPB and was present in residual water within the underground workings would be reduced to Cr^{+3}, which is relatively immobile in water and has a much lower impact on water quality than Cr^{+6}. As water is pumped from the underground mine workings, any Cr^{+3} that forms due to oxidizing conditions being achieved would generally precipitate out of the water in the pond or be removed by the physical filtration unit in the water treatment plant.

FILL AREAS

The Project would involve creating fill areas at the Brunswick and Centennial Industrial Site areas. The engineered fill material would consist of 50 percent barren rock and 50 percent sand tailings from the primary ore processing operations. Ore processing would not involve the use of mercury or cyanide. Acid-base accounting analyses conducted by ACZ Labs demonstrates that the barren rock and the sand tailings have a net acid neutralization capacity such that the fill areas would not create acid mine drainage.

DI-WET leach tests conducted on the barren rock and sand tailings material by ACZ indicate that the bulk material proportions in the fill would not leach metals at concentrations above applicable water quality standards (see Table 4-7). The conductivity and TDS in the water that leaches through the fill material is projected to be relatively low, based on the DI-WET tests. The Di-WET tests suggest that the pH of the water that percolates through the engineered fill could be above 9.0. This relatively high pH value, however, is inconsistent with the pH values measured in the New Brunswick shaft, the drains, and in surface water, which range from 5.78 to 7.8. The elevated pH from the DI-WET analyses may be a result of the fine crushing of the samples for the leaching tests. Whatever the reason, the pH results from the DI-WET tests are not consistent with site-specific measurements made under actual field conditions. Rise will be required as part of the project to submit a Report of Waste Discharge (RoWD) and obtain Waste Discharge Requirements (WDRs) from the RWQCB for construction of the engineered fill areas. The engineered fill would be a Group C mining waste. Additional testing may be necessary as part of the RoWD to evaluate the expected pH of any rainfall that might percolate through the engineered fill. However, percolation is expected to be minimal because the engineered fill will be graded and compacted to allow runoff to be conveyed rapidly to the stormwater detention ponds. The side slopes will be vegetated and have drainage channels at appropriate spacings. The top surface will be compacted and eventually covered with impermeable surfaces during subsequent development of the industrial sites after reclamation is completed. In any case, the WDRs will specify appropriate monitoring and limitations to prevent the discharge of water containing pH levels outside of applicable water quality standards

POST-MINING

After mining is completed, water from the underground mine workings would eventually begin to seep from the existing drains or from bedrock fractures if the drains are sealed. The water that would seep from the underground workings is anticipated to have similar water quality to the water that currently discharges from the existing drains. Specifically, it may contain elevated levels of iron and manganese. Therefore, the conditions after mining is completed would be the same as the existing, or baseline, conditions, such that re-activation of the seeps would not represent a potentially significant impact under CEQA. Although part of the existing environmental setting, some of the seeps have elevated arsenic levels that could pose a threat to human health or the environment. However, as noted in Section 3.4.2, despite these existing discharges from the drains, the reported concentrations of all metals and other constituents in the Wolf Creek samples are well below the NPDES water quality standards. After mining is completed and before the mine is allowed to flood, an application could be made with the Regional Water Board for an individual permit to cover the mine drainage. An individual permit allows for dilution of the receiving waterbody to be considered. Alternatively, surface treatment of the water from the drains, prior to discharge to Wolf Creek, could be considered, similar to the drainage from the inactive Newmont Northstar Mine. If any area of the underground mine workings are sealed, or the drains themselves are sealed, substantial care should be taken to ensure that new discharges from other shafts or from bedrock fractures do not occur in a way that could create a significant environmental impact. The option of sealing the underground workings will require detailed underground investigation and planning before consideration and therefore cannot be considered at this stage of the project but may become a viable solution after operations commence.

The proposed mining areas will primarily be at equivalent or deeper depths than the existing underground mine workings, while the potential future expansion areas all involve mining at greater depths, typically more than 1,000 feet below the surface and deeper (see Figures 5-1 and 5-10 of Itasca, 2020b). At those greater depths, the hydraulic conductivity is several orders of magnitude lower than it is at the depths of the domestic supply wells, as shown on Figures 3-9 and 3-10, due primarily to the lack of open fractures as a result of the large pressures exerted by the overlying rock mass (i.e. the lithostatic pressure). Since the new mining activity would occur at equivalent or greater depths than the proposed mining, there is little or no potential for the proposed mining and mining in the future expansion areas to affect the quality of the groundwater in the domestic supply wells that are completed at much shallower depths.

As described above, once the mine refills, reducing conditions comparable to those that exist now would occur in the water within the underground mine workings. Those reducing conditions would prevent the leaching of the more oxidized Cr^{+6} from the CPB and would reduce any residual Cr^{+6} to the less mobile and less toxic Cr^{+3}.

SUMMARY

Prior to creating any ground disturbance, dewatering of the underground workings and discharge of treated water, and construction of the engineered fill areas, Rise will need to apply for and obtain coverage under a range of permits, as described in Sections 4.6 and 4.7. Compliance with stormwater requirements requires submittal of an NOI, development of appropriate SWPPPs, implementation of BMPs, and monitoring to prevent polluted runoff from affecting surface waters.

For dewatering of the underground mine workings, the water treatment system (Linkan, 2019) has been designed to treat the water within the underground workings to meet the narrative water quality standards described in Section 4.6 and to meet the numeric standards listed in Table 4-10. Rise will need to submit a NOI or RoWD and obtain WDRs (likely in the form of an NPDES permit using the Low Threat Discharge permit) prior to discharge of treated mine dewatering water. The Conditional Use Permit, either as a mitigation measure or as a condition of approval, should require that the RoWD, or NOI for coverage under the Limited Threat Discharge permit, be submitted at least six months prior to construction of the water treatment system and that the WDR permit, or Notice of Applicability (NOA), be received before dewatering can begin. The RoWD or NOI should include evaluation of potential constituents of concern, including ammonia, arsenic, hexavalent chromium, iron, manganese, pH, total suspended solids, TDS, and cis-1,2-DCE. Flexibility in design and operation of the water treatment system would be appropriate to ensure that elevated pH and TDS conditions could be addressed if encountered during dewatering. Treatment of the water from the underground workings to meet the water quality standards and treatment goals listed in Table 4-10 can be readily accomplished with standard water treatment technologies (Linkan, 2019). The monitoring required by the Limited Threat Discharge permit would verify that the water being discharged meets the applicable water quality criteria and waste discharge requirements and is not otherwise substantially degrading surface or groundwater quality, as specified in the CEQA Appendix G criterion listed at the beginning of this section.

Prior to use of CPB, additional documentation would be needed to verify that Cr^{+6} levels in the Portland cement used for the mixture are minimal and will not leach. Test work would be completed on CPB samples as part of the process for obtaining the WDRs and other permits. It is anticipated that such test work would include comparison of cements from different manufacturers to verify that leaching of Cr+6 would not exceed water quality standards and that use of the selected cement and CPB admixture would meet applicable regulatory requirements. The Conditional Use Permit, either as a mitigation measure or as a condition of approval, should specify that the source of the Portland cement to be used for the CPB be specified and that testing data showing the Cr^{+6} levels do not leach above water quality standards must be provided to the County prior to the use of CPB. In addition, the County should require that a RoWD for use of CPB be submitted to RWQCB at least six months prior to the proposed initial use of CPB and that the WDR permit be received prior to initiating any mine backfilling using CPB. These measures would ensure that any potential water quality effects related to chromium would be addressed through selection of the appropriate cement source and product, along with the proper CPB mixture, rather than by water treatment (i.e. any potential impact would be avoided rather than creating the need for mitigation).

Compliance with the applicable permit requirements for the project would prevent potentially significant impacts related to water quality standards and waste discharge requirements. The Standard Conditions and monitoring requirements in these permits would verify that water quality standards and waste discharge requirements are not violated. Restoration of the post-mining discharge through the drains would be comparable to existing conditions and, thus, not an impact under CEQA. However, additional compliance measures may be required by RWQCB to address Basin Plan, antidegradation, and other water quality standards.

There is currently no evidence to indicate that the historic underground mine workings have caused any water quality impacts at any domestic well. During mining, there will be a net inflow of groundwater into the mine workings, such that any mining activities would not affect water quality within the fractured bedrock. After mining ceases, conditions would return to those are currently exist. The proposed new mining activities would all occur at depths that are comparable to or much deeper than the historic mine workings. Due to the substantial reduction in hydraulic conductivity at those depths, compared to the depths of the domestic supply wells, it is highly unlikely that the proposed project would affect water quality in those wells.

B. Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The Project site is not located within a groundwater basin that has been identified by DWR, and the nearest groundwater basin is located more than 15 miles to the west. Sustainable groundwater management programs must be implemented in groundwater basins that DWR has designated as medium or high priority, or that exhibit critical conditions of overdraft. Thus, the Project could not impede sustainable groundwater management within a groundwater basin, since no such basin exists in the Project vicinity.

However, groundwater is present within fractured bedrock throughout the region and there are numerous private supply wells in the area. The existing shafts act as passive wells such that groundwater in the fractures that intersect the shafts flows downward into the mine workings and eventually is discharged from the drains along Wolf Creek. The current inflow of water into and out of the mine workings is approximately 60 gpm to 70 gpm. As described in Section 4.2, the inflow of groundwater into the shafts creates a small amount of drawdown in the groundwater surface in areas overlying the underground mine workings. Under existing conditions, this drawdown only affects wells in the East Bennett Road area.

Initial dewatering for the project would occur from the New Brunswick shaft at an initial rate of approximately 2,500 gpm for approximately six months. After that time, the steady state pumping rate to remove the groundwater inflow is anticipated to average approximately 850 gpm. During the initial dewatering, the volume of water extracted would consist of at least 1,650 gpm of water that is currently present within the mine workings and average of approximately 850 gpm of groundwater that is drawn into the mine workings by the pumping. Itasca estimated that pumping rates could reach a maximum value of approximately 1,500 gpm during the rainy season and after 65 years of mining. (Itasca,2020b). Thus, throughout the duration of the Project, the anticipated rate of groundwater removal from the fractured bedrock would range from an average of 850 gpm up to the maximum permitted discharge rate of 2,500 gpm.

Analytical and numerical modeling evaluations have been conducted to estimate the additional drawdown that would occur due to dewatering of the existing mine workings and expansion areas. Data from numerous well completion reports for private supply wells in the region, as well as studies conducted by the USGS and others, demonstrate the hydraulic conductivity and transmissivity of the fractured bedrock decreases appreciably with depth. Thus, within the depth of the existing and proposed mine workings, approximately 99 percent of the groundwater flowing into the mine occurs within 550 feet of the ground surface. Most of the proposed additional mining, and potential exploration and expansion into new areas, would occur below depths of 550 feet.

Within the East Bennett area, the maximum additional drawdown due to the proposed project would be in the range of five to 10 feet. Any potential effects on wells in this area would be addressed by installing a potable water line along East Bennett Road and offering well owners a connection to the potable supply at no cost. The potable water would be sourced through NID's potable water system.

In other areas around the perimeter of the mine workings and in areas where expansion could occur, the projected maximum drawdown in private wells is less than two feet. In all cases, based on the information available through the well completion reports, the maximum potential additional drawdown in the perimeter areas is less than 10 percent of the available water column in individual wells. The maximum drawdown is also substantially less than the normal seasonal fluctuation in the groundwater levels of 10 feet to 30 feet or more. Thus, in the perimeter areas and including a safety factor of 100% in calculations, the project would not have any significant impact on groundwater supplies.

The model simulations of the rate of groundwater inflow into the mine generally stabilize over the last 10 to 15 years of the 65-year model analysis (Itasca, 2020b, Figure 5-11). This stabilization is because the additional mining occurring after 50 years is primarily progressing deeper (see Itasca, 2020b, Figure 5-10). The deeper mining would be occurring in areas where the hydraulic conductivity of the fractured bedrock, and thus the incremental additional volume of groundwater entering the mine, would be decreasing by several orders of magnitude compared to those as shallower depths where mining had been completed. Thus, any additional mining beyond year 65 would not measurably increase the rate of groundwater pumped from the mine and would not affect groundwater levels in wells in the area.

The depth to groundwater generally mimics the topography, but the depth is greater under ridges and drainage divides and closer to the surface near creeks and valleys. In the areas away from the creeks and valleys, the depth to groundwater is typically greater than 10 feet and, in many cases, may be 100 feet or more. In addition, the normal seasonal fluctuation in the depth to groundwater may be 10 feet to 30 feet or more. Thus, in the areas away from the creeks, the existing groundwater surface is below the typical depth of rooted vegetation and tap roots from trees[8], especially during the drier months when the depth to groundwater is at its greatest. Discharge of treated water to South Fork Wolf Creek would prevent the lowering of the groundwater levels along the reach of that creek because the full dewatering volume would be discharged to the creek, whereas only a small fraction of the groundwater that was removed from the subsurface would come from that area. Thus, the potential increased recharge due to the enhanced base flow in South Fork Wolf Creek would more than offset any effects from dewatering in the area near the creek. Along Wolf Creek, the change in base flow would be a small percentage of the existing flow, with NID releases during the summer being a dominant factor in the dry season. Overall, the dewatering of the mine would not affect the available moisture for vegetation in the project area because the depth to groundwater is already below the typical rooting depths in higher topographic areas while adequate flows would occur in South Fork Wolf Creek and Wolf Creek to maintain groundwater levels in the lower topographic areas. The dewatering would not, therefore, increase fire risk due to reduced groundwater levels.

The development of new operating facilities at the New Brunswick shaft, the water treatment system, and fill areas would occur on land that has already been disturbed and partially paved for previous industrial activities on the mining site and the former SPI property. Therefore, the actions that would occur as part of the Project in these areas would not result in the compaction of soils or installation of impermeable surfaces (e.g. pavement) in areas where those effects have not already occurred due to past activities. Installation of the potable water lines would occur within East Bennett Road, consisting of paved, disturbed, and previously compacted soils due to the long history public right-of-way uses along the potable water line route. Thus, the project would not result in any appreciable new areas of

[8] The most common tree in the project area is the Ponderosa Pine, with tap roots up to 36 feet deep, which is considered one of the deepest tap root systems among conifer trees. The second most common tree in the project area is the Incense Cedar, with tap roots up to 20 feet deep but averaging six to seven feet deep. Other trees in the area include the Douglas Fir, with tap roots up to 10 feet deep, and the California Black Oak, with tap roots three to four feet deep. (Greg Matuzak, personal communication, October 24, 2020 electronic mail message to Ben Mossman, Rise Gold)

compacted soils or impermeable surfaces that could substantially restrict or otherwise interfere with groundwater recharge.

Numerical modeling also indicates that dewatering could lower groundwater levels sufficiently to reduce the base flow in South Fork Wolf Creek by as much as 0.1 cfs. while dry season base flows in South Fork Wolf Creek have been measured at rates less than one cfs. However, the water that is pumped from the mine would be treated and then discharged to South Fork Wolf Creek at rates ranging from 5.6 cfs during initial dewatering to 1.9 cfs during maintenance dewatering. Thus, lowering of the groundwater table would not result in a reduction in base flows within South Fork Wolf Creek as a result of the project. Stream gage measurements conducted throughout 2020 and into 2021 (Balance, 2021) confirm that any effects of dewatering on the base flow rate in South Fork Wolf Creek would be inconsequential because the proposed treated water discharge rate to the creek is much larger than the base flow rate and the modeled reduction in base flow.

Dewatering of the mine would also eliminate seepage from the drains and base flow in Wolf Creek. The base flow within Wolf Creek is approximately 25 cfs to 30 cfs. However, NID releases an average of approximately 35 cfs from the DS Canal to Wolf Creek on an annual basis. Itasca (2020b) estimates that mine dewatering would reduce base flow in Wolf Creek by 0.75 cfs due to reduction in groundwater discharge. Dewatering would also eliminate flow from the drains, which ranges from 60 gpm to 125 gpm (0.13 cfs to 0.28 cfs). Temporary dust control water requirements for the Centennial site would be approximately 125 gpm, or 0.28 cfs. Thus, the total reduction in base flow to Wolf Creek could be as much as 1.3 cfs. This flow reduction is minimal and would be barely perceptible compared to the base flow rate of 25 cfs to 30 cfs and the NID releases averaging 35 cfs. Although the number of base flow measurements conducted in Wolf Creek for this study are limited, the projected reductions in base flow are at about 20 to 25 times greater than the measured amounts. These temporary reductions would be nominal and not result in any potential impacts on flows and related resources along Wolf Creek downstream of the Project area, even if the base flow estimates are off by 50 percent or more.

Any reduction in available groundwater supplies to wells in the East Bennett area would be addressed, at Rise's expense, by installing a potable water supply line in East Bennett Road and providing individual well owners with a connection to the potable water line. To prevent any potentially significant impacts to water supplies in the East Bennett Road area, the Conditional Use Permit should specify, either as a mitigation measure or as a condition of approval, that the potable water supply line be installed prior to the initiation of mine dewatering. Historical activities with impermeable surfaces or compacted soils currently exist in areas where major Project improvements and engineered fill will be developed. Thus, the Project would not result in substantial additional areas of compacted soils, such that it would not affect groundwater recharge. Reductions in base flows in South Fork Wolf Creek due to dewatering would be offset by the treated water discharge. Reductions in base flows and drain discharges to Wolf Creek would be minimal compared to the current base flow rate and the NID discharges. Overall, the Project would not result in any significant impacts to groundwater supplies and would not interfere substantially with groundwater recharge.

C. Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site?

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

iii) Create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

iv) Impede or redirect flood flows?

The project would not significantly alter the drainage patterns of the project site, would not alter the course of a stream or river and would not add impervious surfaces.

The fill areas at the Centennial Industrial Site and the Brunswick Industrial Site would be graded to minimize runoff. Stormwater conveyance channels would be constructed in accordance with Nevada County hydrology and hydraulics standards to convey the runoff from up to a 100-year storm event without causing erosion or siltation. Runoff from the fill areas would be conveyed to stormwater retention basins that would hold back the peak flows and release the water at a lower rate and at a later time than currently occurs from those site areas. As a result, the project would reduce peak storm flows in both Wolf Creek and South Fork Wolf Creek. The detention pond at the Centennial Industrial Site would reduce peak storm discharges to Wolf Creek by 25 cfs to 60 cfs, depending on the return period of the storm event. For South Fork Wolf Creek, the detention basin and outlet structure at the Brunswick Industrial Site would reduce the peak discharge by over 48 cfs for the 2-year storm, by over 60 cfs for the 10-year storm, by over 40 cfs for the 25-year storm, and by over 25 cfs for the 100-year storm.

Hydrology and geomorphology surveys of South Fork Wolf Creek indicate that the base flow may range from 0.17 cfs in the summer to 6.5 cfs in the winter, in the area of the proposed treated water discharge. Based on direct field observations, storm flows of less than 23 cfs do not result in substantial erosion or sedimentation within South Fork Wolf Creek. Pebble counts conducted along South Fork Wolf Creek indicate that the flow rate at which sediment within the channel may become mobilized ranges from 20 cfs to 90 cfs. The combination of creek base flows plus the maximum proposed discharge of treated water at 5.6 cfs is substantially below the 23 cfs threshold defined by the geomorphology study.

During larger storm events, the proposed detention pond would reduce the peak flows within South Fork Wolf Creek by 25 cfs to 60 cfs. Thus, under Project conditions, the addition of up to 5.6 cfs minus the reduction in peak flow due to the detention basin would result in overall peak storm flows that would be lower than they are under existing conditions, resulting in less potential for erosion and sediment transport.

The Project would not discharge water to existing or planned drainage systems. Downstream of the project site, South Fork Wolf Creek flows into existing drainage improvements at Ophir Road that extend under the City of Grass Valley. The base flow plus the maximum project dewatering rate of 5.6 cfs would

not exceed the capacity of the existing drainage facilities. During storm events, the detention basin at the Brunswick Industrial Site would reduce peak storm flows on South Fork Wolf Creek, thus providing additional capacity within the current drainage facilities under Grass Valley.

Placement and grading of materials to create the usable industrial areas would occur outside of any flood hazard zones. The dewatering discharge outfall would also be constructed in an area that is outside of a mapped flood hazard zone in South Fork Wolf Creek. The outfall, however, would be within waters of the U.S. so it would have to be constructed in accordance with the requirements of a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers for dredge and fill activities within waters of the U.S. and a Fish and Game Code Section 1600 Streambed Alteration Agreement from the California Department of Fish and Wildlife. Under these permits, the outfall would need to be constructed in a manner that would not measurably reduce the capacity of the stream channel or flood plain of South Fork Wolf Creek. Therefore, the Project would not impede or redirect flood flows.

Overall, the Project would enhance the existing drainage patterns both at, and downstream of the site. Base flow in South Fork Wolf Creek would be maintained or slightly enhanced due to the treated water discharge. The combined flows from the treated water discharge and existing base flow would be below the levels that could potentially result in erosion or sediment transport. Peak storm flows would be reduced to levels less than current peak storm flows due to the detention basins that would be constructed below the engineered fill areas. The reduction in peak storm flows would reduce erosion and sedimentation within South Fork Wolf Creek and enhance the capacity of storm drain systems under the City of Grass Valley.

D. Would components of the Project located in flood hazard, tsunami, or seiche zones risk release of pollutants due to Project inundation?

Due to its distance from the ocean or any other large enclosed bodies of water, the Project is not located in an area that would be subject to tsunamis or seiches.

According to the Federal Emergency Management Agency (FEMA) flood hazard maps for the Project area, Maps 06057C0631E, 06057C0632E, 06057C0633E, 06057C0650E (FEMA, 2019), the only part of the Project site that is located within a flood hazard zone is the northern edge of the Centennial Industrial Site along Wolf Creek. The proposed work at the Centennial Site is outside of the flood zone.

Placement of waste rock and tailings on the Centennial Industrial Site for future industrial development would occur outside of the flood hazard zone under applicable construction stormwater requirements, as discussed in Section 5.0, Item C, above.

The outfall from the treated water dewatering discharge pipe in South Fork Wolf Creek would need to be constructed in accordance with the requirements of a Clean Water Act Section 404 permit from US Army Corps of Engineers and a Streambed Alteration Agreement from California Department of Fish and Wildlife. Under these permits, the Project would need to be constructed in a manner such that it would not release pollutants, including sediment, as a result of inundation.

Stormwater detention ponds that would be constructed as part of the fill areas at the Centennial Industrial Site and the Brunswick Industrial Site have been designed with several feet of freeboard. Thus, even if an earthquake were to occur during a design storm event and a seiche were to form in the ponds, there would not be any substantial overtopping or release of water that could result in a release of pollutants.

The Geotechnical Report prepared by NV5 (NV5, 2019) provides recommendations for the repair of the clay lined sediment control pond on the Brunswick Industrial Site, which will ensure stability of the pond. The Conditional Use Permit should specify, either as a mitigation measure or as a condition of approval, that the recommended repairs be completed and verified by the County (e.g. through a grading permit or building permit) prior to initiating dewatering of the mine.

E. Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The current water quality control plan for the region is the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, which is also referred to as the Basin Plan (CVRWQCB, 2019). The Project would be required to operate under an applicable Waste Discharge Requirements permit (WDRs) from the Central Valley Regional Water Quality Control Board (CVRWQCB) for placement of any waste material on land. The dewatering discharge to South Fork Wolf Creek would also need to comply with the requirements of the applicable NPDES permit Order R5-2016-0076 (NPDES No. CAG995002) for Limited Threat Discharges to Surface Water as a Tier 3 discharge (see additional discussion in Section 5.0, Item A). The WDR and NPDES requirements ensure that the project would not conflict with or obstruct implementation of the Basin Plan.

As discussed in Section 3.3, the Project is not located in or near a DWR-designated groundwater basin. Therefore, there will be no sustainable groundwater management plans developed for groundwater in the Project area. However, installation of the potable water supply line along East Bennett Road, and offering hookup at no cost to well owners, would address any potential significant decrease in groundwater supplies to existing groundwater users in the Project vicinity. To prevent any potentially significant impacts to water supplies in the East Bennett Road area, the Conditional Use Permit should specify, either as a mitigation measure or as a condition of approval, that the potable water supply line be installed prior to the initiation of mine dewatering.

5.3 Conclusions

The IM Mine Project is located in an area with a very long history of above ground and underground disturbance related to mining. Despite that history, mining has not caused appreciable impacts to hydrology and water quality in the project area. Surface water in Wolf Creek and South Fork Wolf Creek meets applicable ambient water quality criteria. Water from within the underground workings at the New Brunswick shaft also meets applicable water quality standards, except for iron and manganese. Water from within the shaft does not contain elevated levels of arsenic or other heavy metals and there is no acid mine drainage, with neutral pH values in both surface water and water within the mine.

The Project includes specific measures that would prevent impacts to groundwater supplies and to water quality due to Project actions. The only area where water levels in private supply wells would be potentially affected by mine dewatering is the area along East Bennett Road. The potential reduction of available groundwater in private domestic wells due to drawdown of the groundwater surface would be addressed by the provision of an alternative potable supply, with the Project proponent installing connections to a new NID water line along East Bennett Road. The potential drawdowns in the groundwater surface in the perimeter areas would be less than the existing seasonal fluctuations and would not reduce the available groundwater supply to those users. Future mining in the perimeter areas would not affect groundwater wells in those areas due to the depth of the proposed exploration and mining activities.

Mining, industrial, and transportation-related activities have already occurred over large areas of the proposed project. These prior activities would have caused compaction of the soils in those areas. The Project would not substantially expand areas where soil compaction may have already occurred and, thus, would not reduce groundwater recharge.

Base flows within Wolf Creek and South Fork Wolf Creek would not be significantly affected by mine dewatering. Any reduction in flow in Wolf Creek due to reduced groundwater levels would be minimal compared to the base flow and NID flows from the DS Canal. Within South Fork Wolf Creek, the base flows would be enhanced by the treated water discharge, which would more than offset any loss of groundwater discharge to the streambed due to dewatering. The storm water detention basins below the engineered fill areas would attenuate peak flows such that peak discharges from the Centennial and Brunswick Industrial Sites during storm events would be less than they are now. The reduction in peak discharges to South Fork Wolf Creek during storm events would more than offset the treated water discharge. Thus, the overall potential for erosion and sedimentation in South Fork Wolf Creek would be less as part of the Project than under existing conditions.

Treatment of water pumped from the underground mine workings prior to discharge would meet the requirements of applicable waste discharge requirements and comply with water quality standards in applicable NPDES permits. The natural geologic conditions and mineralogy would maintain reducing conditions and prevent the potential formation of acid mine drainage. However, post-mining mitigation measures may need to be identified to address the discharge of water through either existing drains or by seepage through naturally-occurring fractures once the underground workings fill back up with groundwater. These measures might include sealing off areas of the underground workings that are the primary source of arsenic in the existing drain water, sealing the underground workings sufficiently to prevent seepage of water from the connected mine workings, obtaining an Individual NPDES permit upon closure, or treating of the mine water seeps after closure.

The Project will need to comply with a wide range of regulatory requirements and obtain several regulatory permits, besides County approval of a Conditional Use Permit and Reclamation Plan. Implementation of the requirements identified in this report, as well of the standard conditions of applicable SWPPPs, a 404 Permit, and a Streambed Alteration Agreement would prevent the release of pollutants, including sediment, prevent erosion, and prevent flood flows from being impeded or

redirected, within both Wolf Creek and South Fork Wolf Creek. A Section 401 Water Quality Certification will also need to be obtained from the RWQCB to verify that the project complies with applicable water quality standards. Preparation of the RoWD and issuance of WDRs by the RWQCB will ensure that water quality is protected and applicable standards are met for the engineered fill areas. These additional permits and regulatory requirements are necessary for the Project to move forward. Thus, they are part of the Project and not mitigation measures. As such, compliance with these permits and requirements will result in the Project having no significant environmental impacts related to hydrology and water quality, based on the CEQA Appendix G criteria.

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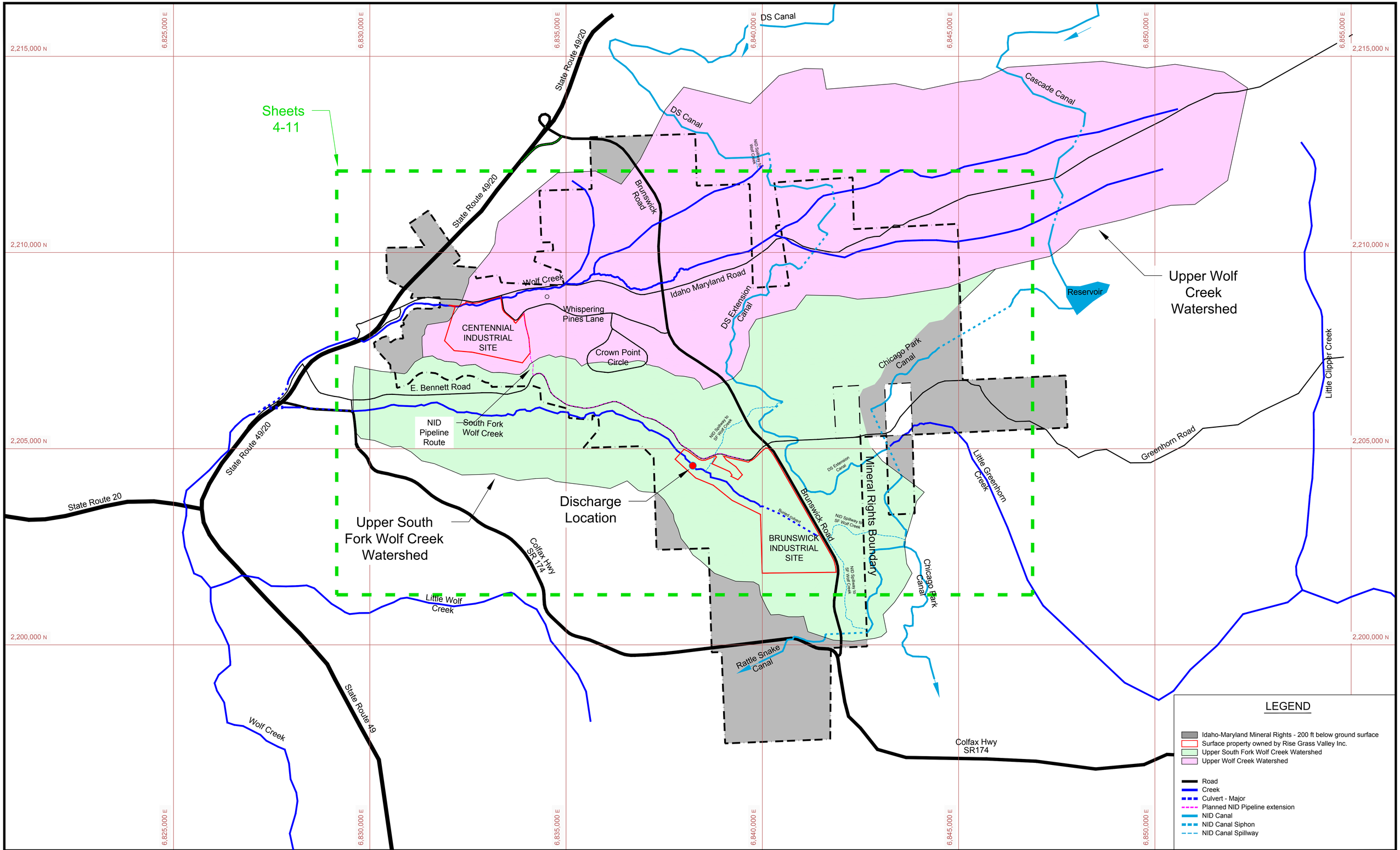
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7.0 SHEETS



LEGEND

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Surface property owned by Rise Grass Valley Inc.
- Upper South Fork Wolf Creek Watershed
- Upper Wolf Creek Watershed
- Road
- Creek
- Culvert - Major
- Planned NID Pipeline extension
- NID Canal
- NID Canal Siphon
- NID Canal Spillway

Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Brunswick Industrial Site
Nevada County, SEC. 31, T.16N, R.9E., M.D.M
Total Area = 118.93 Acres
Assessor Parcel Numbers:
09-630-37, 09-630-39, 09-441-03, 09-441-04, 09-441-05, 09-441-34
Current Zoning M1-SP / Proposed Zoning M1-ME

Centennial Industrial Site
Nevada County, SEC. 26, T.16N, R.8E., M.D.M
Total Area = 56.41 Acres
Assessor Parcel Numbers:
09-550-32, 09-550-37, 09-550-38, 09-550-39, 09-550-40, 09-560-36
Current Zoning M1 / Proposed Zoning M1

Idaho-Maryland Mineral Rights (100% owned)
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet below ground surface

SCALE 1"=1000'
2500 ft

Sheet 1
Project Overview
Mineral Rights and Surface Properties
Major Roads, Creeks, Watershed, and Discharge Location

Drawnby : Rise Grass Valley - Feb 1 / 20

LEGEND

- Area of disturbance
- Engineered Fill
- Water Treatment Pond
- 1 Structure - Planned & ID number Remain onsite after mine closure
- 1 Structure - Planned & ID number Reclaimed and removed after mine closure
- Paved Road - Existing offsite
- Paved Road - Planned onsite
- Paved Parking and Sidewalks - Planned
- Paved Area - Planned
- Landscaping Area - Planned
- Brunswick Industrial Site - Boundary
- NID Canal
- NID Spillway
- Elevation Contour Line - 10 foot intervals
- Planned treated mine water discharge pipe
- Proposed NID potable water pipe extension
- Creek - Perennial
- Creek - Intermittent
- Creek - Ephemeral
- Buried Culvert - Planned / Existing

1. South Fork Wolf Creek Discharge Point - Above ground pipe along existing road from Water Treatment Plant to discharge point.
2. Water Treatment Plant - Treatment of mine water to meet water quality objectives for discharge.
3. Water Treatment Pond - Discharge of groundwater from mine into existing pond with ~30 acre-feet working capacity for settlement of solids, aeration of mine water, and surge capacity.
4. Brunswick Shaft - Existing shaft utilized for hoisting rock from underground, secondary escape, and exhaust ventilation. New headframe & building. Use and enclosure of existing concrete silo. Barren rock loaded into trucks inside building.
5. Process Facility - Covered conveyor to transfer mineralized material from shaft silo into grinding section of process plant building. Production of gold concentrates. Sand tailings used as underground backfill or loaded into trucks as engineered fill.
6. Service Shaft & Headframe - New shaft to underground constructed by raising. Excavation to solid bedrock and installation of concrete collar. Service shaft is main entry to mine for personnel, materials, and fresh air ventilation intake.
7. Building Complex - New buildings for employee changerooms & offices. Warehouse with 8 bays for various uses, including supply storage, core logging, assaying, and equipment maintenance.
8. Engineered Fill - Transport of engineered fill from process plant, placement, grading, and compaction in lifts to create new area for future industrial use.
9. Storm Water Detention Pond - Storm water detention pond located at toe of engineered fill pile. Run-off from site and upslope areas directed to pond and then into South Fork Wolf Creek. Post project storm flows, including mine water discharge, mitigated to less than pre-project storm flows.
10. Brunswick Road Access - Use of existing access as primary entrance / exit to site. Controlled access by security fencing and gate.
11. East Bennett Road Access - Use of existing gated access for exit by trucks turning right. Controlled access by security fencing and gate.
12. Potable Water Extension - Extension of NID potable water pipeline to service East Bennett Road residential area.
13. Onsite septic field location for domestic water only.
14. Repair of southwest pond berm. Excavation and replacement.

NOTES

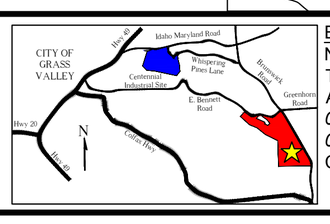
Impervious surfacing, landscaping, and buffer areas

Building coverage	138,000	square feet	2.7%
Surfaced area	514,000	square feet	9.9%
Landscaped area per Sec. L-II 4.2.7			
Interior parking	15,000	square feet	0.3%
Residential buffer	881,000	square feet	17.0%
Street buffers	459,000	square feet	8.9%
Natural area / Open Space	3,174,000	square feet	61.3%
Total	**5,181,000**	**square feet**	**100.0%**

Domestic water source: Nevada Irrigation District
Industrial water source: Treated mine water
Sewage disposal by onsite septic system
Orphir Hill Fire Protection District
Electrical power from Pacific Gas and Electric Company

Asphalt surfacing on all roads and parking areas.
Surface run-off shown on grading and drainage plan drawings.
Exterior lighting shown on detail and lighting plan drawings.
Landscaping details shown on landscaping plan drawings.
Final grading topography based on:
Preliminary Grading Plan prepared by Nevada City Engineering Inc.

Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945



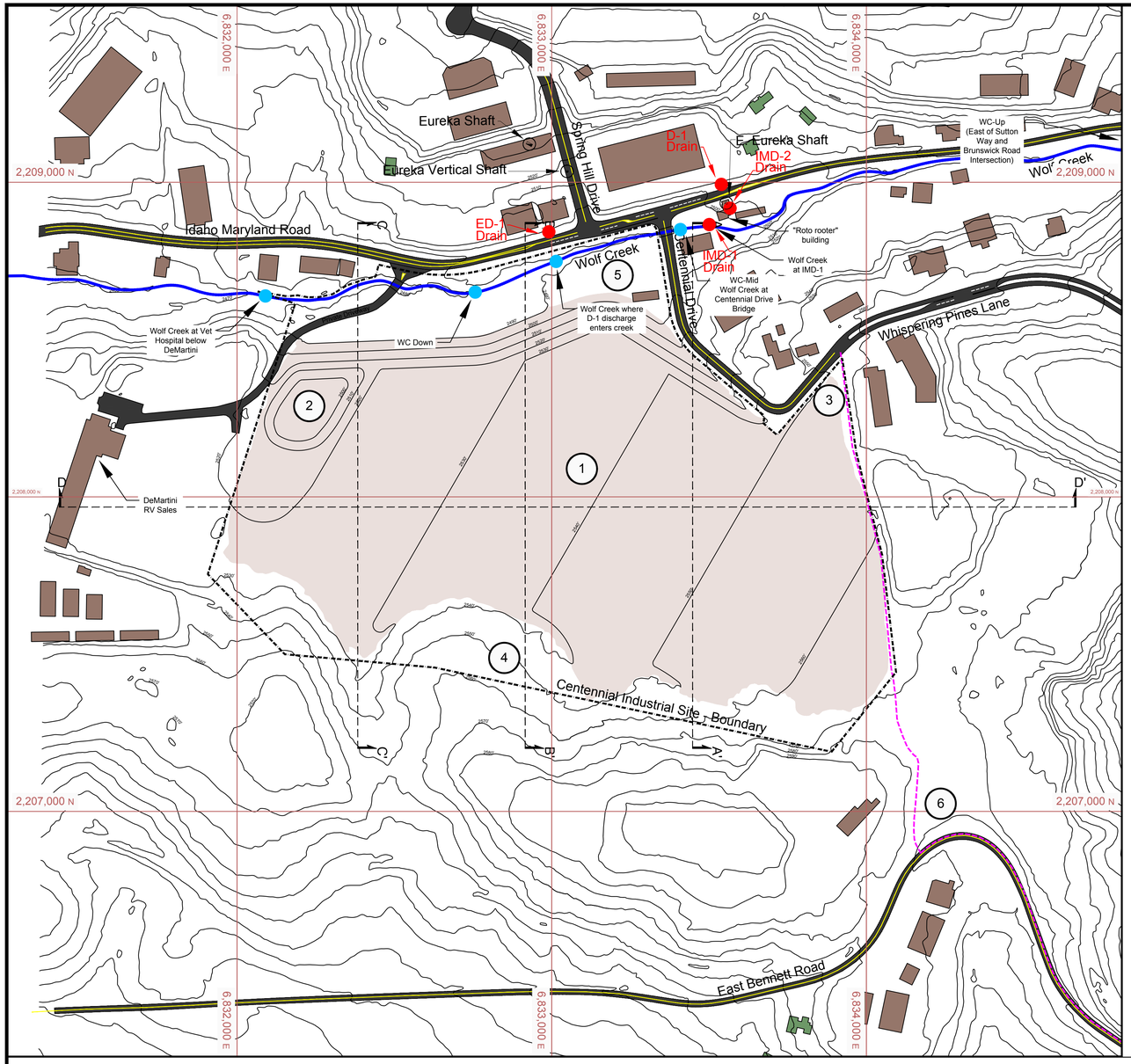
Brunswick Industrial Site
Nevada County, SEC. 31, T.16N, R.9E., M.D.M
Total Area = 118.93 Acres
Assessor Parcel Numbers:
09-630-37, 09-630-39, 09-441-03, 09-441-04, 09-441-05, 09-441-34
Current Zoning M1-SP / Proposed Zoning M1-ME

N W E S

SCALE 1"=200' 500 ft

Lidar & Airphotos by Aero Geometrics with survey control by Nevada City Engineering.May 7th 2018. Grass Valley, CA: Horizontal Datum: NAD83 (2001), Vertical Datum: GEOID 12B, NAVD 88 Projection: California State Plane Zone 2, Combined Scale Factor: 0.9979891

Sheet 2
Brunswick Industrial Site Plan
Infrastructure
Infrastructure, area of disturbance, and EMKO sample locations
Drawnby : Rise Grass Valley - Feb 1 / 20 Scale : 1" = 200 feet



PLAN VIEW - SCALE 1" = 200'

LEGEND (Plan view)

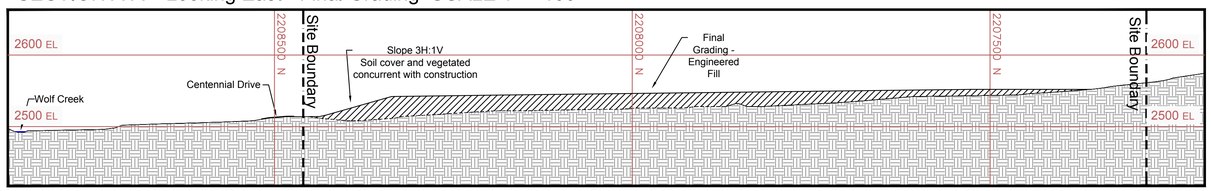
- Engineered Fill (Plan View)
- Residential Structure
- Commercial / Industrial Structure
- Elevation Contour Line - 10 foot intervals
- Creek
- Centennial Industrial Site - Boundary
- Section Line
- Proposed NID potable water pipe extension

1. Engineered Fill - Transport of engineered fill from Brunswick Site, placement, grading, and compaction in lifts to create new area for future industrial use.
2. Detention Pond - Construction of new storm water detention pond. Run-off directed to existing discharge point.
3. Site Access - Installation of new left turn lane on Whispering Pines Lane to access site.
4. Open space for special-status plant species.
5. Open space for Wolf Creek and 100 foot setback.
6. Potable water extension - Extension of NID potable water pipeline to service East Bennett Road residential area.

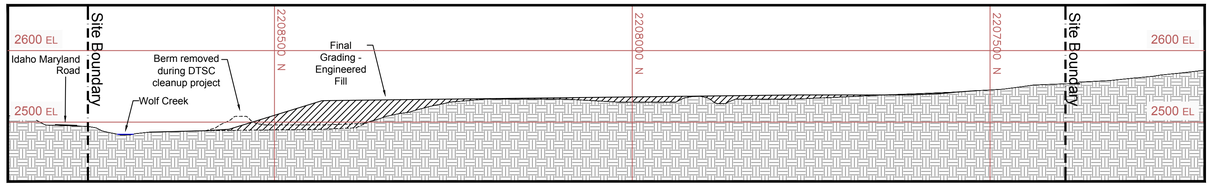
LEGEND (Section view)

- Area of fill excavation planned
- Undisturbed ground
- Current / original ground surface
- Final Ground Surface
- Centennial Industrial Site - Boundary

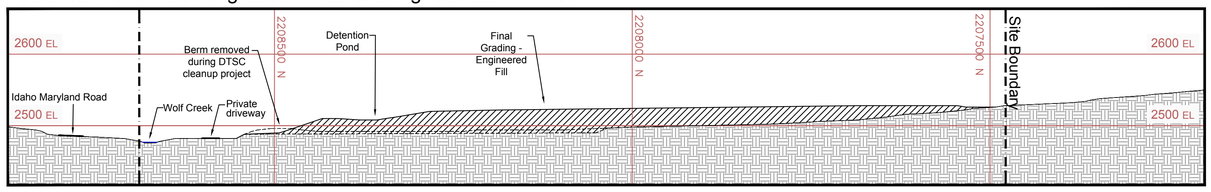
SECTION A-A' - Looking East - Final Grading SCALE 1" = 100'



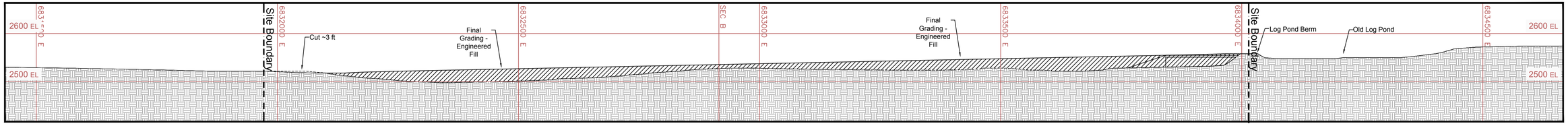
SECTION B-B' - Looking East - Final Grading SCALE 1" = 100'



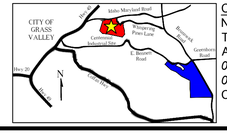
SECTION C-C' - Looking East - Final Grading SCALE 1" = 100'



SECTION D-D' - Looking North - Final Grading SCALE 1" = 100'



Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945



Centennial Industrial Site
Nevada County, SEC. 26, T.16N, R.8E., M.D.M
Total Area = 56.41 Acres
Assessor Parcel Numbers:
09-550-32, 09-550-37, 09-550-38, 09-550-39, 09-550-40, 09-560-36
Current Zoning M1 / Proposed Zoning M1

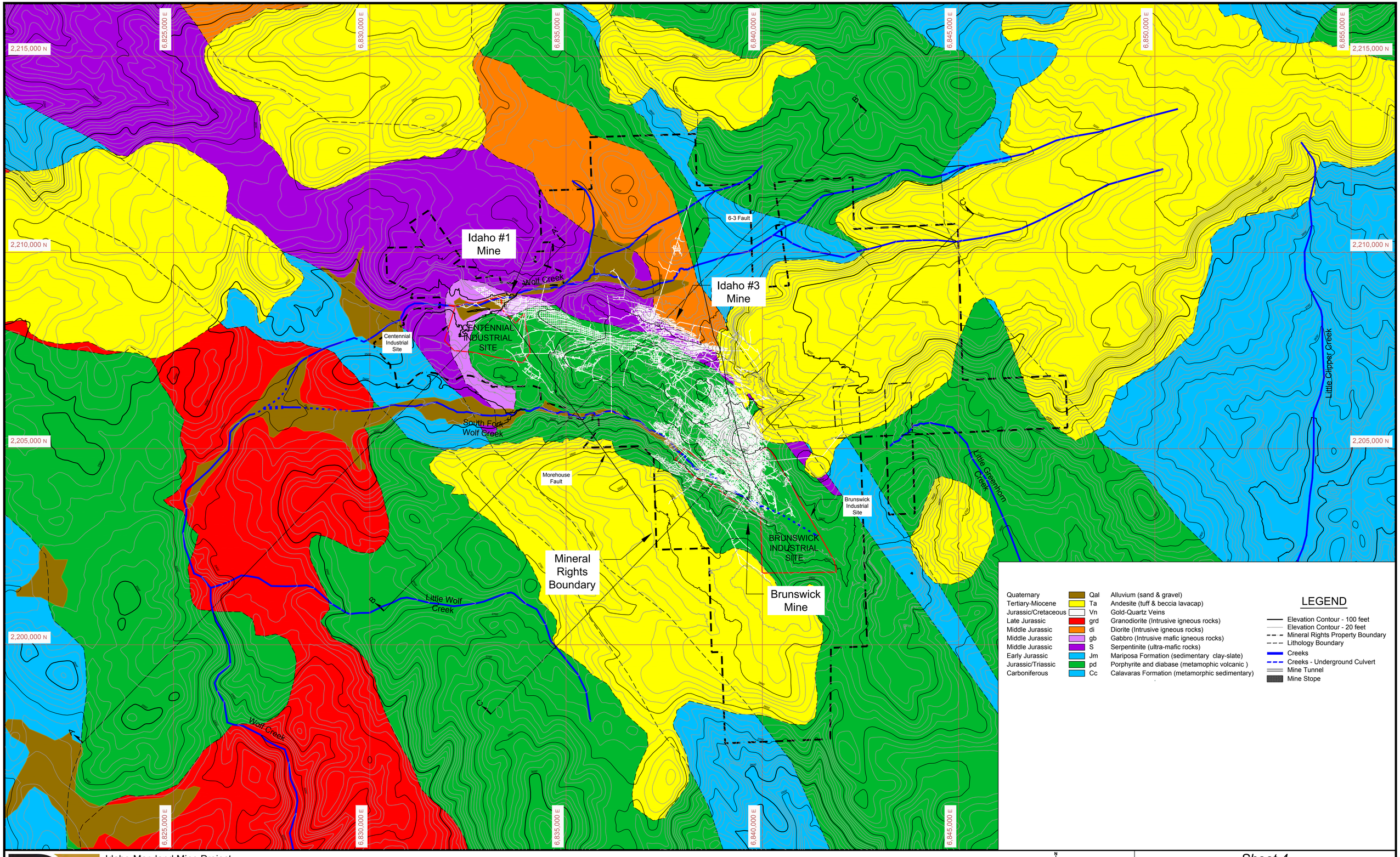
Domestic water source: Nevada Irrigation District
Industrial water source: N/A
Sewage disposal: N/A
Orphir Hill Fire Protection District
Electrical power: N/A
Final grading topography based on:
Preliminary Grading Plan prepared by Nevada City Engineering Inc.

N
W E
SCALE 1"=200'
500 ft

Lidar & Airphotos by Aero Geometrics with survey control by Nevada City Engineering.May 7th 2018. Grass Valley, CA: Horizontal Datum: NAD83 (2001), Vertical Datum: GEOID 12B, NAVD 88 Projection: California State Plane Zone 2, Combined Scale Factor: 0.9979891

Sheet 3
Centennial Industrial Site
Infrastructure

Drawnby : Rise Grass Valley - Nov 11 / 19 | Scale : 1" = 200 feet



Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Generalized Geological Mapping Compilation
Based on USGS mapping - 1940, Johnston
and internal maps from Idaho-Maryland Mine

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres (100% owned)
Mineral rights contiguous at 200 feet
below ground surface

SCALE 1"=1000'
2500 ft

Sheet 4

Surface Geology

Property boundaries and existing Idaho-Maryland Mine Workings

Drawn by : Rise Grass Valley
Date : Feb 1 2020

6,830,000 E
6,835,000 E
6,840,000 E
6,845,000 E
2,210,000 N
2,205,000 N

Diorite
Serpentinite
Gabbro
Diabase Dike
Ankerite
Mariposa sedimentary
"Porphyrite" Meta-Volcanics
Calavaras Meta-sediments
Granodiorite

Idaho #1 Mine
Idaho #3 Mine
Brunswick Mine
Union Hill Mine
"Morehouse" fault
"6-3" fault at contact

LEGEND

Jurassic/Cretaceous	Vn	Gold-Quartz Veins
Late Jurassic	grd	Granodiorite (Intrusive igneous rocks)
Middle Jurassic	di	Diorite (Intrusive igneous rocks)
Middle Jurassic	S	Serpentinite (ultra-mafic rocks)
Early Jurassic	Jm	Mariposa Formation (sedimentary)
Jurassic - Triassic	pd	Porphyrite (meta-volcanic)
Carboniferous	Cc	Calavaras Formation (meta-sediment)
		Ankerite (altered serpentinite
		Diabase Dike (typically in ankerite unit)

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Surface property owned by Rise Grass Valley Inc.
- Mineral Rights Property Boundary
- Lithology Boundary
- Mine Tunnel
- Mine Stope - Majority backfilled with rock or sand
- Rise Exploration Drill Hole

I-2000L — Drift Label
L = level (mine tunnel at similar elevation)
Level number ~= to depth in feet below surface
Mine: I = Idaho, B= Brunswick, UH = Union Hill

ENVIRONMENTAL SAMPLE LOCATIONS

- Gold Mineralization sample
- Alteration sample
- Meta-Andesite sample
- Meta-Sediment sample
- Serpentinite sample
- Diabase sample
- EMKO DI-WET sample

Idaho-Maryland Gold Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Generalized Geological Mapping Compilation
Based on USGS mapping - 1940, Johnston
and internal maps from Idaho-Maryland Mine

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet
below ground surface

N
W
E
SCALE 1"=500'
1000 ft

Sheet 5

Mine Geology 1000L

Overview showing mine workings and geology at 1000 level elevation ~1570 feet

Drawnby : Rise Grass Valley - Feb 1 / 20

6,830,000 E
6,835,000 E
6,840,000 E
6,845,000 E
2,210,000 N
2,205,000 N

Diorite
Serpentinite
Serpentinite
"Porphyrite" Meta-Volcanics
Mariposa sedimentary
Calavaras Meta-sediments
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
Granodiorite
"Porphyrite" Meta-Volcanics
Calavaras Meta-sediments
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
Mariposa sedimentary

Idaho #1 Mine

Idaho #3 Mine

"6-3" fault at contact

"Morehouse" fault

Brunswick Mine

Ankerite
Diabase Dike
Ankerite
Diabase Dike

Idaho #1 Vein
Idaho #3 Vein
123 Vein
13 Vein
B39 Vein
B25 Vein
B28 Vein
B31 Vein
B15 Vein
I-2000L
I-1800L
I-1600L
I-1400L
I-1200L
I-1000L
I-800L
I-600L
I-400L
I-200L
B-1600L
B-1400L
B-1200L
B-1000L
B-800L
B-600L
B-400L
B-200L
I-18-11
I-18-10
I-18-12A
I-18-12
I-18-13
I-18-14
I-18-15
I-18-16
I-18-17
I-18-18
B-18-04
B-18-03
B-18-02
B-18-01

LEGEND

Jurassic/Cretaceous	Vn	Gold-Quartz Veins
Late Jurassic	grd	Granodiorite (Intrusive igneous rocks)
Middle Jurassic	di	Diorite (Intrusive igneous rocks)
Middle Jurassic	S	Serpentinite (ultra-mafic rocks)
Early Jurassic	Jm	Mariposa Formation (sedimentary)
Jurassic - Triassic	pd	Porphyrite (meta-volcanic)
Carboniferous	Cc	Calavaras Formation (meta-sediment)
		Ankerite (altered serpentinite
		Diabase Dike (typically in ankerite unit)

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Surface property owned by Rise Grass Valley Inc.
- Mineral Rights Property Boundary
- Lithology Boundary
- Mine Tunnel
- Mine Stope - Majority backfilled with rock or sand
- Rise Exploration Drill Hole

I-2000L Drift Label
L = level (mine tunnel at similar elevation)
Level number ~= to depth in feet below surface
Mine: I = Idaho, B= Brunswick, UH = Union Hill

ENVIRONMENTAL SAMPLE LOCATIONS

- Gold Mineralization sample
- Alteration sample
- Meta-Andesite sample
- Meta-Sediment sample
- Serpentinite sample
- Diabase sample
- EMKO DI-WET sample

Idaho-Maryland Gold Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Generalized Geological Mapping Compilation
Based on USGS mapping - 1940, Johnston
and internal maps from Idaho-Maryland Mine

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet
below ground surface

N
W
E
S
SCALE 1"=500'
1000 ft

Sheet 6

Idaho-Maryland Mine 2000L

Overview showing mine workings and geology at 2000 level elevation ~ 420 feet

Drawnby : Rise Grass Valley - Feb 1 / 20

6,830,000 E
6,835,000 E
6,840,000 E
6,845,000 E
2,210,000 N
2,205,000 N

Diorite
Serpentinite
Serpentinite
"Porphyrite" Meta-Volcanics
Mariposa sedimentary
Calavaras Meta-sediments
"Porphyrite" Meta-Volcanics
"Morehouse" fault
"6-3" fault
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
Granodiorite
"Porphyrite" Meta-Volcanics
Calavaras Meta-sediments
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
"Porphyrite" Meta-Volcanics
Mariposa sedimentary

LEGEND

Jurassic/Cretaceous	Vn	Gold-Quartz Veins
Late Jurassic	grd	Granodiorite (Intrusive igneous rocks)
Middle Jurassic	di	Diorite (Intrusive igneous rocks)
Middle Jurassic	S	Serpentinite (ultra-mafic rocks)
Early Jurassic	Jm	Mariposa Formation (sedimentary)
Jurassic - Triassic	pd	Porphyrite (meta-volcanic)
Carboniferous	Cc	Calavaras Formation (meta-sediment)
		Ankerite (altered serpentinite
		Diabase Dike (typically in ankerite unit)

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Surface property owned by Rise Grass Valley Inc.
- Mineral Rights Property Boundary
- Lithology Boundary
- Mine Tunnel
- Mine Stope - Majority backfilled with rock or sand
- Rise Exploration Drill Hole

I-2000L — Drift Label
L = level (mine tunnel at similar elevation)
Level number ~= to depth in feet below surface
Mine: I = Idaho, B= Brunswick, UH = Union Hill

ENVIRONMENTAL SAMPLE LOCATIONS

- Gold Mineralization sample
- Meta-Andesite sample
- Meta-Sediment sample
- Serpentinite sample
- Diabase sample
- EMKO DI-WET sample

Idaho-Maryland Gold Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Generalized Geological Mapping Compilation
Based on USGS mapping - 1940, Johnston
and internal maps from Idaho-Maryland Mine

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet
below ground surface

N
W
E
S
SCALE 1"=500'
1000 ft

Sheet 7

Idaho-Maryland Mine 3300L

Overview showing mine workings and geology at 3300 level elevation ~ -520 feet

Drawnby : Rise Grass Valley - Feb 1 / 20

6,830,000 E
6,835,000 E
6,840,000 E
6,845,000 E
2,210,000 N
2,205,000 N

State Route 49/20
Brunswick Road
Idaho Maryland Road
Whispering Pines Lane
Crown Point Circle
E. Bennett Road
Greenhorn Road
Brunswick Road

A
A'
B
B'

Idaho #1 Mine
Idaho #3 Mine
Brunswick Mine
Union Hill Mine

Existing Historic Underground Mine Workings

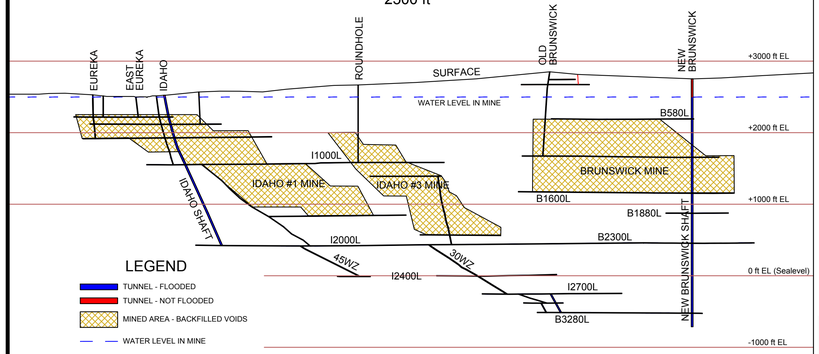
Centennial Industrial Site
Brunswick Industrial Site
Mineral Rights Boundary

Eureka Shaft
Eureka Vertical Shaft
E. Eureka Shaft
D-1
JMD-2
ED-1
JMD-1
Idaho Drain drift
Pump Shaft
Idaho Shaft
Old Air Raise
Roundhole Shaft
Old Brunswick Incline Shaft
Old Brunswick Raise
Old Brunswick Drain Drift
Brunswick Mine B-5801 to B-3280L
Brunswick Shaft
Lucky Shaft
Union Hill Shaft

Idaho-Maryland Mine

Generalized Longsection looking North-East showing connections between mines and current water level in mine

SCALE 1"=1000'
2500 ft



LEGEND

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Mineral Rights Boundary
- Surface Property Boundary
- Road
- Idaho-Maryland Mine Tunnel, Shaft, or Raise
- Idaho-Maryland Mine Stope - Majority backfilled with rock or sand
- Union Hill Mine Tunnel, Shaft, or Raise
- Union Hill Mine Stope - Majority backfilled with rock or sand

I-2000L Drift Label
- L = level (mine tunnel at similar elevation)
- Level number ≈ to depth in feet below surface
- Mine: I = Idaho, B = Brunswick, UH = Union Hill

Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet below ground surface

N
W
E
S
SCALE 1"=500'
1000 ft

Sheet 8

Existing Historic Underground Mine Workings

Spatial Relationship to major roads and site boundaries

Drawnby : Rise Grass Valley - Feb 1 / 20

6,830,000 E
6,835,000 E
6,840,000 E
6,845,000 E
2,210,000 N
2,205,000 N

State Route 49/20
Brunswick Road
Idaho Maryland Road
E. Bennett Road
Colfax Hwy
Greenhorn Road
Whispering Pines Lane
Crown Point Circle

A
A'
B
B'

Idaho #1 Mine
Idaho #3 Mine
Brunswick Mine
Union Hill Mine

Eureka Shaft
Eureka Vertical Shaft
E. Eureka Shaft
D-1
JMD-2
ED-1
JMD-1
Old Air Raise
Roundhole Shaft

Old Brunswick Incline Shaft
Old Brunswick Raise
Old Brunswick Drain Drift
Lucky Shaft
Union Hill Shaft
Brunswick Shaft

Mineral Rights Boundary

Centennial Industrial Site
Brunswick Industrial Site

LEGEND

- Idaho-Maryland Mineral Rights - 200 ft below ground surface
- Mineral Rights Boundary
- Surface Property Boundary
- Road
- Idaho-Maryland Mine Tunnel, Shaft, or Raise
- Idaho-Maryland Mine Stope - Majority backfilled with rock or sand
- Union Hill Mine Tunnel, Shaft, or Raise
- Union Hill Mine Stope - Majority backfilled with rock or sand

I-2000L — Drift Label
L = level (mine tunnel at similar elevation)
Level number ≈ to depth in feet below surface
Mine: I = Idaho, B = Brunswick, UH = Union Hill

Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet below ground surface

N
W
E
SCALE 1"=500'
1000 ft

Sheet 9

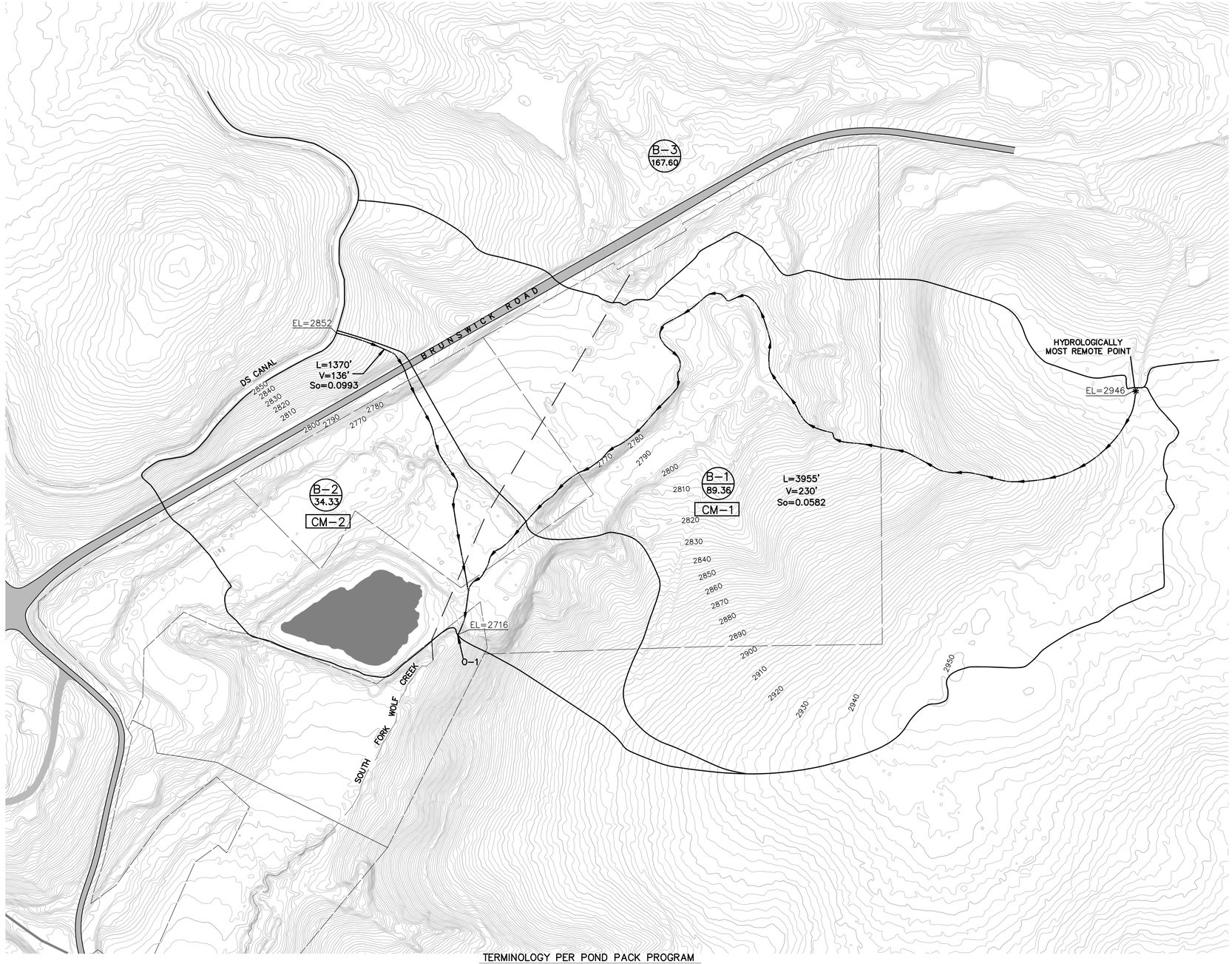
Existing Historic Underground Mine Workings

Showing Workings less than ~600 feet bgs

Spatial Relationship to major roads and site boundaries

Drawnby : Rise Grass Valley - Feb 1 / 20

SCALE: 1" = 200'
CONTOUR INTERVAL: 2'



LEGEND:

- DRAINAGE SUBAREA BOUNDARY
- EXISTING CONTOUR W/ ELEVATION
- PROPERTY LINE
- B-1 / 0.13 — DRAINAGE SUBAREA DESIGNATION / ACREAGE OF SUBAREA

TERMINOLOGY PER POND PACK PROGRAM

CM-1	CATCHMENT AREA (SAME AS DRAINAGE SUBAREA ABOVE)
PO-1	POND #
O-1	OUTLET #
COS-1	COMPOSITE OUTLET STRUCTURE #
OUTLET-1	OUTLET CULVERT #

SHEET 10

ENGINEERING • SURVEYING
PLANNING

NEVADA CITY ENGINEERING, INC.

505-B COYOTE STREET NEVADA CITY
(530)265-6911

REGISTERED PROFESSIONAL ENGINEER
ROBERT M ROURKE
No. 29650
Exp. 3/31/21
CIVIL
STATE OF CALIFORNIA

REVISION:	DATE:	DESCRIPTION:
1	2/5/2020	TERMINOLOGY UPDATE

BRUNSWICK SITE

RISE GRASS VALLEY INC.

SEC. 31, T.16N., R.9E., M.D.M.

NEVADA COUNTY , CALIFORNIA

HYDROLOGY MAP PRE-DEVELOPMENT

H-3

SCALE: 1" = 200'
CONTOUR INTERVAL: 2'



LEGEND:

- DRAINAGE SUBAREA BOUNDARY
- EXISTING CONTOUR W/ ELEVATION
- PROPERTY LINE
- A-1 / 0.13 — DRAINAGE SUBAREA DESIGNATION / ACREAGE OF SUBAREA

TERMINOLOGY PER POND PACK PROGRAM

CM-1	CATCHMENT AREA (SAME AS DRAINAGE SUBAREA ABOVE)
PO-1	POND #
O-1	OUTLET #
COS-1	COMPOSITE OUTLET STRUCTURE #
OUTLET-1	OUTLET CULVERT #

SHEET 11

ENGINEERING • SURVEYING
PLANNING

NEVADA CITY ENGINEERING, INC.

505-B COYOTE STREET NEVADA CITY
(530)265-6911

REGISTERED PROFESSIONAL ENGINEER
ROBERT W ROURKE
No. 29650
Exp. 3/31/21
CIVIL
STATE OF CALIFORNIA

REVISION:	DATE:	DESCRIPTION:
1	2/5/2020	TERMINOLOGY UPDATE

CENTENNIAL SITE

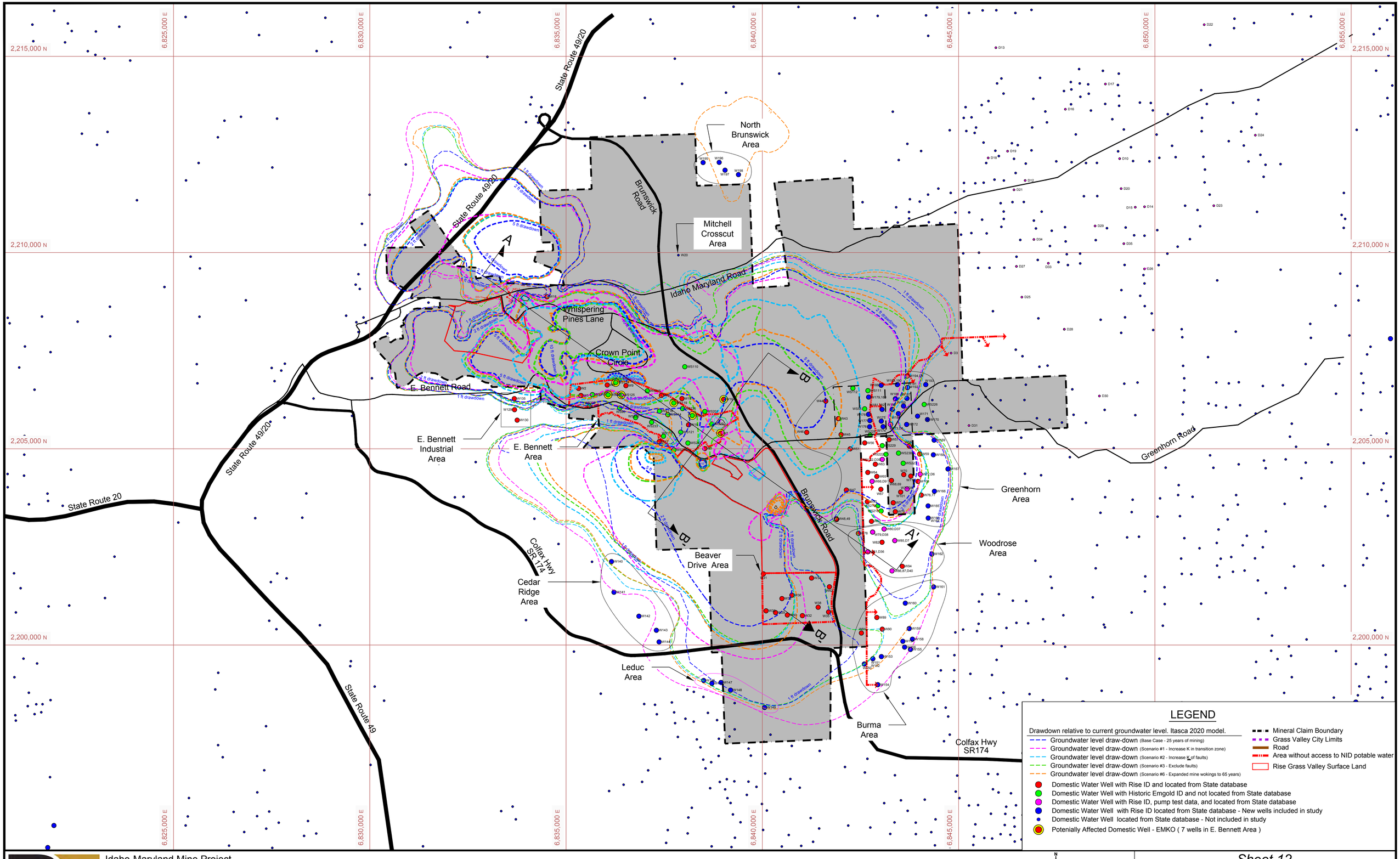
RISE GRASS VALLEY INC.

SEC. 26, T.16N., R.8E., M.D.M.

NEVADA COUNTY , CALIFORNIA

HYDROLOGY MAP
PRE-DEVELOPMENT

H-1



LEGEND

Drawdown relative to current groundwater level. Itasca 2020 model.

- Groundwater level draw-down (Base Case - 25 years of mining)
- Groundwater level draw-down (Scenario #1 - Increase K in transition zone)
- Groundwater level draw-down (Scenario #2 - Increase K of faults)
- Groundwater level draw-down (Scenario #3 - Exclude faults)
- Groundwater level draw-down (Scenario #6 - Expanded mine wokings to 65 years)
- Domestic Water Well with Rise ID and located from State database
- Domestic Water Well with Historic Emgold ID and not located from State database
- Domestic Water Well with Rise ID, pump test data, and located from State database
- Domestic Water Well with Rise ID located from State database - New wells included in study
- Domestic Water Well located from State database - Not included in study
- Potenially Affected Domestic Well - EMKO (7 wells in E. Bennett Area)
- Mineral Claim Boundary
- Grass Valley City Limits
- Road
- Area without access to NID potable water
- Rise Grass Valley Surface Land

Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Domestic Water Well Locations from California Department of Water Resources Well Completion Reports and Emgold Historic EIR documents
Groundwater drawdown from Itasca Denver Inc. Prediction of Groundwater Inflow to the Underground Workings at the Idaho-Maryland Mine, January 2020
Land use data from Nevada Counny My Neighborhood Map Application
NID Service areas from maps supplied to Rise by NID.
Relative Drawdown Contours from Itasca Denver Inc. Predictions of Groundwater Inflows to the Underground Mine Workings at the Idaho-Maryland Mine, March 2020

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet below ground surface

N
W E
S
SCALE 1"=1000'
2500 ft

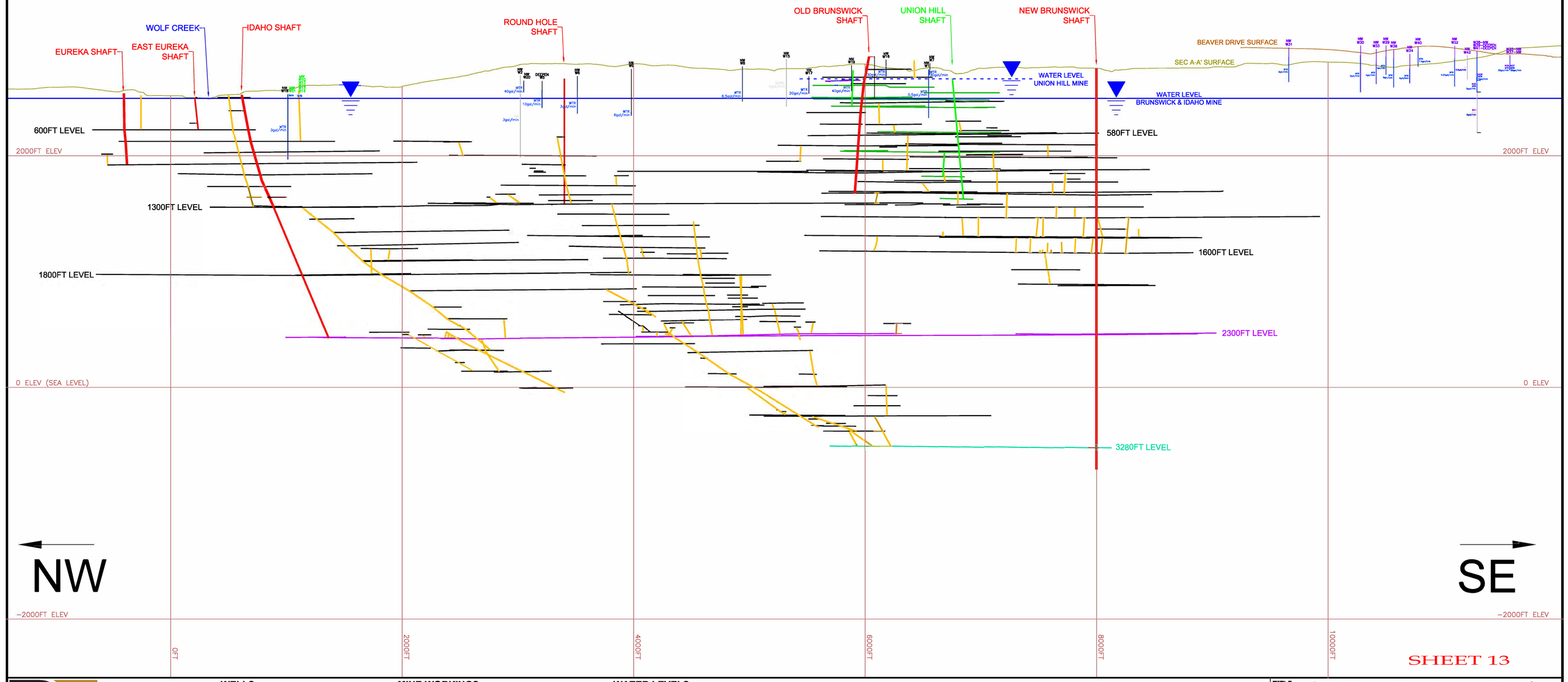
Sheet 12
Well Locations and Itasca Drawdown
Water wells and projected groundwater level drawdown

Drawnby : Rise Grass Valley
Date : Feb 1 2020

LONGSECTION: SECTION A-A'

SECTION LOOKING NORTHEAST

ALL MINE WORKINGS PROJECTED ON LONGSECTION



SHEET 13

LEGEND

WELLS

W#	WELL ID
W#	BEAVER DRIVE WELL - WELL ID
NW	NEW WELL
WTR	WELL WATER LEVEL
NA	WATER LEVEL DATA NOT AVAILABLE
NONE	NO WATER IN WELL
gal/min	WELL TEST DATA

MINE WORKINGS

- BRUNSWICK / IDAHO MINE LATERAL DRIFTS
- SHAFT
- RAISE / WINZE
- UNION HILL MINE LATERAL DRIFTS
- UNION HILL SHAFT / RAISE

WATER LEVELS

- APPROX. WATER LEVEL IN BRUNSWICK & IDAHO MINE
- APPROX. WATER LEVEL IN UNION HILL MINE

NOTES:

1. DOMESTIC WELLS ALONG EAST BENNETT RD CORRIDOR AND WITHIN BEAVER DRIVE SUBDIVISION SHOWN ON LONGSECTION.
2. ALL MINE DRIFTS AND SHAFTS PROJECTED ON TO LONGSECTION.
3. SURFACE PROFILE SHOWN CORRESPONDS TO SURFACE PROFILE ALONG SECTION A-A'. SEE PLAN LAYOUT FOR BEAVER DRIVE SURFACE PROFILE LOCATION.
4. BRUNSWICK AND IDAHO MINES ARE CONNECTED ON 2300FT LEVEL & 3280FT LEVEL.
5. WELL WATER DATA IS STATIC WATER LEVEL. DEPTH TO FIRST WATER IS SHOWN WHEN NO STATIC WATER LEVEL DATA AVAILABLE.

TITLE: *DOMESTIC WATER WELLS - SEC A-A'*

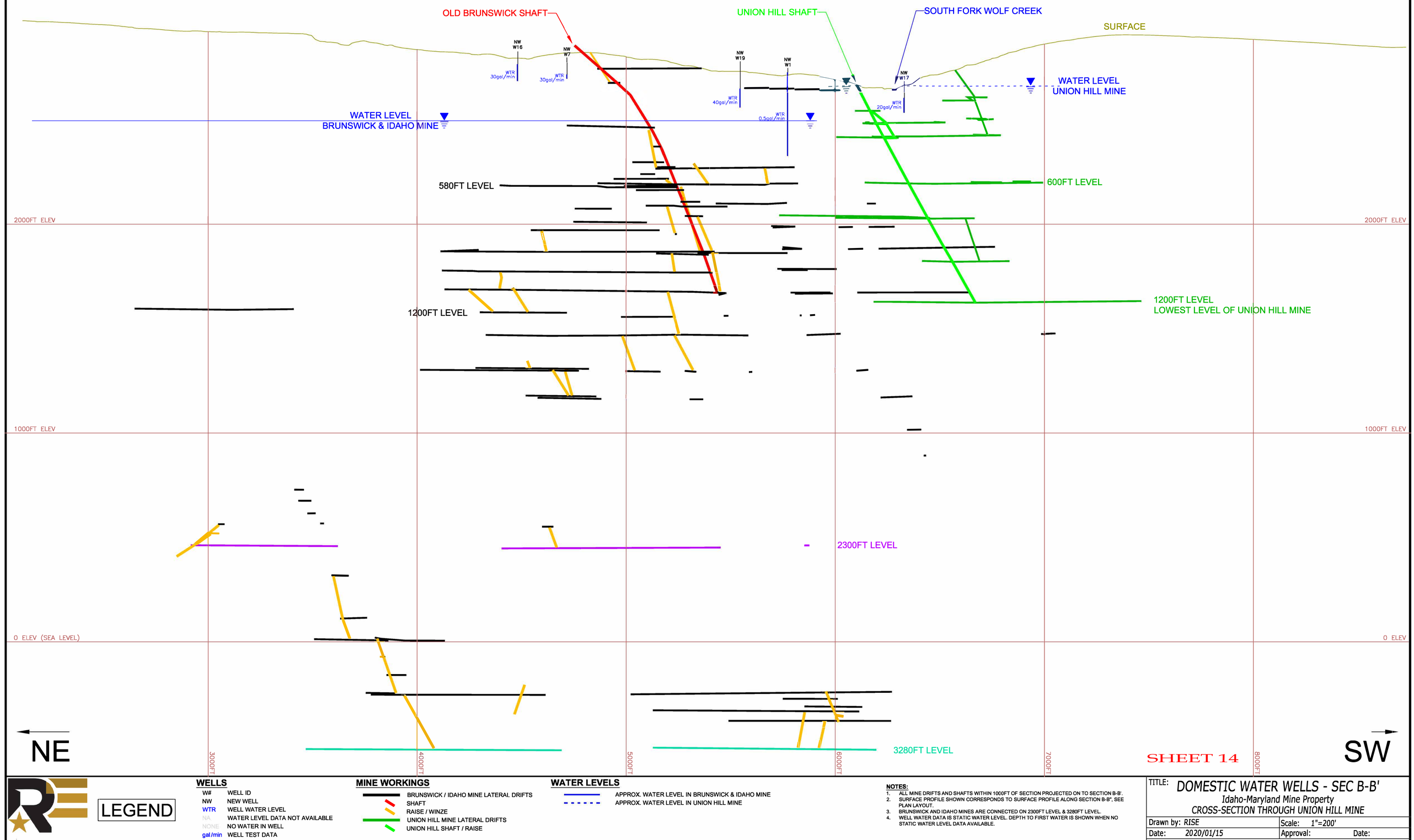
Idaho-Maryland Mine Property

SHOWING ALL MINE DRIFTS & SHAFTS PROJECTED ON SEC A-A'

Drawn by: *RISE*		Scale: *1"=400'*	
Date: *2020/01/15*		Approval:	Date:
File:			

CROSS-SECTION: SECTION B-B'

SECTION LOOKING SOUTHEAST
INCLUDES 1000FT PROJECTION SE & NW



SHEET 14

LEGEND

WELLS

W#	WELL ID
NW	NEW WELL
WTR	WELL WATER LEVEL
NA	WATER LEVEL DATA NOT AVAILABLE
NONE	NO WATER IN WELL
gal/min	WELL TEST DATA

MINE WORKINGS

- BRUNSWICK / IDAHO MINE LATERAL DRIFTS
- SHAFT
- RAISE / WINZE
- UNION HILL MINE LATERAL DRIFTS
- UNION HILL SHAFT / RAISE

WATER LEVELS

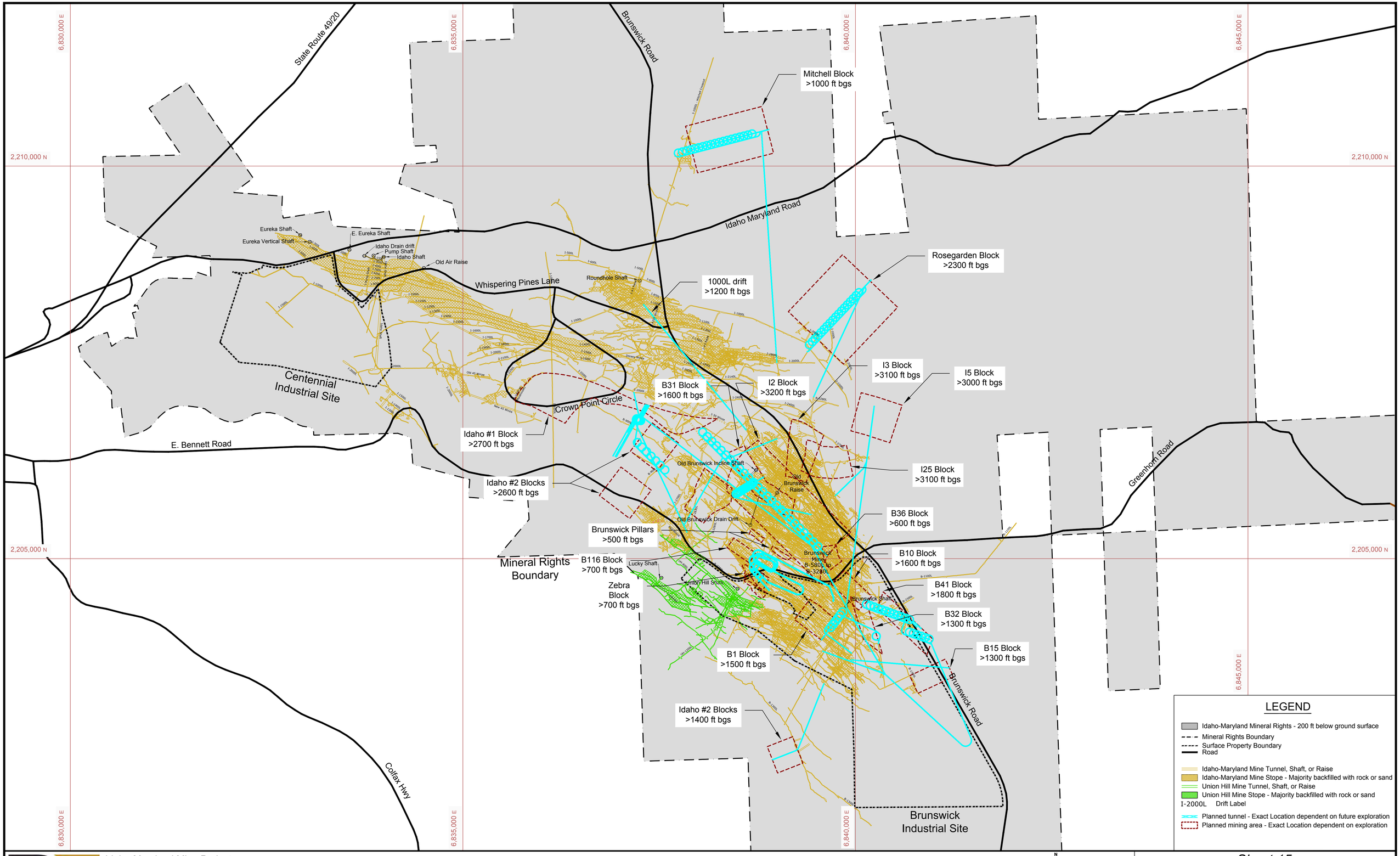
- APPROX. WATER LEVEL IN BRUNSWICK & IDAHO MINE
- APPROX. WATER LEVEL IN UNION HILL MINE

NOTES:

1. ALL MINE DRIFTS AND SHAFTS WITHIN 1000FT OF SECTION PROJECTED ON TO SECTION B-B'.
2. SURFACE PROFILE SHOWN CORRESPONDS TO SURFACE PROFILE ALONG SECTION B-B", SEE PLAN LAYOUT.
3. BRUNSWICK AND IDAHO MINES ARE CONNECTED ON 2300FT LEVEL & 3280FT LEVEL.
4. WELL WATER DATA IS STATIC WATER LEVEL. DEPTH TO FIRST WATER IS SHOWN WHEN NO STATIC WATER LEVEL DATA AVAILABLE.

TITLE: *DOMESTIC WATER WELLS - SEC B-B'*
Idaho-Maryland Mine Property
CROSS-SECTION THROUGH UNION HILL MINE

Drawn by: RISE	Scale: 1"=200'
Date: 2020/01/15	Approval: Date:
File:	



Idaho-Maryland Mine Project
Rise Grass Valley Inc.
PO Box 271
Grass Valley, California, USA 95945

Idaho-Maryland Mineral Rights
Total Area = 2585 Acres
Mineral rights contiguous at 200 feet below ground surface

SCALE 1"=500'
1000 ft

Sheet 15

Base Case - 25 years mining
Planned Underground Mine Workings
(Locations will vary dependant on exploration)

Drawnby : Rise Grass Valley - Feb 1 / 20

8.0 APPENDICES

APPENDICES

GROUNDWATER HYDROLOGY AND WATER QUALITY ANALYSIS REPORT

FOR THE

IDAHO-MARYLAND MINE PROJECT

NEVADA COUNTY, CALIFORNIA

January 2021

Prepared for:

Rise Grass Valley, Inc.

PO Box 271

Grass Valley, California 95945

Prepared by:

EMKO Environmental, Inc.

551 Lakecrest Drive

El Dorado Hills, California 95762

Dr. Andrew A. Kopania
California Professional Geologist #4711
California Certified Hydrogeologist #HG

Appendix A – Analytical Model Output

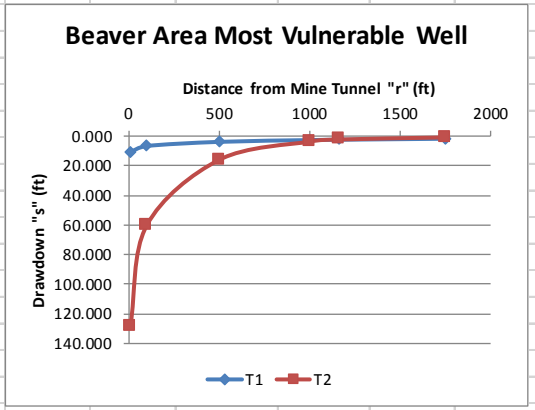
August 2019 Beaver Dr Area - Most Vulnerable Well Assessment

Most vulnerable We W-31
Depth: 295 ft bgs Mine Depth 1456 ft bgs Distance (mine to well bottom 1160 ft
T1 = 15 ft^2/d T2 = 0.7 ft^2/d
1% of mine workings and 10% of total water due to depth and T reduction (Fig 3.10).
Thus, only 0.001 fraction of total 750 gpm pumping rate = 0.75 gpn (147 ft^2/d)

Beaver Area most vulnerable well - when mine workings dewatered

r (FT)	r^2 (FT^2)	t (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	15	4.57E-06	11.71962	164	10.197	0.85
100	10000	3650	0.01	15	0.000457	7.114898	164	6.190	0.85
500	250000	3650	0.01	15	0.011416	3.906948	164	3.399	0.85
1000	1000000	3650	0.01	15	0.045662	2.554417	164	2.222	0.85
1160	1345600	3650	0.01	15	0.061443	2.272943	164	1.978	0.85
1750	3062500	3650	0.01	15	0.13984	1.525139	164	1.327	0.85

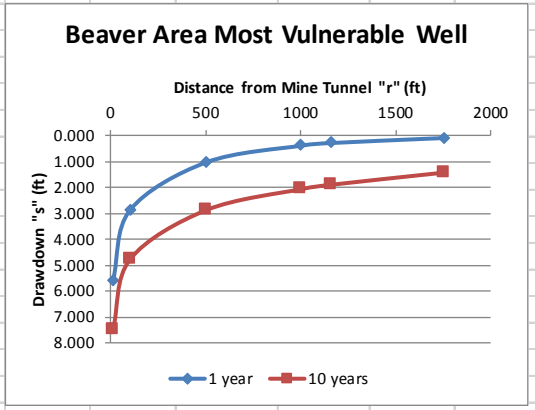
r (FT)	r^2 (FT^2)	t (D)	S	T2 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	0.7	9.78E-05	8.654984	130	127.909	0.68
100	10000	3650	0.01	0.7	0.009785	4.059477	130	59.994	0.68
500	250000	3650	0.01	0.7	0.244618	1.061276	130	15.684	0.68
1000	1000000	3650	0.01	0.7	0.978474	0.227477	130	3.362	0.68
1160	1345600	3650	0.01	0.7	1.316634	0.132029	130	1.951	0.68
1750	3062500	3650	0.01	0.7	2.996575	0.036736	130	0.543	0.68



Ratio (118/147)= 0.792683
Equivalent pumping rate (147*0.6)= 99
Effective shallow pumping rate ratio: 0.603659
(effective rate defined by the incremental additional fraction of flow that comes from above the mine tunnel due to depth variation in T)

r (FT)	r^2 (FT^2)	10 years (D)	S	T1 (FT^2/D)	u	W(u)	Qw - Adj (FT^3/D))	s (FT)	Qw - Adj (GPM)
10	100	9125	0.01	15	1.83E-06	12.6359	112	7.508	0.58
100	10000	9125	0.01	15	0.000183	8.030915	112	4.772	0.58
500	250000	9125	0.01	15	0.004566	4.816417	112	2.862	0.58
1000	1000000	9125	0.01	15	0.018265	3.443743	112	2.046	0.58
1160	1345600	9125	0.01	15	0.024577	3.153149	112	1.874	0.58
1750	3062500	9125	0.01	15	0.055936	2.361493	112	1.403	0.58

r (FT)	r^2 (FT^2)	1 year (D)	S	T1 (FT^2/D)	u	W(u)	Qw - Adj (FT^3/D))	s (FT)	Qw - Adj (GPM)
10	100	365	0.01	15	4.57E-05	9.417072	112	5.595	0.58
100	10000	365	0.01	15	0.004566	4.816417	112	2.862	0.58
500	250000	365	0.01	15	0.114155	1.703958	112	1.012	0.58
1000	1000000	365	0.01	15	0.456621	0.616049	112	0.366	0.58
1160	1345600	365	0.01	15	0.614429	0.441431	112	0.262	0.58
1750	3062500	365	0.01	15	1.398402	0.116532	112	0.069	0.58



August 2019 Greenhorn Area - Most Vulnerable Well Assessment

Most vulnerable We W-45

Depth: 140 ft bgs Mine Depth 1184 ft bg Distance (mine to well bottom 1042 ft

T1 = 153 ft^2/d T2 = 0.7 ft^2/d

Brunswick Area Wells - when mine workings dewatered

1% of mine workings and 10% of total water due to depth and T reduction (Fig 3.10).

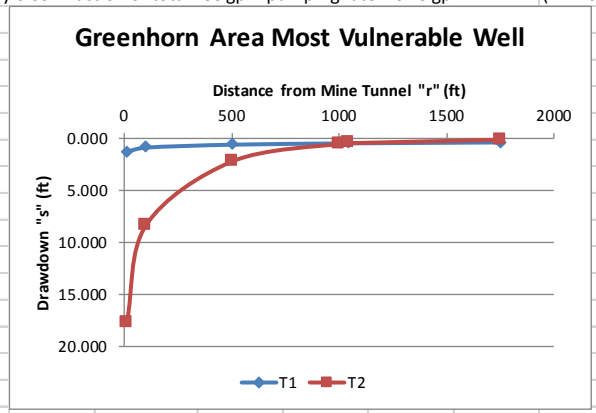
Thus, only 0.001 fraction of total 750 gpm pumping rate = 0.75 gpm (147 ft^2/d)

r (FT)	r^2 (FT^2)	t (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	153	4.48E-07	14.042	164	1.198	0.85
100	10000	3650	0.01	153	4.48E-05	9.436874	164	0.805	0.85
500	250000	3650	0.01	153	0.001119	6.219072	164	0.530	0.85
1000	1000000	3650	0.01	153	0.004477	4.83613	164	0.413	0.85
1042	1085764	3650	0.01	153	0.004861	4.754229	164	0.406	0.85
1750	3062500	3650	0.01	153	0.01371	3.72609	164	0.318	0.85

r (FT)	r^2 (FT^2)	t (D)	S	T2 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	0.7	9.78E-05	8.654984	18	17.711	0.09
100	10000	3650	0.01	0.7	0.009785	4.059477	18	8.307	0.09
500	250000	3650	0.01	0.7	0.244618	1.061276	18	2.172	0.09
1000	1000000	3650	0.01	0.7	0.978474	0.227477	18	0.465	0.09
1042	1085764	3650	0.01	0.7	1.062391	0.197793	18	0.405	0.09
1750	3062500	3650	0.01	0.7	2.996575	0.036736	18	0.075	0.09

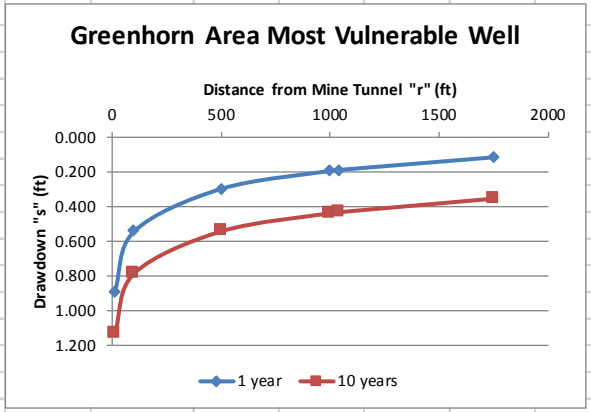
Ratio (16/147)= 0.109756 Effective shallow pumping rate ratio: 0.945122 (effective rate defined by the incremental additional fraction of flow

Equivalent pumping rate (147*0.95)= 155 that comes from above the mine tunnel due to depth variation in T)



r (FT)	r^2 (FT^2)	10 years (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	9125	0.01	153	1.79E-07	14.95829	146	1.136	0.76
100	10000	9125	0.01	153	1.79E-05	10.35314	146	0.786	0.76
500	250000	9125	0.01	153	0.000448	7.134691	146	0.542	0.76
1000	1000000	9125	0.01	153	0.001791	5.749739	146	0.437	0.76
1042	1085764	9125	0.01	153	0.001944	5.667609	146	0.430	0.76
1750	3062500	9125	0.01	153	0.005484	4.634194	146	0.352	0.76

r (FT)	r^2 (FT^2)	1 year (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	365	0.01	153	4.48E-06	11.73942	146	0.891	0.76
100	10000	365	0.01	153	0.000448	7.134691	146	0.542	0.76
500	250000	365	0.01	153	0.011192	3.926528	146	0.298	0.76
1000	1000000	365	0.01	153	0.044767	2.573344	146	0.195	0.76
1042	1085764	365	0.01	153	0.048606	2.494811	146	0.189	0.76
1750	3062500	365	0.01	153	0.137098	1.542381	146	0.117	0.76



August 2019 Mitchell Cross-Cut Area - Most Vulnerable Well Assessment

Most vulnerable We W-20

Depth: 100 Mine Depth 1028 Distance (mine to well bottom 965

T1 = 153 ft^2/d T2 = 0.7 ft^2/d

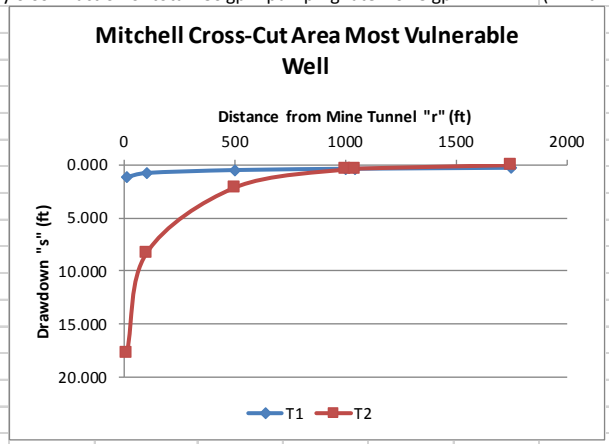
Mithcell Cross-Cut most vulnerable well - when mine workings dewatered

1% of mine workings and 10% of total water due to depth and T reduction (Fig 3.10).

Thus, only 0.001 fraction of total 750 gpm pumping rate = 0.75 gpm (147 ft^2/d)

r (FT)	r^2 (FT^2)	t (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	153	4.48E-07	14.042	147	1.074	0.76
100	10000	3650	0.01	153	4.48E-05	9.436874	147	0.722	0.76
500	250000	3650	0.01	153	0.001119	6.219072	147	0.475	0.76
965	931225	3650	0.01	153	0.004169	4.907077	147	0.375	0.76
1000	1000000	3650	0.01	153	0.004477	4.83613	147	0.370	0.76
1750	3062500	3650	0.01	153	0.01371	3.72609	147	0.285	0.76

r (FT)	r^2 (FT^2)	t (D)	S	T2 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	0.7	9.78E-05	8.654984	14	13.775	0.07
100	10000	3650	0.01	0.7	0.009785	4.059477	14	6.461	0.07
500	250000	3650	0.01	0.7	0.244618	1.061276	14	1.689	0.07
965	931225	3650	0.01	0.7	0.911179	0.255193	14	0.406	0.07
1000	1000000	3650	0.01	0.7	0.978474	0.227477	14	0.362	0.07
1750	3062500	3650	0.01	0.7	2.996575	0.036736	14	0.058	0.07

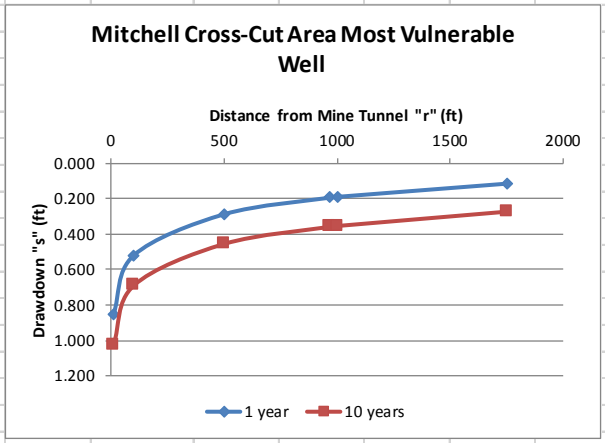


Ratio (14/147)= 0.095238 Effective shallow pumping rate ratio: 0.952381 (effective rate defined by the incremental additional fraction of flow

Equivalent pumping rate (147*0.95)= 140 that comes from above the mine tunnel due to depth variation in T)

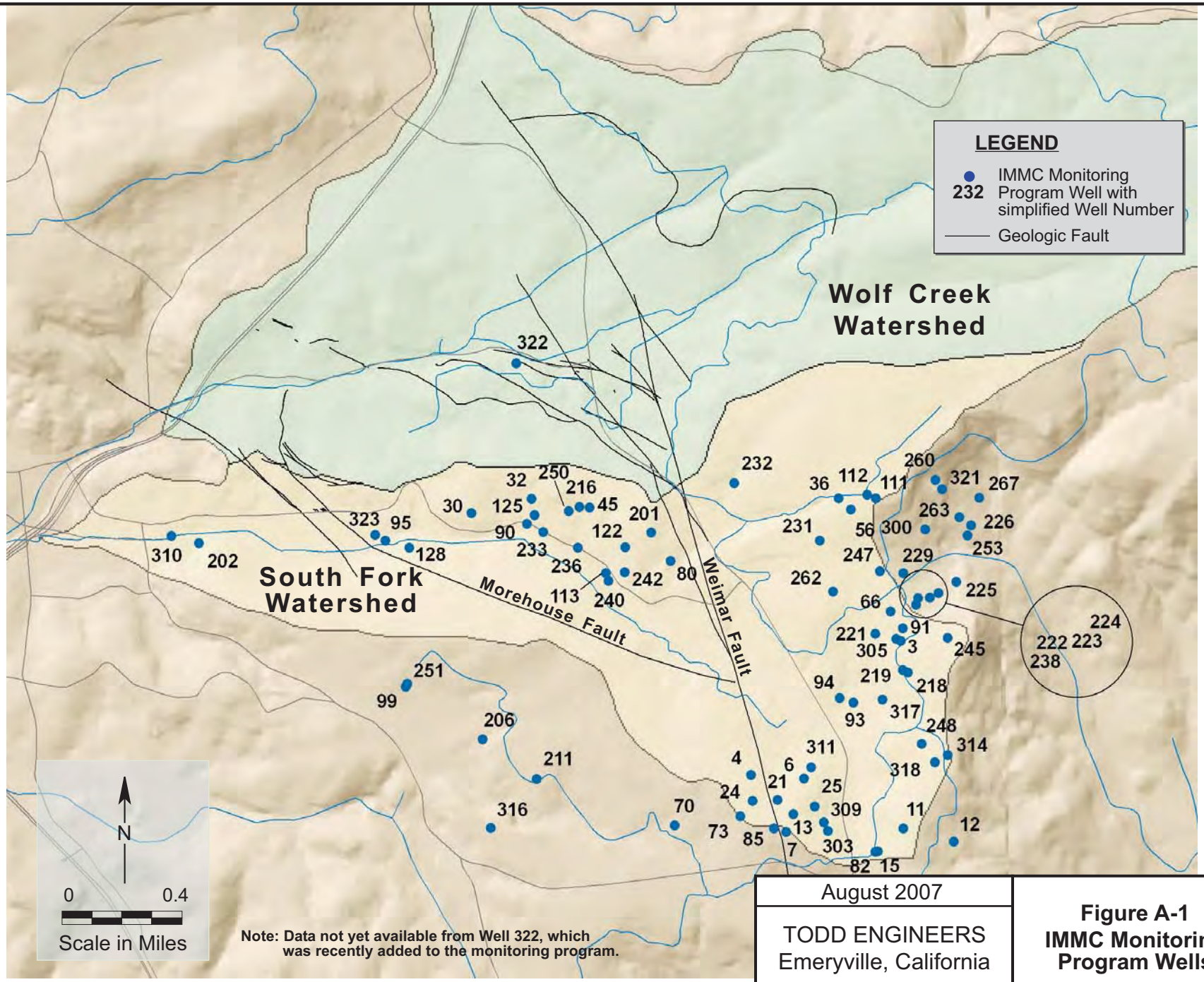
r (FT)	r^2 (FT^2)	10 years (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	3650	0.01	153	4.48E-07	14.042	140	1.022	0.73
100	10000	3650	0.01	153	4.48E-05	9.436874	140	0.687	0.73
500	250000	3650	0.01	153	0.001119	6.219072	140	0.453	0.73
965	931225	3650	0.01	153	0.004169	4.907077	140	0.357	0.73
1000	1000000	3650	0.01	153	0.004477	4.83613	140	0.352	0.73
1750	3062500	3650	0.01	153	0.01371	3.72609	140	0.271	0.73

r (FT)	r^2 (FT^2)	1 year (D)	S	T1 (FT^2/D)	u	W(u)	Qw (FT^3/D))	s (FT)	Qw (GPM)
10	100	365	0.01	153	4.48E-06	11.73942	140	0.855	0.73
100	10000	365	0.01	153	0.000448	7.134691	140	0.520	0.73
500	250000	365	0.01	153	0.011192	3.926528	140	0.286	0.73
965	931225	365	0.01	153	0.041688	2.641585	140	0.192	0.73
1000	1000000	365	0.01	153	0.044767	2.573344	140	0.187	0.73
1750	3062500	365	0.01	153	0.137098	1.542381	140	0.112	0.73



Appendix B – Idaho-Maryland Mining Corporation (IMMC) Hydrographs

Source: Todd Engineers. August 2007. Hydrogeologic Assessment Idaho-Maryland Mine - Appendix A.

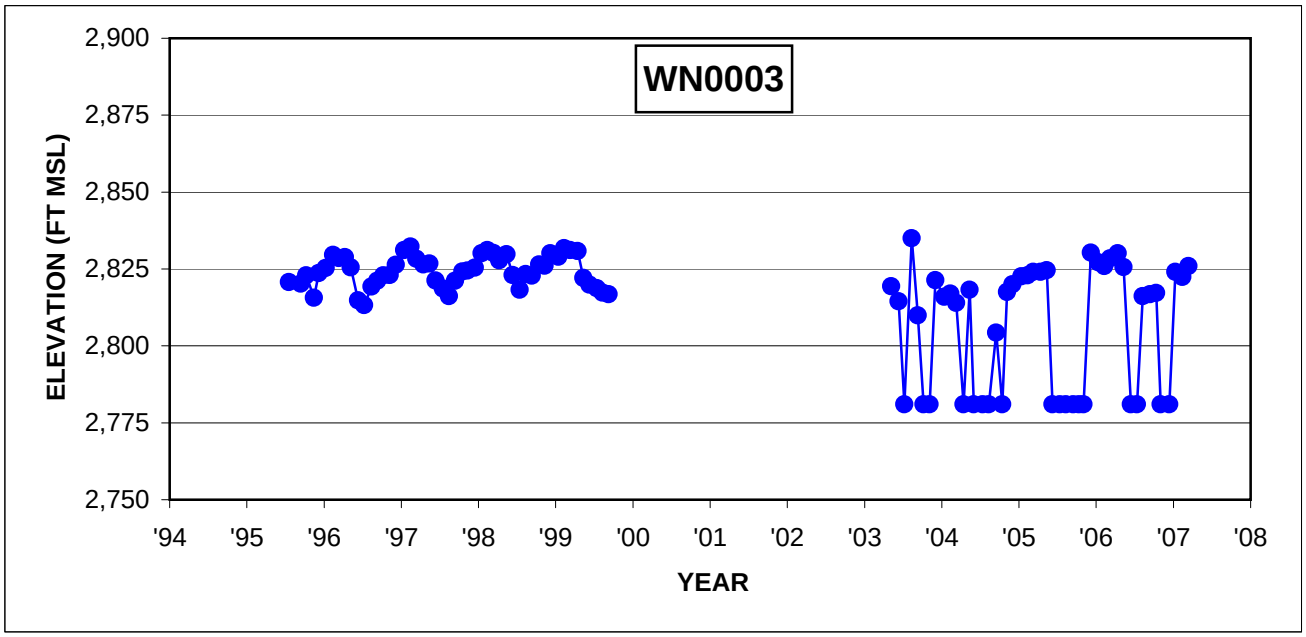


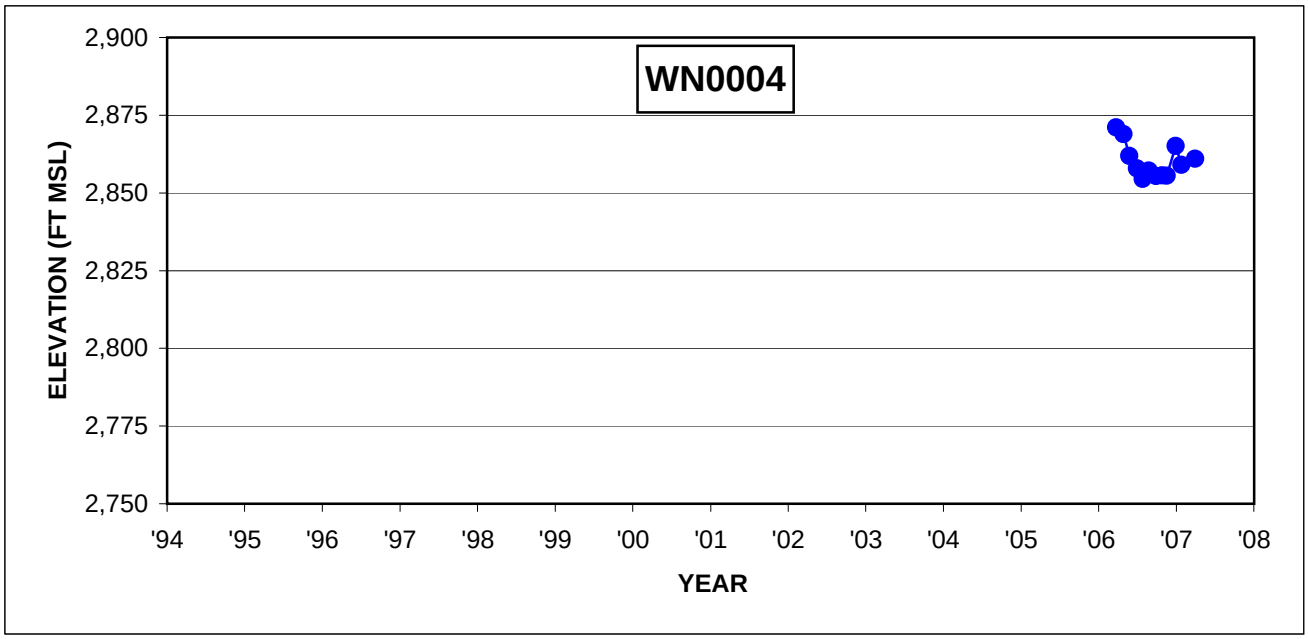
Note: Data not yet available from Well 322, which was recently added to the monitoring program.

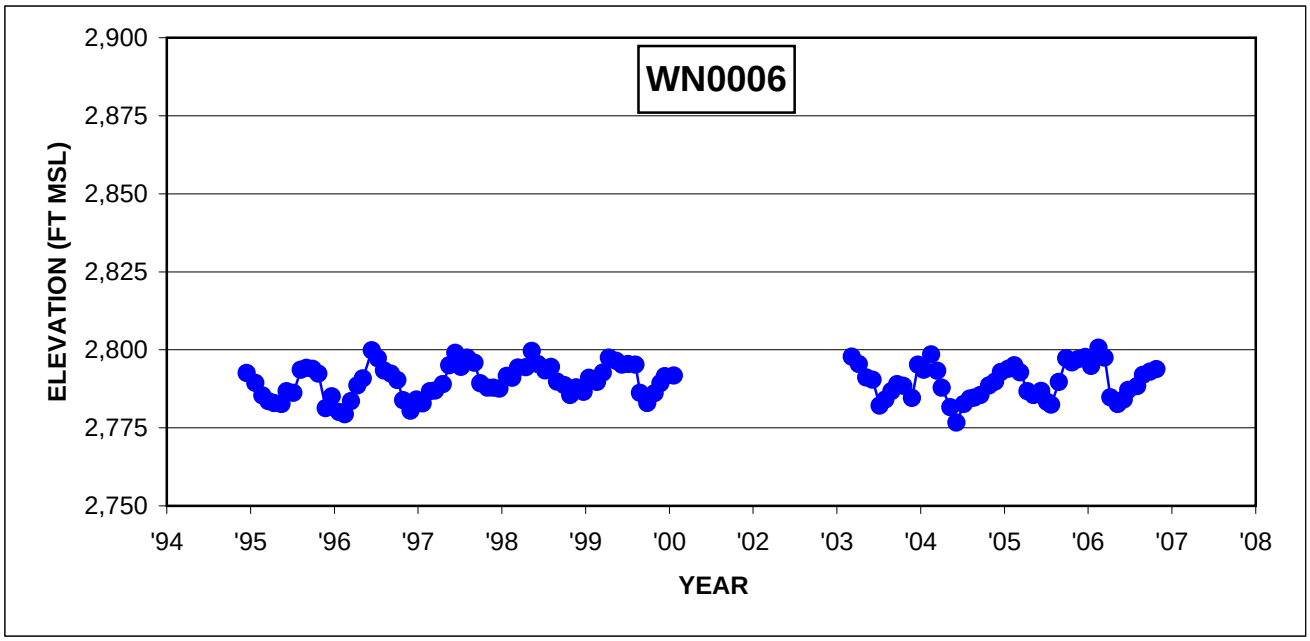
August 2007

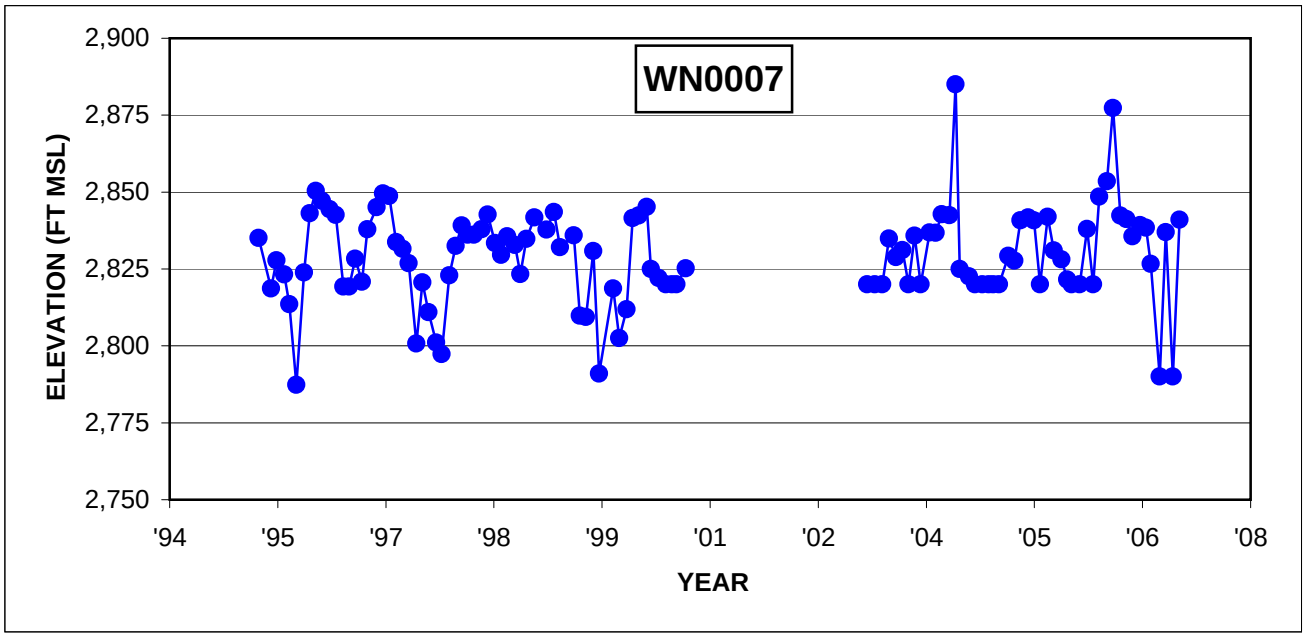
TODD ENGINEERS
Emeryville, California

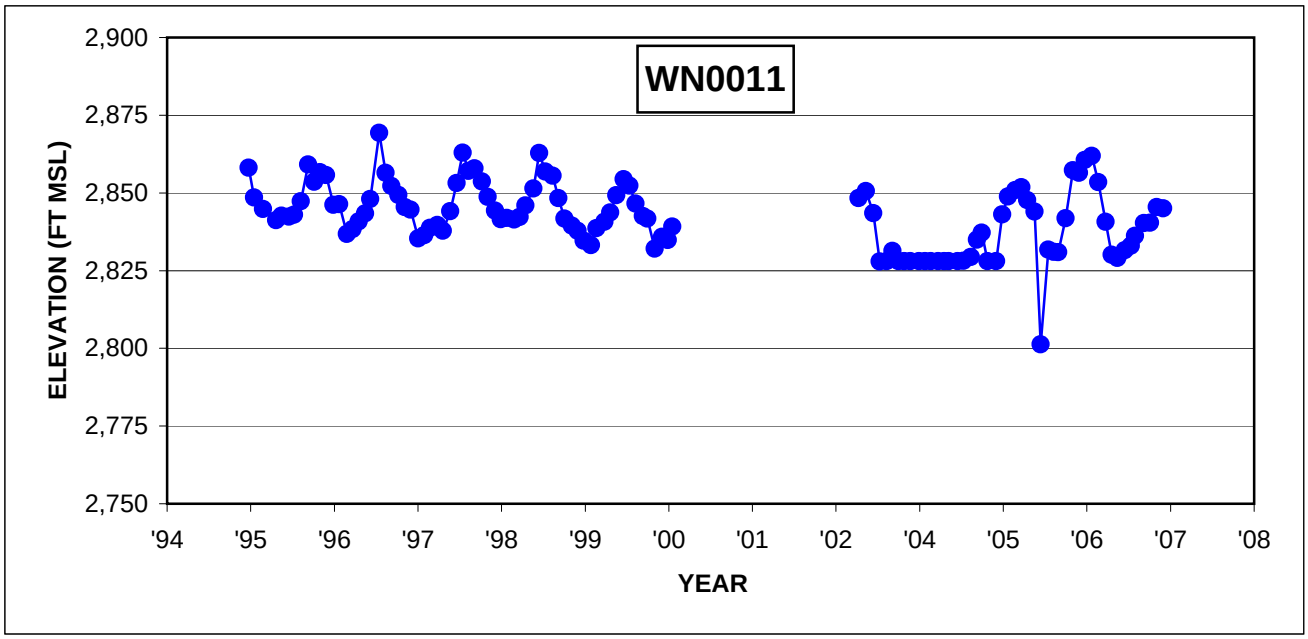
Figure A-1
IMMC Monitoring Program Wells

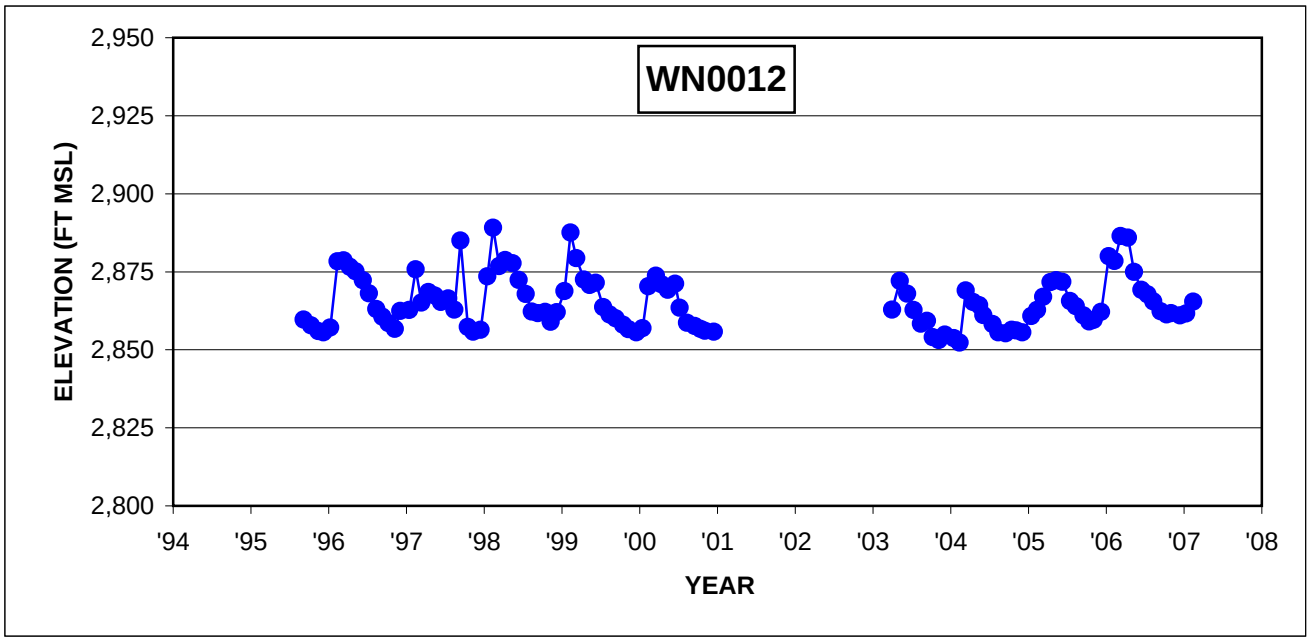

WN0003
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

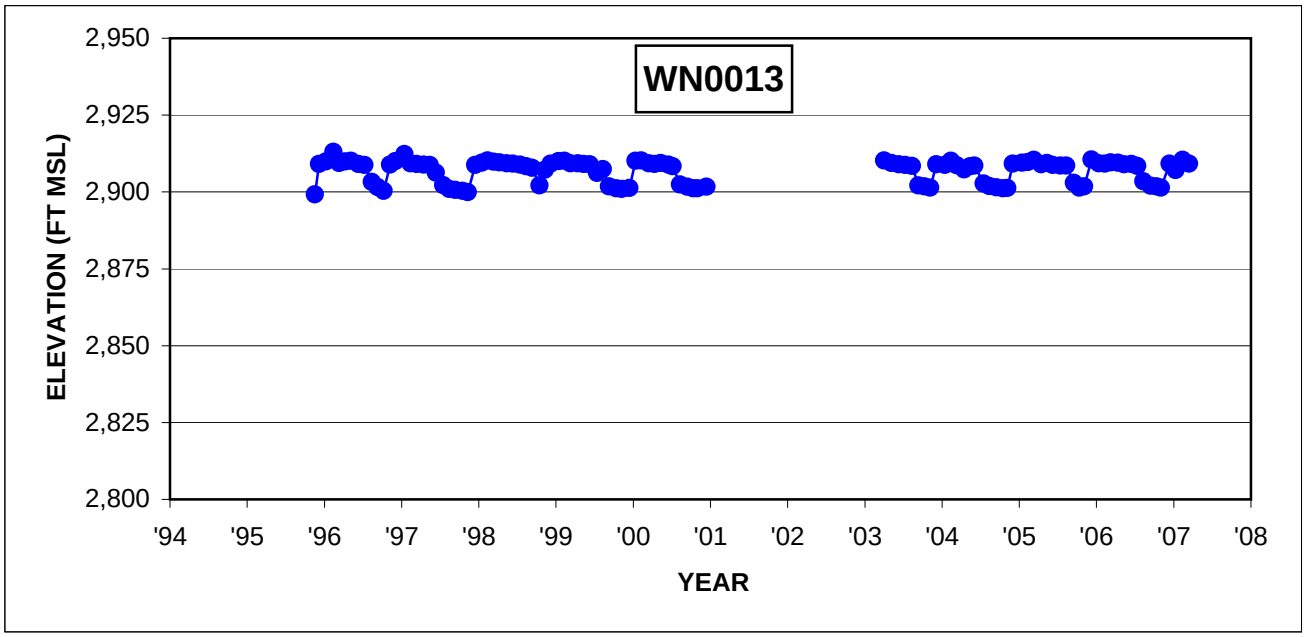

WN0004
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

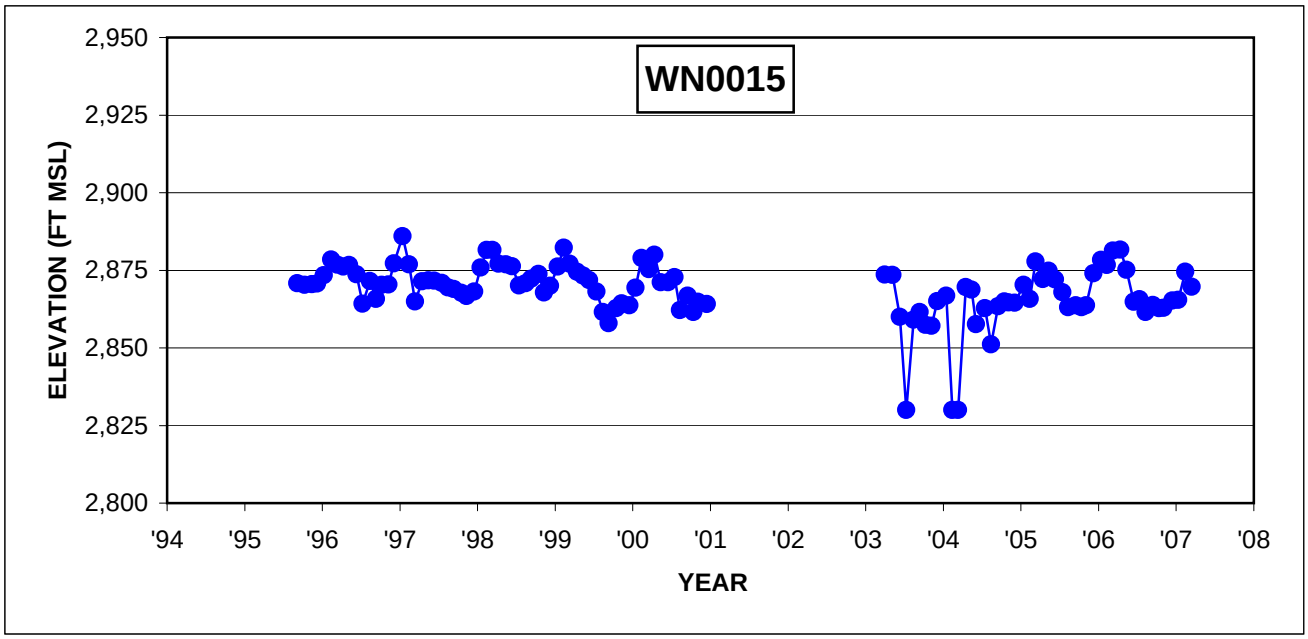

WN0006
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'02
'03
'04
'05
'06
'07
'08
YEAR

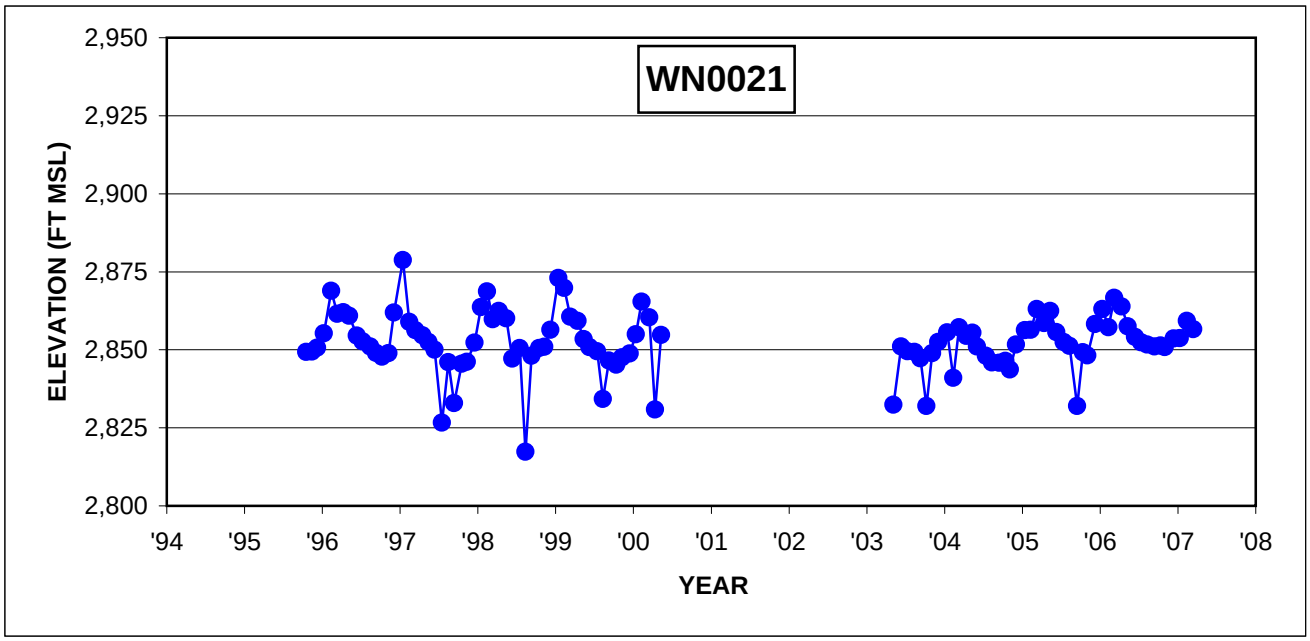

WN0007
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'97
'98
'99
'01
'02
'04
'05
'06
'08
YEAR

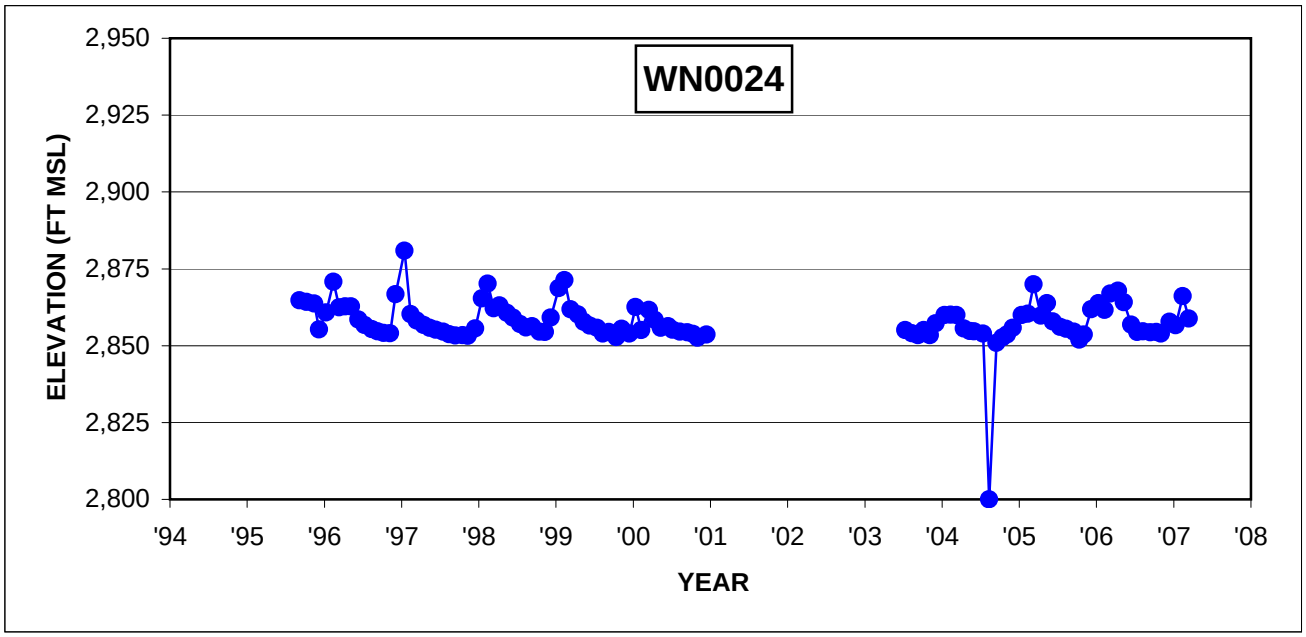

WN0011
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'04
'05
'06
'07
'08
YEAR

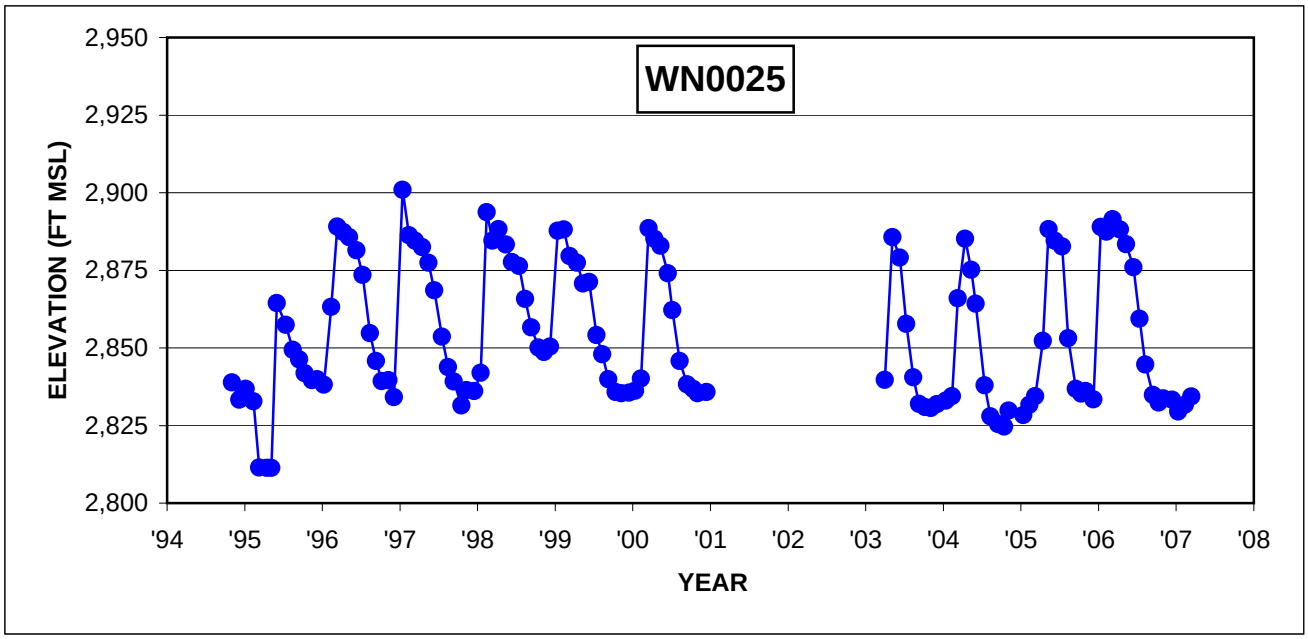

WN0012
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

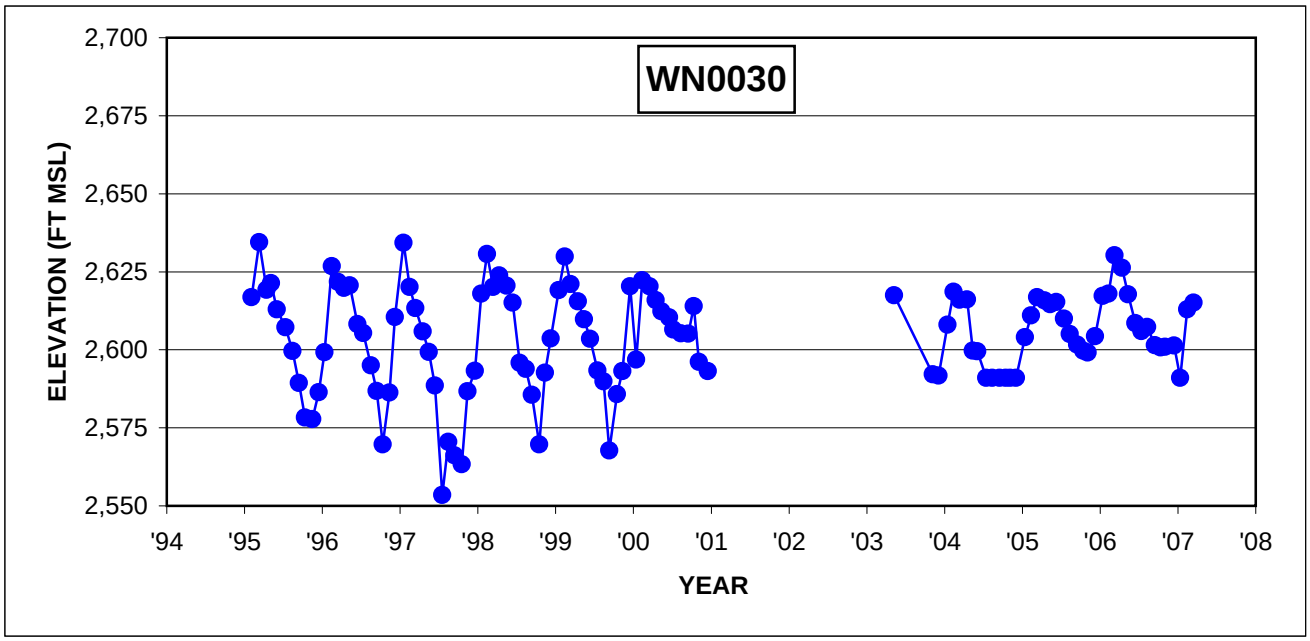

WN0013
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

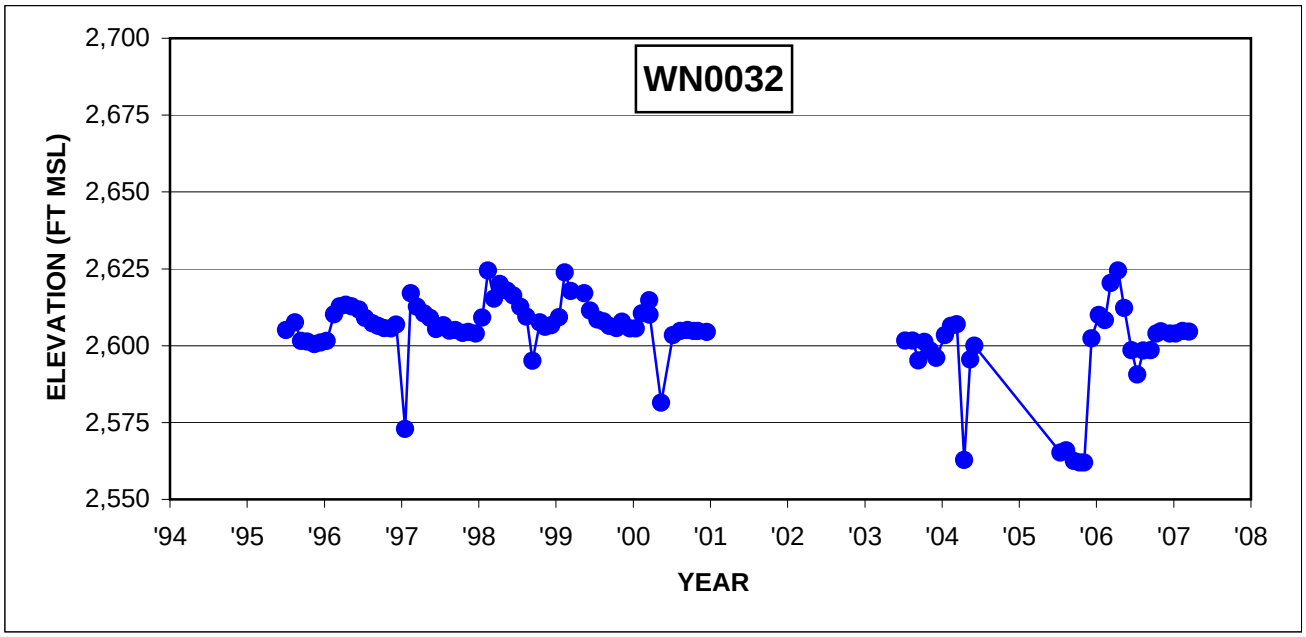

WN0015
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

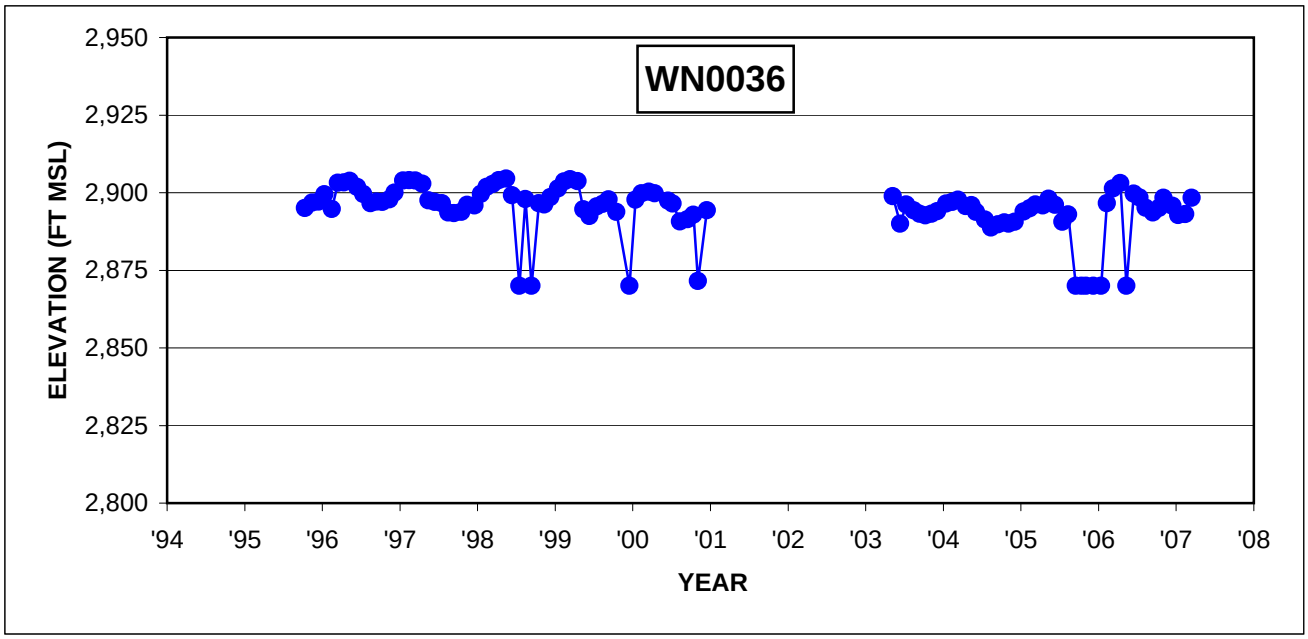

WN0021
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

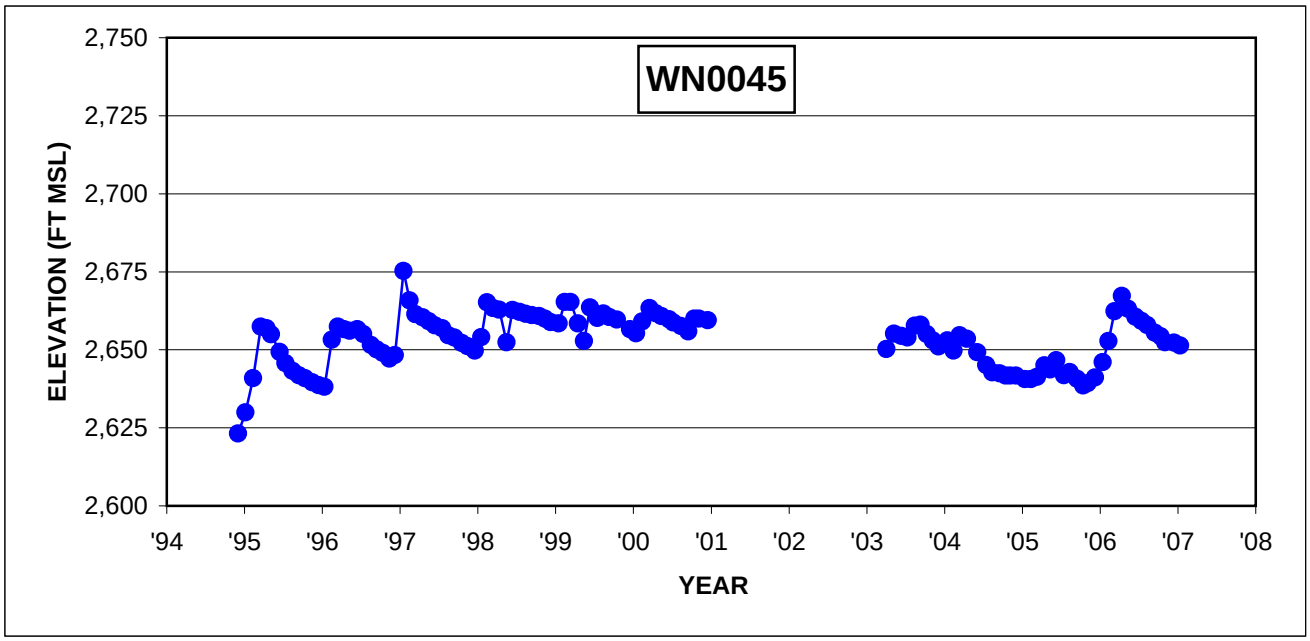

WN0024
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

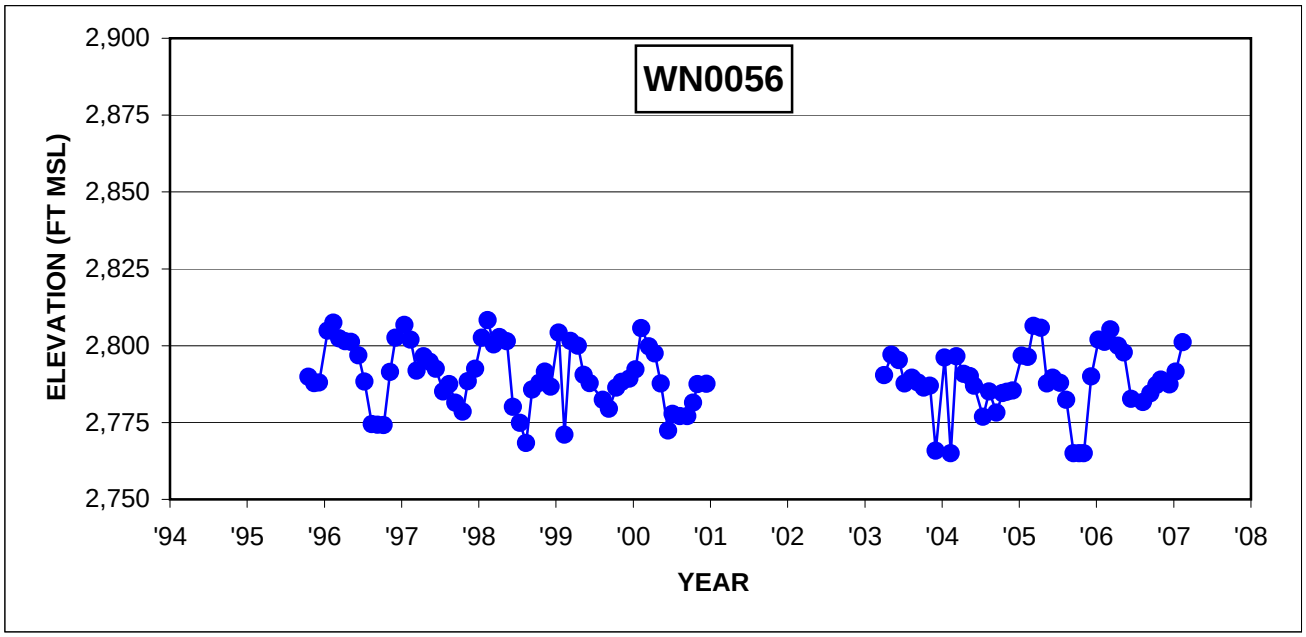

WN0025
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

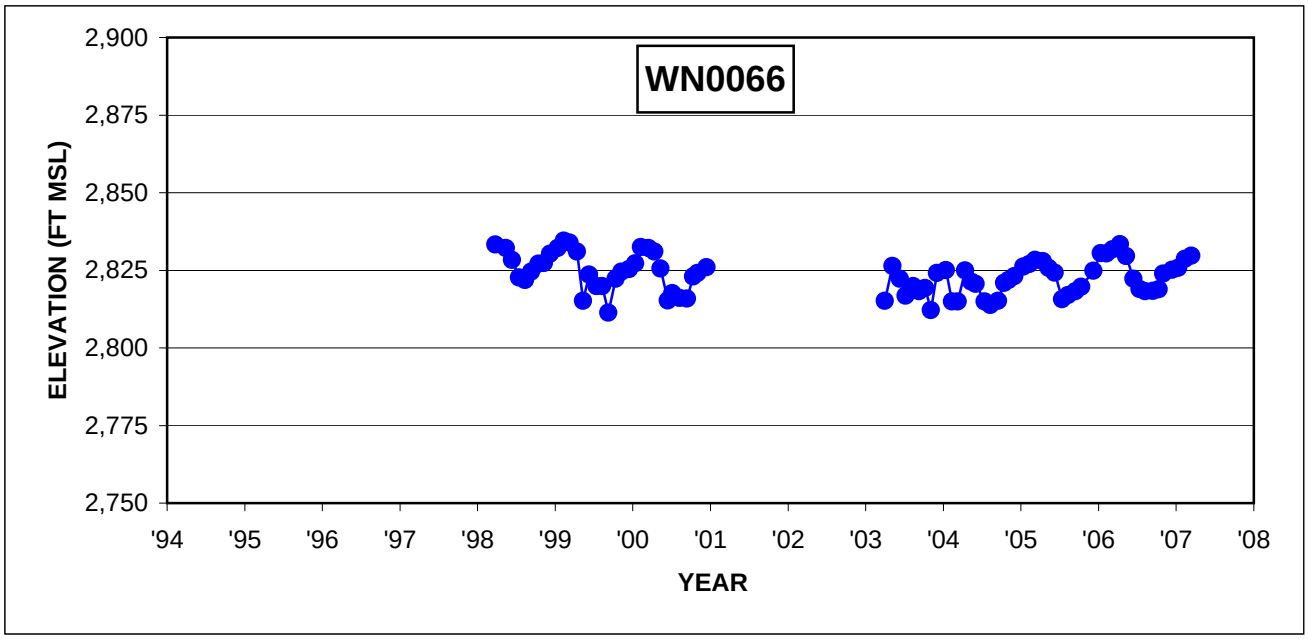

WN0030
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

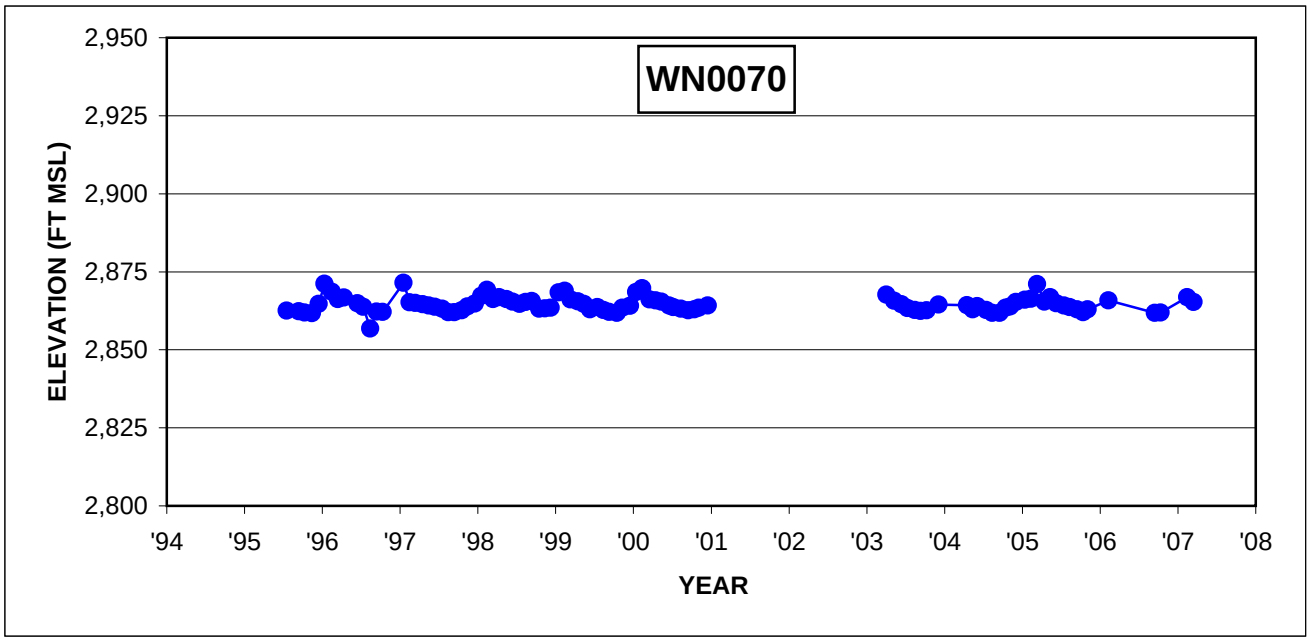

WN0032
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

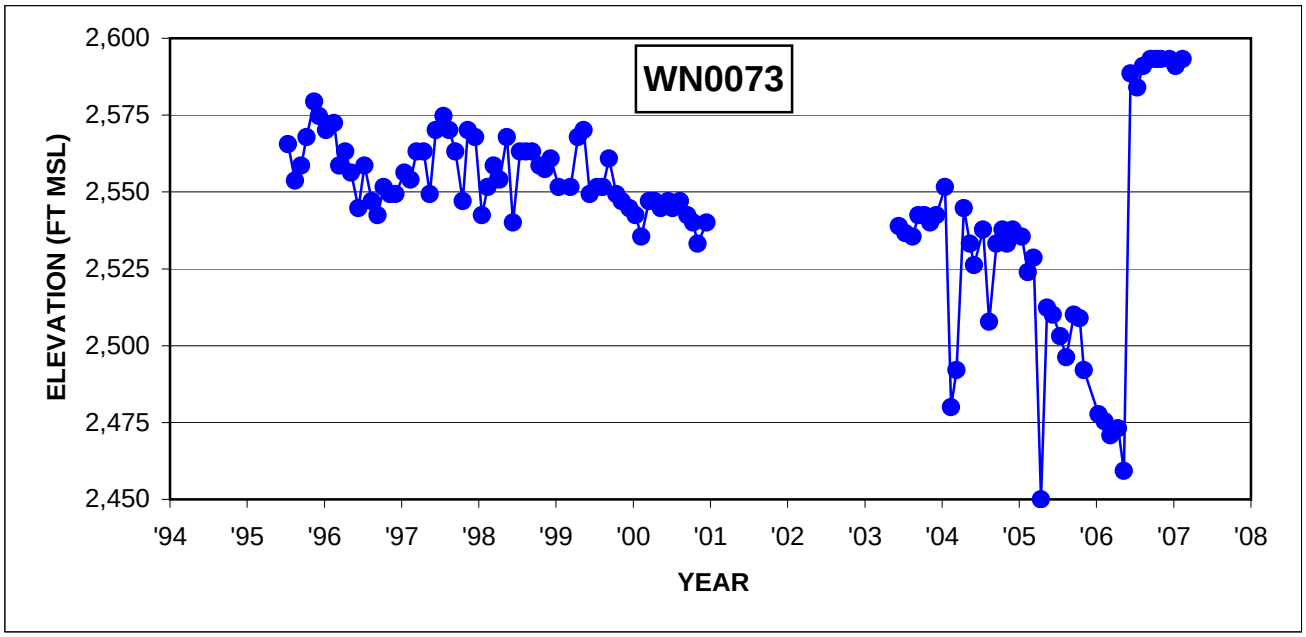

WN0036
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

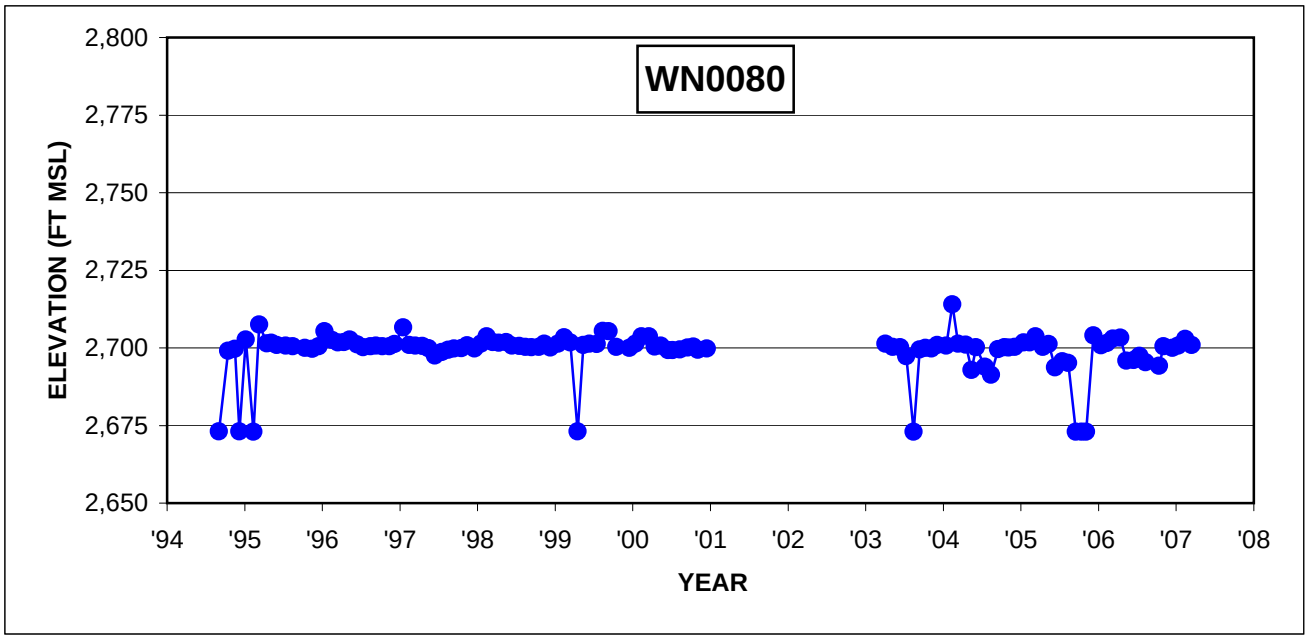

WN0045
ELEVATION (FT MSL)
2,750
2,725
2,700
2,675
2,650
2,625
2,600
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

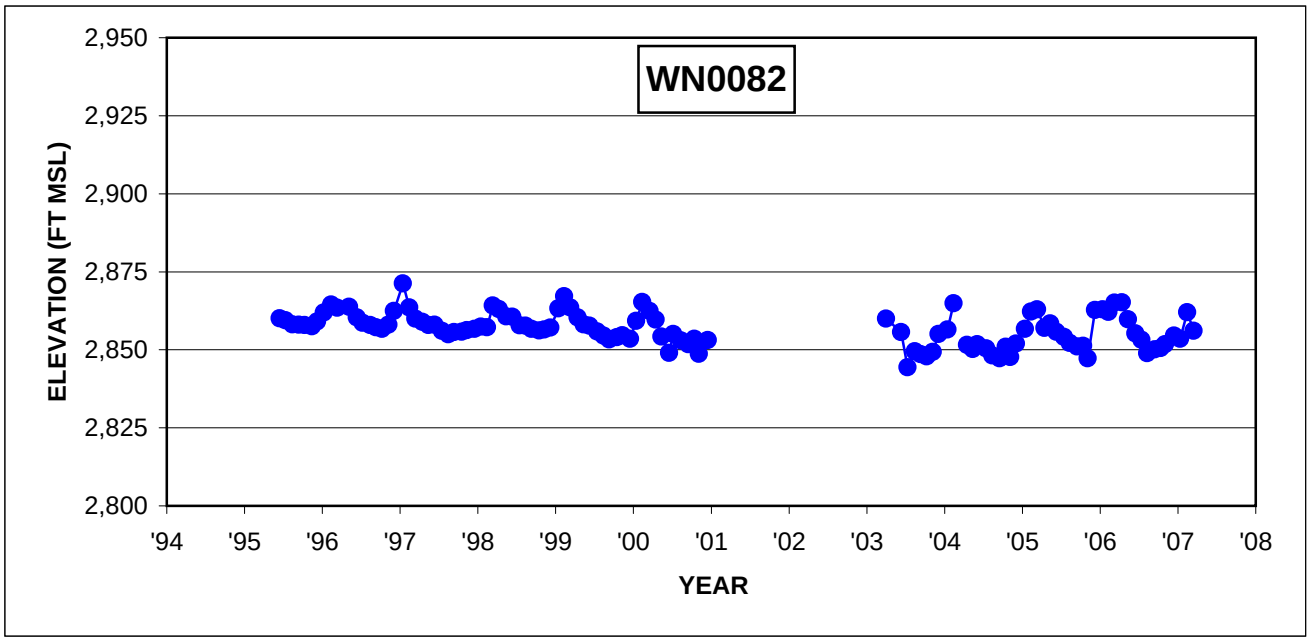

WN0056
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

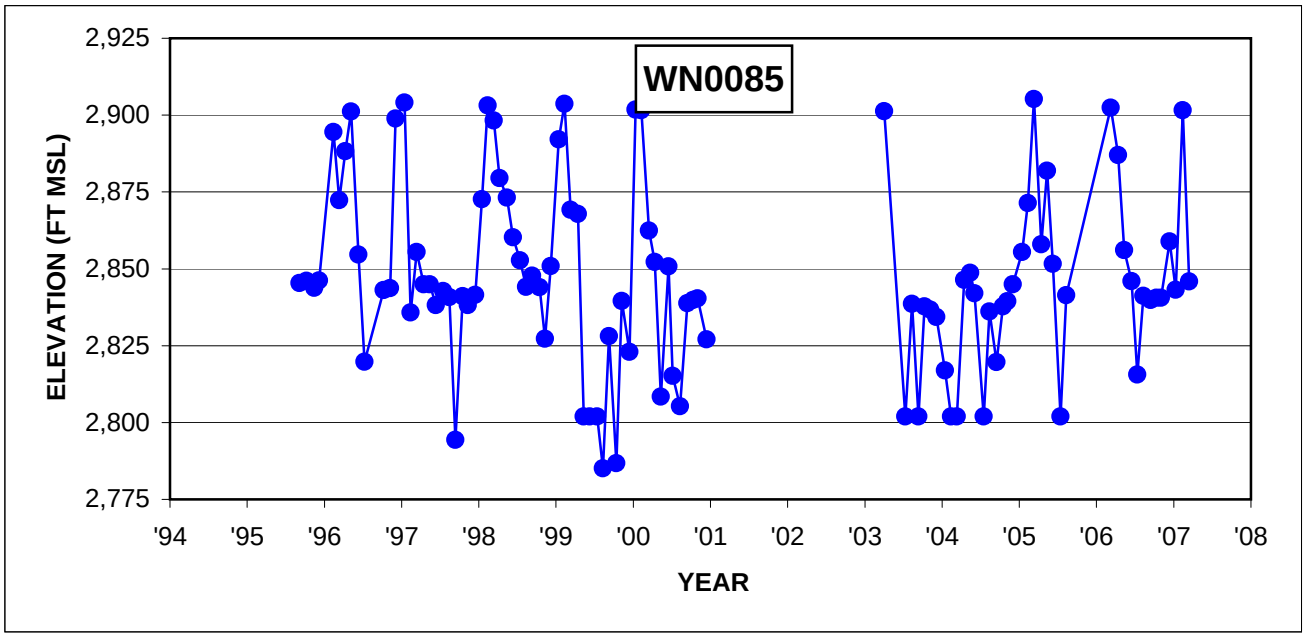

WN0066
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

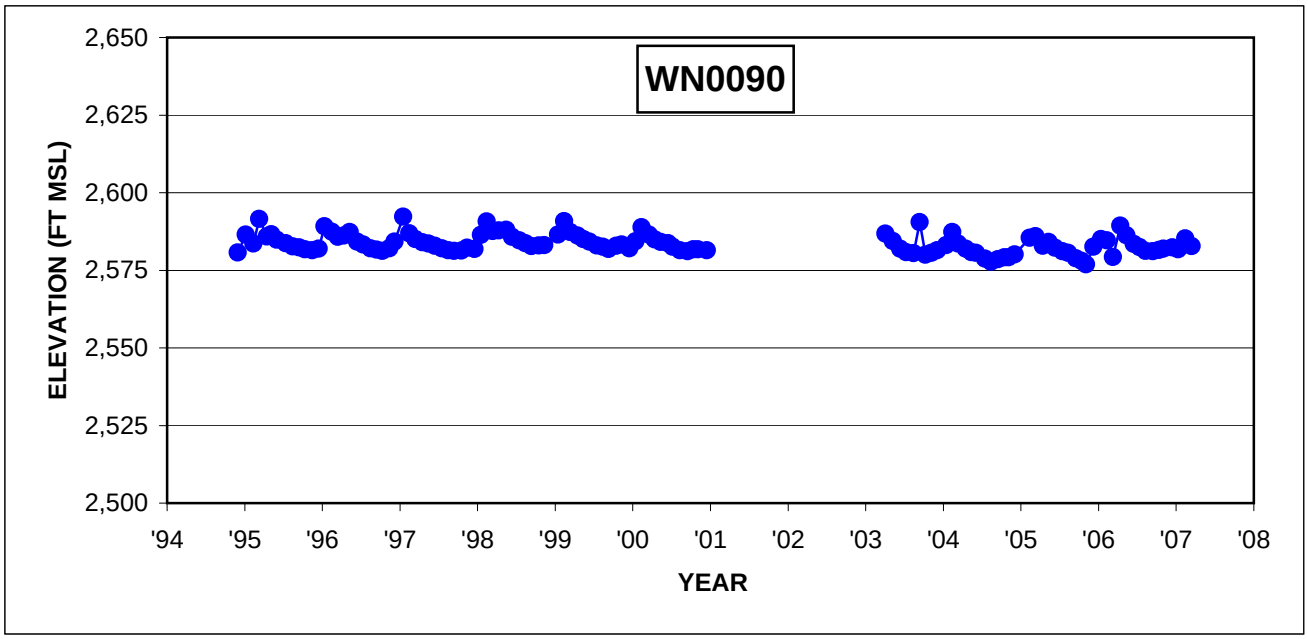

WN0070
ELEVATION (FT MSL)
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2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

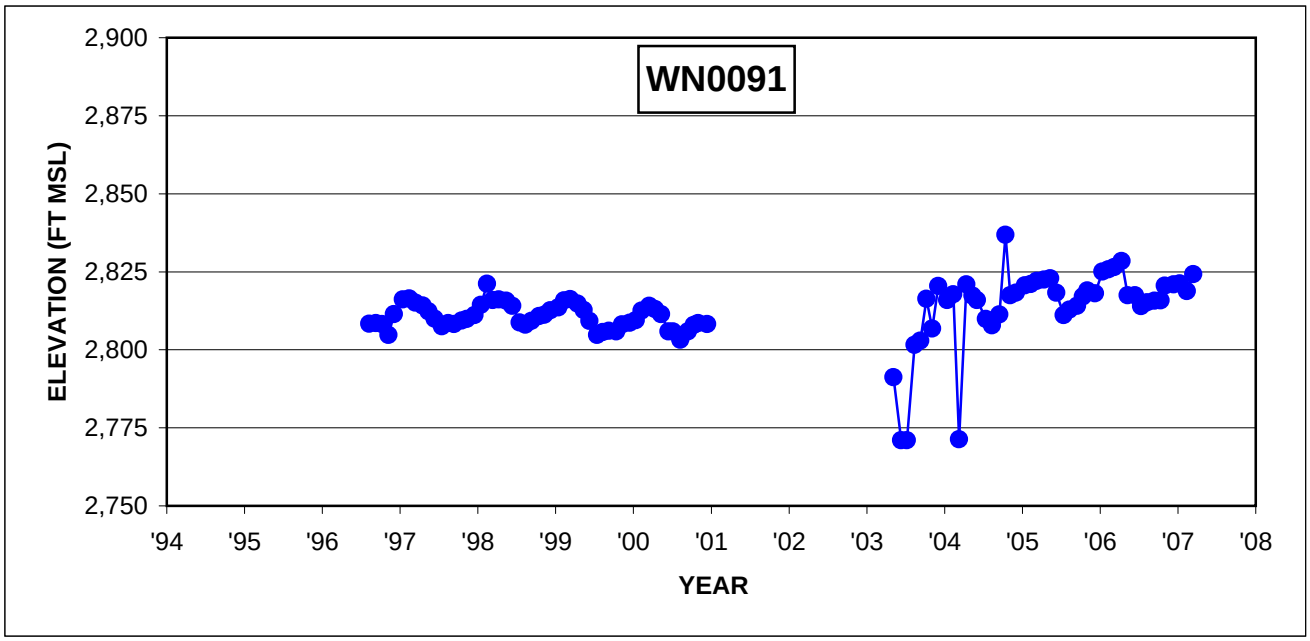

WN0073
ELEVATION (FT MSL)
2,600
2,575
2,550
2,525
2,500
2,475
2,450
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

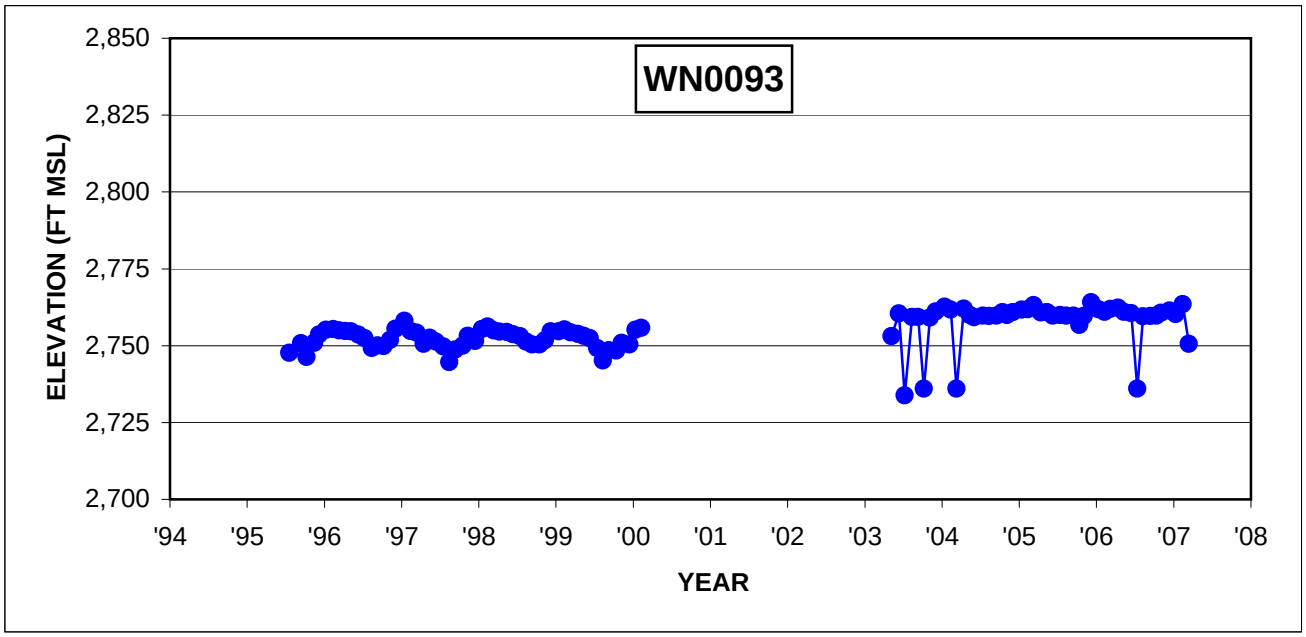

WN0080
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

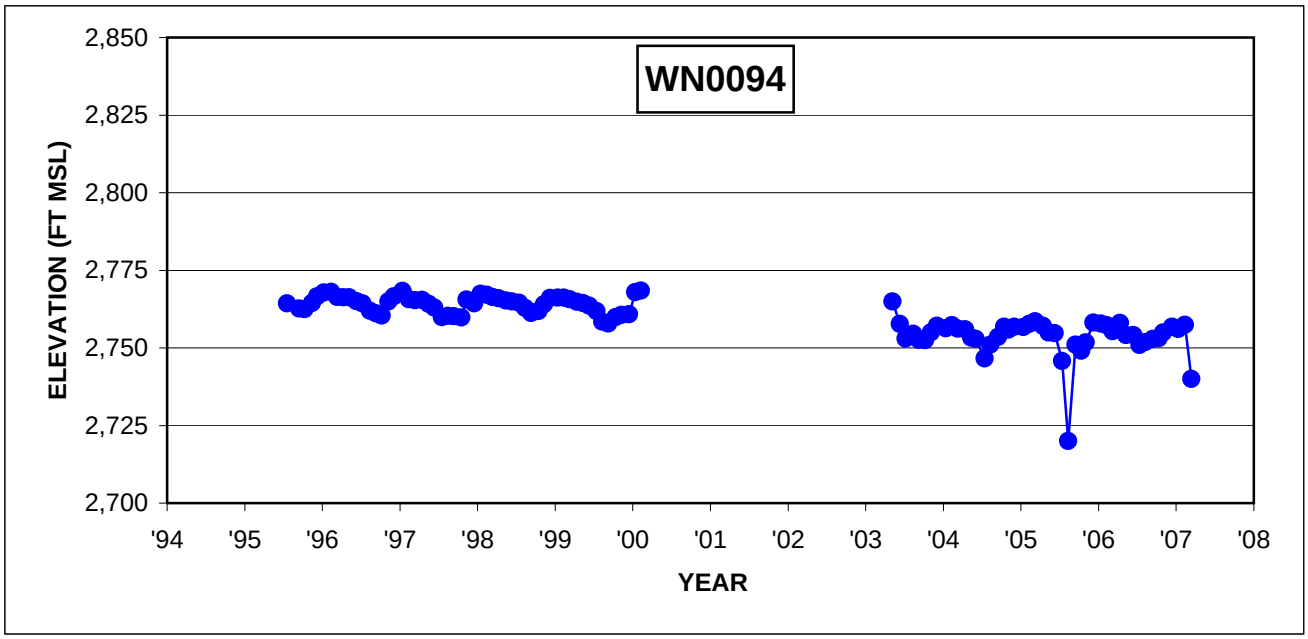

WN0082
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

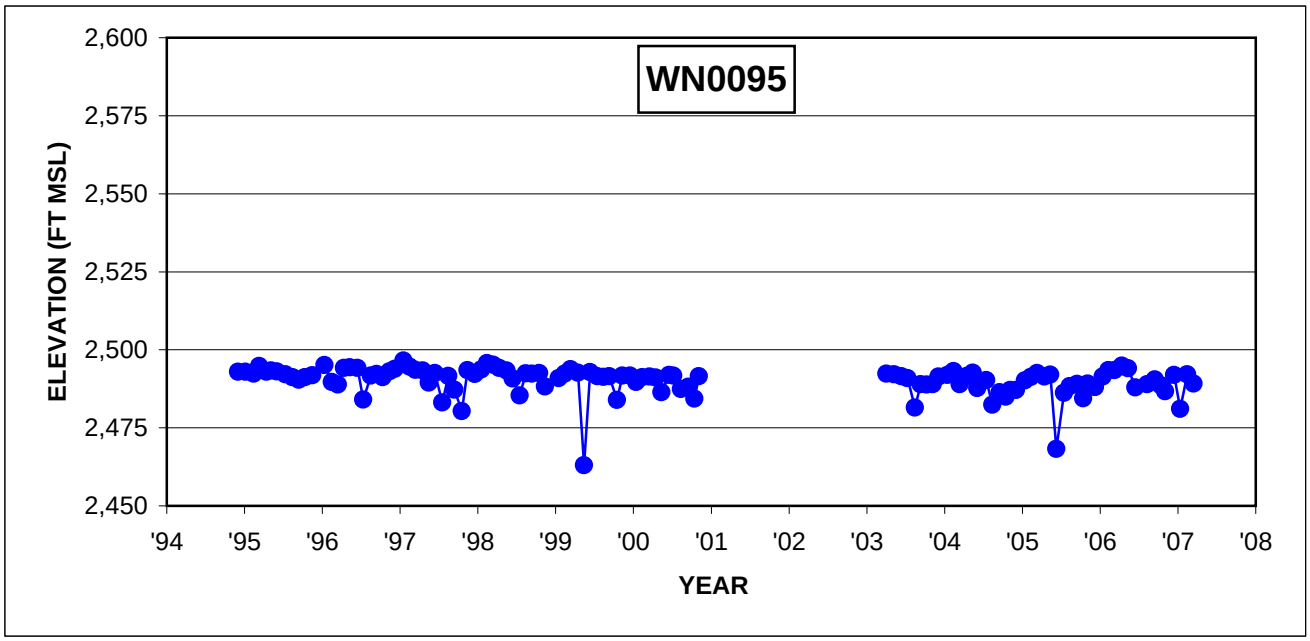

WN0085
ELEVATION (FT MSL)
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2,900
2,875
2,850
2,825
2,800
2,775
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
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'06
'07
'08
YEAR

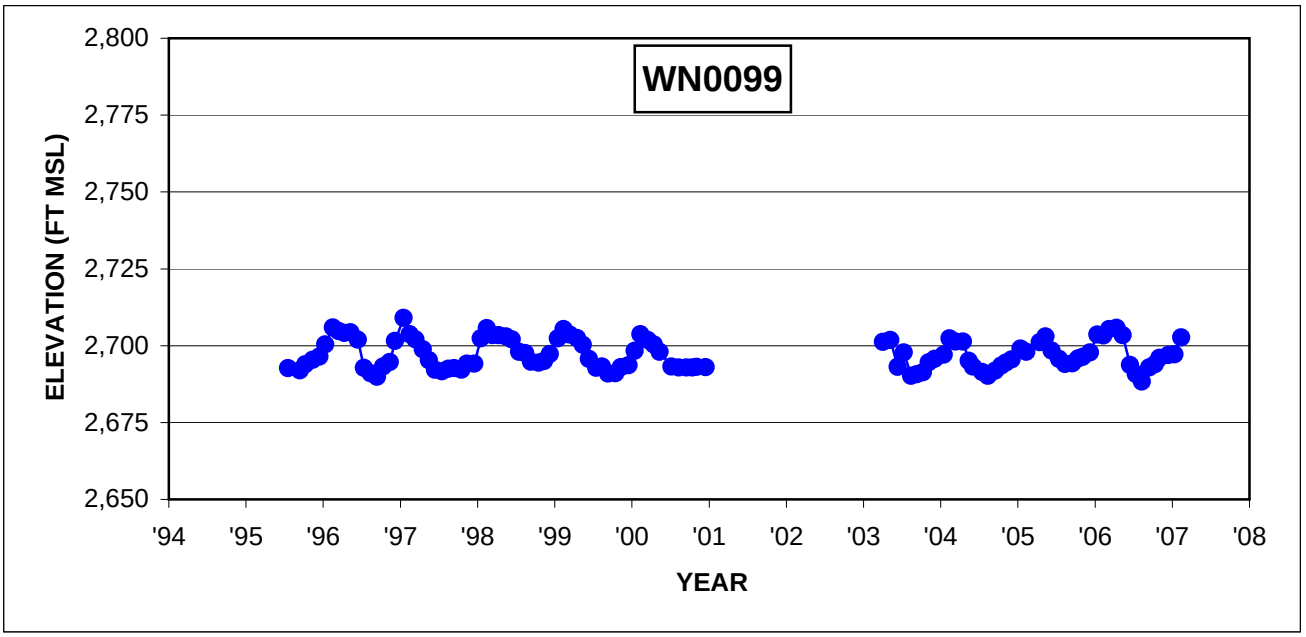

WN0090
ELEVATION (FT MSL)
2,650
2,625
2,600
2,575
2,550
2,525
2,500
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

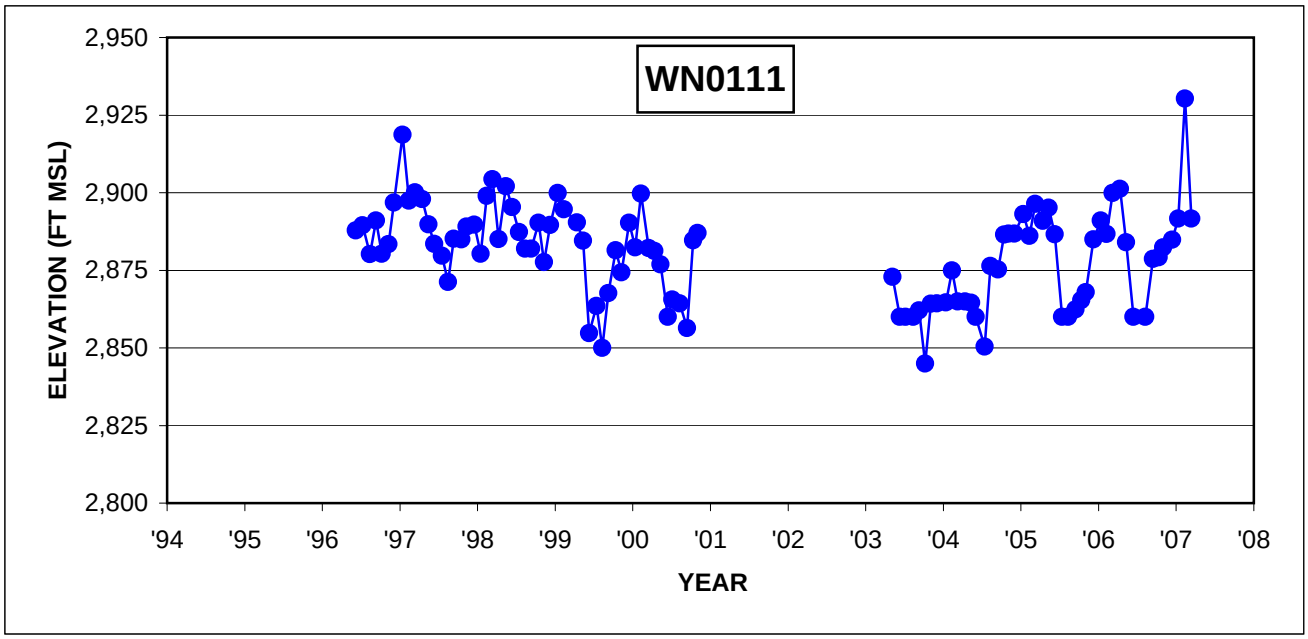

WN0091
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

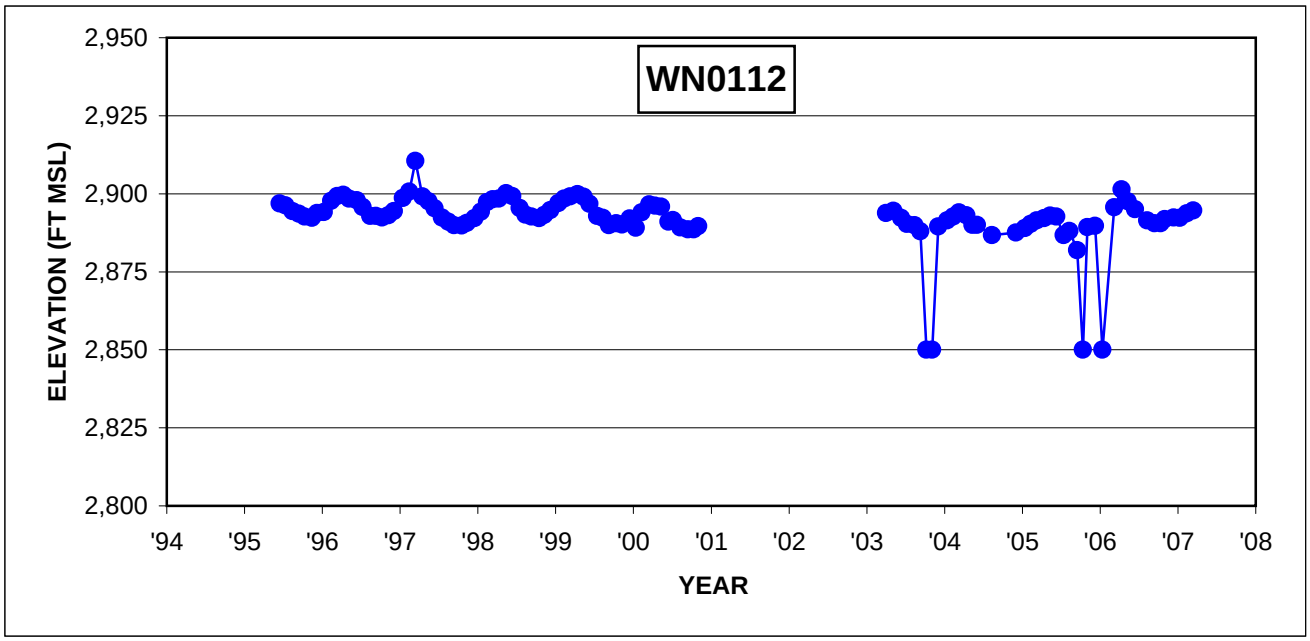

WN0093
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

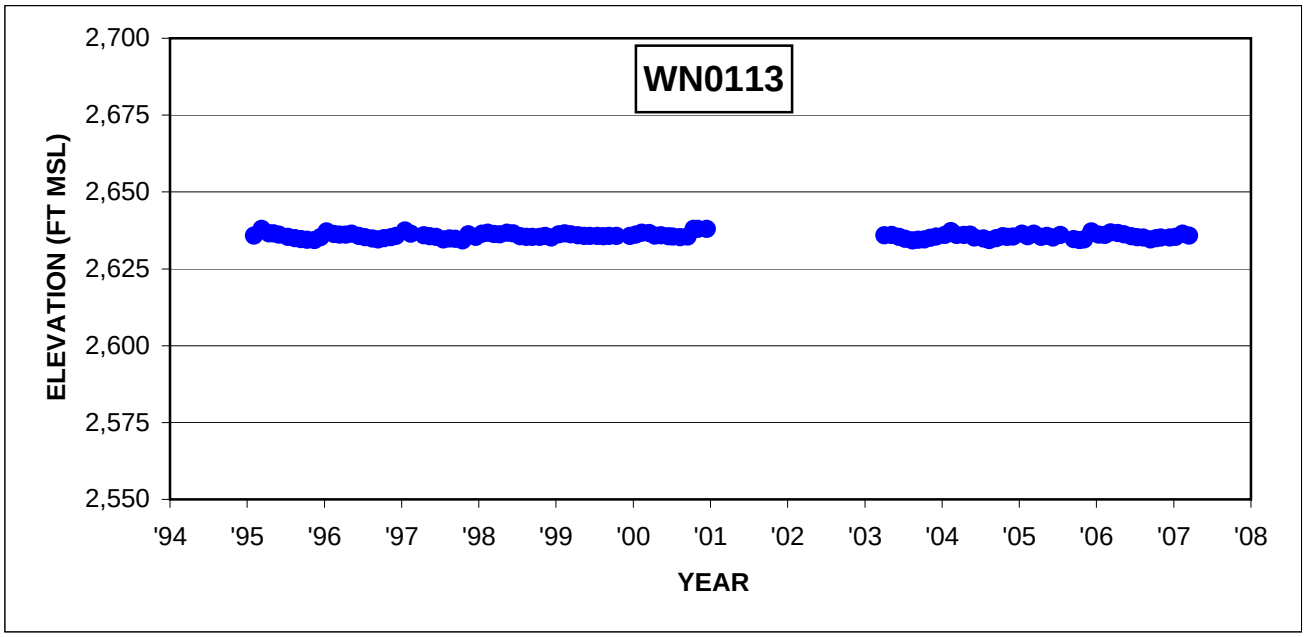

WN0094
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

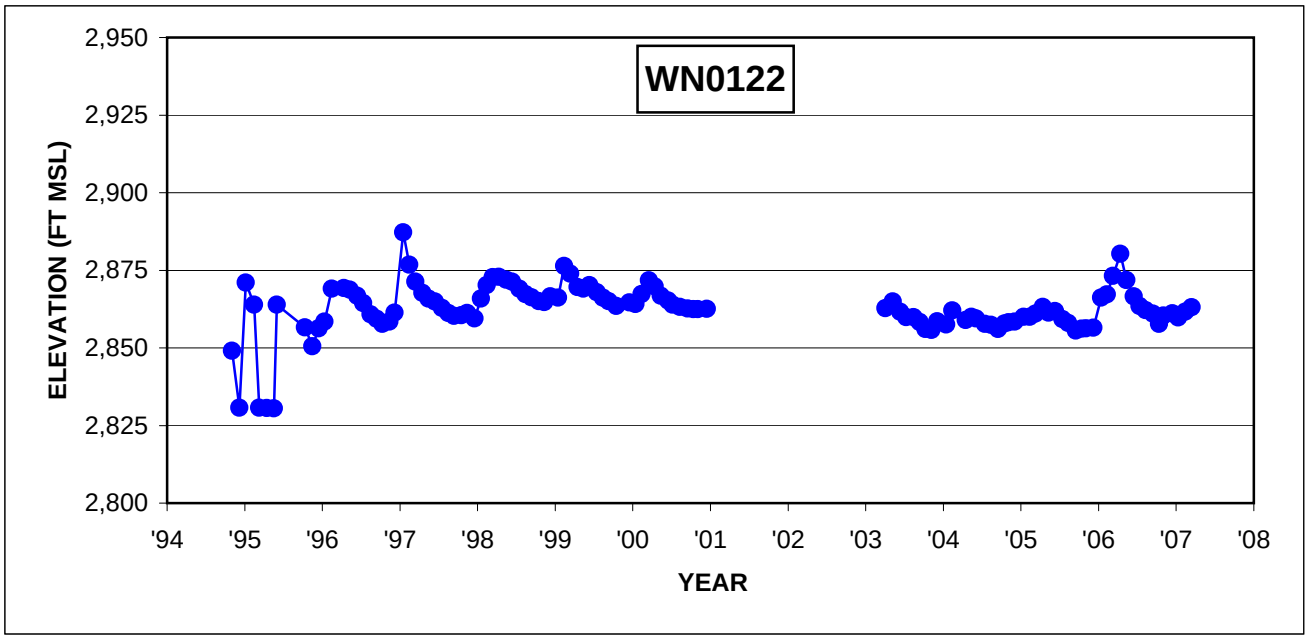

WN0095
ELEVATION (FT MSL)
2,600
2,575
2,550
2,525
2,500
2,475
2,450
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

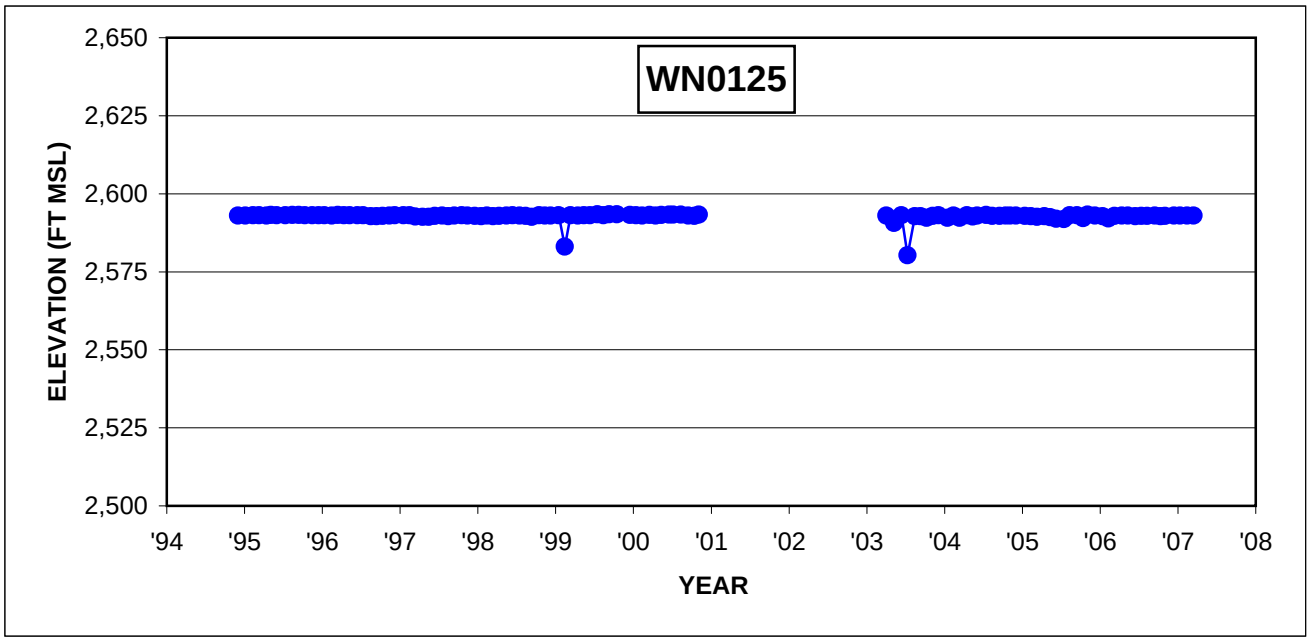

WN0099
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

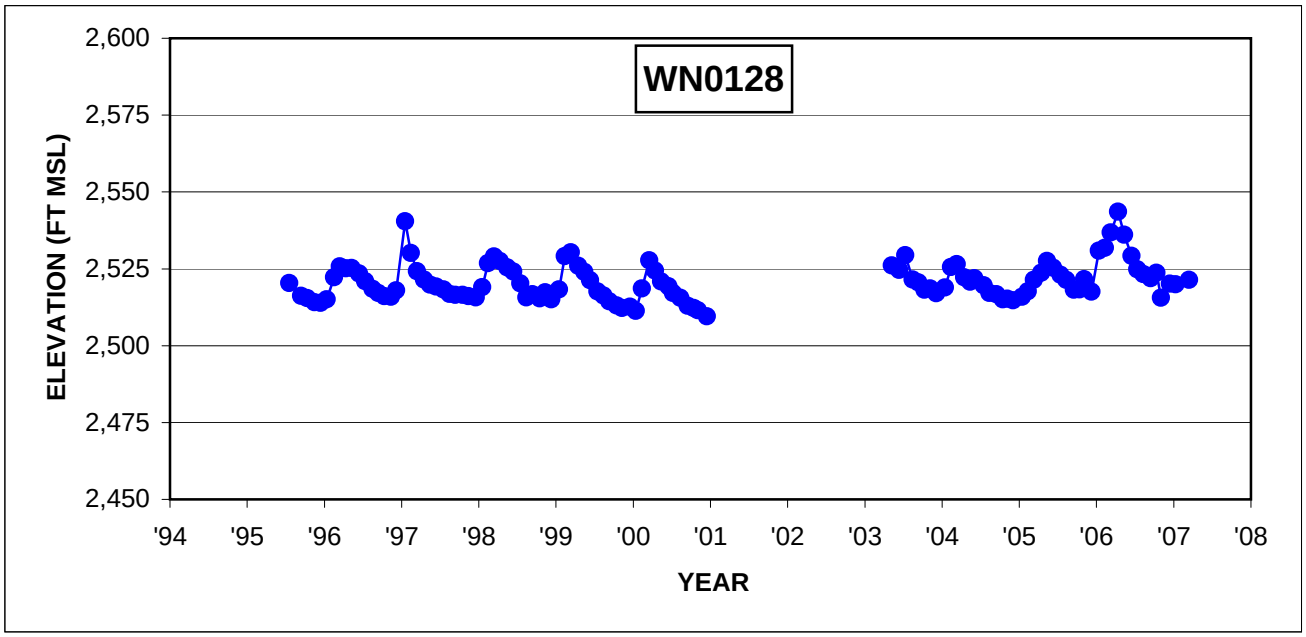

WN0111
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

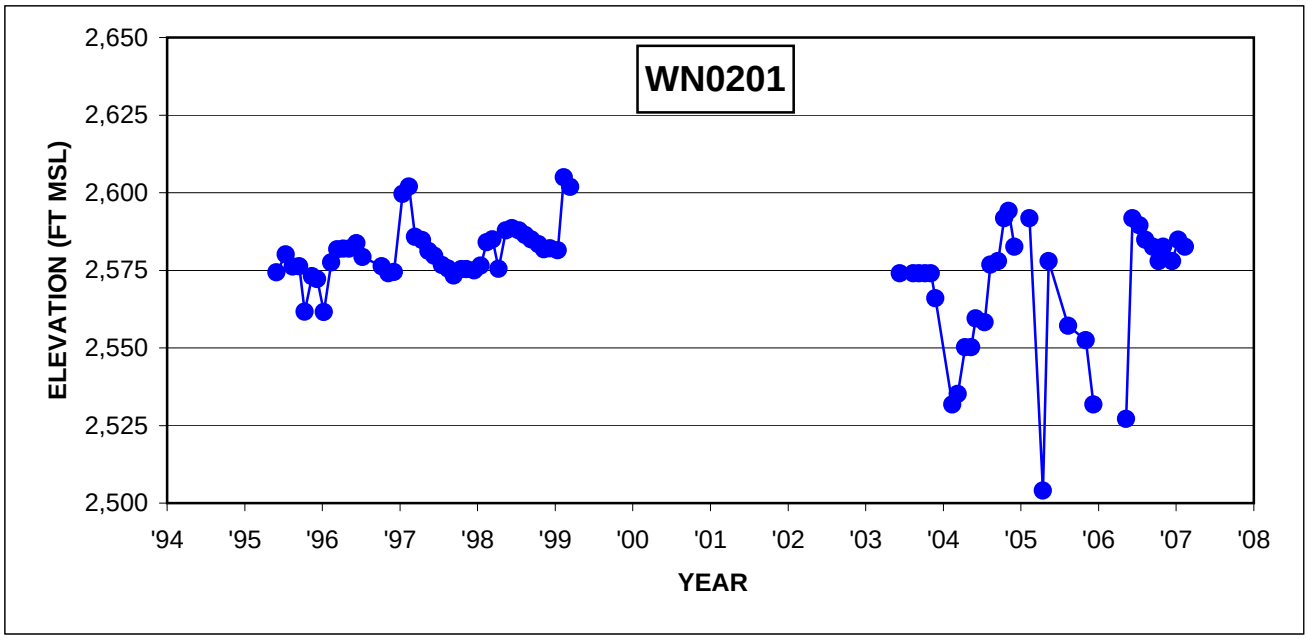

WN0112
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

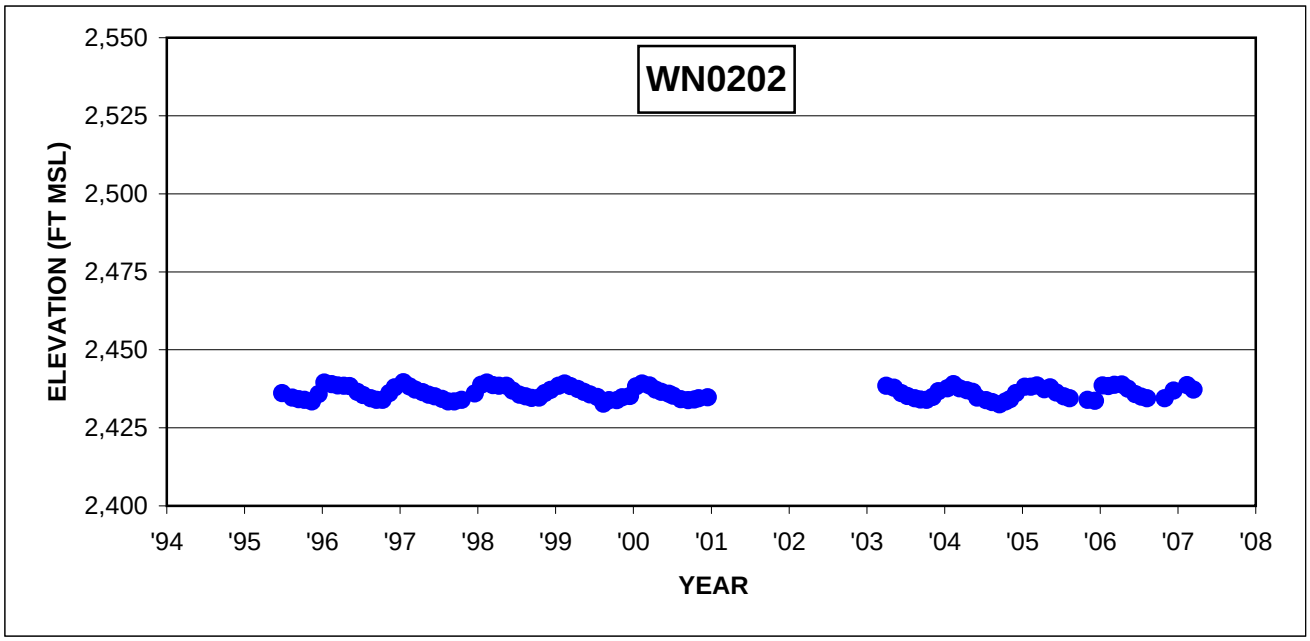

WN0113
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

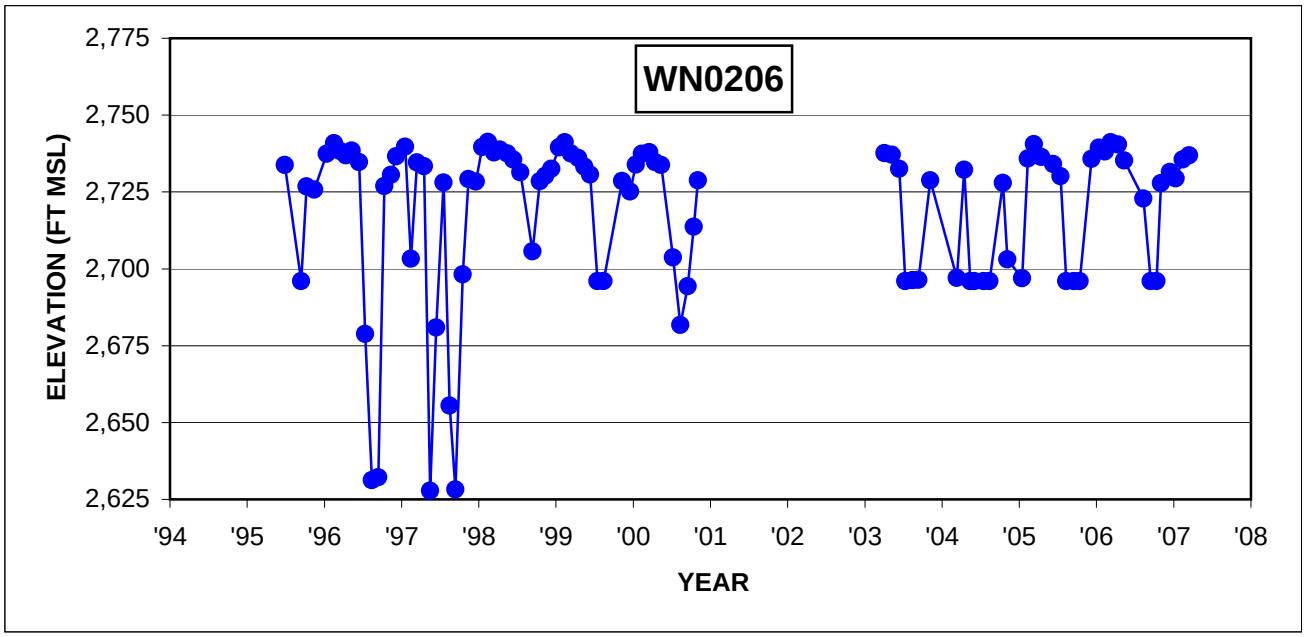

WN0122
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

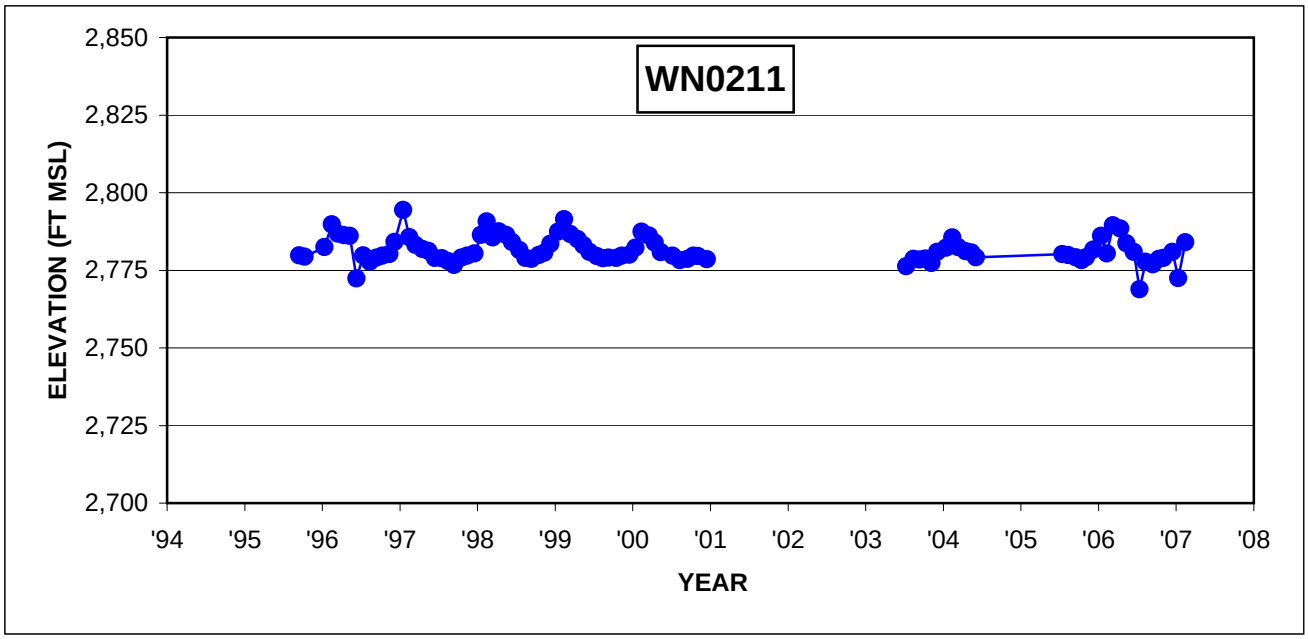

WN0125
ELEVATION (FT MSL)
2,650
2,625
2,600
2,575
2,550
2,525
2,500
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

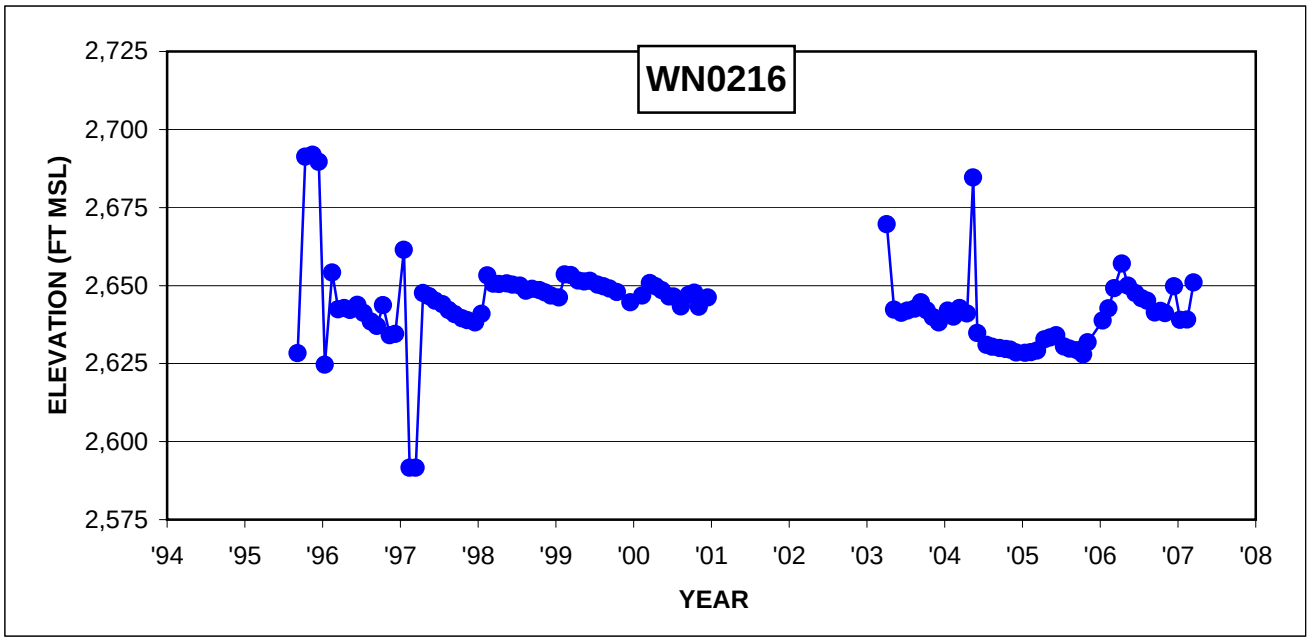

WN0128
ELEVATION (FT MSL)
2,600
2,575
2,550
2,525
2,500
2,475
2,450
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

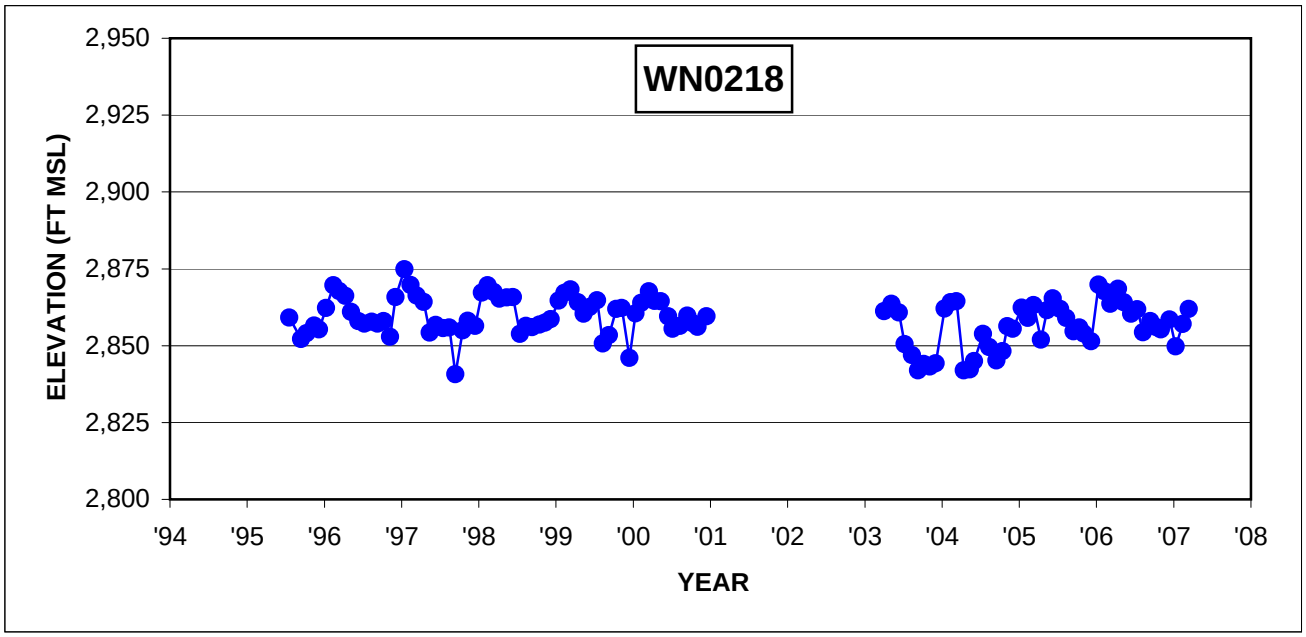

WN0201
ELEVATION (FT MSL)
2,650
2,625
2,600
2,575
2,550
2,525
2,500
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

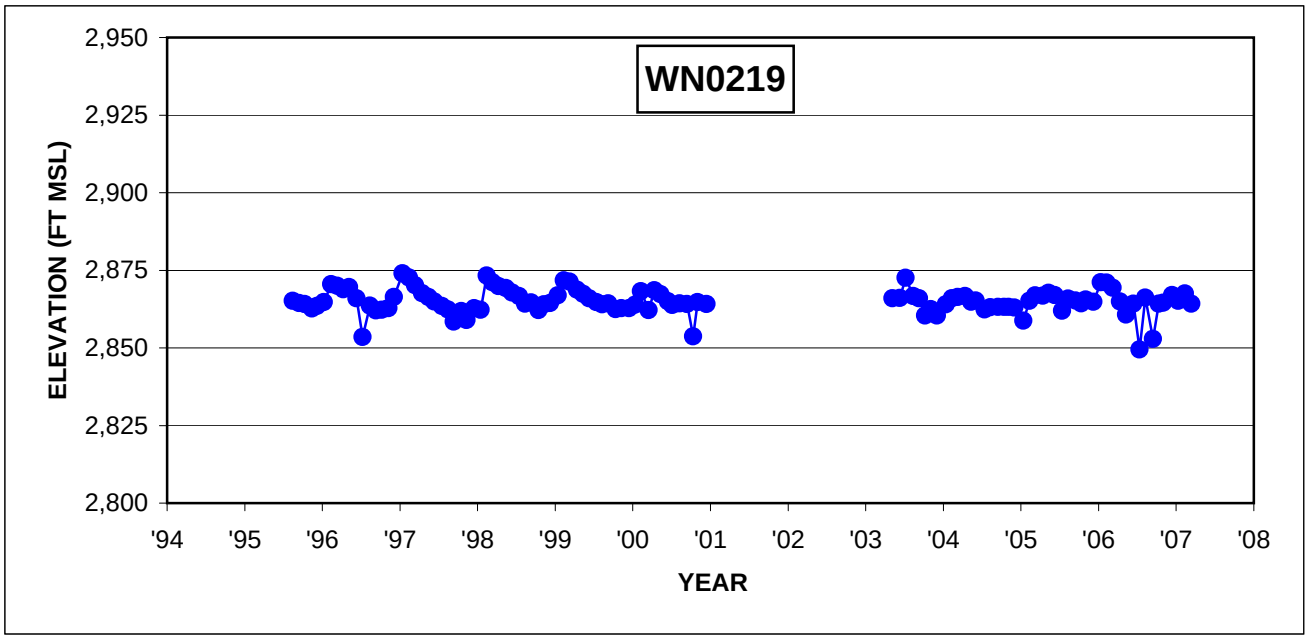

WN0202
ELEVATION (FT MSL)
2,550
2,525
2,500
2,475
2,450
2,425
2,400
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

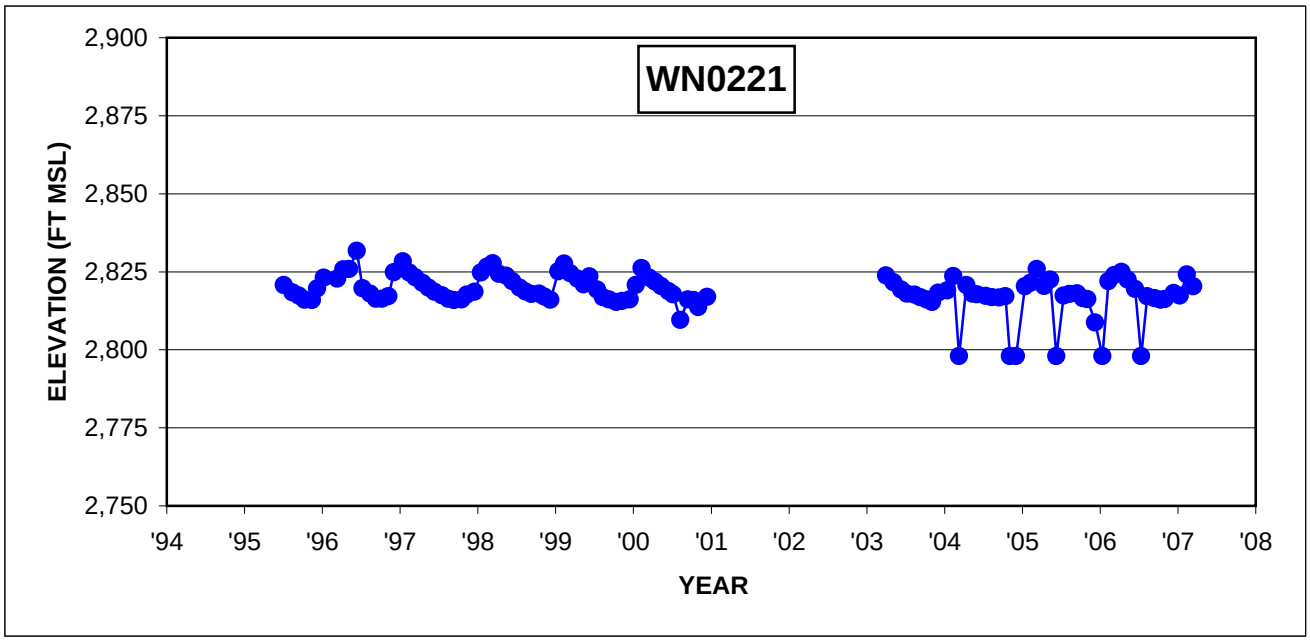

WN0206
ELEVATION (FT MSL)
2,775
2,750
2,725
2,700
2,675
2,650
2,625
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

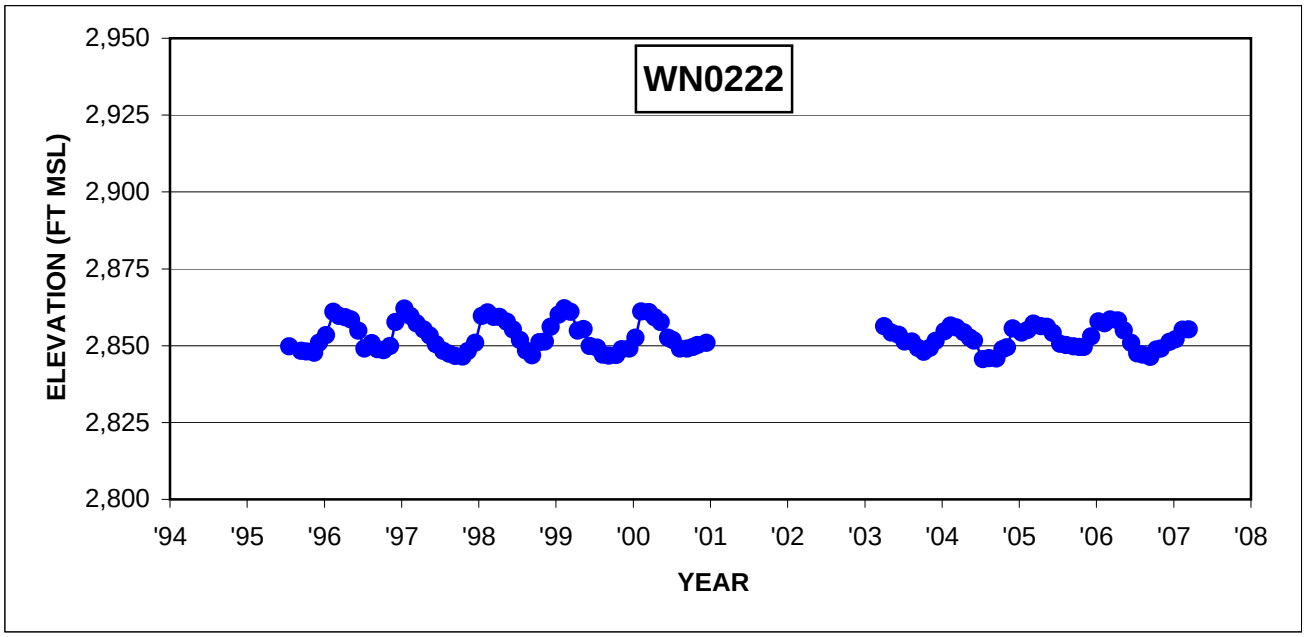

WN0211
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

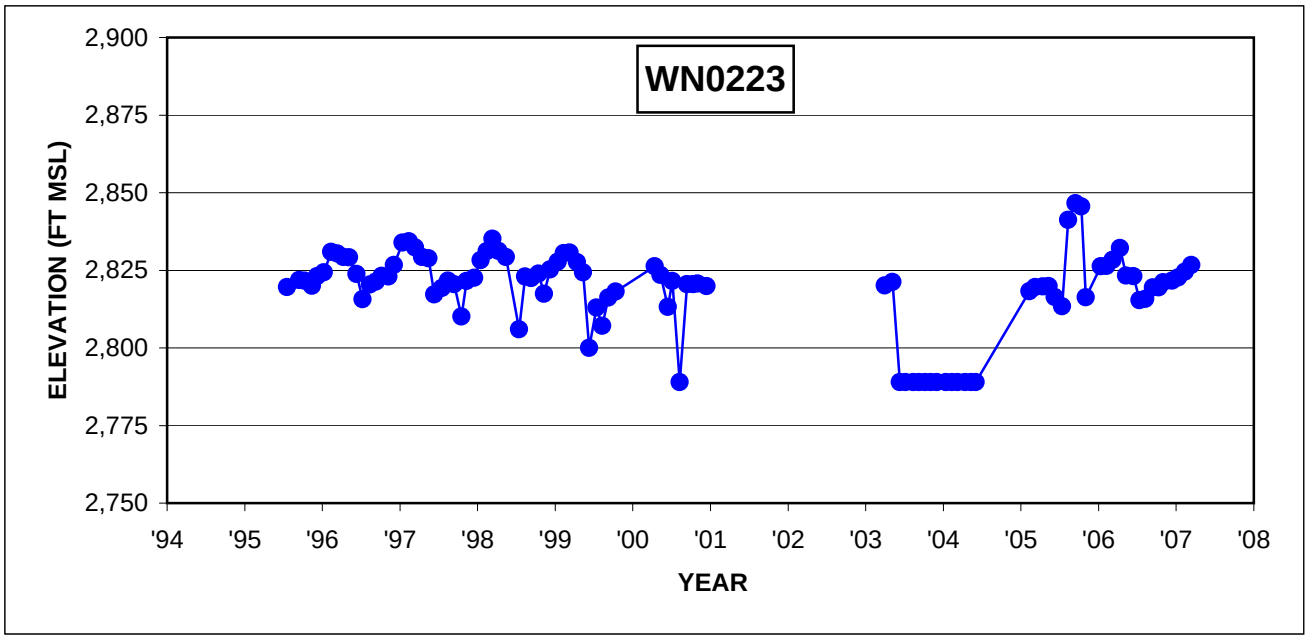

WN0216
ELEVATION (FT MSL)
2,725
2,700
2,675
2,650
2,625
2,600
2,575
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

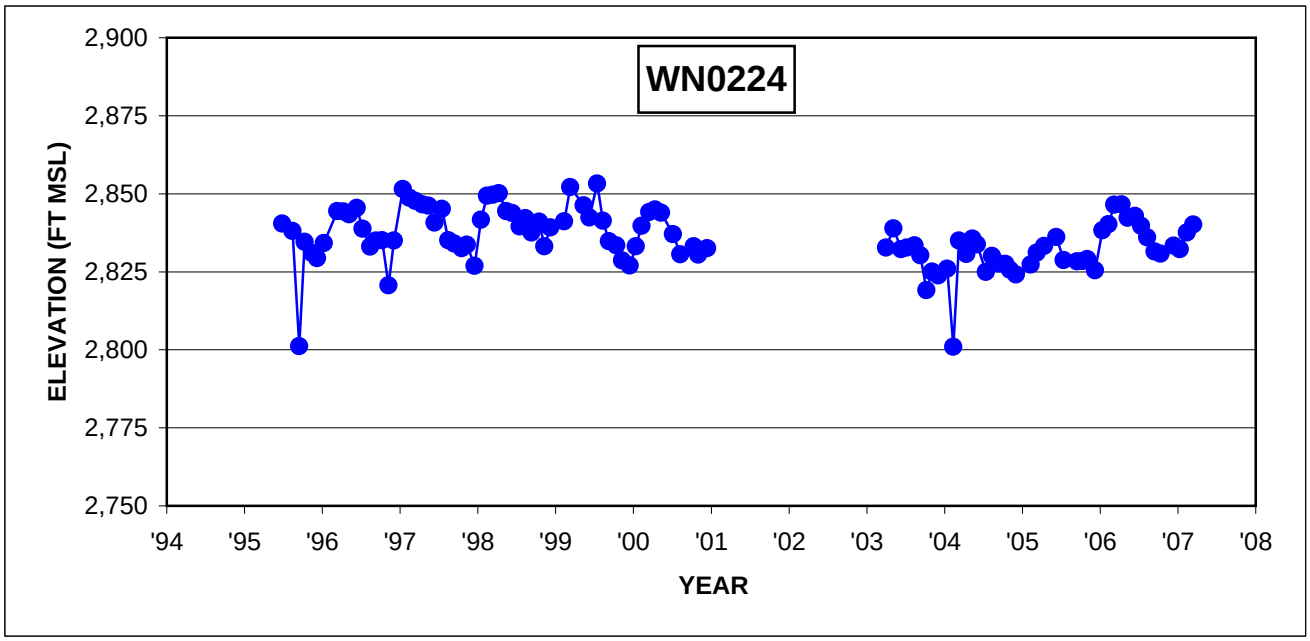

WN0218
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

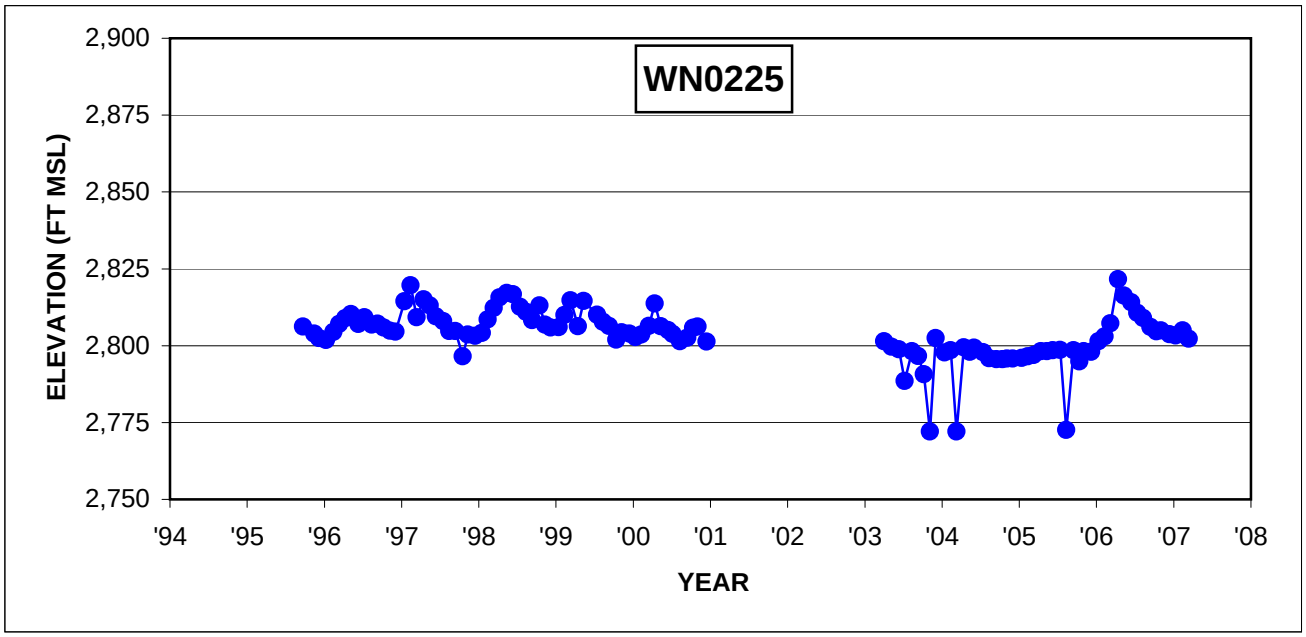

WN0219
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

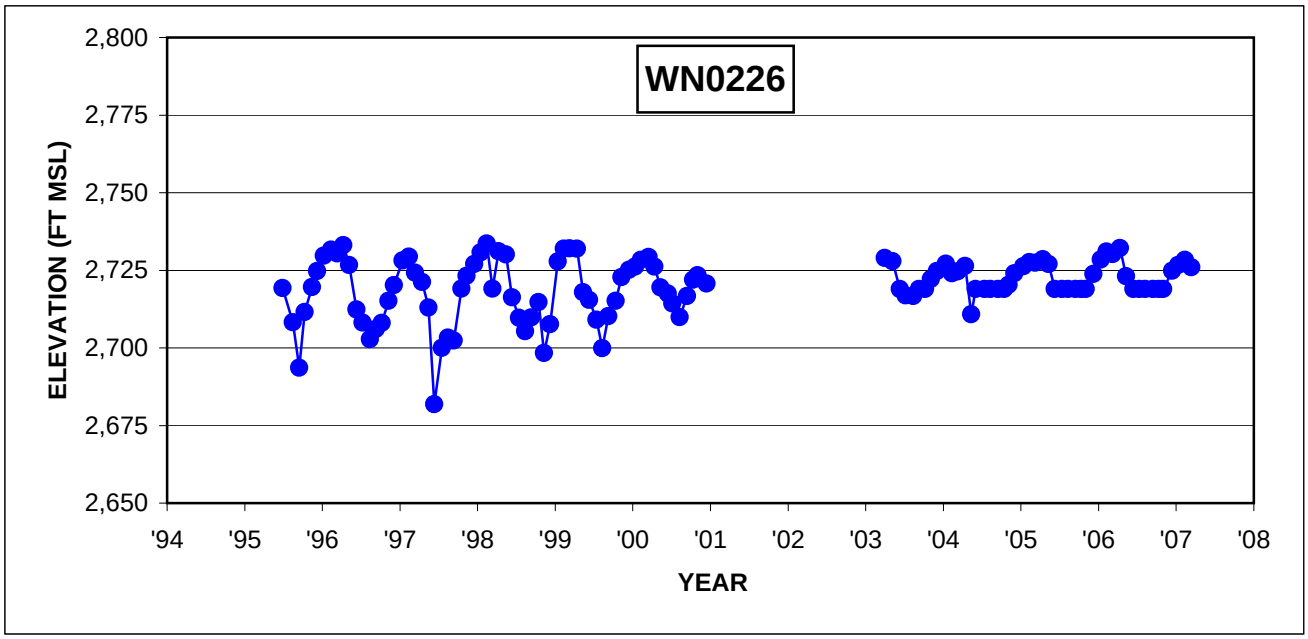

WN0221
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

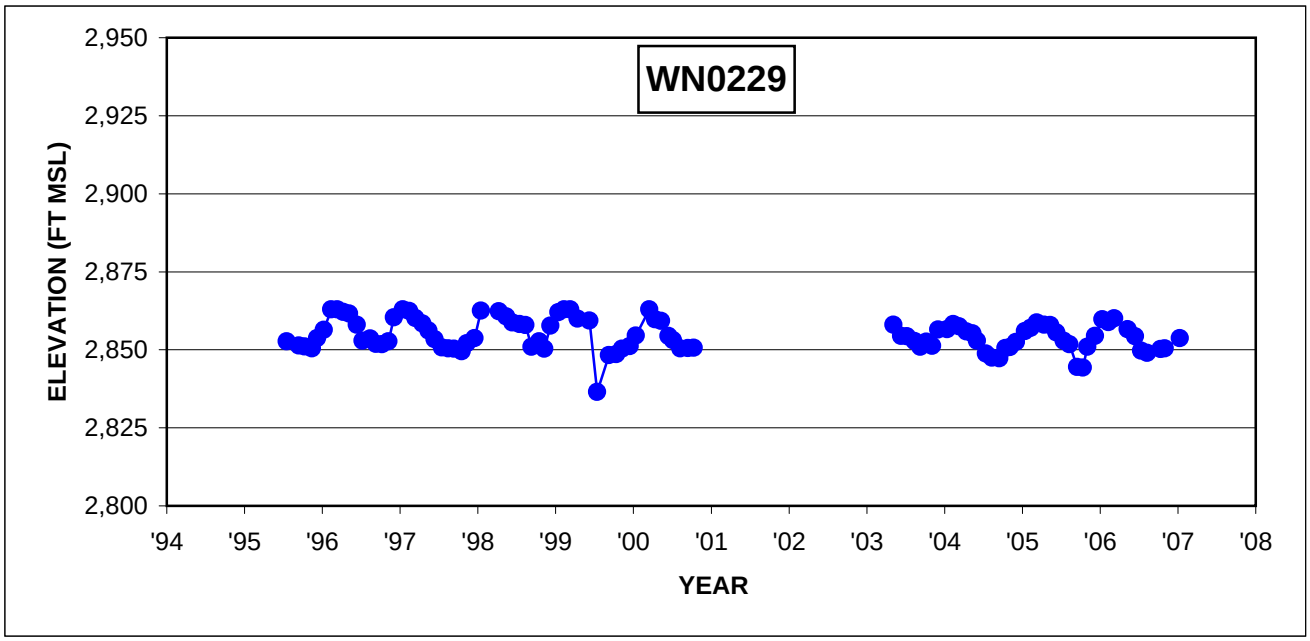

WN0222
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

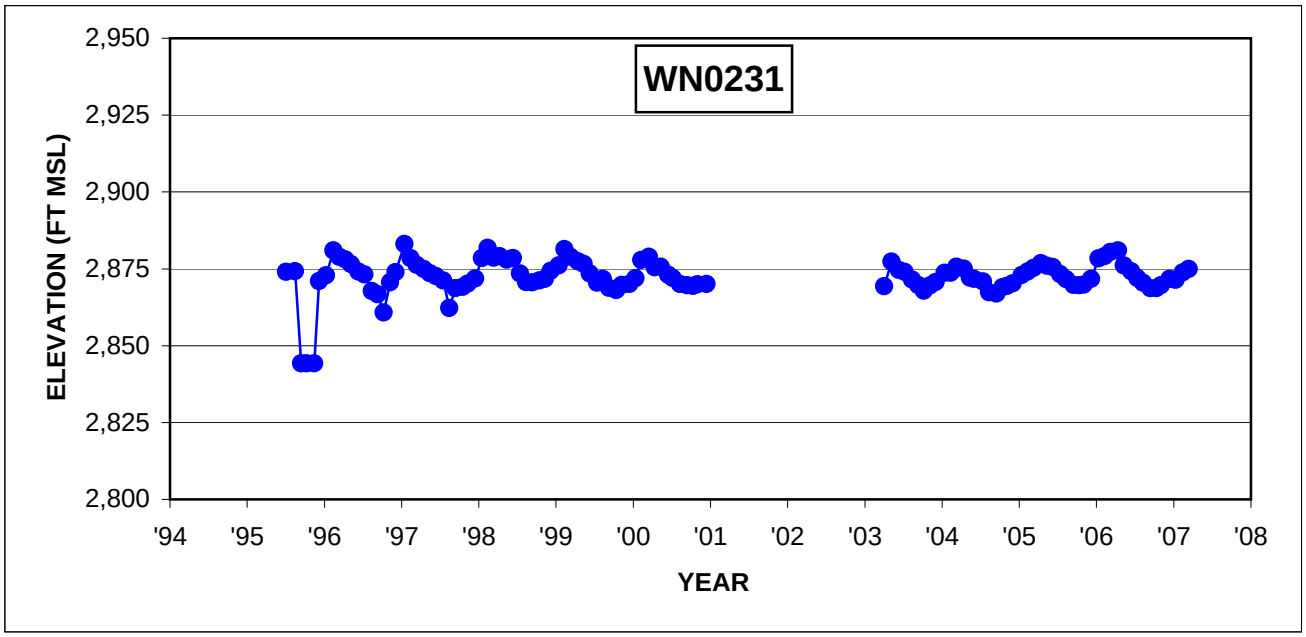

WN0223
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

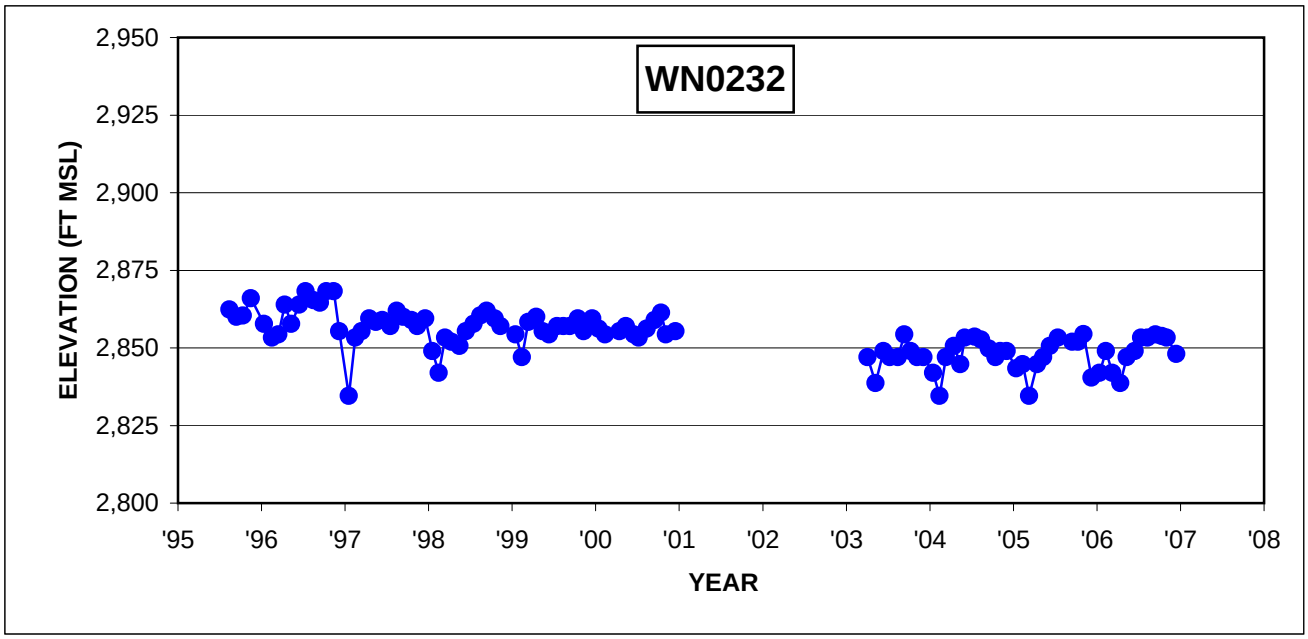

WN0224
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

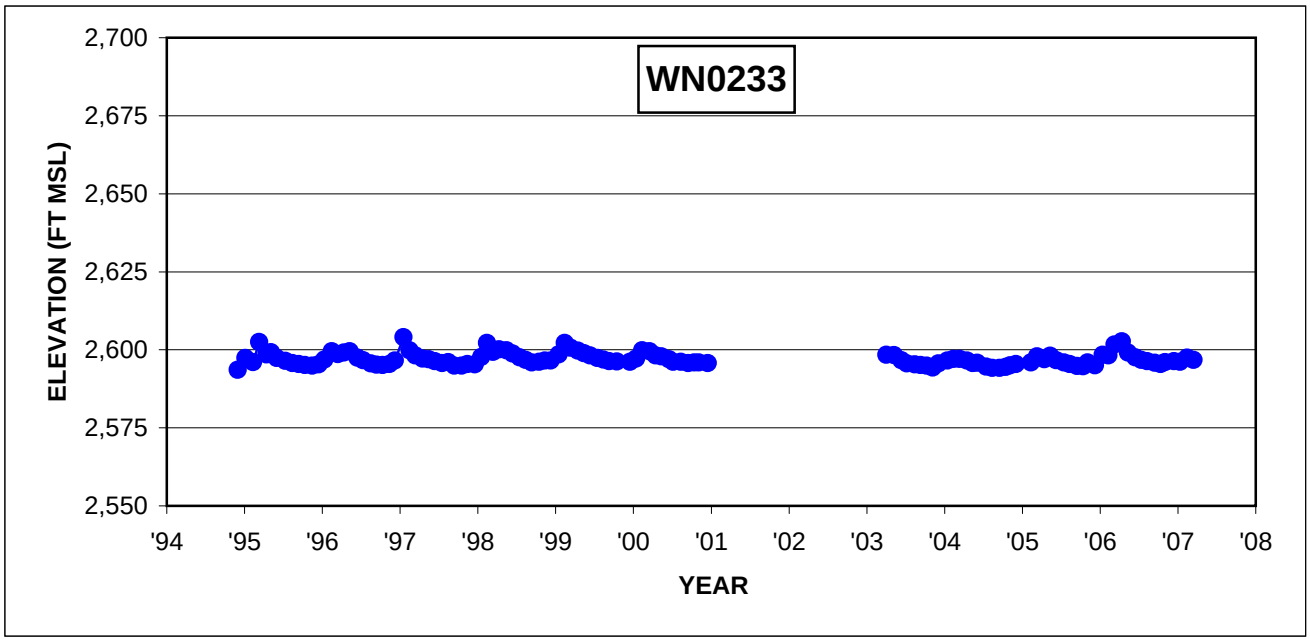

WN0225
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

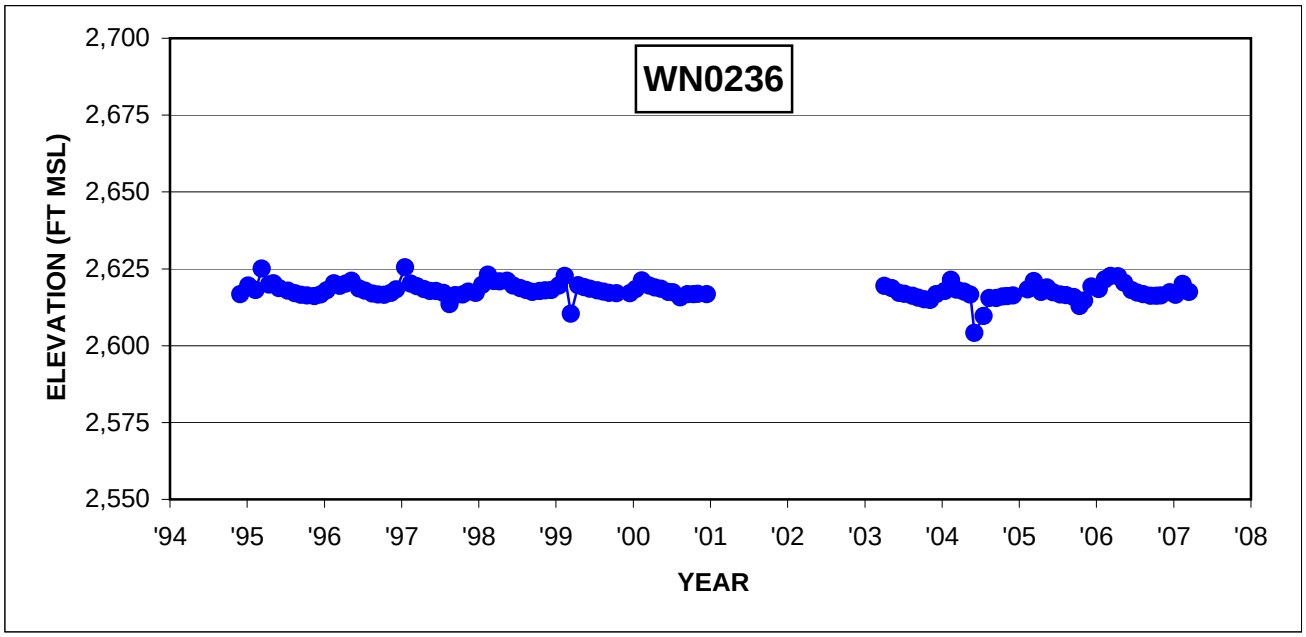

WN0226
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

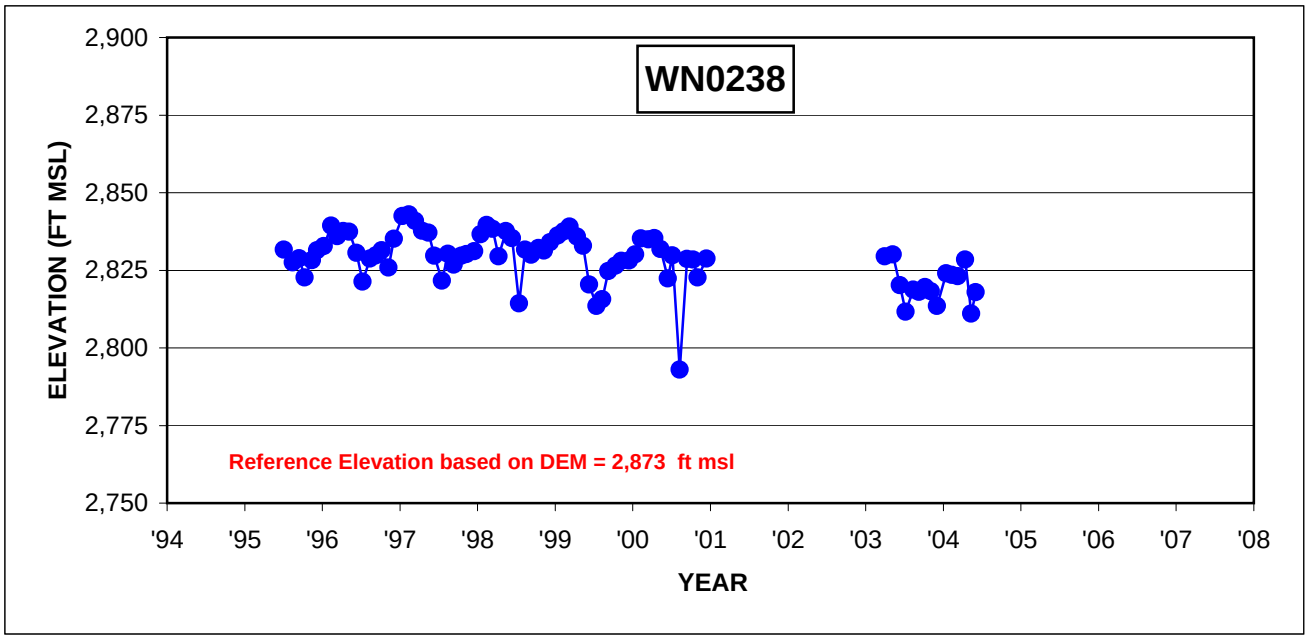

WN0229
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

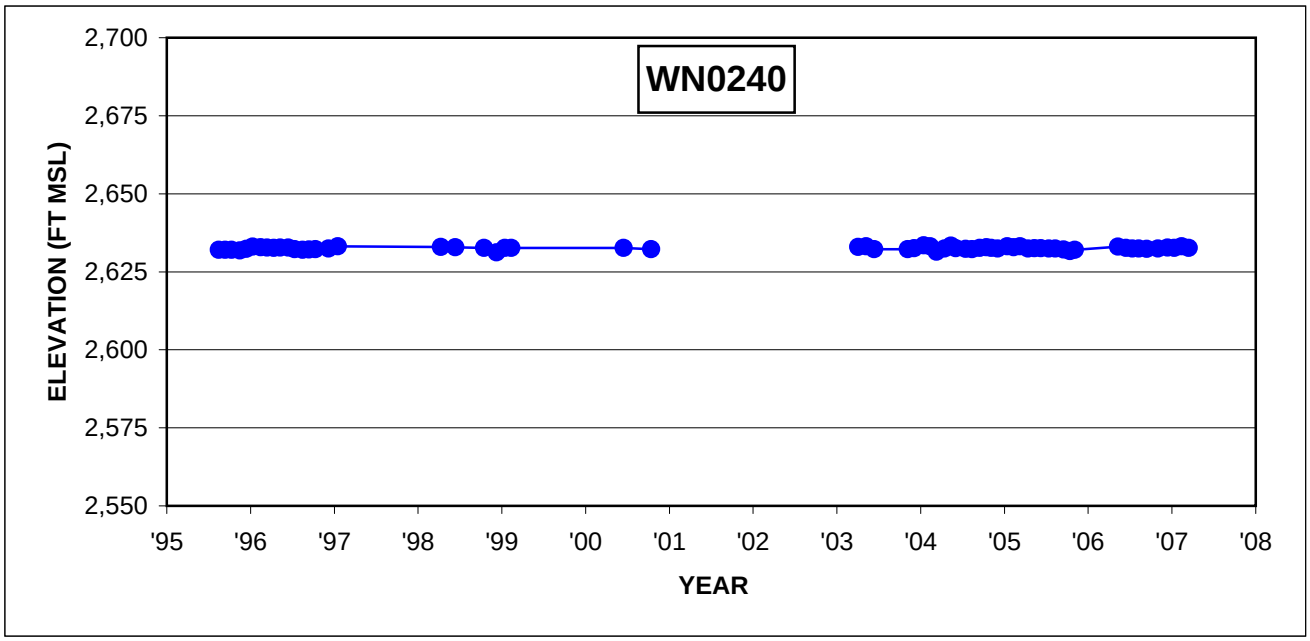

WN0231
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

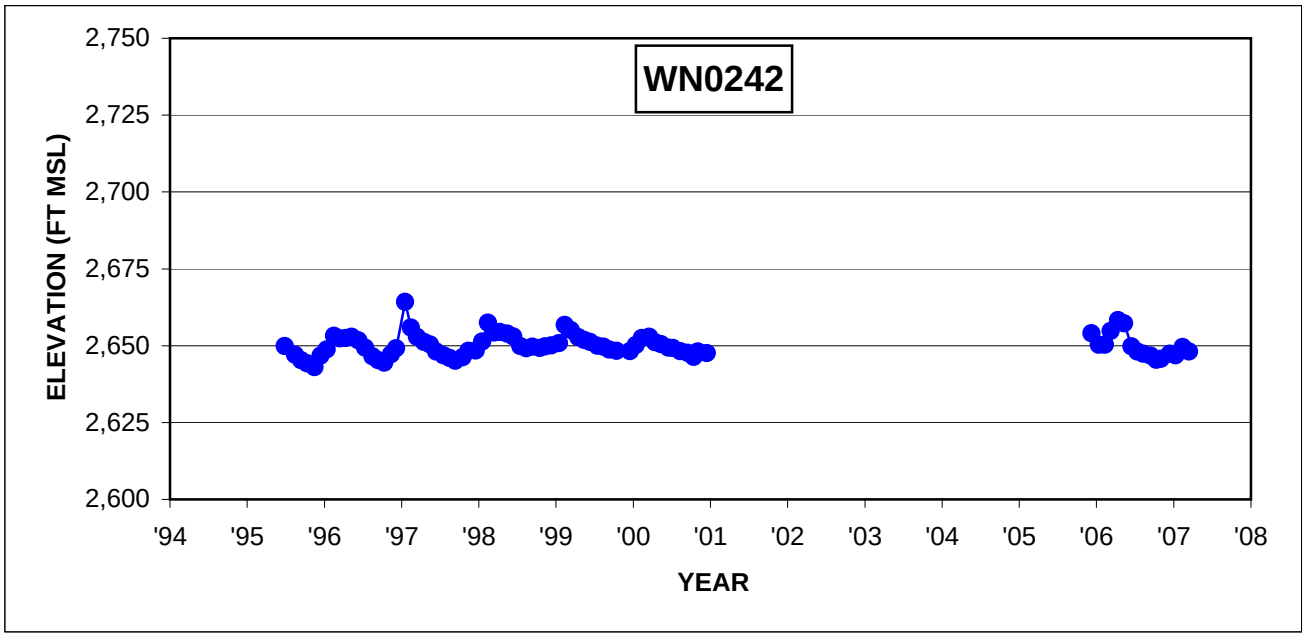

WN0232
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

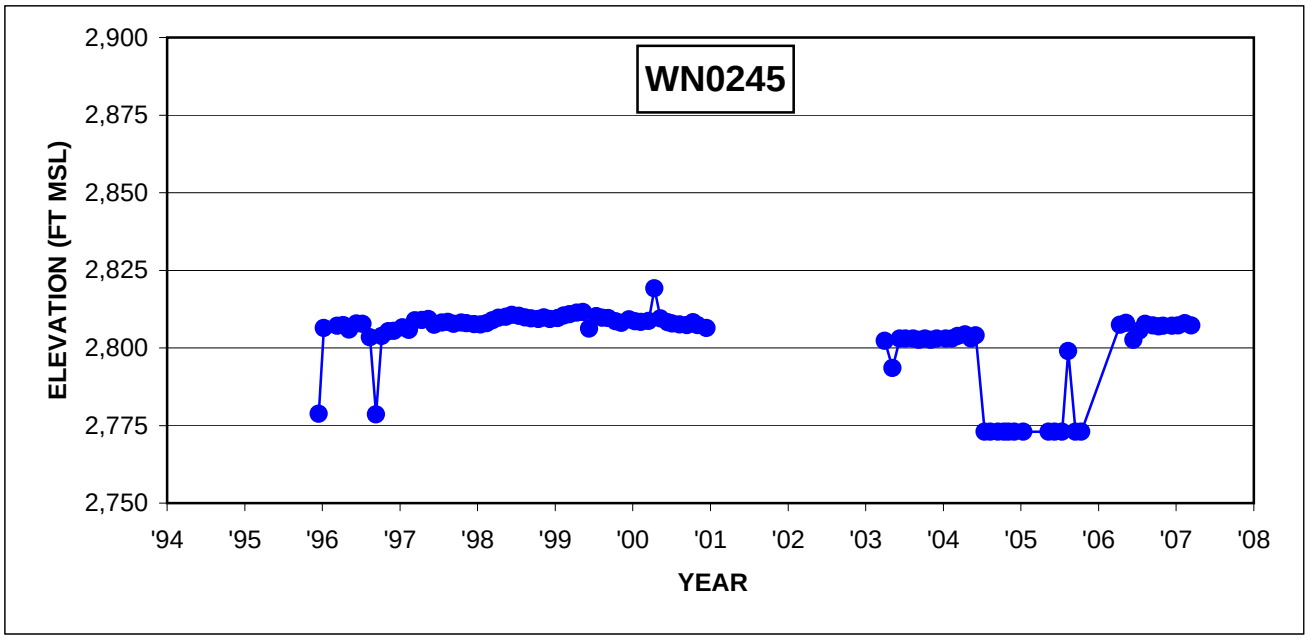

WN0233
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

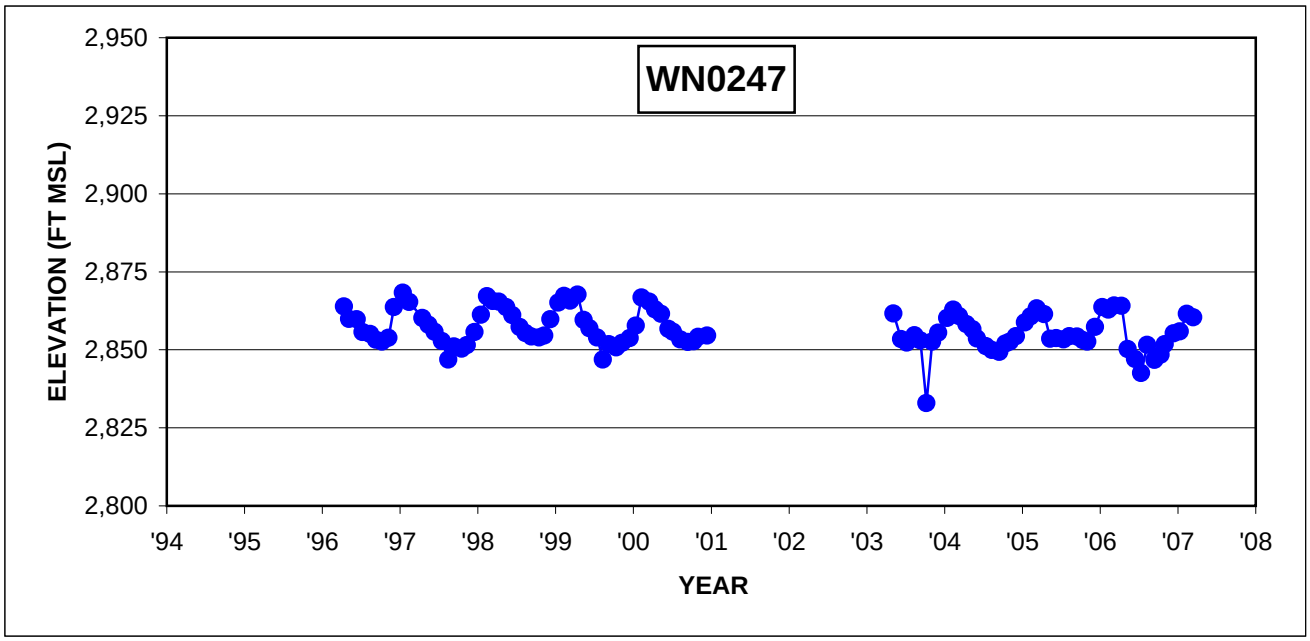

WN0236
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'94 '95 '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08
YEAR

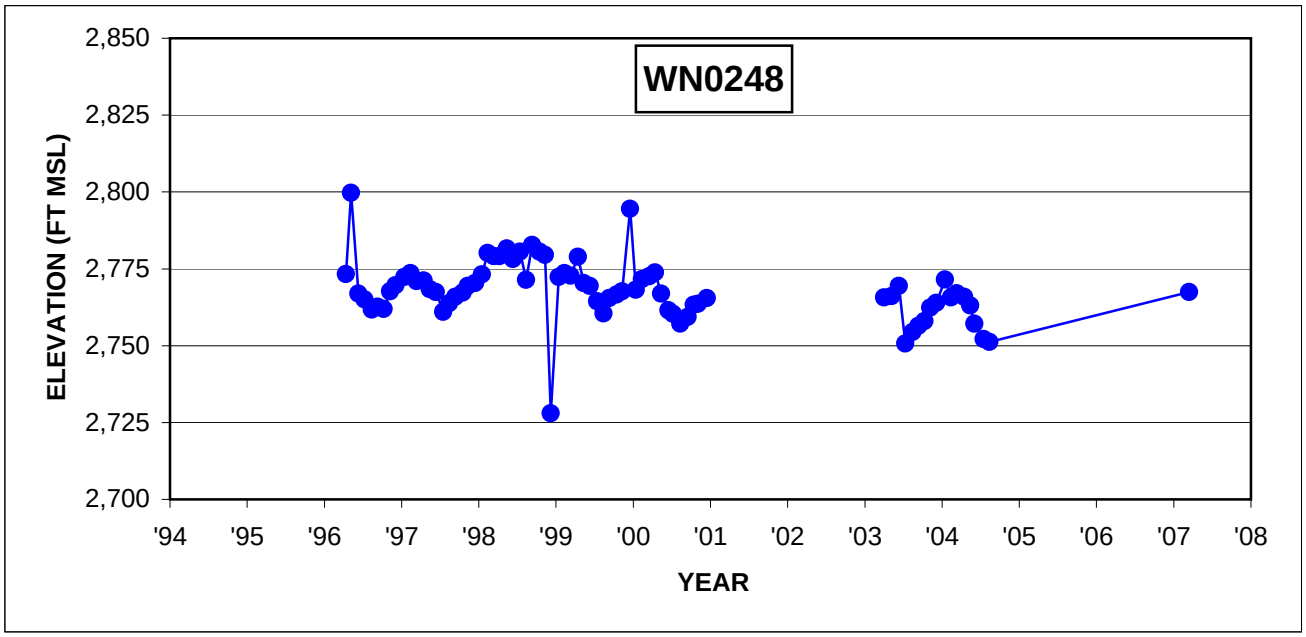

WN0238
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
Reference Elevation based on DEM = 2,873 ft msl
'94 '95 '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08
YEAR

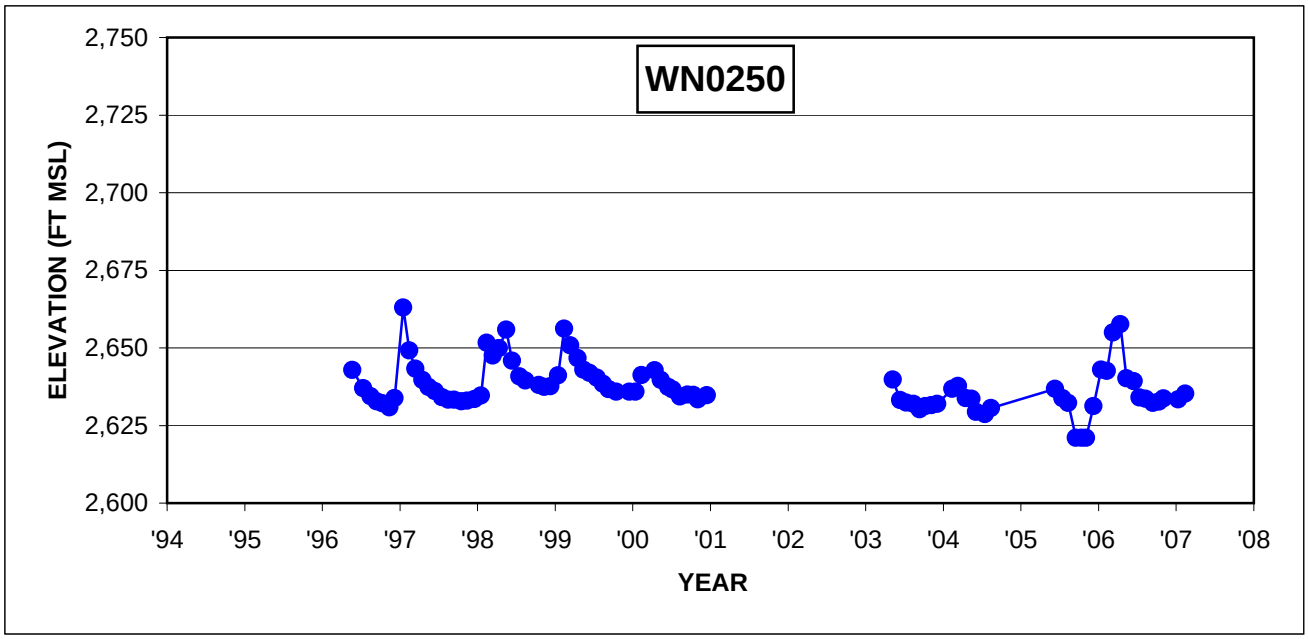

WN0240
ELEVATION (FT MSL)
2,700
2,675
2,650
2,625
2,600
2,575
2,550
'95 '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08
YEAR

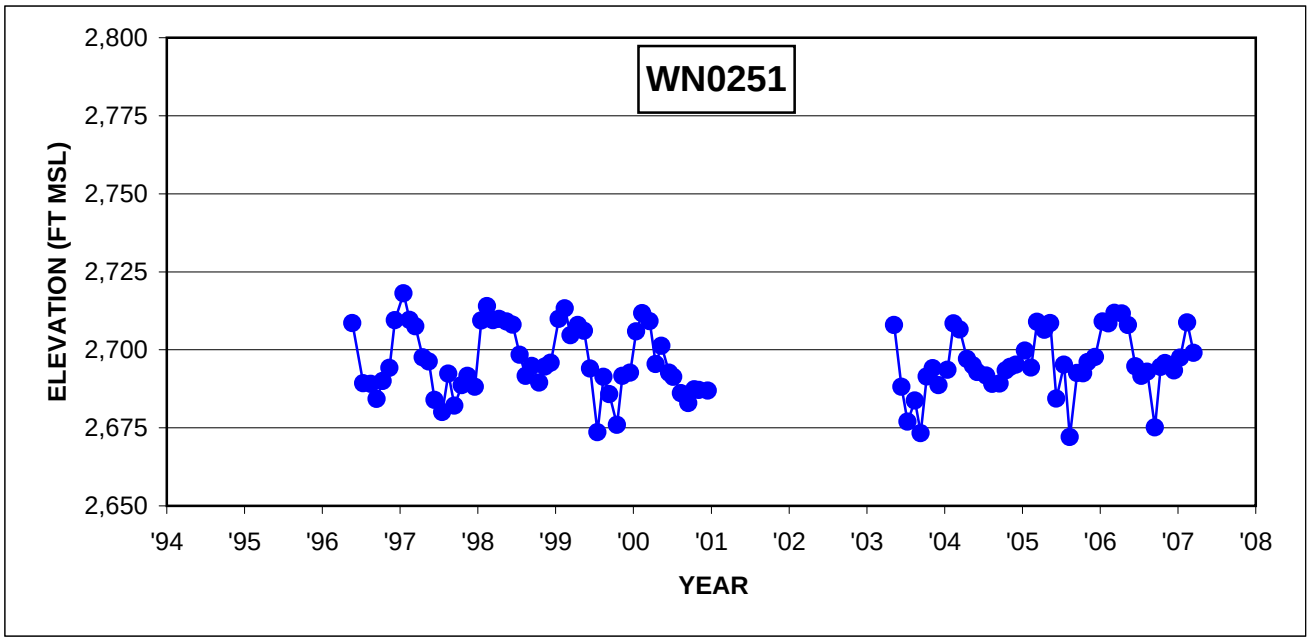

WN0242
ELEVATION (FT MSL)
2,750
2,725
2,700
2,675
2,650
2,625
2,600
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

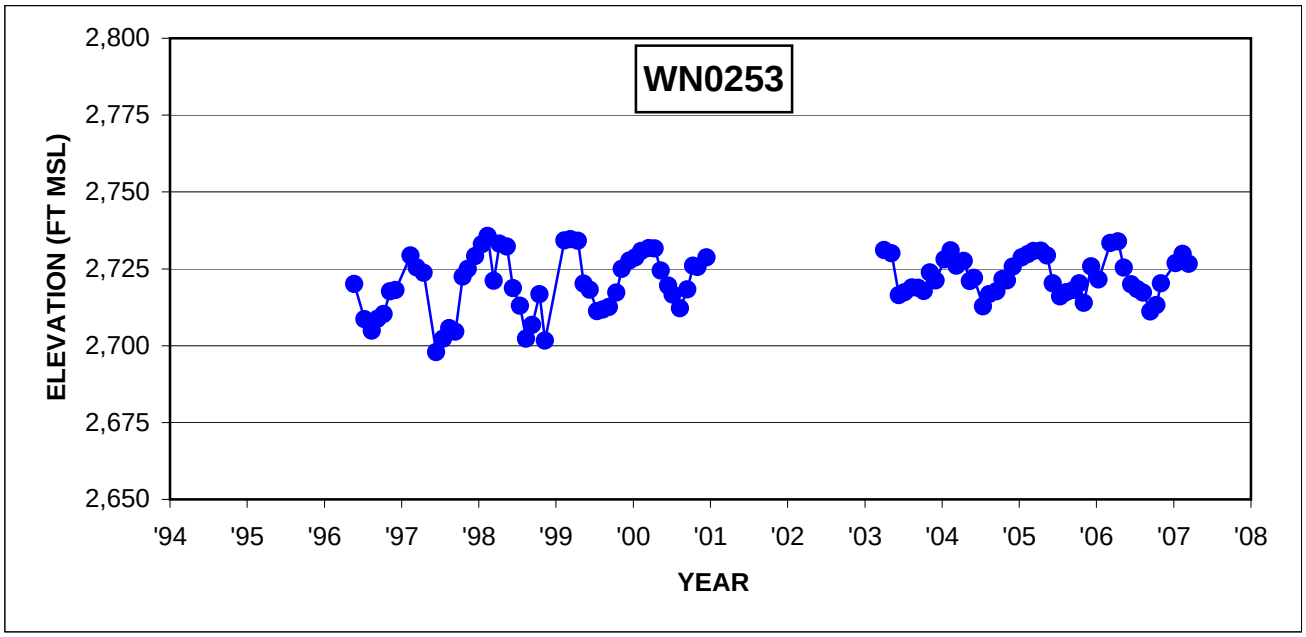

WN0245
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

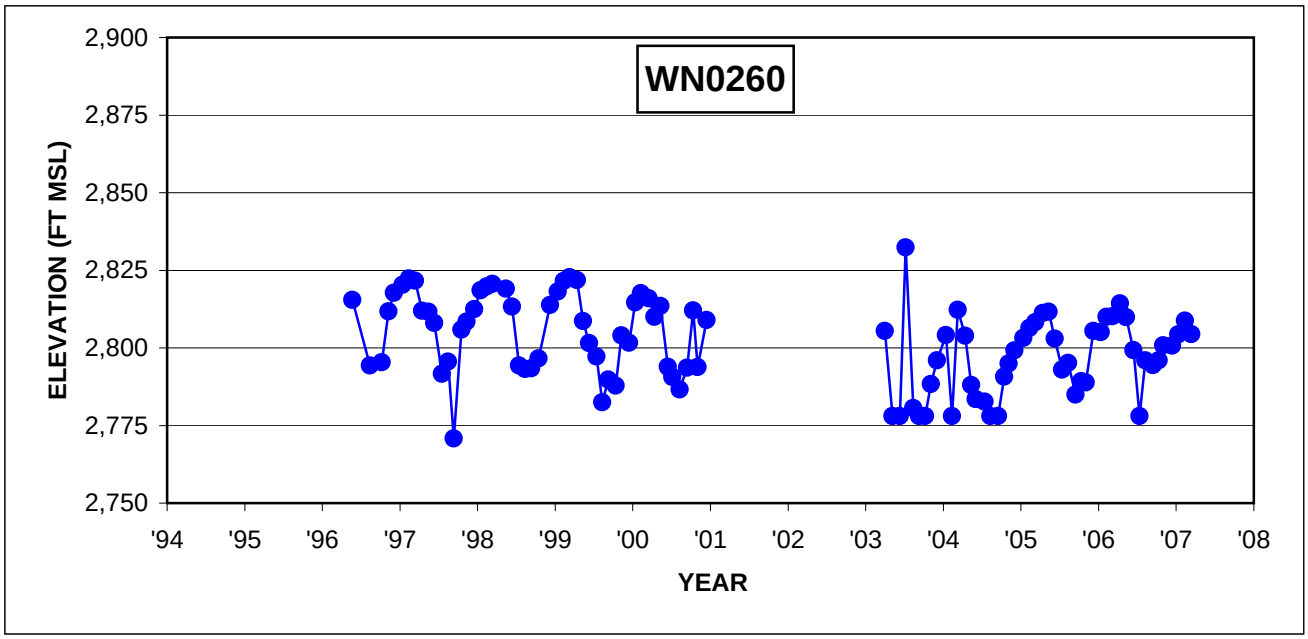

WN0247
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

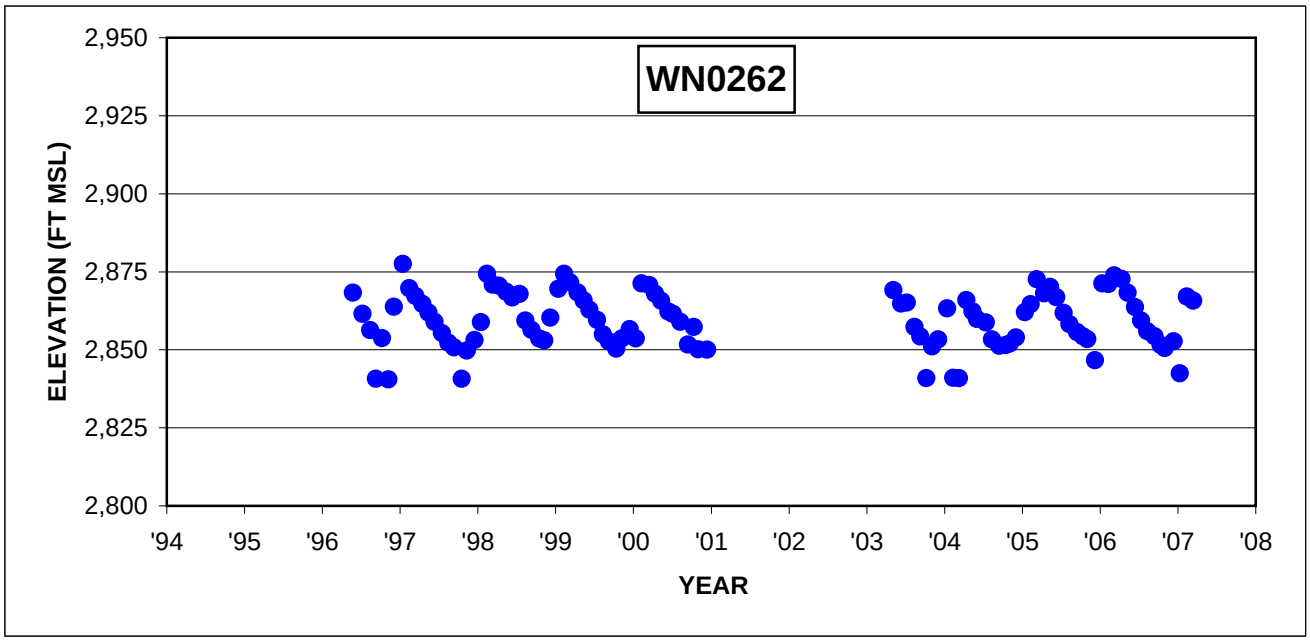

WN0248
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

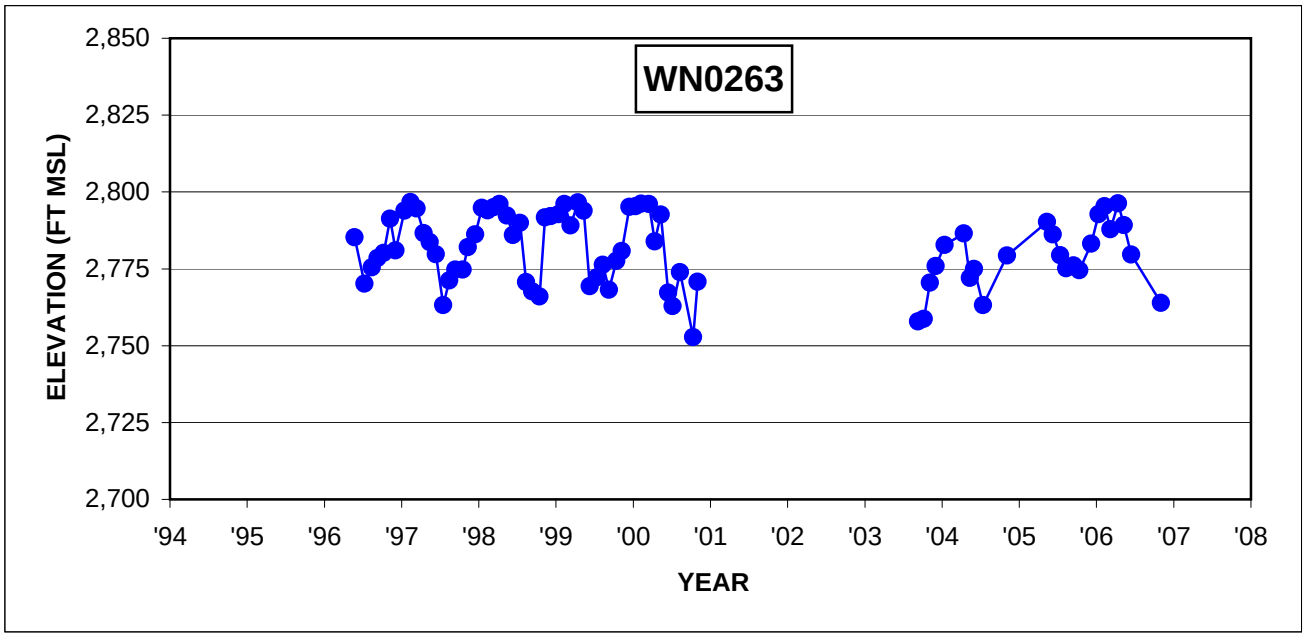

WN0250
ELEVATION (FT MSL)
2,750
2,725
2,700
2,675
2,650
2,625
2,600
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

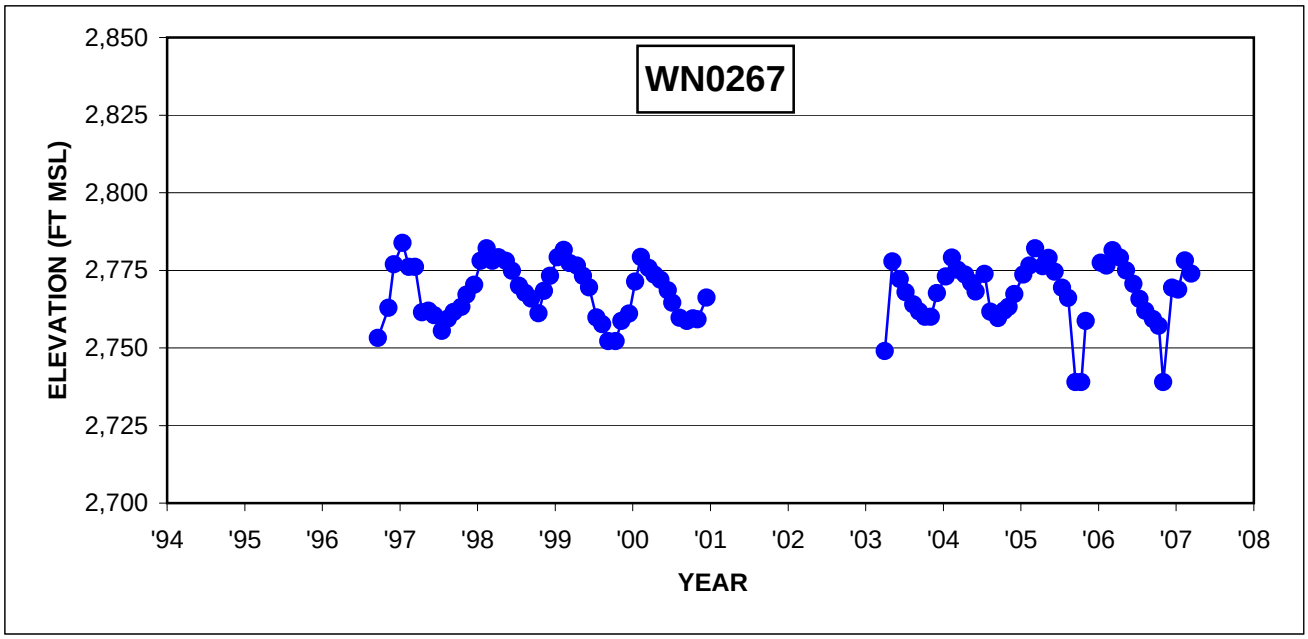

WN0251
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

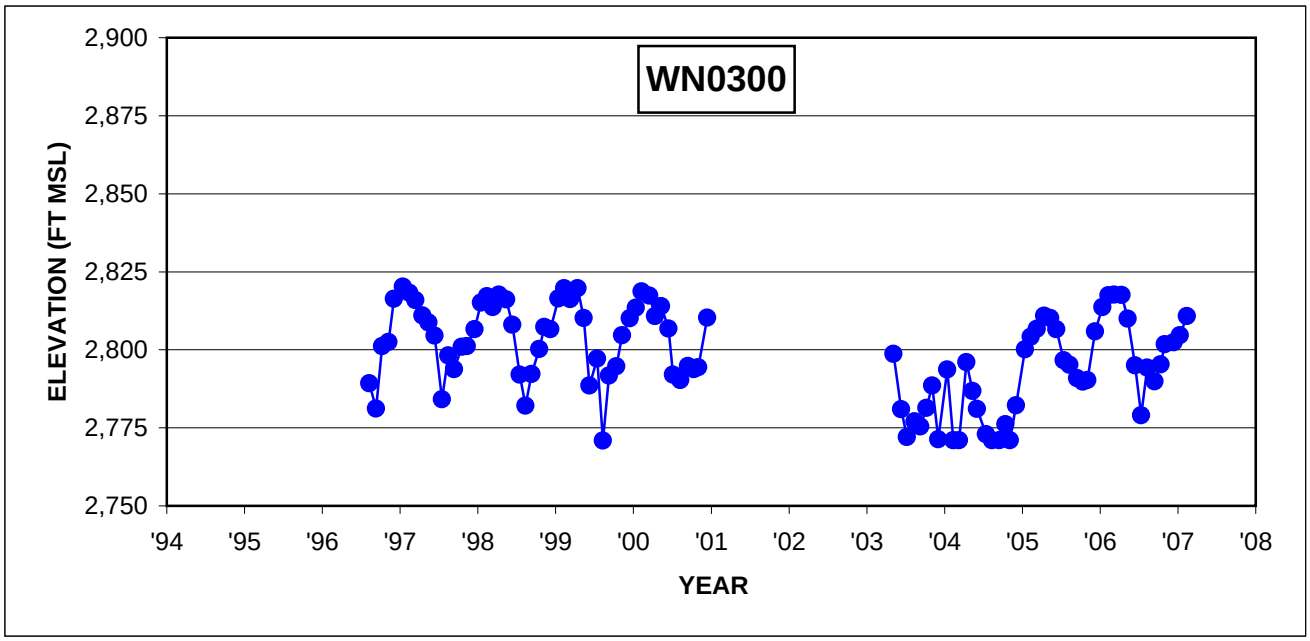

WN0253
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

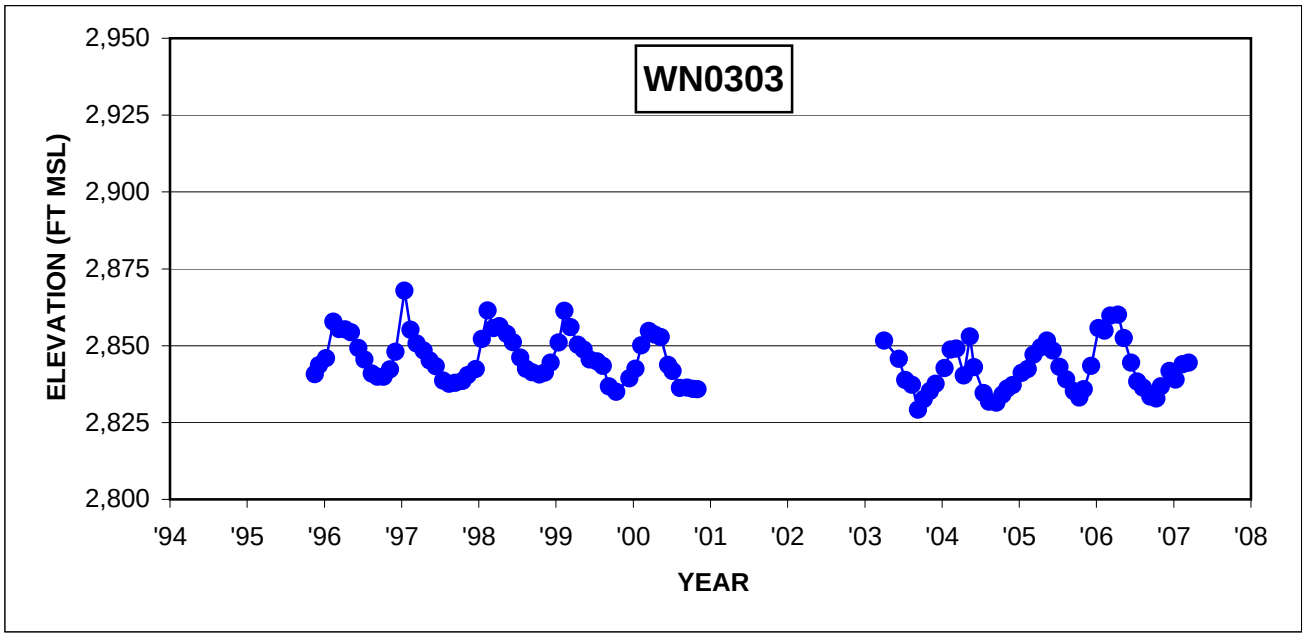

WN0260
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

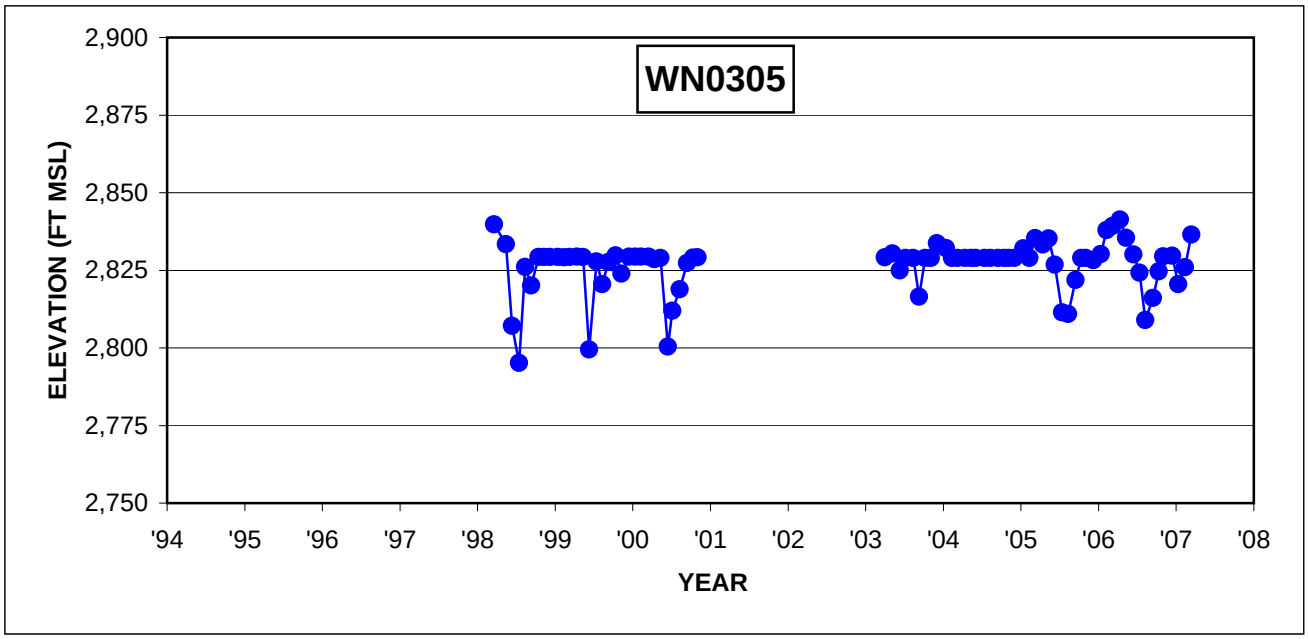

WN0262
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

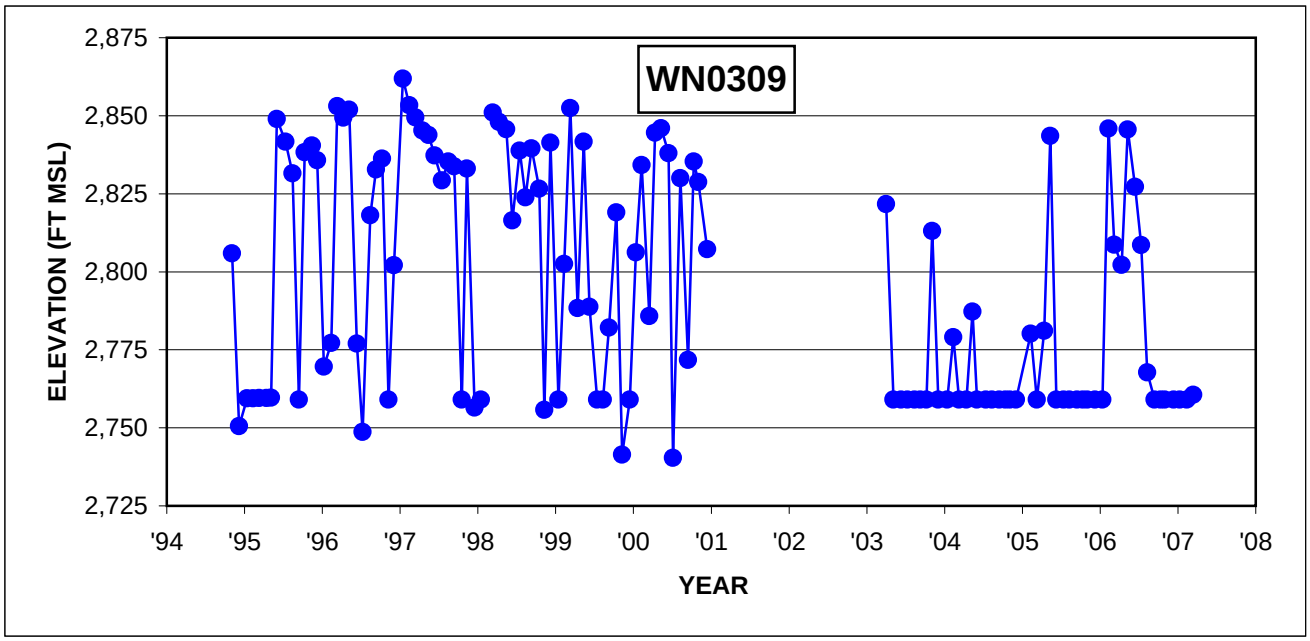

WN0263
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

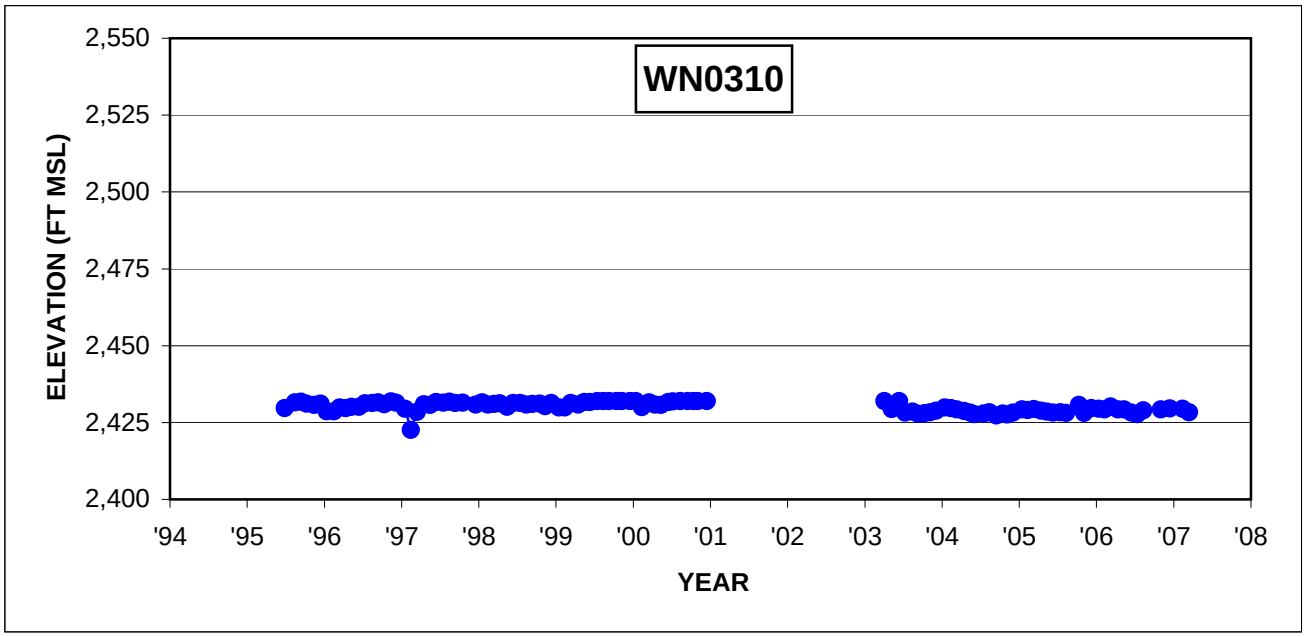

WN0267
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

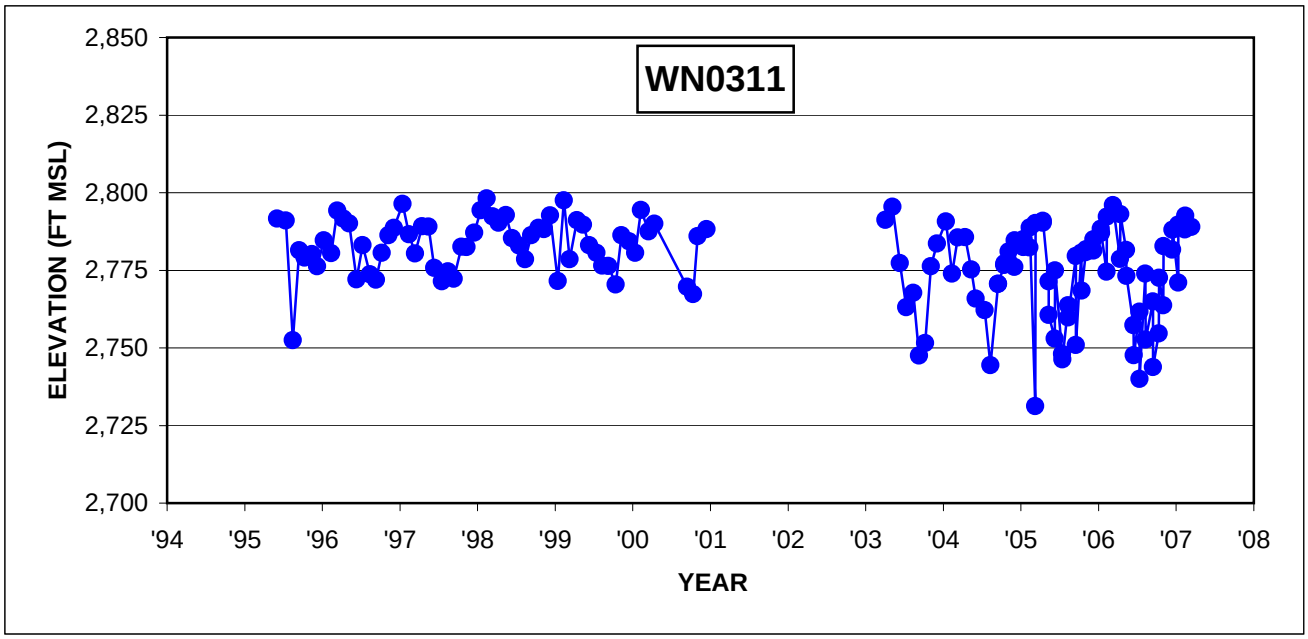

WN0300
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

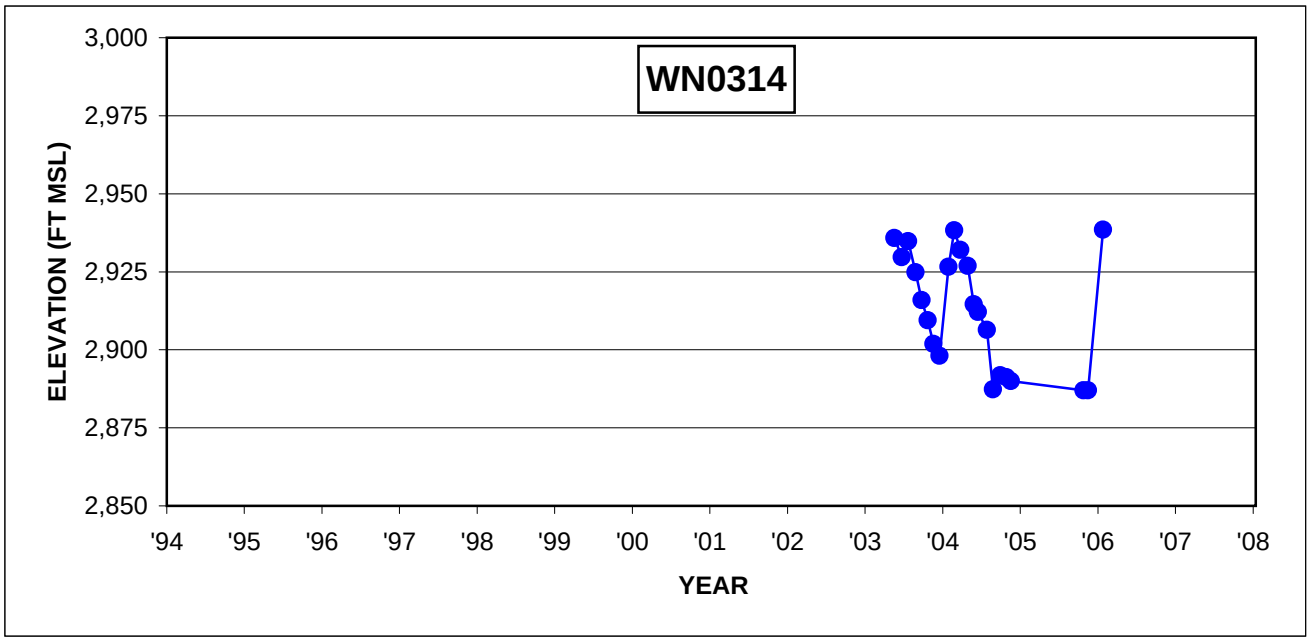

WN0303
ELEVATION (FT MSL)
2,950
2,925
2,900
2,875
2,850
2,825
2,800
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

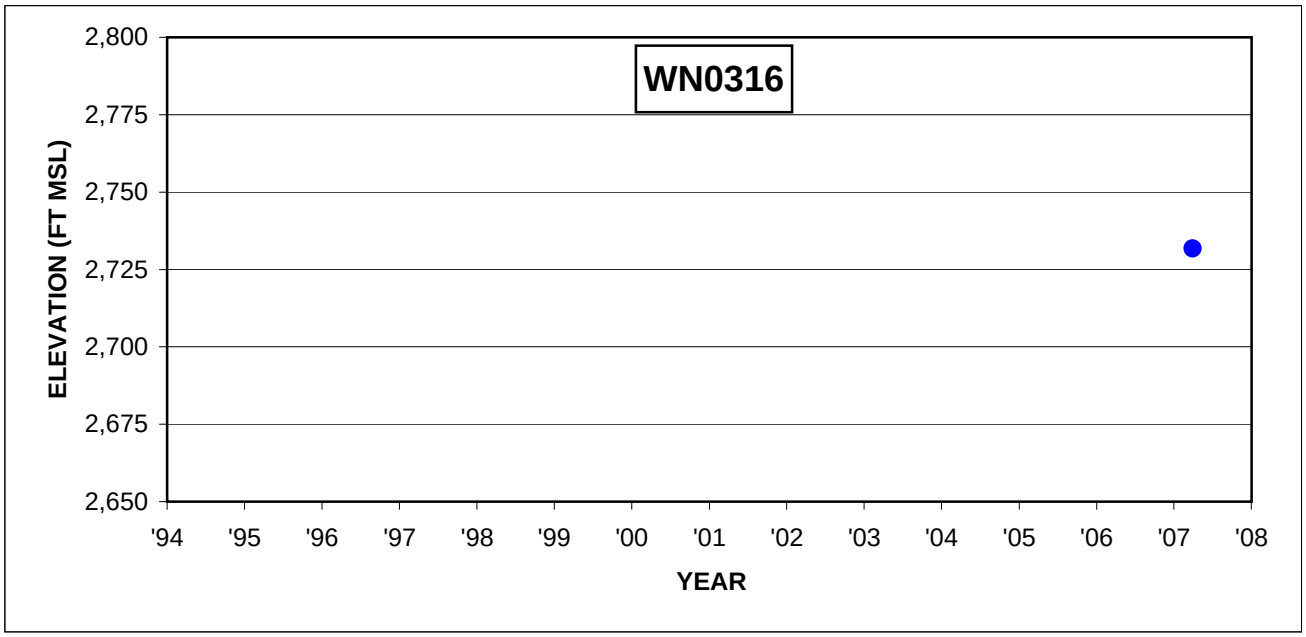

WN0305
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

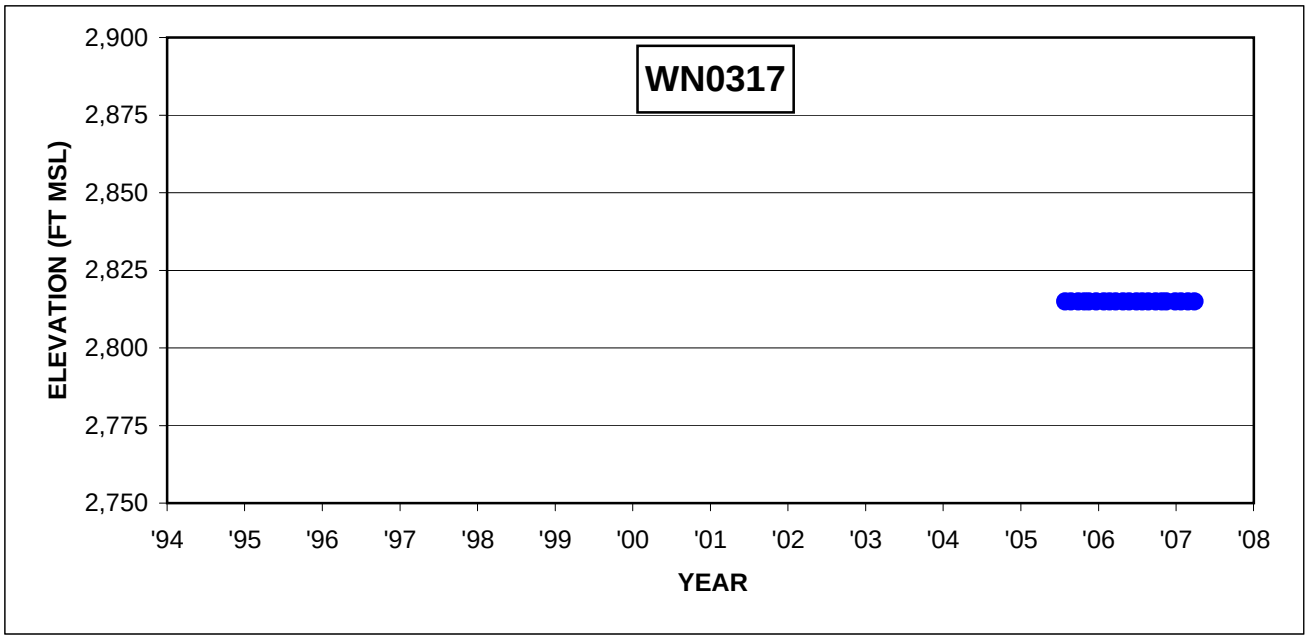

WN0309
ELEVATION (FT MSL)
2,875
2,850
2,825
2,800
2,775
2,750
2,725
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

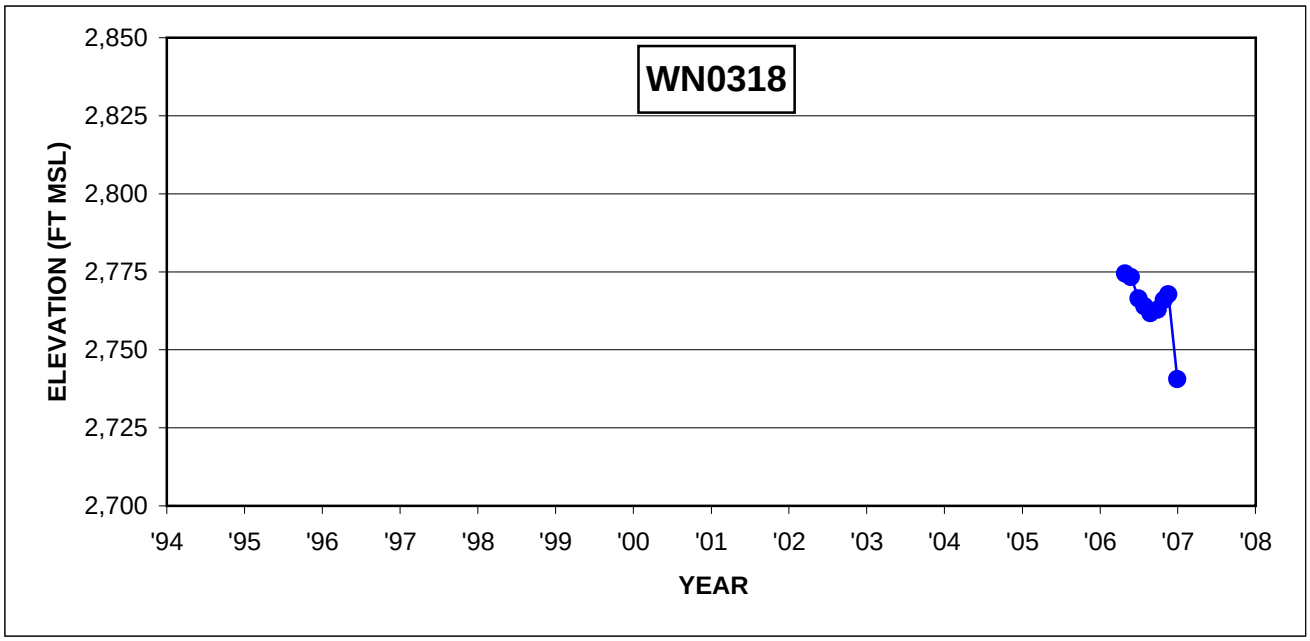

WN0310
ELEVATION (FT MSL)
2,550
2,525
2,500
2,475
2,450
2,425
2,400
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

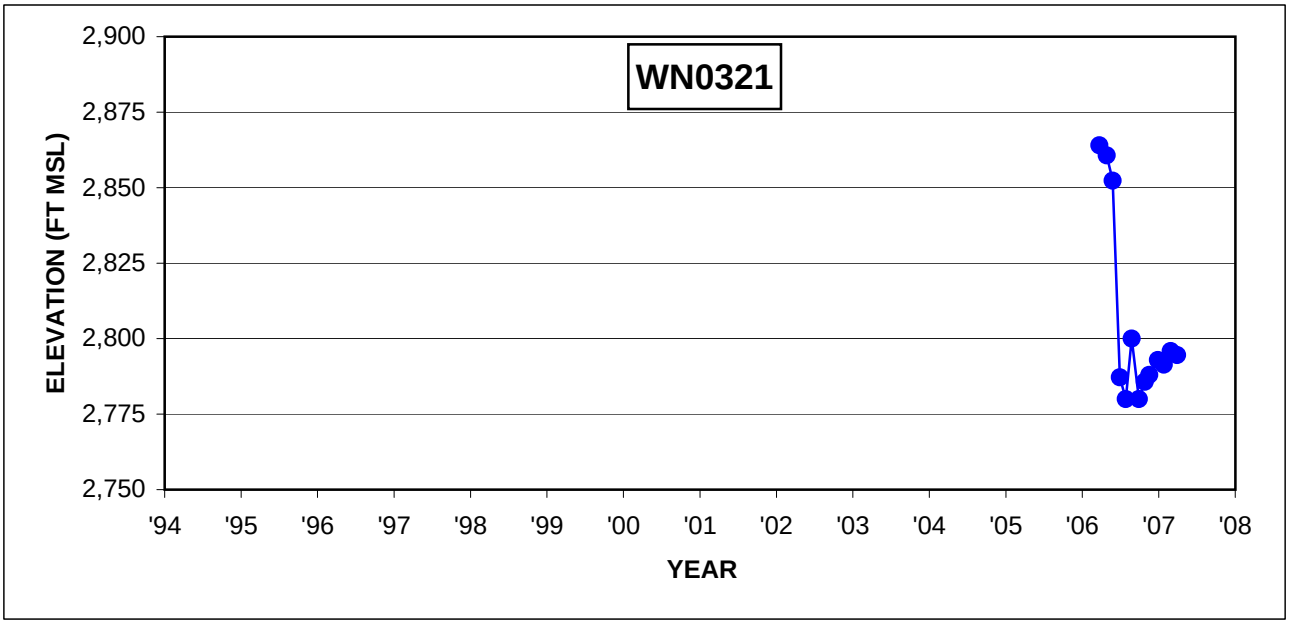

WN0311
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

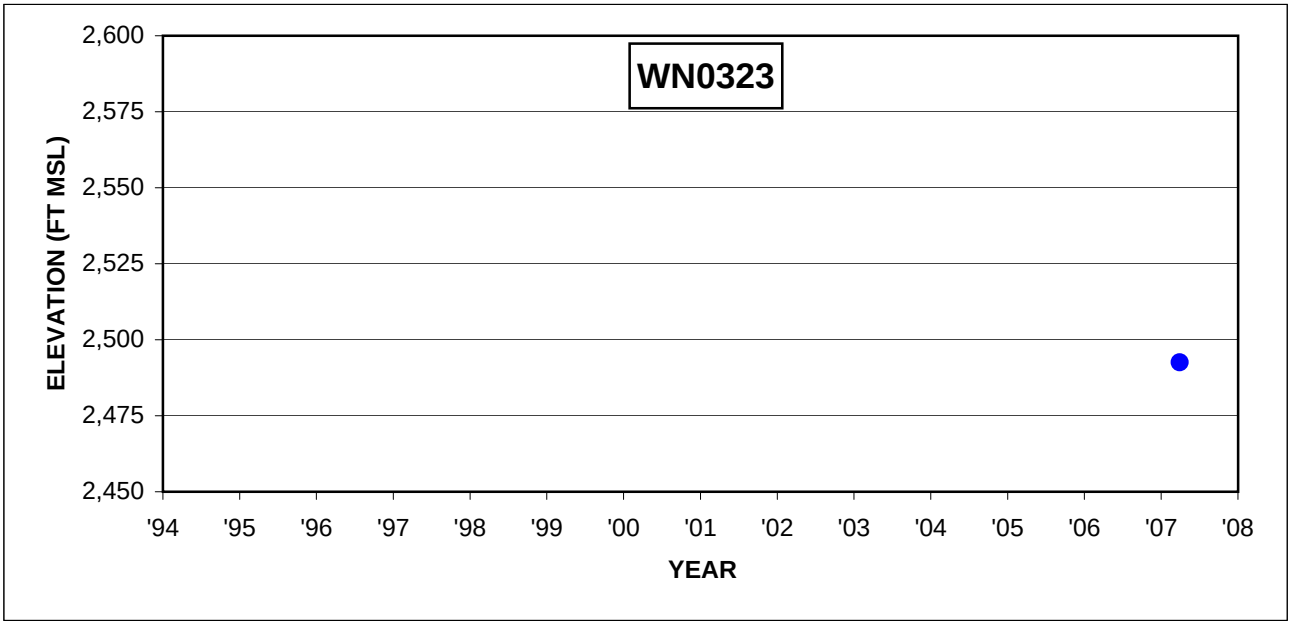

WN0314
ELEVATION (FT MSL)
3,000
2,975
2,950
2,925
2,900
2,875
2,850
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR


WN0316
ELEVATION (FT MSL)
2,800
2,775
2,750
2,725
2,700
2,675
2,650
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR


WN0317
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR


WN0318
ELEVATION (FT MSL)
2,850
2,825
2,800
2,775
2,750
2,725
2,700
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR


WN0321
ELEVATION (FT MSL)
2,900
2,875
2,850
2,825
2,800
2,775
2,750
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR


WN0323
ELEVATION (FT MSL)
2,600
2,575
2,550
2,525
2,500
2,475
2,450
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
YEAR

Appendix C – Laboratory Analytical Reports – Water Sampling

March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Lab ID : SP 1802199
Customer : 2-19423

Laboratory Report

Introduction: This report package contains total of 10 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(6 pages)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
D-1	02/13/2018	02/20/2018	SP 1802199-001	W
ED-1	02/13/2018	02/20/2018	SP 1802199-002	W
IMD-1	02/15/2018	02/20/2018	SP 1802199-003	W
IMD-2	02/15/2018	02/20/2018	SP 1802199-004	W
NBS-265	02/15/2018	02/20/2018	SP 1802199-005	W
NBS-2300	02/15/2018	02/20/2018	SP 1802199-006	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 3 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	02/27/2018:202830 All analysis quality controls are within established criteria.
	02/27/2018:202831 All analysis quality controls are within established criteria.
	02/27/2018:202832 All analysis quality controls are within established criteria.
	02/27/2018:202833 All analysis quality controls are within established criteria.
	02/26/2018:202214 All preparation quality controls are within established criteria.
903.0	03/02/2018:203001 All analysis quality controls are within established criteria.

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March 12, 2018 Lab ID : SP 1802199
CLS Labs - Data Room Customer : 2-19423

Radio QC

903.0	03/03/2018:203001 All analysis quality controls are within established criteria.
	02/26/2018:202232 All preparation quality controls are within established criteria, except: The following note applies to Total Alpha Radium (226): 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
908.0	03/01/2018:202962 All analysis quality controls are within established criteria.
	02/26/2018:202224 All preparation quality controls are within established criteria.
Ra - 05	03/09/2018:203392 All analysis quality controls are within established criteria.
	03/09/2018:203393 All analysis quality controls are within established criteria.
	03/09/2018:203394 All analysis quality controls are within established criteria.
	03/05/2018:202045 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:CEA

Approved By **David Terz, B.A., M.B.A.** Digitally signed by David Terz, B.A., M.B.A.
Title: QA Director
Date: 2018-03-12

March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Description : D-1
Project : 18B0794

Lab ID : SP 1802199-001
Customer ID : 2-19423

Sampled On : February 13, 2018-13:30
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.057 ± 0.936	1.53	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-12:55 2A1802831
Total Alpha Radium (226)	0.000 ± 0.047	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/02/18-18:34 2A1803001
Uranium	0.229 ± 0.450	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.000 ± 0.584	0.400	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-19:00 2A1803392

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Description : ED-1
Project : 18B0794

Lab ID : SP 1802199-002
Customer ID : 2-19423

Sampled On : February 13, 2018-12:50
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.784 ± 1.20	1.49	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-13:00 2A1802832
Total Alpha Radium (226)	0.096 ± 0.115	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/02/18-18:59 2A1803001
Uranium	0.000 ± 0.329	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.143 ± 0.654	0.506	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-18:40 2A1803393

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Description : IMD-1
Project : 18B0794

Lab ID : SP 1802199-003
Customer ID : 2-19423

Sampled On : February 15, 2018-10:40
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.980 ± 1.27	1.58	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-13:05 2A1802833
Total Alpha Radium (226)	0.000 ± 0.046	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/02/18-23:07 2A1803001
Uranium	0.459 ± 0.551	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.000 ± 0.588	0.506	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-19:00 2A1803393

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
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Description : IMD-2
Project : 18B0794

Lab ID : SP 1802199-004
Customer ID : 2-19423

Sampled On : February 15, 2018-09:45
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.78 ± 0.810	0.803	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-12:50 2A1802830
Total Alpha Radium (226)	0.094 ± 0.113	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/02/18-23:32 2A1803001
Uranium	0.000 ± 0.329	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.113 ± 0.645	0.383	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-19:20 2A1803394

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Description : NBS-265
Project : 18B0794

Lab ID : SP 1802199-005
Customer ID : 2-19423

Sampled On : February 15, 2018-15:33
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.02 ± 1.24	1.49	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-12:55 2A1802831
Total Alpha Radium (226)	0.047 ± 0.092	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/02/18-23:56 2A1803001
Uranium	0.229 ± 0.450	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.000 ± 0.546	0.400	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-19:40 2A1803392

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018

CLS Labs - Data Room
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

Description : NBS-2300
Project : 18B0794

Lab ID : SP 1802199-006
Customer ID : 2-19423

Sampled On : February 15, 2018-18:10
Sampled By : Not Available
Received On : February 20, 2018-09:50
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.986 ± 1.25	1.48	pCi/L	15/5	900.0	02/26/18-09:50 2P1802214	900.0	02/27/18-13:00 2A1802832
Total Alpha Radium (226)	0.117 ± 0.122	0.304	pCi/L	3	903.0	02/26/18-18:45 2P1802232	903.0	03/03/18-00:21 2A1803001
Uranium	0.229 ± 0.450	0.342	pCi/L	20	908.0	02/26/18-13:40 2P1802224	908.0	03/01/18-19:51 2A1802962
Ra 228	0.001 ± 0.672	0.506	pCi/L	2	Ra - 05	03/05/18-18:45 2P1802045	Ra - 05	03/09/18-19:20 2A1803393

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

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March 12, 2018
CLS Labs - Data Room

Lab ID : SP 1802199
Customer : 2-19423

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	02/27/18:202830aat	CCV	cpm	8203	41.0 %	35-47	
			CCB	cpm		0.10	0.2	
	900.0	02/27/18:202831aat	CCV	cpm	8203	42.4 %	35-47	
			CCB	cpm		0.100	0.14	
	900.0	02/27/18:202832aat	CCV	cpm	8203	40.2 %	35-47	
			CCB	cpm		0.0800	0.13	
	900.0	02/27/18:202833aat	CCV	cpm	8203	41.3 %	35-47	
			CCB	cpm		0.1200	0.17	
Gross Alpha	900.0	02/26/18:202214aat	Blank	pCi/L		0.41	3	
			LCS	pCi/L	107.8	118 %	75-125	
			BS	pCi/L	107.8	108 %	60-140	
			BSD	pCi/L	107.8	122 %	60-140	
			BSRPD	pCi/L	107.8	12.1%	≤30	
Alpha	903.0	03/03/18:203001aat	CCV	cpm	8571	41.2 %	37-46	
			CCB	cpm		0.100	0.12	
Total Alpha Radium (226)	903.0	02/26/18:202232aat	RgBlk	pCi/L		-0.003	2	
			LCS	pCi/L	24.21	104 %	52-107	
			MS	pCi/L	24.21	108 %	43-111	
		(SP 1802099-001)	MSD	pCi/L	24.21	112 %	43-111	435
			MSRPD	pCi/L	24.21	3.0%	≤35.5	
			MS	pCi/L	24.21	94.6 %	43-111	
		(SP 1802138-005)	MSD	pCi/L	24.21	109 %	43-111	
			MSRPD	pCi/L	24.21	13.9%	≤35.5	
Alpha	908.0	03/01/18:202962aat	CCV	cpm	8571	40.8 %	36-45	
			CCB	cpm		0.0600	0.12	
Uranium	908.0	02/26/18:202224aat	RgBlk	pCi/L		-0.02	1	
			LRS	pCi/L	26.84	59.8 %	54-105	
			BS	pCi/L	26.84	112 %	75-125	
			BSD	pCi/L	26.84	119 %	75-125	
			BSRPD	pCi/L	26.84	5.5%	≤20	
Beta	Ra - 05	03/09/18:203392emv	CCV	cpm	8565	88.9 %	84-94	
			CCB	cpm		0.4000	0.48	
	Ra - 05	03/09/18:203393emv	CCV	cpm	8565	88.9 %	84-94	
			CCB	cpm		0.4000	0.58	
	Ra - 05	03/09/18:203394emv	CCV	cpm	8565	88.8 %	84-94	
			CCB	cpm		0.4000	0.51	
Ra 228	Ra - 05	03/05/18:202045emv	RgBlk	pCi/L		0.03	3	
			LRS	pCi/L	33.60	79.8 %	65-108	
			BS	pCi/L	33.60	93.8 %	75-125	
			BSD	pCi/L	33.60	97.2 %	75-125	
			BSRPD	pCi/L	33.60	3.5%	≤25	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.

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March 12, 2018 Lab ID : SP 1802199
CLS Labs - Data Room Customer : 2-19423

Quality Control - Radio

Definition	
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.
Explanation	
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

SUBCONTRACT ORDER

18B0794

1802199

SENDING LABORATORY:

CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
Phone: 916-638-7301
Fax: 916-638-4510
Project Manager: Mark Smith
Project: Rise

RECEIVING LABORATORY:

FGL Labs - Santa Paula
853 Corporation Street
Santa Paula, CA 93060
Phone :(805) 392-2000
Fax: (805) 525-4172

REVISED 2/20/18

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Radium-226 (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1 **Sampler:**
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1 **Sampler:**
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1 **Sampler:**
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950		2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Sampler:

REVISED 2/20/18

Containers Supplied:

1L Poly - HNO3 (A) | 1L Poly - HNO3 (B) | 1L Poly - HNO3 (C) | 1L Poly - HNO3 (D) | 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	[signature]	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By | Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1 **Sampler:**
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

REVISED 2/20/18

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1 **Sampler:**
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1 **Sampler:**
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1 **Sampler:**
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	[signature]	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Uranium (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1 **Sampler:**
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

REVISED 2/20/18

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Gross alpha SUB	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1 **Sampler:**
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1 **Sampler:**
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1 **Sampler:**
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	[signature]	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2 **Sampler:**
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

REVISED 2/20/18

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2 **Sampler:**
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2 **Sampler:**
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Gross alpha SUB	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2 **Sampler:**
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	Cynthia	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265 **Sampler:**

Laboratory sample ID: 18B0794-05

Please use client sample ID on all reports

REVISED 2/20/18

Containers Supplied:

1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265 **Sampler:**

Laboratory sample ID: 18B0794-05

Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265 **Sampler:**

Laboratory sample ID: 18B0794-05

Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265 **Sampler:**

Laboratory sample ID: 18B0794-05

Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	Cynthia	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Uranium (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300 **Sampler:**
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

REVISED 2/20/18

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Gross alpha SUB	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300 **Sampler:**
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300 **Sampler:**
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300 **Sampler:**
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
UPS	2/20/18 0950	Cuno C	2/20/18 0950
Relinquished By	Date	Received By	Date

Shipped By Airbill Number

1802199 1 of 8

SUBCONTRACT ORDER

18B0794

#1 = 50lbs #2 5lbs

SENDING LABORATORY:

CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
Phone: 916-638-7301
Fax: 916-638-4510
Project Manager: Mark Smith

RECEIVING LABORATORY:

FGL Labs - Santa Paula
853 Corporation Street
Santa Paula, CA 93060
Phone :(805) 392-2000
Fax: (805) 525-4172

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Radium-226 (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A)	1L Poly - HNO3 (B)	1L Poly - HNO3 (C)	1L Poly - HNO3 (D)	1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A)	1L Poly - HNO3 (B)	1L Poly - HNO3 (C)	1L Poly - HNO3 (D)	1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A)	1L Poly - HNO3 (B)	1L Poly - HNO3 (C)	1L Poly - HNO3 (D)	1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
	2.19.18.		
UPS	2/20/18 0950		2/20/18 0950

Relinquished By	Date	Received By	Date

Shipped By: UPS.
Airbill Number:
1 - TRACKING #: 1Z 2A8 49X 13 9276 2133
4 - TRACKING #: 1Z 2A8 49X 13 9428 8125

1802199

SUBCONTRACT ORDER

18B0794

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/15/18 13:30	18B0794-01	02/13/18 13:30	02/16/18 14:40	Water

Client sample ID: D-1
Laboratory sample ID: 18B0794-01
Please use client sample ID on all reports

Containers Supplied:

1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By Date 2.19.18. Received By Date

Relinquished By UPS Date 2/20/18 0950 Received By Date 2/20/18 0950

Shipped By UPS Airbill Number 1: 122A849X1392762133

4: 122A849X1394288125

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/15/18 12:50	18B0794-02	02/13/18 12:50	02/16/18 14:40	Water

Client sample ID: ED-1
Laboratory sample ID: 18B0794-02
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
	2.19.18		
UPS	2/20/18 0950	Cuuc	2/20/18 0950
Relinquished By	Date	Received By	Date
UPS			

Shipped By Airbill Number

1: 122A849X1392762133

4: 122A849X1394288125

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Uranium (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Gross alpha SUB	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 10:40	18B0794-03	02/15/18 10:40	02/16/18 14:40	Water

Client sample ID: IMD-1
Laboratory sample ID: 18B0794-03
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By	Date	Received By	Date
	2-19-18		
UPS	2/20/18 0950	CurtC	2/20/18 0950
Relinquished By	Date	Received By	Date
UPS			

Shipped By Airbill Number

1. 122A849X1892762133

4. 122A849X1394288125

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Uranium (SUB)	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/17/18 09:45	18B0794-04	02/15/18 09:45	02/16/18 14:40	Water

Client sample ID: IMD-2
Laboratory sample ID: 18B0794-04
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By 2.1918 Date Received By Date

Relinquished By UPS 2/20/18 0950 Date Received By Cynthia C. 2/20/18 0950 Date

Shipped By UPS. Airbill Number 1. 1Z2A849X1392760133

4. 1Z2A849X1394288125

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265
Laboratory sample ID: 18B0794-05
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265
Laboratory sample ID: 18B0794-05
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265
Laboratory sample ID: 18B0794-05
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/17/18 15:33	18B0794-05	02/15/18 15:33	02/16/18 14:40	Water

Client sample ID: NBS-265
Laboratory sample ID: 18B0794-05
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By Date 2-19-18. Received By Date

Relinquished By UPS Date 2/20/18 0950 Received By Date 2/20/18 0950

Shipped By UPS. Airbill Number 1. 122A849X1392762133

4. 122A849X1394288125

SUBCONTRACT ORDER

18B0794

1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-226 (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Radium-228 (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Uranium (SUB)	10	03/05/18 12:00	03/17/18 18:10	18B0794-08	02/15/18 18:10	02/16/18 14:40	Water

Client sample ID: NBS-2300
Laboratory sample ID: 18B0794-08
Please use client sample ID on all reports

Containers Supplied:
1L Poly - HNO3 (A) 1L Poly - HNO3 (B) 1L Poly - HNO3 (C) 1L Poly - HNO3 (D) 1L Poly - Unpres (E)

Relinquished By 2-19-18. Date Received By Date

Relinquished By UPS 2/20/18 0950 Date Received By 2/20/18 0950 Date

Shipped By UPS. Airbill Number

1: 1Z2A849X1392762133
4: 1Z2A849X1394288125

SUBCONTRACT ORDER

18B0794 1802199

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Gross alpha SUB	10	03/05/18 12:00	03/17/18 17:20	18B0794-09	02/15/18 17:20	02/16/18 14:40	Water

Client sample ID: NBS-1600
Laboratory sample ID: 18B0794-09
Please use client sample ID on all reports

Containers Supplied:

Relinquished By 2-19-18. Date Received By Date

Relinquished By UPS 2/20/18 0950 Date Received By Date 2/20/18 0950

Shipped By UPS. Airbill Number

1. 1Z21A849X1392762133

4. 1Z21A849X1394288125

Subcontract Sample Receipt Checklist

CLS Work Order Number: 18B0794

Chain of Custody (COC) Information

Carrier Name UPS.	Yes	No
Chain of custody present?	Yes	No
Chain of custody signed when relinquished and received?	Yes	No
Chain of custody agrees with sample labels?	Yes	Non-Compliant

Sample Receipt Information

Shipping container/cooler in good condition?	Yes	No	Not Present
Samples in proper container/bottle?	Yes	Non-Compliant	
Sample containers intact?	Yes	No	
Sufficient sample volume for indicated test?	Yes	No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	No
Temperature upon receipt: _____ C		
Wet Ice present in Cooler?	Yes	No
Blue Ice present in Cooler?	Yes	No

Analytical Requirement Information

Are non-Standard of Modified methods requested?	Yes	No
Subcontract Lab CERTIFIED for the various methods requested?	Yes	No
Will Subcontract Lab be able to meet the turn-around time (TAT) requirements?	Yes	No

Subcontract Lab Information

Work Order Number assigned by Subcontract Lab _____

Date received at Subcontract Lab _____

If any items are check marked NO or are non-compliant, a phone call back to California Laboratory Services is required immediately. If all items are acceptable, a faxed copy of the signed sub chain of custody (COC) and the completed sample receipt check list is required within 24 hours of sample receipt.

To All Subcontract Labs:
(Effective 1/14/13)

Please provide PDF of Final Results and Invoices to:

dataroom@californialab.com

Please send Hard Copies + Invoices to:

CLS Labs
3249 Fitzgerald Road
Rancho Cordova, CA 95742
Attn: Data Room

Subject: RE: 18B0794
From: "Mark Smith" <marks@californialab.com>
Date: 02/20/2018 11:00
To: "'Cynthia Casarez'" <cynthiac@fglinc.com>
CC: "'Shellie Furnas'" <shellief@californialab.com>

Hi Cynthia

You are correct, I saw the discrepancy yesterday during our review, however, we failed to send the revised COC - please see attached. Should you have any questions, please do not hesitate to give us a call. Take care and enjoy your day.

Mark G. Smith
Operations Manager
California Laboratory Services
3249 Fitzgerald Rd
Rancho Cordova, CA 95742
(800) 638-7301 Ext. 105 (Office)
916.638.4510 (FAX)
916.216.3516 (Mobile)
marks@californialab.com
www.californialab.com
NOTICE: This e-mail and its attachments, if any, may contain confidential or proprietary information and are intended solely for authorized use by the intended recipient(s) only. Any other use of this e-mail is prohibited. If you have received this e-mail in error, you are hereby notified that any retention, disclosure, copying, forwarding, distribution (in whole or in part and whether electronically, written and/or orally) and/or taking of any action in reliance on this email, its contents and/or any attachments thereto is strictly prohibited. If you received this e-mail in error, please notify the sender by replying to this message and permanently delete this e-mail, and any attachments thereto, from your system immediately.

-----Original Message-----
From: Cynthia Casarez [mailto:cynthiac@fglinc.com]
Sent: Tuesday, February 20, 2018 10:51 AM
To: Mark Smith <marks@californialab.com>
Subject: Re: 18B0794

Thank You Mark.

I Also did not receive a sample container for Lab ID: 18B0794-09.

On 02/20/2018 10:47, Mark Smith wrote:

> Hello Cynthia:
>
> No these samples do not require state reporting - thank you for checking - enjoy your day.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: **1**
2. Shipper tracking numbers **1Z2A849X1392762133,1Z2A849X1394288125**
3. Were samples received in a chilled condition?
   Temps: **1** / **4** / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? **Yes** **No** **N/A**
6. Verify sample date, time, sampler **Yes** **No** **N/A**
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) **Yes** **No**
8. Were sample custody seals intact? **Yes** **No** **N/A**

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? **Yes** **No**
2. Did bottle labels correspond with the client's ID's? **Yes** **No**
3. Were all bottles requiring sample preservation properly preserved? **Yes** **No** **N/A** **FGL**
   [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? **Yes** **No** **N/A**
5. Were all analyses within holding times at time of receipt? **Yes** **No**
6. Have rush or project due dates been checked and accepted? **Yes** **No** **N/A**

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By **Cynthia T Casarez** Digitally signed by Cynthia T Casarez
Title: Sample Receiving
Date: 02/20/2018-11:59:20

Discrepency Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

2. Person Contacted: _____ Phone Number: _____
   Initiated By: _____ Date: _____
   Problem:

   Resolution:

(2019423)
CLS Labs
SP 1802199
CTC-02/20/2018-11:59:20

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

February 27, 2018

CLS Work Order #: 18B0794
COC #:

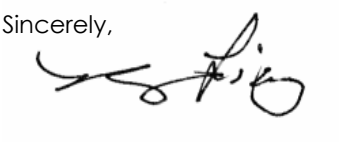
Dr. Andrew Kopania
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project Name: Rise

Enclosed are the results of analyses for samples received by the laboratory on 02/16/18 14:40. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

18B0794 cooler: NPDES #2

CLS - Labs

CHAIN OF CUSTODY

CLS ID No.: _____ LOG № 187399

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc
5511 Lakecrest Dr.
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Rise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742

☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Ammonia; BOD & TSS; Coliform 15T; Gross Alpha; Radium 226; Radium 228; Uranium

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Ammonia	BOD & TSS	Coliform 15T	Gross Alpha	Radium 226	Radium 228	Uranium
2-13-18	13:30	D-1	W	2	1L poly	2						X	
				1	120mL coliform	3			X				
				1	250mL poly	5	X						
				1	1L poly	2					X		
				1	1L poly	2							X
				1	1L poly	3				X			
				1	1L poly	3		X					
2-13-18	12:50	ED-1		3	1L poly	2					X	X	
				1	120mL coliform	3			X				
				1	1L poly	2							X
				1	1L poly	3				X			
				1	1L poly	3		X					
				1	250mL poly	5	X						

INVOICE TO:
P.O. #
QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18 14:35		

REC'D AT LAB BY: _____ DATE / TIME: 2-16-18 1440

CONDITIONS / COMMENTS: 2.5

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White - Lab/Terms and conditions
Yellow - Lab file copy/Terms and Conditions
Pink - Origin/Terms and Conditions
Gold - Project Mgr./Field Sampler/Terms and conditions

18B0794 Cooler: DRAIN 2

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 187398

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc.
551 Lakeview Dr.
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to:
akopania@sbcglobal.net

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see list	General Mineral	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
2-13-18	13:30	D-1	W	1	250 mL amber	3							X					See Shellie for specific METALS to be analyzed
				4	VOA	1				X								
				1	1L poly	3		X										
				1	500 mL poly	2	X											
				1	250 mL poly	4			X									
				1	1L amber	3						X						
				2	1L amber	3					X							
2-13-18	12:50	ED-1		1	250 mL amber	3							X					
				4	VOA	1				X								INVOICE TO:
				1	1L poly	3		X										
				1	500 mL poly	2	X											
				1	250 mL poly	4			X									P.O. #
				3	1L amber	3					X	X						QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania/Emko	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2.16.18 1440 CONDITIONS / COMMENTS: 25.

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1BB0794 COOLER: NPDES #1

CLS - Labs

CHAIN OF CUSTODY

CLS ID No.: _____ LOG № 187401

REPORT TO:

NAME AND ADDRESS
EMKO Environmental, Inc
551 Lakecrest Dr
El Dorado Hills, CA 95762

PROJECT MANAGER: Ade Kupania PHONE#: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to: akopania@sbcglobal.net

SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD
RANCHO CORDOVA, CA
95742

☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Ammonia	BOD + TSS	Coliform 1ST	Gross Alpha	Radium 226	Radium 228	Uranium
2-15-19	10:40	IMD-1	W	4	1L poly	2					X	X	X
				2	1L poly	3		X		X			
				1	120mL coliform				X				
				1	250mL poly	5	X						
2-15-19	9:45	IMD-2		4	1L poly	2					X	X	X
				2	1L poly	3		X		X			
				1	120mL coliform				X				
				1	250mL poly	5	X						
2-15-19	15:33	VBS-265		4	1L poly	2					X	X	X
	15:33			2	1L poly	3		X		X			
	13:40			1	120mL coliform				X				
	15:33			1	250mL poly	5	X						

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kupania / EMKO	2/16/19 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2.16.19. 1440. CONDITIONS / COMMENTS: 2-5°

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White: Lab/Terms and conditions Yellow: Lab file copy/Terms and Conditions Pink: Origin/Terms and Conditions Gold: Project Mgr./Field Sampler/Terms and conditions

13B 0794 Cooler: DRAIN 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 187400

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc
5511 Lakecrest Dr.
El Dorado Hills CA 95762
PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Rise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Metals - see List; General Mineral; Cyanide + Amenable Cyan.; VOC / TPHG; SVOC; PCB; TPHD + MO

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRES.	Metals	General Mineral	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO	SPECIAL INSTRUCTIONS
2-15-18	10:40	MD-1	W	4	40mL VOA	1				X				see Sheet for Specific METALS to be analyzed
				3	1L amber	3					X	X		
				1	250mL amber	3							X	
				1	1L poly	3		X						
				1	500mL poly	2	X							
				1	250mL poly	4			X					
2-15-18	9:45	MD-2		4	40mL VOA	1				X				
				3	1L amber	3					X	X		
				1	250mL amber	3							X	INVOICE TO:
				1	1L poly	3		X						
				1	500mL poly	2	X							
				1	250mL poly	4			X					P.O. #
														QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCl (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18/14:35		

RECD AT LAB BY: DATE / TIME: 2/16/18 1440 CONDITIONS / COMMENTS: 25°.

SHIPPED BY: ☐ FEDEX ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1380794 CC SHAFT 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186621

REPORT TO:

NAME AND ADDRESS: ERIKO Environmental, Inc. 551 Lakecrest Dr. El Dorado Hills, CA 95762

PROJECT MANAGER: Ana Kopania PHONE#: 916-718-5571

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to: akopania@sbcglobal.net

SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301 3249 FITZGERALD RD. RANCHO CORDOVA, CA. 95742

☐ OTHER

GEOTRACKER: EDF REPORT ☐ YES ☒ NO

GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see List	General Minerals	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD+MO	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
2-15-18	13:40	NBS-265	W	4	40mL VOA	1				X								see Shellie for specific METALS to be analyzed
	13:40			2	1L Amber	3					X							
	15:33			1	1L amber	3						X						
	13:40			1	250mL poly	4			X									
	13:40			1	500mL poly	2	X											
	13:40			1	250mL amber	3							X					
	15:33			1	1L poly	3		X										
	14:05	NBS-900		4	40mL VOA	1				X								
	14:05			3	1L Amber	3					X	X						INVOICE TO:
	16:00			1	1L poly	3		X										
	16:00			1	250mL amber	3							X					
	16:00			1	500mL poly	2	X											P.O. #
	16:00			1	250mL poly	4			X									QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / ERIKO	2/16/18 14:35		

RECD AT LAB BY: DATE / TIME 2/16/18 1440 CONDITIONS / COMMENTS: 2-5

SHIPPED BY: ☐ FEDX ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow-Lab file copy/Terms and Conditions Pink-Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1BB0794 cooler: SHAFT 2

Labs

CHAIN OF CUSTODY

CLS ID No.: _____ LOG № 186636

REPORT TO:

NAME AND ADDRESS
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762
PROJECT MANAGER: Andy Kapania PHONE#: 916-718-5511
PROJECT NAME: Rise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - See L3T	General Minerals	Cyanide + Amenable cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO
2-15-17	~~14:30~~ ~~16:35~~	NBS-1300	W	4	40mL VOA	1				X			
	14:30			2	1L Amber	3					X		
	16:35			1	1L Amber	3						X	
	16:35			1	1L poly	3		X					
	16:35			1	500mL poly	2	X						
	16:35			1	250mL poly	4			X				
	16:35			1	250mL amber	3							X
2-15-17	18:10	NBS-2300		1	1L amber	3						X	
				1	1L poly	3		X					
				1	500mL poly	2	X						
				1	250mL amber	3							X
				1	250mL poly	4			X				

SUSPECTED CONSTITUENTS

INVOICE TO:

P.O. #

QUOTE #

PRESERVATIVES: (1) HCL (2) HNO_3 (3) COLD (4) NaOH (5) H_2SO_4 (6) $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kapania / EMKO	2/16/18 14:35		

RECD AT LAB BY: DATE / TIME: 2.16.18 1440 CONDITIONS / COMMENTS: 2-5

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White - Lab/Terms and conditions Yellow - Lab file copy/Terms and Conditions Pink - Origin/Terms and Conditions Gold - Project Mgr / Field Sampler/Terms and conditions

1800794 cooler: SHAFT 2

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186635

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc.
5511 Lakecrest Dr.
El Dorado Hills CA 95762
PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Kise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Ammonia	BOD + TSS	Coliform ST	Gross Alpha	Radium 226	Radium 228	Uranium
2-15-18	18:10	NBS-2300	W	1	1L poly	2					X		
				2	1L poly	2						X	
				1	1L poly	2							X
				1	1L/mL poly				X				
				1	250 mL poly	5	X						
				1	1L poly	3		X					
				1	1L poly	3				X			

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

TURN AROUND TIME: 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☐

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

P.O. #

QUOTE #

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A Kopania / EMKO	2/16/18 14:35		

REC'D AT LAB BY: DATE / TIME: 2/16/18 1440 CONDITIONS / COMMENTS: 2°.

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow-Lab file copy/Terms and Conditions Pink-Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1880794 Cooler: SHAFT 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186634

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc. 551 Lakeview Dr. El Dorado Hills CA 95762

PROJECT MANAGER: Andy Kopania PHONE #: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: Email results to: akopania@sbcglobal.net

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742

☐ OTHER

GEOTRACKER:

EDF REPORT ☐ YES ☒ NO

GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see List	General Minerals	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO
2-15-18	17:20	NBS-1600	W	1	1L amber	3						X	
	17:20			1	500mL poly	2	X						
	17:20			1	250mL poly	4			X				
	17:20			1	250mL amber	3							X
2-15-18	17:20			1	1L poly	3		X					
2-16-18	~~11:44~~ 12:38			4	40mL VOA	1				X			
2-16-18	~~11:44~~ 12:38			2	1L amber						X		

TURN AROUND TIME: 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☐

SPECIAL INSTRUCTIONS OR ALT. ID:

see Shellie for specific METALS to be analyzed

INVOICE TO:

PO. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2-16-18 1440 CONDITIONS / COMMENTS: 25

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

Gold-Project Mgr./Field Sampler/Terms and conditions

Pink - Origin/Terms and Conditions

Yellow - Lab file copy/Terms and Conditions

White - Lab/Terms and conditions

CLS LABS

SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # 13B0794

Problem discovered by: D **Date:** 2/16/13

Nature of problem

Sulfite **Chlorine, Total** **Chlorine, Residual** **Ph** **Dissolved O2**

BOD, 1ST, NO2, NO3, MBAS

(Circle analysis above) **Received out of HOLD time.**

Client contacted? Yes _____ **No** _____ **Spoke With:** _____

By whom: _____ **Date:** ___/___/___ **Time:** _____ **HRS**

Client instructions:

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

18B0794 cooler: NPDES #2

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 187399

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc
5511 Lakecrest Dr
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kopania PHONE #: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to:
akopania@sbcglobal.net

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Ammonia	BOD + TSS	Coliform 15T	Gross Alpha	Radium 226	Radium 228	Uranium
2-13-18	13:30	D-1	W	2	1L poly	2						X	
				1	120mL coliform	3			X				
				1	250mL poly	5	X						
				1	1L poly	2					X		
				1	1L poly	2							X
				1	1L poly	3				X			
				1	1L poly	3		X					
2-13-18	12:50	ED-1		3	1L poly	2					X	X	
				1	120mL coliform	3			X				
				1	1L poly	2							X
				1	1L poly	3				X			
				1	1L poly	3		X					
				1	250mL poly	5	X						

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2-16-18 1440 CONDITIONS / COMMENTS: 2-5

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

18B0794 Cooler: DRAIN 2

CLS - Labs

CHAIN OF CUSTODY

CLS ID No.: _____ LOG № 187398

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kapanin — PHONE#: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to:
akapanin@sbcglobal.net

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO	CONTAINER TYPE	PRESERVATIVES	Metals - see list	General Mineral	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO
2-13-18	13:30	D-1	W	1	250 mL amber	3							X
				4	VOA	1				X			
				1	1L poly	3		X					
				1	500 mL poly	2	X						
				1	250 mL poly	4			X				
				1	1L amber	3						X	
				2	1L amber	3					X		
2-13-18	12:50	ED-1		1	250 mL amber	3							X
				4	VOA	1				X			
				1	1L poly	3		X					
				1	500 mL poly	2	X						
				1	250 mL poly	4			X				
				3	1L amber	3					X	X	

TURN AROUND TIME				SPECIAL INSTRUCTIONS
1 DAY	2 DAY	3 DAY	5 DAY	OR
				ALT. ID:

See Shellie for specific METALS to be analyzed

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kapanin / Emko	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2-16-18 1440 CONDITIONS / COMMENTS: 2 S.

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White - Lab/Terms and conditions; Yellow - Lab file copy/Terms and Conditions; Pink - Origin/Terms and Conditions; Gold - Project Mgr./Field Sampler/Terms and conditions

1BB0794 COOLER: NPDES #1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 187401

REPORT TO:

NAME AND ADDRESS
EMKO Environmental, Inc
551 Lakecrest Dr
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kupania PHONE#: 916-718-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to:
akupania@sbcglobal.net

SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD
RANCHO CORDOVA, CA
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Ammonia	BOD + TSS	Coliform 1ST	Gross Alpha	Radium 226	Radium 228	Uranium
2-15-18	10:40	IND-1	W	4	1L poly	2					X	X	X
				2	1L poly	3		X		X			
				1	120mL coliform				X				
				1	250mL poly	5	X						
2-15-18	9:45	IND-2		4	1L poly	2					X	X	X
				2	1L poly	3		X		X			
				1	120mL coliform				X				
				1	250mL poly	5	X						
2-15-18	15:33	NBS-265		4	1L poly	2					X	X	X
	15:33			2	1L poly	3		X		X			
	13:40			1	120mL coliform				X				
	15:33			1	250mL poly	5	X						

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

PO. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kupania / EMKO	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2.16.18. 1440. CONDITIONS / COMMENTS: 2-5.

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

13B 0794 Cooler: DRAIN 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 187400

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc
551 Lakecrest Dr.
El Dorado Hills CA 95762
PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Rise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA
95742
☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see List	General Minerals	Cyanide + Amenable Cyan	VOC / TPHG	SVOC	PCB	TPHD +/or
2-15-18	10:40	IMD-1	W	4	40mL VOA	1				X			
				3	1L amber	3					X	X	
				1	250mL amber	3							X
				1	1L poly	3		X					
				1	500mL poly	2	X						
				1	250mL poly	4			X				
2-15-18	9:45	IMD-2		4	40mL VOA	1				X			
				3	1L amber	3					X	X	
				1	250mL amber	3							X
				1	1L poly	3		X					
				1	500mL poly	2	X						
				1	250mL poly	4			X				

ANALYSIS REQUESTED

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

see Shellie for Specific METALS to be analyzed

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18/14:35		

RECD AT LAB BY: DATE / TIME: 2-16-18 1440

CONDITIONS / COMMENTS: 25°

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow-Lab file copy/Terms and Conditions Pink-Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1BB0794 cc SHAFT 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186621

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc. 5371 Lakeview Dr. El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kepania PHONE #: 916-718-5371

PROJECT NAME: Rize

SAMPLED BY: AK

JOB DESCRIPTION: email results to: akepania@sbcglobal.net

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301 3249 FITZGERALD RD. RANCHO CORDOVA, CA. 95742

☐ OTHER

GEOTRACKER: EDF REPORT ☐ YES ☒ NO

GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see List	General Minerals	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
2-15-18	13:40	NBS-265	W	4	40mL VOA	1				X								See Shellie for specific METALS to be analyzed
	13:40			2	1L Amber	3					X							
	15:33			1	1L amber	3						X						
	13:40			1	250mL poly	4			X									
	13:40			1	500mL poly	2	X											
	13:40			1	250mL amber	3							X					
	15:33			1	1L poly	3		X										
	14:05	NBS-900		4	40mL VOA	1				X								
	14:05			3	1L Amber	3					X	X						INVOICE TO:
	16:00			1	1L poly	3		X										
	16:00			1	250mL amber	3							X					
	16:20			1	500mL poly	2	X											P.O. #
	16:00			1	250 mL poly	4			X									QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A Kepania / EMKO	2/16/18 14:35		

REC'D AT LAB BY: DATE / TIME 2/16/18 1440 CONDITIONS / COMMENTS: 2-5

SHIPPED BY: ☐ FEDEX ☐ UPS ☐ OTHER _____ AIR BILL #

White: Lab/Terms and conditions Yellow: Lab file copy/Terms and Conditions Pink: Origin/Terms and Conditions Gold: Project Mgr./Field Sampler/Terms and conditions

1BB0794 cooler: SHAFT 2

Labs

CHAIN OF CUSTODY

CLS ID No.: _____ LOG № 186636

REPORT TO:

NAME AND ADDRESS
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kapunia PHONE #: 916-716-5511

PROJECT NAME: Rise

SAMPLED BY: AK

JOB DESCRIPTION: email results to: akapunia@sbcglobal.net

SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Metals - see List	General Minerals	Cyanide + Amenable Cyan.	VOC / TPHG	SVOC	PCB	TPHD + MO
2-15-17	~~14:30~~ ~~TBD~~	NBS-1300	W	4	40mL VOA	1				X			
	14:30			2	1L Amber	3					X		
	16:35			1	1L Amber	3						X	
	16:35			1	1L poly	3		X					
	16:35			1	500mL poly	2	X						
	16:35			1	250mL poly	4			X				
	16:35			1	250mL amber	3							X
2-15-17	18:10	NBS-2300		1	1L amber	3						X	
				1	1L poly	3		X					
				1	500mL poly	2	X						
				1	250mL amber	3							X
				1	250mL poly	4			X				

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS

OR

ALT. ID:

see Shellit for specific METALS to be analyzed

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kapunia / EMKO	2/16/18 14:35		

RECD AT LAB BY: DATE / TIME: 2.16.18 1440 CONDITIONS / COMMENTS: 2.5

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow: Lab file copy/Terms and Conditions Pink: Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

1800714 cooler: SHAFT 2

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186635

REPORT TO:

NAME AND ADDRESS: Enko Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills CA 95762
PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Kise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES
2-15-18	18:10	NBS-2300	W	1	1L poly	2
				2	1L poly	2
				1	1L poly	2
				1	120 mL vial w/ HCl	
				1	250 mL poly	5
				1	1L poly	3
				1	1L poly	3

ANALYSIS REQUESTED: Ammonia; BOD + TSS; Coliform IDT; Gross Alpha; Radium 226; Radium 228; Uranium

TURN AROUND TIME: 1 DAY; 2 DAY; 3 DAY; 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A Kopania / Enko	2/16/18 14:35		

RECD AT LAB BY: DATE / TIME: 2/16/18 1440 CONDITIONS / COMMENTS: 2.6.

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White: Lab/Terms and conditions Yellow: Lab file copy/Terms and Conditions Pink: Origin/Terms and Conditions Gold: Project Mgr./Field Sampler/Terms and conditions

1BB0794 : Cooler: SHAFT 1

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: _____ LOG № 186634

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc.
551 Lakeview Dr.
El Dorado Hills CA 95762
PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511
PROJECT NAME: Rise
SAMPLED BY: AK
JOB DESCRIPTION: email results to:
akopania@sbcglobal.net
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Metals - see List; General Minerals; Cyanide + Amenable Cyan.; VOC / TPHG; SVOC; PCB; TPHD + MO

GEOTRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID: _____

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO	CONTAINER TYPE	PRESERVATIVES	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
2-15-18	17:20	NBS-1600	W	1	1L amber	3	PCB X	See Shellie for specific METALS to be analyzed
	17:20			1	500mL poly	2	Metals - see List X	
	17:20			1	125mL poly	4	Cyanide + Amenable Cyan. X	
	17:20			1	250mL amber	3	TPHD + MO X	
2-15-18	17:20			1	1L poly	3	General Minerals X	
2-16-18	~~11:44~~ 12:38			4	40mL VOA	1	VOC / TPHG X	
2-16-18	~~11:44~~ 12:38			2	1L amber		SVOC X	

INVOICE TO:
P.O. #
QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	A. Kopania / EMKO	2/16/18 14:35		

RECD AT LAB BY: _____ DATE / TIME: 2-16-18 1440 CONDITIONS / COMMENTS: 25

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

White-Lab/Terms and conditions Yellow-Lab file copy/Terms and Conditions Pink-Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

CLS LABS

SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # 13B0794

Problem discovered by: D **Date:** 2/16/13

Nature of problem

Sulfite **Chlorine, Total** **Chlorine, Residual** **Ph** **Dissolved O2**

BOD, TST, NO2, NO3, MBAS

(Circle analysis above) **Received out of HOLD time.**

Client contacted? Yes _____ **No** _____ **Spoke With:** _____

By whom: _____ **Date:** ___/___/___ **Time:** _____ **HRS**

Client instructions:

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Rise
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Ammonia as N	ND	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	
Bicarbonate as CaCO3	**210**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	ND	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	HT-1
Calcium	**12**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.9**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**220**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**46**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	HT-1
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	HT-1
Nitrite as N	ND	0.40	"	"	"	"	"	"	HT-1, QC-2H
pH	**7.70**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	ND	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**2.7**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**420**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	**13**	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**210**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**210**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	ND	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Ammonia as N	**50**	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	J
Bicarbonate as CaCO3	**220**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	**8.0**	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	HT-1
Calcium	**47**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Rise
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Chloride	**2.4**	0.50	mg/L	1	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**210**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**22**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	HT-1
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	HT-1
Nitrite as N	ND	0.40	"	"	"	"	"	"	HT-1, QC-2H
pH	**7.09**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**2.4**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**13**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**420**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	ND	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**220**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**230**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	**11**	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Ammonia as N	ND	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	
Bicarbonate as CaCO3	**220**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	**15**	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	
Calcium	**47**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.3**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**200**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Magnesium	**20**	1.0	mg/L	1	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.25**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**2.3**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**13**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**410**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	**0.55**	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**220**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**220**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	ND	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Ammonia as N	**240**	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	
Bicarbonate as CaCO3	**220**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	**20**	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	
Calcium	**48**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.5**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**210**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**21**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.09**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**2.5**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Sodium	**13**	1.0	mg/L	1	1801462	"	02/21/18	200.7/2340B	
Specific Conductance (EC)	**410**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	**0.83**	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**220**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**230**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	**180**	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Ammonia as N	ND	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	
Bicarbonate as CaCO3	**190**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	**6.6**	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	
Calcium	**53**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**190**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**14**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.22**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**1.7**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**7.7**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**360**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	**0.62**	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**190**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**210**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	ND	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Bicarbonate as CaCO3	**200**	5.0	mg/L	1	1801442	02/19/18	02/19/18	SM2320B	
Calcium	**53**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**190**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**14**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.25**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**1.6**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**7.5**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**360**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	ND	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**200**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**200**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Bicarbonate as CaCO3	**190**	5.0	mg/L	1	1801442	02/19/18	02/19/18	SM2320B	
Calcium	**54**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**190**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Magnesium	**14**	1.0	mg/L	1	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.27**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**1.7**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**7.7**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**370**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	ND	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**190**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**220**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Ammonia as N	**66**	100	µg/L	1	1801538	02/22/18	02/22/18	SM4500-NH4 C	J
Bicarbonate as CaCO3	**180**	5.0	mg/L	"	1801442	02/19/18	02/19/18	SM2320B	
Biochemical Oxygen Demand	**8.3**	3.0	"	"	1801382	02/16/18	02/21/18	SM5210B	
Calcium	**55**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**200**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**14**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.26**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**1.7**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**7.9**	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Specific Conductance (EC)	**360**	1.0	µmhos/cm	1	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	ND	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**180**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**200**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	
Total Suspended Solids	ND	5.0	"	"	1801457	02/20/18	02/20/18	SM2540D	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Bicarbonate as CaCO3	**200**	5.0	mg/L	1	1801442	02/19/18	02/19/18	SM2320B	
Calcium	**52**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Cyanide (amenable)	ND	0.010	"	"	1801549	02/22/18	02/22/18	SM4500-CN G	
Cyanide (total)	ND	0.0050	"	"	"	"	"	SM4500-CN E	
Fluoride	ND	0.10	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Hardness as CaCO3	**190**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Magnesium	**14**	1.0	"	"	1801462	02/20/18	02/21/18	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1801406	02/16/18	02/16/18	SM5540 C	
Nitrate as N	ND	0.40	"	"	1801394	02/16/18	02/16/18	EPA 300.0	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.27**	0.01	pH Units	"	1801375	02/16/18	02/16/18	SM4500-H B	HT-F
Potassium	**1.6**	1.0	mg/L	"	1801462	02/20/18	02/21/18	200.7/2340B	
Sodium	**7.4**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**360**	1.0	µmhos/cm	"	1801426	02/19/18	02/19/18	EPA 120.1	
Sulfate as SO4	ND	0.50	mg/L	"	1801394	02/16/18	02/16/18	EPA 300.0	
Total Alkalinity	**200**	5.0	"	"	1801442	02/19/18	02/19/18	SM2320B	
Total Dissolved Solids	**200**	10	"	"	1801423	02/19/18	02/20/18	SM2540C	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Extractable Petroleum Hydrocarbons by EPA Method 8015M

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*102 %*	*65-135*		"	"	"	"	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*94 %*	*65-135*		"	"	"	"	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*103 %*	*65-135*		"	"	"	"	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*102 %*	*65-135*		"	"	"	"	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	**0.83**	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*113 %*	*65-135*		"	"	"	"	
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Extractable Petroleum Hydrocarbons by EPA Method 8015M

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Surrogate: o-Terphenyl		*102 %*	*65-135*		*1801431*	"	*02/20/18*	*EPA 8015M*	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*100 %*	*65-135*		"	"	"	"	
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*102 %*	*65-135*		"	"	"	"	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Diesel	ND	0.050	mg/L	1	1801431	02/19/18	02/20/18	EPA 8015M	
Motor Oil	ND	0.050	"	"	"	"	"	"	
Surrogate: o-Terphenyl		*92 %*	*65-135*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	**6.6**	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	ND	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	ND	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	**24**	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Aluminum	**290**	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	**59**	2.0	"	"	"	"	"	"	
Barium	**130**	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	**140**	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Iron	**4800**	100	µg/L	1	1801462	"	02/21/18	EPA 200.7	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**310**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	**94**	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	**41**	2.0	"	"	"	"	"	"	
Barium	**130**	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	**140**	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**2200**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**200**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Vanadium	ND	3.0	µg/L	1	1801506	"	02/22/18	EPA 200.8	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	**37**	2.0	"	"	"	"	"	"	
Barium	**130**	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	**140**	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1600**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**210**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	**1.7**	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1600**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**270**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	**66**	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Iron	**1600**	100	µg/L	1	1801462	"	02/21/18	EPA 200.7	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**230**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1600**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**230**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Vanadium	ND	3.0	µg/L	1	1801506	"	02/22/18	EPA 200.8	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1600**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**240**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Aluminum	ND	50	µg/L	1	1801462	02/20/18	02/21/18	EPA 200.7	
Antimony	ND	4.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Chromium	ND	10	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1600**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Manganese	**230**	20	"	"	1801462	02/20/18	02/21/18	EPA 200.7	
Mercury	ND	1.0	"	"	1801473	02/20/18	02/20/18	EPA 245.1	
Molybdenum	ND	2.0	"	"	1801506	02/21/18	02/22/18	EPA 200.8	
Nickel	ND	10	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	10	"	"	"	"	"	"	
Thallium	ND	1.0	"	"	"	"	"	"	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1801462	02/20/18	02/21/18	EPA 200.7	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Microbiological Parameters by APHA Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
E. Coli	<1.8	1.8	MPN/100 mL	1	1801404	02/16/18	02/19/18	SM 9221	HT-1
Fecal Coliforms	<1.8	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	**>1600**	1.8	"	"	"	"	"	"	HT-1
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
E. Coli	<1.8	1.8	MPN/100 mL	1	1801404	02/16/18	02/20/18	SM 9221	HT-1
Fecal Coliforms	<1.8	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	**140**	1.8	"	"	"	"	"	"	HT-1
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
E. Coli	<1.8	1.8	MPN/100 mL	1	1801404	02/16/18	02/20/18	SM 9221	HT-1
Fecal Coliforms	<1.8	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	**2.0**	1.8	"	"	"	"	"	"	HT-1
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
E. Coli	**2.0**	1.8	MPN/100 mL	1	1801404	02/16/18	02/20/18	SM 9221	HT-1
Fecal Coliforms	**2.0**	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	**17**	1.8	"	"	"	"	"	"	HT-1
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
E. Coli	ND	1.8	MPN/100 mL	1	1801404	02/16/18	02/20/18	SM 9221	HT-1
Fecal Coliforms	ND	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	**2.0**	1.8	"	"	"	"	"	"	HT-1
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
E. Coli	<1.8	1.8	MPN/100 mL	1	1801404	02/16/18	02/20/18	SM 9221	HT-1
Fecal Coliforms	<1.8	1.8	"	"	"	"	"	"	HT-1
Total Coliforms	<1.8	1.8	"	"	"	"	"	"	HT-1

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
Aroclor 1268	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*82 %*	*50-150*		"	"	"	"	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
Aroclor 1268	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*92 %*	*50-150*		"	"	"	"	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Aroclor 1268	ND	0.50	µg/L	1	1801416	"	02/20/18	EPA 8082A	
Surrogate: Decachlorobiphenyl		*96 %*	*50-150*		"	"	"	"	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
Aroclor 1268	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*73 %*	*50-150*		"	"	"	"	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
Aroclor 1268	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*58 %*	*50-150*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.59	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.59	"	"	"	"	"	"	
Aroclor 1232	ND	0.59	"	"	"	"	"	"	
Aroclor 1242	ND	0.59	"	"	"	"	"	"	
Aroclor 1248	ND	0.59	"	"	"	"	"	"	
Aroclor 1254	ND	0.59	"	"	"	"	"	"	
Aroclor 1260	ND	0.59	"	"	"	"	"	"	
Aroclor 1268	ND	0.59	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*59 %*	*50-150*		"	"	"	"	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.59	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.59	"	"	"	"	"	"	
Aroclor 1232	ND	0.59	"	"	"	"	"	"	
Aroclor 1242	ND	0.59	"	"	"	"	"	"	
Aroclor 1248	ND	0.59	"	"	"	"	"	"	
Aroclor 1254	ND	0.59	"	"	"	"	"	"	
Aroclor 1260	ND	0.59	"	"	"	"	"	"	
Aroclor 1268	ND	0.59	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*69 %*	*50-150*		"	"	"	"	
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Polychlorinated Biphenyls by EPA Method 8082A

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-2300 (18B0794-08) Water Sampled: 02/15/18 18:10 Received: 02/16/18 14:40									
Aroclor 1268	ND	0.50	µg/L	1	1801416	"	02/20/18	EPA 8082A	
Surrogate: Decachlorobiphenyl		*96 %*	*50-150*		"	"	"	"	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Aroclor 1016	ND	0.50	µg/L	1	1801416	02/19/18	02/20/18	EPA 8082A	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
Aroclor 1268	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*86 %*	*50-150*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									**A-COM**
Benzo (a) pyrene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									**A-COM**
Phenanthrene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*90 %*		*10-123*		"	"	"	
Surrogate: 2-Fluorobiphenyl		*87 %*		*43-116*		"	"	"	
Surrogate: 2-Fluorophenol		*65 %*		*21-110*		"	"	"	
Surrogate: Nitrobenzene-d5		*91 %*		*35-114*		"	"	"	
Surrogate: Phenol-d6		*48 %*		*10-110*		"	"	"	
Surrogate: Terphenyl-dl4		*92 %*		*33-141*		"	"	"	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									**A-COM**
3-Nitroaniline	ND	25	µg/L	1	1801413	"	02/20/18	EPA 8270C	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									**A-COM**
Fluorene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*88 %*	*10-123*		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*87 %*	*43-116*		"	"	"	"	
Surrogate: 2-Fluorophenol		*50 %*	*21-110*		"	"	"	"	
Surrogate: Nitrobenzene-d5		*91 %*	*35-114*		"	"	"	"	
Surrogate: Phenol-d6		*37 %*	*10-110*		"	"	"	"	
Surrogate: Terphenyl-dl4		*89 %*	*33-141*		"	"	"	"	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									**A-COM**
2,4-Dimethylphenol	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									**A-COM**
Bis(2-chloroethyl)ether	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*76 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*72 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*41 %*		*21-110*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									**A-COM**
Surrogate: Nitrobenzene-d5		*72 %*		*35-114*	*1801413*	"	*02/20/18*	*EPA 8270C*	
Surrogate: Phenol-d6		*29 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*67 %*		*33-141*	"	"	"	"	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									**A-COM**
4-Nitrophenol	ND	25	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									**A-COM**
Naphthalene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*83 %*	*10-123*		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*73 %*	*43-116*		"	"	"	"	
Surrogate: 2-Fluorophenol		*53 %*	*21-110*		"	"	"	"	
Surrogate: Nitrobenzene-d5		*79 %*	*35-114*		"	"	"	"	
Surrogate: Phenol-d6		*40 %*	*10-110*		"	"	"	"	
Surrogate: Terphenyl-dl4		*61 %*	*33-141*		"	"	"	"	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									**A-COM**
2-Methylphenol	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									**A-COM**
Diethyl phthalate	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*88 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*81 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*46 %*		*21-110*	"	"	"	"	
Surrogate: Nitrobenzene-d5		*84 %*		*35-114*	"	"	"	"	
Surrogate: Phenol-d6		*34 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*87 %*		*33-141*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									**A-COM**
Benzo (a) pyrene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									**A-COM**
Phenanthrene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*83 %*		*10-123*		"	"	"	
Surrogate: 2-Fluorobiphenyl		*80 %*		*43-116*		"	"	"	
Surrogate: 2-Fluorophenol		*41 %*		*21-110*		"	"	"	
Surrogate: Nitrobenzene-d5		*78 %*		*35-114*		"	"	"	
Surrogate: Phenol-d6		*31 %*		*10-110*		"	"	"	
Surrogate: Terphenyl-dl4		*84 %*		*33-141*		"	"	"	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									**A-COM**
3-Nitroaniline	ND	25	µg/L	1	1801413	"	02/20/18	EPA 8270C	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									**A-COM**
Fluorene	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*82 %*	*10-123*		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*80 %*	*43-116*		"	"	"	"	
Surrogate: 2-Fluorophenol		*41 %*	*21-110*		"	"	"	"	
Surrogate: Nitrobenzene-d5		*80 %*	*35-114*		"	"	"	"	
Surrogate: Phenol-d6		*30 %*	*10-110*		"	"	"	"	
Surrogate: Terphenyl-dl4		*84 %*	*33-141*		"	"	"	"	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									**A-COM**
1,2,4-Trichlorobenzene	ND	10	µg/L	1	1801413	02/19/18	02/20/18	EPA 8270C	
1,2-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									**A-COM**
2,4-Dimethylphenol	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
2,4-Dinitrophenol	ND	25	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	10	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10	"	"	"	"	"	"	
2-Methylphenol	ND	10	"	"	"	"	"	"	
2-Nitroaniline	ND	25	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	20	"	"	"	"	"	"	
3-Nitroaniline	ND	25	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	25	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10	"	"	"	"	"	"	
4-Chloroaniline	ND	10	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10	"	"	"	"	"	"	
4-Nitroaniline	ND	25	"	"	"	"	"	"	
4-Nitrophenol	ND	25	"	"	"	"	"	"	
Acenaphthene	ND	10	"	"	"	"	"	"	
Acenaphthylene	ND	10	"	"	"	"	"	"	
Anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	10	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10	"	"	"	"	"	"	
Benzoic acid	ND	25	"	"	"	"	"	"	
Benzyl alcohol	ND	10	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									**A-COM**
Bis(2-chloroethyl)ether	ND	10	µg/L	1	1801413	"	02/20/18	EPA 8270C	
Bis(2-chloroisopropyl)ether	ND	10	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Chrysene	ND	10	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10	"	"	"	"	"	"	
Dibenzofuran	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	10	"	"	"	"	"	"	
Dimethyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Fluoranthene	ND	10	"	"	"	"	"	"	
Fluorene	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10	"	"	"	"	"	"	
Hexachloroethane	ND	10	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10	"	"	"	"	"	"	
Isophorone	ND	10	"	"	"	"	"	"	
Naphthalene	ND	10	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	10	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10	"	"	"	"	"	"	
Pentachlorophenol	ND	25	"	"	"	"	"	"	
Phenanthrene	ND	10	"	"	"	"	"	"	
Phenol	ND	10	"	"	"	"	"	"	
Pyrene	ND	10	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*69 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*83 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*38 %*		*21-110*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									**A-COM**
Surrogate: Nitrobenzene-d5		*82 %*		*35-114*	*1801413*	"	*02/20/18*	*EPA 8270C*	
Surrogate: Phenol-d6		*30 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*83 %*		*33-141*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

TPH-Gasoline by GC FID

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*78 %*	*65-135*		"	"	"	"	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*74 %*	*65-135*		"	"	"	"	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*78 %*	*65-135*		"	"	"	"	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*72 %*	*65-135*		"	"	"	"	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*76 %*	*65-135*		"	"	"	"	
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*76 %*	*65-135*		"	"	"	"	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

TPH-Gasoline by GC FID

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Surrogate: o-Chlorotoluene (Gas)		*75 %*	*65-135*		*1801449*	"	*02/19/18*	*EPA 8015M*	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Gasoline	ND	50	µg/L	1	1801449	02/19/18	02/19/18	EPA 8015M	
Surrogate: o-Chlorotoluene (Gas)		*77 %*	*65-135*		*"*	"	*"*	*"*	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/20/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Bromoform	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
D-1 (18B0794-01) Water Sampled: 02/13/18 13:30 Received: 02/16/18 14:40									
Toluene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*123 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*91 %*		*72-125*	"	"	"	"	
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/20/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
1,3-Dichlorobenzene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ED-1 (18B0794-02) Water Sampled: 02/13/18 12:50 Received: 02/16/18 14:40									
Naphthalene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*128 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*92 %*		*72-125*	"	"	"	"	
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/20/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
1,1-Dichloroethene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
cis-1,2-Dichloroethene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-1 (18B0794-03) Water Sampled: 02/15/18 10:40 Received: 02/16/18 14:40									
Surrogate: 1,2-Dichloroethane-d4		*130 %*		*66-135*	*1801495*	"	*02/20/18*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*106 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*91 %*		*72-125*	"	"	"	"	
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/20/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
Benzene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
IMD-2 (18B0794-04) Water Sampled: 02/15/18 09:45 Received: 02/16/18 14:40									
tert-Amyl methyl ether	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	**1.1**	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*135 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*91 %*		*72-125*	"	"	"	"	
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/20/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
1,2-Dichlorobenzene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**2.4**	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-265 (18B0794-05) Water Sampled: 02/15/18 15:33 Received: 02/16/18 14:40									
Hexachlorobutadiene	ND	0.50	µg/L	1	1801495	"	02/20/18	EPA 8260B	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*131 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*90 %*		*72-125*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/21/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Bromoform	ND	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**1.8**	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-900 (18B0794-06) Water Sampled: 02/15/18 14:05 Received: 02/16/18 14:40									
Toluene	ND	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*129 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*93 %*		*72-125*	"	"	"	"	
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/21/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
1,3-Dichlorobenzene	ND	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**2.4**	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1300 (18B0794-07) Water Sampled: 02/15/18 14:30 Received: 02/16/18 14:40									
Naphthalene	ND	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*130 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*115 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*88 %*		*72-125*	"	"	"	"	
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	1801495	02/20/18	02/21/18	EPA 8260B	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
1,1-Dichloroethene	ND	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
1,1-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
2-Butanone	ND	10	"	"	"	"	"	"	
2-Hexanone	ND	10	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10	"	"	"	"	"	"	
Acetone	ND	10	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromobenzene	ND	0.50	"	"	"	"	"	"	
Bromochloromethane	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
cis-1,2-Dichloroethene	**3.1**	0.50	µg/L	1	1801495	"	02/21/18	EPA 8260B	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Dibromomethane	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane (Freon 12)	ND	1.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Hexachlorobutadiene	ND	0.50	"	"	"	"	"	"	
Isopropylbenzene	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
Naphthalene	ND	0.50	"	"	"	"	"	"	
n-Butylbenzene	ND	0.50	"	"	"	"	"	"	
n-Propylbenzene	ND	0.50	"	"	"	"	"	"	
o-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Chlorotoluene	ND	0.50	"	"	"	"	"	"	
p-Isopropyltoluene	ND	0.50	"	"	"	"	"	"	
sec-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
tert-Butyl alcohol	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Trichloroethene	ND	0.50	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-1600 (18B0794-09) Water Sampled: 02/15/18 17:20 Received: 02/16/18 14:40									
Surrogate: 1,2-Dichloroethane-d4		*128 %*		*66-135*	*1801495*	"	*02/21/18*	*EPA 8260B*	
Surrogate: 4-Bromofluorobenzene		*109 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*91 %*		*72-125*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801382 - General										
Blank (1801382-BLK1)				Prepared: 02/16/18 Analyzed: 02/21/18						
Biochemical Oxygen Demand	ND	3.0	mg/L							
LCS (1801382-BS1)				Prepared: 02/16/18 Analyzed: 02/21/18						
Biochemical Oxygen Demand	186	3.0	mg/L	167		112	83-138			
LCS Dup (1801382-BSD1)				Prepared: 02/16/18 Analyzed: 02/21/18						
Biochemical Oxygen Demand	189	3.0	mg/L	167		113	83-138	2	21	
Batch 1801394 - General Prep										
Blank (1801394-BLK1)				Prepared & Analyzed: 02/16/18						
Fluoride	ND	0.10	mg/L							
Sulfate as SO4	ND	0.50	"							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
Nitrite as N	ND	0.40	"							
LCS (1801394-BS1)				Prepared & Analyzed: 02/16/18						
Fluoride	2.20	0.10	mg/L	2.00		110	80-120			
Chloride	5.02	0.50	"	5.00		100	80-120			
Sulfate as SO4	4.97	0.50	"	5.00		99	80-120			
Nitrite as N	2.38	0.40	"	2.00		119	80-120			
Nitrate as N	2.01	0.40	"	2.00		100	80-120			
LCS Dup (1801394-BSD1)				Prepared & Analyzed: 02/16/18						
Chloride	4.96	0.50	mg/L	5.00		99	80-120	1	20	
Sulfate as SO4	4.97	0.50	"	5.00		99	80-120	0.03	20	
Fluoride	2.20	0.10	"	2.00		110	80-120	0.08	20	
Nitrate as N	2.01	0.40	"	2.00		100	80-120	0.04	20	
Nitrite as N	2.37	0.40	"	2.00		119	80-120	0.2	20	

EMKO Environmental, Inc.	Project:	Rise
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801394 - General Prep										
Matrix Spike (1801394-MS1)	**Source: 18B0794-01**			Prepared & Analyzed: 02/16/18						
Fluoride	2.05	0.10	mg/L	2.00	0.0412	101	80-120			
Chloride	7.88	0.50	"	5.00	2.93	99	80-120			
Sulfate as SO4	17.7	0.50	"	5.00	12.7	101	80-120			
Nitrate as N	2.31	0.40	"	2.00	0.319	100	80-120			
Nitrite as N	2.27	0.40	"	2.00	ND	113	80-120			
Matrix Spike Dup (1801394-MSD1)	**Source: 18B0794-01**			Prepared & Analyzed: 02/16/18						
Chloride	8.00	0.50	mg/L	5.00	2.93	101	80-120	2	20	
Fluoride	2.11	0.10	"	2.00	0.0412	103	80-120	3	20	
Sulfate as SO4	17.8	0.50	"	5.00	12.7	103	80-120	0.6	20	
Nitrite as N	2.33	0.40	"	2.00	ND	117	80-120	3	20	
Nitrate as N	2.36	0.40	"	2.00	0.319	102	80-120	2	20	
Batch 1801406 - General Preparation										
Blank (1801406-BLK1)				Prepared & Analyzed: 02/16/18						
MBAS as LAS, mol wt 340	ND	0.10	mg/L							
LCS (1801406-BS1)				Prepared & Analyzed: 02/16/18						
MBAS as LAS, mol wt 340	0.480	0.10	mg/L	0.500		96	80-120			
LCS Dup (1801406-BSD1)				Prepared & Analyzed: 02/16/18						
MBAS as LAS, mol wt 340	0.510	0.10	mg/L	0.500		102	80-120	6	20	
Matrix Spike (1801406-MS1)	**Source: 18B0794-01**			Prepared & Analyzed: 02/16/18						
MBAS as LAS, mol wt 340	0.406	0.10	mg/L	0.500	ND	81	75-125			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801406 - General Preparation										
Matrix Spike Dup (1801406-MSD1)		**Source: 18B0794-01**		Prepared & Analyzed: 02/16/18						
MBAS as LAS, mol wt 340	0.392	0.10	mg/L	0.500	ND	78	75-125	4	25	
Batch 1801423 - General Preparation										
Blank (1801423-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Total Dissolved Solids	ND	10	mg/L							
Duplicate (1801423-DUP1)		**Source: 18B0794-01**		Prepared: 02/19/18 Analyzed: 02/20/18						
Total Dissolved Solids	207	10	mg/L		210			1	20	
Batch 1801426 - General Preparation										
Blank (1801426-BLK1)				Prepared & Analyzed: 02/19/18						
Specific Conductance (EC)	ND	1.0	µmhos/cm							
Batch 1801442 - General Preparation										
Blank (1801442-BLK1)				Prepared & Analyzed: 02/19/18						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Blank (1801442-BLK2)				Prepared & Analyzed: 02/19/18						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801442 - General Preparation										
Duplicate (1801442-DUP1)		**Source: 18B0714-01**		Prepared & Analyzed: 02/19/18						
Total Alkalinity	73.0	5.0	mg/L		72.0			1	20	
Bicarbonate as CaCO3	73.0	5.0	"		72.0			1	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	
Duplicate (1801442-DUP2)		**Source: 18B0802-01**		Prepared & Analyzed: 02/19/18						
Total Alkalinity	17.8	5.0	mg/L		18.8			5	20	
Bicarbonate as CaCO3	17.8	5.0	"		18.8			5	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	
Batch 1801457 - General Preparation										
Blank (1801457-BLK1)				Prepared & Analyzed: 02/20/18						
Total Suspended Solids	ND	5.0	mg/L							
Duplicate (1801457-DUP1)		**Source: 18B0794-01**		Prepared & Analyzed: 02/20/18						
Total Suspended Solids	ND	5.0	mg/L		ND				20	
Batch 1801462 - EPA 200 Series										
Blank (1801462-BLK1)				Prepared: 02/20/18 Analyzed: 02/21/18						
Calcium	ND	1.0	mg/L							
Hardness as CaCO3	ND	1.0	"							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							

EMKO Environmental, Inc.	Project:	Rise
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801462 - EPA 200 Series										
LCS (1801462-BS1)				Prepared: 02/20/18 Analyzed: 02/21/18						
Calcium	4.81	1.0	mg/L	5.00		96	85-115			
Magnesium	4.86	1.0	"	5.00		97	85-115			
Potassium	5.25	1.0	"	5.00		105	85-115			
Sodium	5.02	1.0	"	5.00		100	85-115			
Matrix Spike (1801462-MS1)		**Source: 18B0794-01**		Prepared: 02/20/18 Analyzed: 02/21/18						
Calcium	17.6	1.0	mg/L	5.00	12.3	106	70-130			
Magnesium	50.5	1.0	"	5.00	46.4	82	70-130			
Potassium	5.98	1.0	"	5.00	ND	120	70-130			
Sodium	7.97	1.0	"	5.00	2.67	106	70-130			
Matrix Spike (1801462-MS2)		**Source: 18B0840-02**		Prepared: 02/20/18 Analyzed: 02/21/18						
Calcium	32.6	1.0	mg/L	5.00	31.4	23	70-130			QM-4X
Magnesium	34.0	1.0	"	5.00	34.0	1	70-130			QM-4X
Potassium	7.75	1.0	"	5.00	3.09	93	70-130			
Sodium	241	1.0	"	5.00	254	NR	70-130			QM-4X
Batch 1801538 - General Preparation										
Blank (1801538-BLK1)				Prepared & Analyzed: 02/22/18						
Ammonia as N	ND	100	µg/L							
LCS (1801538-BS1)				Prepared & Analyzed: 02/22/18						
Ammonia as N	429	100	µg/L	500		86	80-120			
LCS Dup (1801538-BSD1)				Prepared & Analyzed: 02/22/18						
Ammonia as N	450	100	µg/L	500		90	80-120	5	25	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Rise
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801538 - General Preparation										
Matrix Spike (1801538-MS1)		**Source: 18B0752-05**		Prepared & Analyzed: 02/22/18						
Ammonia as N	576	100	µg/L	500	66.0	102	75-125			
Matrix Spike Dup (1801538-MSD1)		**Source: 18B0752-05**		Prepared & Analyzed: 02/22/18						
Ammonia as N	528	100	µg/L	500	66.0	92	75-125	9	25	
Batch 1801549 - General Preparation										
Blank (1801549-BLK1)				Prepared & Analyzed: 02/22/18						
Cyanide (amenable)	ND	0.010	mg/L							
Cyanide (total)	ND	0.0050	"							
LCS (1801549-BS1)				Prepared & Analyzed: 02/22/18						
Cyanide (amenable)	0.0903	0.010	mg/L	0.100		90	75-125			
Cyanide (total)	0.0903	0.0050	"	0.100		90	75-125			
LCS Dup (1801549-BSD1)				Prepared & Analyzed: 02/22/18						
Cyanide (total)	0.0918	0.0050	mg/L	0.100		92	75-125	2	25	
Cyanide (amenable)	0.0918	0.010	"	0.100		92	75-125	2	25	
Matrix Spike (1801549-MS1)		**Source: 18B0849-01**		Prepared & Analyzed: 02/22/18						
Cyanide (total)	0.0808	0.0050	mg/L	0.100	0.00210	79	75-125			
Cyanide (amenable)	0.0808	0.010	"	0.100	0.00210	79	75-125			
Matrix Spike Dup (1801549-MSD1)		**Source: 18B0849-01**		Prepared & Analyzed: 02/22/18						
Cyanide (total)	0.0827	0.0050	mg/L	0.100	0.00210	81	75-125	2	25	
Cyanide (amenable)	0.0827	0.010	"	0.100	0.00210	81	75-125	2	25	

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Extractable Petroleum Hydrocarbons by EPA Method 8015M - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801431 - EPA 3510B GCNV										
Blank (1801431-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Diesel	ND	0.050	mg/L							
Motor Oil	ND	0.050	"							
Surrogate: o-Terphenyl	*0.0249*		*"*	*0.0250*		*99*	*65-135*			
LCS (1801431-BS1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Diesel	2.48	0.050	mg/L	2.50		99	65-135			
Surrogate: o-Terphenyl	*0.0265*		*"*	*0.0250*		*106*	*65-135*			
LCS Dup (1801431-BSD1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Diesel	2.19	0.050	mg/L	2.50		88	65-135	12	30	
Surrogate: o-Terphenyl	*0.0257*		*"*	*0.0250*		*103*	*65-135*			
Matrix Spike (1801431-MS1)		**Source: 18B0742-01**		Prepared: 02/19/18 Analyzed: 02/20/18						
Diesel	2.57	0.050	mg/L	2.50	ND	103	46-137			
Surrogate: o-Terphenyl	*0.0266*		*"*	*0.0250*		*107*	*65-135*			
Matrix Spike Dup (1801431-MSD1)		**Source: 18B0742-01**		Prepared: 02/19/18 Analyzed: 02/20/18						
Diesel	2.67	0.050	mg/L	2.50	ND	107	46-137	4	30	
Surrogate: o-Terphenyl	*0.0276*		*"*	*0.0250*		*110*	*65-135*			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801462 - EPA 200 Series										
Blank (1801462-BLK1)				Prepared: 02/20/18 Analyzed: 02/21/18						
Aluminum	ND	50	µg/L							
Barium	ND	100	"							
Boron	ND	100	"							
Beryllium	ND	1.0	"							
Chromium	ND	10	"							
Copper	ND	50	"							
Iron	ND	100	"							
Manganese	ND	20	"							
Zinc	ND	50	"							
LCS (1801462-BS1)				Prepared: 02/20/18 Analyzed: 02/21/18						
Aluminum	5440	50	µg/L	5000		109	85-115			
Barium	1060	100	"	1000		106	85-115			
Boron	1100	100	"	1000		110	85-115			
Beryllium	1060	1.0	"	1000		106	85-115			
Chromium	1010	10	"	1000		101	85-115			
Copper	999	50	"	1000		100	85-115			
Iron	1160	100	"	1000		116	85-115			QM-1
Manganese	1070	20	"	1000		107	85-115			
Zinc	1080	50	"	1000		108	85-115			
Matrix Spike (1801462-MS1)	**Source: 18B0794-01**			Prepared: 02/20/18 Analyzed: 02/21/18						
Aluminum	5820	50	µg/L	5000	ND	116	70-130			
Barium	1080	100	"	1000	6.72	107	70-130			
Boron	1210	100	"	1000	24.8	119	70-130			
Beryllium	1140	1.0	"	1000	ND	114	70-130			
Chromium	1020	10	"	1000	ND	102	70-130			
Copper	1040	50	"	1000	ND	104	70-130			
Iron	1130	100	"	1000	43.2	109	70-130			
Manganese	1100	20	"	1000	7.54	109	70-130			
Zinc	1170	50	"	1000	10.1	116	70-130			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801462 - EPA 200 Series										
Matrix Spike (1801462-MS2)	**Source: 18B0840-02**			Prepared: 02/20/18 Analyzed: 02/21/18						
Aluminum	5100	50	µg/L	5000	ND	102	70-130			
Barium	983	100	"	1000	58.1	92	70-130			
Boron	3140	100	"	1000	2320	82	70-130			
Beryllium	1000	1.0	"	1000	ND	100	70-130			
Chromium	903	10	"	1000	ND	90	70-130			
Copper	947	50	"	1000	ND	95	70-130			
Iron	1090	100	"	1000	28.4	106	70-130			
Manganese	991	20	"	1000	173	82	70-130			
Zinc	1060	50	"	1000	ND	106	70-130			
Batch 1801473 - EPA 7470A										
Blank (1801473-BLK1)				Prepared & Analyzed: 02/20/18						
Mercury	ND	1.0	µg/L							
LCS (1801473-BS1)				Prepared & Analyzed: 02/20/18						
Mercury	4.85	1.0	µg/L	5.00		97	85-115			
Matrix Spike (1801473-MS1)	**Source: 18B0742-01**			Prepared & Analyzed: 02/20/18						
Mercury	2.77	1.0	µg/L	5.00	ND	55	70-130			QM-5
Matrix Spike (1801473-MS2)	**Source: 18B0797-01**			Prepared & Analyzed: 02/20/18						
Mercury	4.75	1.0	µg/L	5.00	ND	95	70-130			
Matrix Spike Dup (1801473-MSD1)	**Source: 18B0742-01**			Prepared & Analyzed: 02/20/18						
Mercury	2.60	1.0	µg/L	5.00	ND	52	70-130	7	25	QM-5

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801506 - EPA 200 Series										
Blank (1801506-BLK1)				Prepared: 02/21/18 Analyzed: 02/22/18						
Molybdenum	ND	2.0	µg/L							
Antimony	ND	4.0	"							
Arsenic	ND	2.0	"							
Cadmium	ND	1.0	"							
Lead	ND	5.0	"							
Nickel	ND	10	"							
Selenium	ND	5.0	"							
Silver	ND	10	"							
Vanadium	ND	3.0	"							
Thallium	ND	1.0	"							
LCS (1801506-BS1)				Prepared: 02/21/18 Analyzed: 02/22/18						
Molybdenum	204	2.0	µg/L	200		102	85-115			
Antimony	200	4.0	"	200		100	85-115			
Arsenic	200	2.0	"	200		100	85-115			
Cadmium	202	1.0	"	200		101	85-115			
Lead	200	5.0	"	200		100	85-115			
Nickel	199	10	"	200		100	85-115			
Selenium	203	5.0	"	200		102	85-115			
Silver	201	10	"	200		101	85-115			
Vanadium	195	3.0	"	200		97	85-115			
Thallium	202	1.0	"	200		101	85-115			
Matrix Spike (1801506-MS1)	**Source: 18B0797-01**			Prepared: 02/21/18 Analyzed: 02/22/18						
Molybdenum	192	2.0	µg/L	200	1.52	95	70-130			
Antimony	184	4.0	"	200	1.14	91	70-130			
Arsenic	188	2.0	"	200	2.46	93	70-130			
Cadmium	186	1.0	"	200	ND	93	70-130			
Lead	188	5.0	"	200	ND	94	70-130			
Nickel	183	10	"	200	6.69	88	70-130			
Selenium	189	5.0	"	200	3.84	93	70-130			
Silver	47.5	10	"	200	ND	24	70-130			QM-7

EMKO Environmental, Inc.	Project:	Rise
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801506 - EPA 200 Series										
Matrix Spike (1801506-MS1)	**Source: 18B0797-01**			Prepared: 02/21/18 Analyzed: 02/22/18						
Vanadium	190	3.0	µg/L	200	2.97	93	70-130			
Thallium	196	1.0	"	200	0.160	98	70-130			
Matrix Spike (1801506-MS2)	**Source: 18B0928-01**			Prepared: 02/21/18 Analyzed: 02/22/18						
Molybdenum	192	2.0	µg/L	200	0.870	95	70-130			
Antimony	187	4.0	"	200	ND	94	70-130			
Arsenic	193	2.0	"	200	4.02	95	70-130			
Cadmium	186	1.0	"	200	ND	93	70-130			
Lead	187	5.0	"	200	ND	94	70-130			
Nickel	167	10	"	200	0.280	83	70-130			
Selenium	191	5.0	"	200	ND	96	70-130			
Silver	45.2	10	"	200	ND	23	70-130			QM-7
Vanadium	210	3.0	"	200	34.8	87	70-130			
Thallium	190	1.0	"	200	ND	95	70-130			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Polychlorinated Biphenyls by EPA Method 8082A - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801416 - EPA 3510B GCNV										
Blank (1801416-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Aroclor 1016	ND	0.50	µg/L							
Aroclor 1221	ND	0.50	"							
Aroclor 1232	ND	0.50	"							
Aroclor 1242	ND	0.50	"							
Aroclor 1248	ND	0.50	"							
Aroclor 1254	ND	0.50	"							
Aroclor 1260	ND	0.50	"							
Aroclor 1268	ND	0.50	"							
Surrogate: Decachlorobiphenyl	*0.200*		"	*0.250*		*80*	*50-150*			
LCS (1801416-BS1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Aroclor 1260	2.37	0.50	µg/L	2.50		95	31-138			
Surrogate: Decachlorobiphenyl	*0.216*		"	*0.250*		*86*	*50-150*			
LCS Dup (1801416-BSD1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Aroclor 1260	2.03	0.50	µg/L	2.50		81	31-138	16	30	
Surrogate: Decachlorobiphenyl	*0.151*		"	*0.250*		*60*	*50-150*			
Matrix Spike (1801416-MS1)		**Source: 18B0848-01**		Prepared: 02/19/18 Analyzed: 02/20/18						
Aroclor 1260	21.0	5.0	µg/L	25.0	ND	84	31-138			QRL-7
Surrogate: Decachlorobiphenyl	*1.61*		"	*2.50*		*64*	*50-150*			
Matrix Spike Dup (1801416-MSD1)		**Source: 18B0848-01**		Prepared: 02/19/18 Analyzed: 02/20/18						
Aroclor 1260	21.6	5.0	µg/L	25.0	ND	86	31-138	3	30	QRL-7
Surrogate: Decachlorobiphenyl	*1.62*		"	*2.50*		*65*	*50-150*			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801413 - EPA 3510B GCMS										
Blank (1801413-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Acenaphthene	ND	10	µg/L							
Acenaphthylene	ND	10	"							
Anthracene	ND	10	"							
Benzo (a) anthracene	ND	10	"							
Benzo (b) fluoranthene	ND	10	"							
Benzo (k) fluoranthene	ND	10	"							
Benzo (g,h,i) perylene	ND	10	"							
Benzo (a) pyrene	ND	10	"							
Benzyl alcohol	ND	10	"							
Bis(2-chloroethoxy)methane	ND	10	"							
Bis(2-chloroethyl)ether	ND	10	"							
Bis(2-chloroisopropyl)ether	ND	10	"							
Bis(2-ethylhexyl)phthalate	ND	10	"							
4-Bromophenyl phenyl ether	ND	10	"							
Butyl benzyl phthalate	ND	10	"							
4-Chloroaniline	ND	10	"							
2-Chloronaphthalene	ND	10	"							
4-Chlorophenyl phenyl ether	ND	10	"							
Chrysene	ND	10	"							
Dibenz (a,h) anthracene	ND	10	"							
Dibenzofuran	ND	10	"							
Di-n-butyl phthalate	ND	10	"							
1,2-Dichlorobenzene	ND	10	"							
1,3-Dichlorobenzene	ND	10	"							
1,4-Dichlorobenzene	ND	10	"							
3,3´-Dichlorobenzidine	ND	20	"							
Diethyl phthalate	ND	10	"							
Dimethyl phthalate	ND	10	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	10	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	10	"							
Di-n-octyl phthalate	ND	10	"							

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801413 - EPA 3510B GCMS										
Blank (1801413-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Fluoranthene	ND	10	µg/L							
Fluorene	ND	10	"							
Hexachlorobenzene	ND	10	"							
Hexachlorobutadiene	ND	10	"							
Hexachlorocyclopentadiene	ND	10	"							
Hexachloroethane	ND	10	"							
Indeno (1,2,3-cd) pyrene	ND	10	"							
Isophorone	ND	10	"							
2-Methylnaphthalene	ND	10	"							
Naphthalene	ND	10	"							
2-Nitroaniline	ND	25	"							
3-Nitroaniline	ND	25	"							
4-Nitroaniline	ND	25	"							
Nitrobenzene (NB)	ND	10	"							
N-Nitrosodiphenylamine	ND	10	"							
N-Nitrosodi-n-propylamine	ND	10	"							
Phenanthrene	ND	10	"							
Pyrene	ND	10	"							
1,2,4-Trichlorobenzene	ND	10	"							
Benzoic acid	ND	25	"							
4-Chloro-3-methylphenol	ND	10	"							
2-Chlorophenol	ND	10	"							
2,4-Dichlorophenol	ND	10	"							
2,4-Dimethylphenol	ND	10	"							
4,6-Dinitro-2-methylphenol	ND	25	"							
2,4-Dinitrophenol	ND	25	"							
2-Methylphenol	ND	10	"							
3 & 4-Methylphenol	ND	10	"							
2-Nitrophenol	ND	10	"							
4-Nitrophenol	ND	25	"							
Pentachlorophenol	ND	25	"							

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801413 - EPA 3510B GCMS										
Blank (1801413-BLK1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Phenol	ND	10	µg/L							
2,4,5-Trichlorophenol	ND	10	"							
2,4,6-Trichlorophenol	ND	10	"							
Surrogate: 2-Fluorophenol	*27.6*		*"*	*40.0*		*69*	*21-110*			
Surrogate: Phenol-d6	*21.5*		*"*	*40.0*		*54*	*10-110*			
Surrogate: Nitrobenzene-d5	*34.3*		*"*	*40.0*		*86*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*32.2*		*"*	*40.0*		*81*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*32.9*		*"*	*40.0*		*82*	*10-123*			
Surrogate: Terphenyl-dl4	*35.4*		*"*	*40.0*		*89*	*33-141*			
LCS (1801413-BS1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Acenaphthene	35.3	10	µg/L	40.0		88	46-118			
1,4-Dichlorobenzene	29.8	10	"	40.0		74	36-117			
2,4-Dinitrotoluene (2,4-DNT)	37.6	10	"	40.0		94	24-116			
N-Nitrosodi-n-propylamine	38.6	10	"	40.0		97	41-126			
Pyrene	34.9	10	"	40.0		87	26-127			
1,2,4-Trichlorobenzene	33.0	10	"	40.0		82	39-118			
4-Chloro-3-methylphenol	33.0	10	"	40.0		82	23-117			
2-Chlorophenol	33.0	10	"	40.0		82	23-134			
4-Nitrophenol	20.4	25	"	40.0		51	10-108			
Pentachlorophenol	29.8	25	"	40.0		74	10-113			
Phenol	35.5	10	"	40.0		89	5-112			
Surrogate: 2-Fluorophenol	*30.3*		*"*	*40.0*		*76*	*21-110*			
Surrogate: Phenol-d6	*23.9*		*"*	*40.0*		*60*	*10-110*			
Surrogate: Nitrobenzene-d5	*37.3*		*"*	*40.0*		*93*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*33.8*		*"*	*40.0*		*84*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*36.7*		*"*	*40.0*		*92*	*10-123*			
Surrogate: Terphenyl-dl4	*36.9*		*"*	*40.0*		*92*	*33-141*			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801413 - EPA 3510B GCMS										
LCS Dup (1801413-BSD1)				Prepared: 02/19/18 Analyzed: 02/20/18						
Acenaphthene	35.0	10	µg/L	40.0		88	46-118	0.7	31	
1,4-Dichlorobenzene	29.8	10	"	40.0		75	36-117	0.03	28	
2,4-Dinitrotoluene (2,4-DNT)	37.9	10	"	40.0		95	24-116	0.9	38	
N-Nitrosodi-n-propylamine	39.2	10	"	40.0		98	41-126	1	38	
Pyrene	35.1	10	"	40.0		88	26-127	0.7	31	
1,2,4-Trichlorobenzene	33.0	10	"	40.0		83	39-118	0.2	28	
4-Chloro-3-methylphenol	33.9	10	"	40.0		85	23-117	3	42	
2-Chlorophenol	33.6	10	"	40.0		84	23-134	2	40	
4-Nitrophenol	19.6	25	"	40.0		49	10-108	4	45	
Pentachlorophenol	30.0	25	"	40.0		75	10-113	0.6	45	
Phenol	34.8	10	"	40.0		87	5-112	2	42	
Surrogate: 2-Fluorophenol	*30.7*		*"*	*40.0*		*77*	*21-110*			
Surrogate: Phenol-d6	*23.7*		*"*	*40.0*		*59*	*10-110*			
Surrogate: Nitrobenzene-d5	*37.9*		*"*	*40.0*		*95*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*34.1*		*"*	*40.0*		*85*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*37.9*		*"*	*40.0*		*95*	*10-123*			
Surrogate: Terphenyl-dl4	*37.8*		*"*	*40.0*		*95*	*33-141*			
Matrix Spike (1801413-MS1)	**Source: 18B0784-01**			Prepared: 02/19/18 Analyzed: 02/21/18						
Acenaphthene	1280	400	µg/L	1600	ND	80	46-118			
1,4-Dichlorobenzene	1010	400	"	1600	ND	63	36-105			
2,4-Dinitrotoluene (2,4-DNT)	1360	400	"	1600	ND	85	24-105			
N-Nitrosodi-n-propylamine	1460	400	"	1600	ND	91	41-116			
Pyrene	1170	400	"	1600	ND	73	26-127			
1,2,4-Trichlorobenzene	1000	400	"	1600	ND	63	39-105			
4-Chloro-3-methylphenol	1640	400	"	1600	ND	103	23-105			
2-Chlorophenol	1170	400	"	1600	ND	73	27-123			
4-Nitrophenol	658	1000	"	1600	99.6	35	10-105			
Pentachlorophenol	1320	1000	"	1600	ND	82	10-103			
Phenol	1720	400	"	1600	612	70	12-110			
Surrogate: 2-Fluorophenol	*1030*		*"*	*1600*		*64*	*21-110*			

EMKO Environmental, Inc.	Project:	Rise
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801413 - EPA 3510B GCMS										
Matrix Spike (1801413-MS1)	**Source: 18B0784-01**			Prepared: 02/19/18 Analyzed: 02/21/18						
Surrogate: Phenol-d6	*889*		*µg/L*	*1600*		*56*	*10-110*			
Surrogate: Nitrobenzene-d5	*1280*		*"*	*1600*		*80*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*1520*		*"*	*1600*		*95*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*1530*		*"*	*1600*		*96*	*10-123*			
Surrogate: Terphenyl-dl4	*1320*		*"*	*1600*		*83*	*33-141*			
Matrix Spike Dup (1801413-MSD1)	**Source: 18B0784-01**			Prepared: 02/19/18 Analyzed: 02/21/18						
Acenaphthene	1320	400	µg/L	1600	ND	83	46-118	3	31	
1,4-Dichlorobenzene	1080	400	"	1600	ND	68	36-105	7	28	
2,4-Dinitrotoluene (2,4-DNT)	1340	400	"	1600	ND	84	24-105	1	38	
N-Nitrosodi-n-propylamine	1480	400	"	1600	ND	93	41-116	1	38	
Pyrene	1230	400	"	1600	ND	77	26-127	5	31	
1,2,4-Trichlorobenzene	1040	400	"	1600	ND	65	39-105	4	28	
4-Chloro-3-methylphenol	1660	400	"	1600	ND	104	23-105	1	42	
2-Chlorophenol	1220	400	"	1600	ND	76	27-123	4	40	
4-Nitrophenol	671	1000	"	1600	99.6	36	10-105	2	42	
Pentachlorophenol	1340	1000	"	1600	ND	84	10-103	2	45	
Phenol	1830	400	"	1600	612	76	12-110	6	42	
Surrogate: 2-Fluorophenol	*972*		*"*	*1600*		*61*	*21-110*			
Surrogate: Phenol-d6	*823*		*"*	*1600*		*51*	*10-110*			
Surrogate: Nitrobenzene-d5	*1210*		*"*	*1600*		*76*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*1450*		*"*	*1600*		*91*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*1390*		*"*	*1600*		*87*	*10-123*			
Surrogate: Terphenyl-dl4	*1250*		*"*	*1600*		*78*	*33-141*			

EMKO Environmental, Inc.	Project:	Rise
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18B0794
COC #:

TPH-Gasoline by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801449 - EPA 5030 Water GC										
Blank (1801449-BLK1)				Prepared & Analyzed: 02/19/18						
Gasoline	ND	50	µg/L							
Surrogate: o-Chlorotoluene (Gas)	*16.0*		*"*	*20.0*		*80*	*65-135*			
LCS (1801449-BS1)				Prepared & Analyzed: 02/19/18						
Gasoline	523	50	µg/L	500		105	70-130			
Surrogate: o-Chlorotoluene (Gas)	*17.1*		*"*	*20.0*		*85*	*65-135*			
LCS Dup (1801449-BSD1)				Prepared & Analyzed: 02/19/18						
Gasoline	582	50	µg/L	500		116	70-130	11	30	
Surrogate: o-Chlorotoluene (Gas)	*17.0*		*"*	*20.0*		*85*	*65-135*			
Matrix Spike (1801449-MS1)	**Source: 18B0663-01**			Prepared & Analyzed: 02/19/18						
Gasoline	590	50	µg/L	500	173	83	68-132			
Surrogate: o-Chlorotoluene (Gas)	*16.2*		*"*	*20.0*		*81*	*65-135*			
Matrix Spike Dup (1801449-MSD1)	**Source: 18B0663-01**			Prepared & Analyzed: 02/19/18						
Gasoline	648	50	µg/L	500	173	95	68-132	9	32	
Surrogate: o-Chlorotoluene (Gas)	*16.9*		*"*	*20.0*		*85*	*65-135*			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801495 - EPA 5030 Water MS										
Blank (1801495-BLK1)				Prepared & Analyzed: 02/20/18						
Acetone	ND	10	µg/L							
Benzene	ND	0.50	"							
Bromobenzene	ND	0.50	"							
Bromochloromethane	ND	0.50	"							
Bromodichloromethane	ND	0.50	"							
Bromoform	ND	0.50	"							
Bromomethane	ND	1.0	"							
2-Butanone	ND	10	"							
n-Butylbenzene	ND	0.50	"							
sec-Butylbenzene	ND	0.50	"							
tert-Butylbenzene	ND	0.50	"							
Carbon tetrachloride	ND	0.50	"							
Chlorobenzene	ND	0.50	"							
Chloroethane	ND	0.50	"							
Chloroform	ND	0.50	"							
Chloromethane	ND	1.0	"							
o-Chlorotoluene	ND	0.50	"							
p-Chlorotoluene	ND	0.50	"							
Dibromochloromethane	ND	0.50	"							
1,2-Dibromo-3-chloropropane	ND	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Dibromomethane	ND	0.50	"							
1,2-Dichlorobenzene	ND	0.50	"							
1,3-Dichlorobenzene	ND	0.50	"							
1,4-Dichlorobenzene	ND	0.50	"							
Dichlorodifluoromethane (Freon 12)	ND	1.0	"							
1,1-Dichloroethane	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,1-Dichloroethene	ND	0.50	"							
cis-1,2-Dichloroethene	ND	0.50	"							
trans-1,2-Dichloroethene	ND	0.50	"							

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801495 - EPA 5030 Water MS										
Blank (1801495-BLK1)				Prepared & Analyzed: 02/20/18						
1,2-Dichloropropane	ND	0.50	µg/L							
1,3-Dichloropropane	ND	0.50	"							
2,2-Dichloropropane	ND	0.50	"							
1,1-Dichloropropene	ND	0.50	"							
cis-1,3-Dichloropropene	ND	0.50	"							
trans-1,3-Dichloropropene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.50	"							
Hexachlorobutadiene	ND	0.50	"							
2-Hexanone	ND	10	"							
Isopropylbenzene	ND	0.50	"							
p-Isopropyltoluene	ND	0.50	"							
Methylene chloride	ND	0.50	"							
4-Methyl-2-pentanone	ND	10	"							
Methyl tert-butyl ether	ND	0.50	"							
Naphthalene	ND	0.50	"							
n-Propylbenzene	ND	0.50	"							
Styrene	ND	0.50	"							
1,1,1,2-Tetrachloroethane	ND	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.50	"							
Tetrachloroethene	ND	0.50	"							
Toluene	ND	0.50	"							
1,2,3-Trichlorobenzene	ND	0.50	"							
1,2,4-Trichlorobenzene	ND	0.50	"							
1,1,1-Trichloroethane	ND	0.50	"							
1,1,2-Trichloroethane	ND	0.50	"							
Trichloroethene	ND	0.50	"							
Trichlorofluoromethane	ND	0.50	"							
1,2,3-Trichloropropane	ND	0.50	"							
1,2,4-Trimethylbenzene	ND	0.50	"							
1,3,5-Trimethylbenzene	ND	0.50	"							

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1801495 - EPA 5030 Water MS										
Blank (1801495-BLK1)				Prepared & Analyzed: 02/20/18						
Vinyl chloride	ND	1.0	µg/L							
Xylenes (total)	ND	1.0	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
tert-Butyl alcohol	ND	5.0	"							
Surrogate: 1,2-Dichloroethane-d4	*12.1*		*"*	*10.0*		*121*	*66-135*			
Surrogate: Toluene-d8	*9.39*		*"*	*10.0*		*94*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*11.1*		*"*	*10.0*		*111*	*73-125*			
LCS (1801495-BS1)				Prepared & Analyzed: 02/20/18						
Benzene	20.9	0.50	µg/L	20.0		104	60-135			
Chlorobenzene	20.3	0.50	"	20.0		102	60-133			
1,1-Dichloroethene	22.2	0.50	"	20.0		111	42-150			
Toluene	21.3	0.50	"	20.0		106	60-137			
Trichloroethene	20.5	0.50	"	20.0		102	62-140			
Surrogate: 1,2-Dichloroethane-d4	*9.60*		*"*	*10.0*		*96*	*66-135*			
Surrogate: Toluene-d8	*10.2*		*"*	*10.0*		*102*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*10.9*		*"*	*10.0*		*109*	*73-125*			
LCS Dup (1801495-BSD1)				Prepared & Analyzed: 02/20/18						
Benzene	20.9	0.50	µg/L	20.0		105	60-135	0.1	25	
Chlorobenzene	19.6	0.50	"	20.0		98	60-133	4	25	
1,1-Dichloroethene	21.6	0.50	"	20.0		108	42-150	3	25	
Toluene	21.5	0.50	"	20.0		108	60-137	1	25	
Trichloroethene	20.5	0.50	"	20.0		103	62-140	0.1	25	
Surrogate: 1,2-Dichloroethane-d4	*9.60*		*"*	*10.0*		*96*	*66-135*			
Surrogate: Toluene-d8	*10.2*		*"*	*10.0*		*102*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*10.2*		*"*	*10.0*		*102*	*73-125*			

EMKO Environmental, Inc.	Project:	Rise	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18B0794**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #:

Notes and Definitions

QRL-7	The initial volume was decreased or the final volume of the extract was increased due to matrix interference, which resulted in higher reporting limits.
QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
QC-2H	The recovery of one CCV was greater than the acceptance limit. However, all analytes in the associated samples were ND; therefore a reanalysis was not performed.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
HT-F	This is a field test method and it is performed in the lab outside holding time.
HT-1	The sample was received outside of the EPA recommended holding time.
BT-5	>1600
BT-4	<1.8
A-COM	The %RSD of the CCC compound, PCP, in the initial calibration was 33% which exceeds the control limit of 30%; however, the average %RSD of all analytes was 8% well within the control limit of 15%.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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January 15, 2019

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

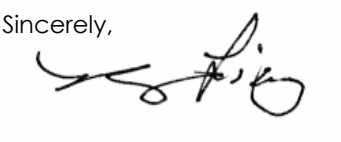
Dr. Andrew Kopania
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project Name: Brunswick NPDES

Enclosed are the results of analyses for samples received by the laboratory on 12/18/18 16:00. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

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email results to: akopania@sbcglobal.net

Pg 1 of 4

CHAIN OF CUSTODY

CLS ID No.: 18L0968

LOG № 194536

REPORT TO:	CLIENT JOB NUMBER	ANALYSIS REQUESTED
NAME AND ADDRESS: Andy Kopania 551 Lakecrest Dr. El Dorado Hills, CA 95762		
PROJECT MANAGER: Andy Kopania PHONE#: 916-716-5511	DESTINATION LABORATORY ☒ CLS (916) 638-7301 3249 FITZGERALD RD. RANCHO CORDOVA, CA. 95742	
PROJECT NAME: Brunswick NPDES	☐ OTHER	
SAMPLED BY: AK		
JOB DESCRIPTION:		
SITE LOCATION: Grass Valley		

PRESERVATIVES

Acute Toxicity - Ceriodaphnia dubia, NPDES (608.2, 624, 625, 6), Asbestos, Diazinon (2,3,7), Cr6, Cr III, Cyanide, Metals (see note), (Hardness), Hardness, EC, TDS, Turbidity

GEOTHRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE: Metals Sb, As, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Tl, Zn, Al, Fe, Mn,

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	
12/10/18	11:04	NBS-Pump	W	6	1L amb	3	
				2	1L plast	3	
				1	500ml	2	
				~~1~~	~~500ml~~		
				1	250ml	2	
				1	250ml	4	
				1	250ml	5	
				6	VOA	1	
↓	↓	↓	↓	1	10L	3	X

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

PO. #

QUOTE #

NOTE: Sample dates m/3-labeled 12/12/18
Correct sample date is 12/10/18

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Andy Kopania/ENKO	12/10/18 / 16:00		

REC'D AT LAB BY: DATE / TIME: 12/10/18 1600

CONDITIONS / COMMENTS: 1, 4

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

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email results to: akpanta@sbcglobal.net

PS: 2 or 4

CHAIN OF CUSTODY

CLS ID No.: 190963

LOG № 194533

REPORT TO:

NAME AND ADDRESS: Andy Kypanis
EMKO Environmental, Inc.
551 Lakeknest Dr, El Dorado Hills, CA 95762

PROJECT MANAGER: PHONE # 916 718 5511

PROJECT NAME: Brunswick NPDES

SAMPLED BY: AK

JOB DESCRIPTION:

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD
RANCHO CORDOVA, CA 95742

☐ OTHER

ANALYSIS REQUESTED

PRESERVATIVES

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Anions (Cl, SO4, Alkalinity)	B, Ca, Mg, K, Na,	Chloride,	Phosphorus	Alkalinity
12/10/18	13:25	WC - down	W	6	1L amber	3					
				2	1L plast	3					
				1	500 mL	2					
				1	250 mL	2					
				1	250 mL	4					
				1	250 mL	5					
				6	VOA	1					
↓	↓	↓	↓	1	1 L	3	X				

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

GEOTHRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

P.O. #

QUOTE #

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Andy Kypanis / EMKO	12/10/18/16:00		

REC'D AT LAB BY: DATE / TIME: 12/10/18 1600

CONDITIONS / COMMENTS: 1.4

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

CALIFORNIA LABORATORY SERVICES
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email results to: akpanic@sbcglobal.net

3 OF 4

CHAIN OF CUSTODY

CLS ID No.: 1810968

LOG № 194691

REPORT TO:

NAME AND ADDRESS
Andy Kipanis
EMKO Environmental Inc.
551 Lakeview Dr., El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kipanis PHONE #: 916-718-5311

PROJECT NAME: Brunswick NPDES

SAMPLED BY: AK

JOB DESCRIPTION

SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Acute Toxicity - Fathead minnow

GEOTHRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER

IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	ANALYSIS REQUESTED
12/12/18	12:02	WC - mid	W	6	1L amb	3	
				2	1L P	3	
				1	500ml	2	
				1	250ml	2	
				1	250ml	4	
				1	250ml	5	
				6	VOA	1	
↓	↓	↓	↓	1	10 L	3	X

TURN AROUND TIME: 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☐

SPECIAL INSTRUCTIONS
OR
ALT. ID:

INVOICE TO:

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Andy Kipanis / EMKO	12/12/18 16:00		

REC'D AT LAB BY | DATE / TIME | CONDITIONS / COMMENTS

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

CALIFORNIA LABORATORY SERVICES
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email results to: akpania@sbcglobal.net

4 OF 4

CHAIN OF CUSTODY

CLS ID No.: 180968

LOG Nº 194534

REPORT TO:

NAME AND ADDRESS: Andy Kpania
EMKO Environmental, Inc.
557 Lakemont Dr., El Dorado Hills, CA 95762
PROJECT MANAGER: Andy Kpania PHONE#: 916-712-5541
PROJECT NAME: Brunswick NPDES
SAMPLED BY: A.K.
JOB DESCRIPTION:
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Acute Toxicity - Rainbow trout

GEOTHRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER:
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	ANALYSIS REQUESTED
12/18/12	12:46	WC - Up	W	6	1L amber	3	
				2	1L plastic	3	
				1	500 ml	2	
				1	250 ml	2	
				1	250 ml	4	
				1	250 ml	5	
				6	VOA	1	
				1	10 L	3	X

INVOICE TO:
P.O. #:
QUOTE #:

SUSPECTED CONSTITUENTS:

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Andy Kpania / EMKO	12/18/12 / 16:00		

RECD AT LAB BY: DATE / TIME: 12/18/12 1600

CONDITIONS / COMMENTS: 1, 2

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

White - Lab/Terms and conditions Yellow - Lab file copy/Terms and Conditions Pink - Origin/Terms and Conditions Gold-Printed Mov /Field Sampler/Terms and conditions

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
1,2-Diphenylhydrazine	ND	1.0	µg/L	1	1810715	12/19/18	12/19/18	EPA 625	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	1.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.0	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	5.0	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	5.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	2.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	5.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	1.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10	"	"	"	"	"	"	
Benzidine	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	1.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)adipate	ND	5.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**5.3**	1.5	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	2.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	1.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	5.0	"	"	"	"	"	"	
Hexachloroethane	ND	1.0	"	"	"	"	"	"	
Isophorone	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
Nitrobenzene (NB)	ND	1.0	µg/L	1	1810715	"	12/19/18	EPA 625	
N-Nitrosodimethylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	1.0	"	"	"	"	"	"	
Pentachlorophenol	ND	5.0	"	"	"	"	"	"	
Phenol	ND	1.0	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*101 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*79 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*43 %*		*21-110*	"	"	"	"	
Surrogate: Nitrobenzene-d5		*81 %*		*35-114*	"	"	"	"	
Surrogate: Phenol-d6		*29 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*86 %*		*33-141*	"	"	"	"	
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
1,2-Diphenylhydrazine	ND	1.0	µg/L	1	1810715	12/19/18	12/19/18	EPA 625	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	1.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.0	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	5.0	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	5.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	2.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	5.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	1.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10	"	"	"	"	"	"	

EMKO Environmental, Inc.
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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Benzidine	ND	5.0	µg/L	1	1810715	"	12/19/18	EPA 625	
Bis(2-chloroethoxy)methane	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	1.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)adipate	ND	5.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.5	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	2.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	1.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	5.0	"	"	"	"	"	"	
Hexachloroethane	ND	1.0	"	"	"	"	"	"	
Isophorone	ND	1.0	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	1.0	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	1.0	"	"	"	"	"	"	
Pentachlorophenol	ND	5.0	"	"	"	"	"	"	
Phenol	ND	1.0	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*110 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*82 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*60 %*		*21-110*	"	"	"	"	
Surrogate: Nitrobenzene-d5		*87 %*		*35-114*	"	"	"	"	
Surrogate: Phenol-d6		*37 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*75 %*		*33-141*	"	"	"	"	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
1,2-Diphenylhydrazine	ND	1.0	µg/L	1	1810715	12/19/18	12/19/18	EPA 625	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	1.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.0	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	5.0	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	5.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	2.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	5.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	1.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10	"	"	"	"	"	"	
Benzidine	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	1.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)adipate	ND	5.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.5	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	2.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	1.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	5.0	"	"	"	"	"	"	
Hexachloroethane	ND	1.0	"	"	"	"	"	"	
Isophorone	ND	1.0	"	"	"	"	"	"	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Nitrobenzene (NB)	ND	1.0	µg/L	1	1810715	"	12/19/18	EPA 625	
N-Nitrosodimethylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	1.0	"	"	"	"	"	"	
Pentachlorophenol	ND	5.0	"	"	"	"	"	"	
Phenol	ND	1.0	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*110 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*90 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*73 %*		*21-110*	"	"	"	"	
Surrogate: Nitrobenzene-d5		*99 %*		*35-114*	"	"	"	"	
Surrogate: Phenol-d6		*44 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*75 %*		*33-141*	"	"	"	"	
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
1,2-Diphenylhydrazine	ND	1.0	µg/L	1	1810715	12/19/18	12/19/18	EPA 625	
2,4,6-Trichlorophenol	ND	10	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	1.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.0	"	"	"	"	"	"	
2,4-Dinitrotoluene (2,4-DNT)	ND	5.0	"	"	"	"	"	"	
2,6-Dinitrotoluene (2,6-DNT)	ND	5.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10	"	"	"	"	"	"	
2-Chlorophenol	ND	2.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10	"	"	"	"	"	"	
3,3´-Dichlorobenzidine	ND	5.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	1.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	5.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10	"	"	"	"	"	"	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
Benzidine	ND	5.0	µg/L	1	1810715	"	12/19/18	EPA 625	
Bis(2-chloroethoxy)methane	ND	5.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	1.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)adipate	ND	5.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.5	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10	"	"	"	"	"	"	
Diethyl phthalate	ND	2.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10	"	"	"	"	"	"	
Hexachlorobenzene	ND	1.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	5.0	"	"	"	"	"	"	
Hexachloroethane	ND	1.0	"	"	"	"	"	"	
Isophorone	ND	1.0	"	"	"	"	"	"	
Nitrobenzene (NB)	ND	1.0	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	5.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	1.0	"	"	"	"	"	"	
Pentachlorophenol	ND	5.0	"	"	"	"	"	"	
Phenol	ND	1.0	"	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*90 %*		*10-123*	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*69 %*		*43-116*	"	"	"	"	
Surrogate: 2-Fluorophenol		*50 %*		*21-110*	"	"	"	"	
Surrogate: Nitrobenzene-d5		*71 %*		*35-114*	"	"	"	"	
Surrogate: Phenol-d6		*31 %*		*10-110*	"	"	"	"	
Surrogate: Terphenyl-dl4		*57 %*		*33-141*	"	"	"	"	

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El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
Bicarbonate as CaCO3	**190**	5.0	mg/L	1	1810753	12/19/18	12/19/18	SM2320B	
Calcium	**51**	1.0	"	"	1810760	12/20/18	12/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1810753	12/19/18	12/19/18	SM2320B	
Chloride	**2.2**	0.50	"	"	1810712	12/19/18	12/19/18	EPA 300.0	
Cyanide (total)	**2.2**	5.0	µg/L	"	1810779	12/20/18	12/20/18	SM4500-CN E	J
Hardness as CaCO3	**180**	1.0	mg/L	"	1810760	12/20/18	12/21/18	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1810713	12/19/18	12/20/18	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Ion Balance, RPD %	**6.0**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Magnesium	**14**	1.0	mg/L	"	1810760	12/20/18	12/21/18	200.7/2340B	
Potassium	**1.4**	1.0	"	"	"	"	"	"	
Sodium	**7.7**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**400**	1.0	µmhos/cm	"	1810743	12/19/18	12/19/18	EPA 120.1	
Total Alkalinity	**190**	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Total Anions	**3.9**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Total Cations	**4.1**		"	"	"	"	"	"	
Total Dissolved Solids	**210**	10	mg/L	"	1810777	12/20/18	12/21/18	SM2540C	
Total Phosphorus as P	ND	50	µg/L	"	1810746	12/19/18	12/19/18	SM4500-P E	
Trivalent Chromium	ND	10	"	"	1810916	12/26/18	12/26/18	N/A	Cr3
Turbidity	**4.7**	0.10	NTU	"	1810752	12/19/18	12/19/18	EPA 180.1	
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Bicarbonate as CaCO3	**67**	5.0	mg/L	1	1810753	12/19/18	12/19/18	SM2320B	
Calcium	**12**	1.0	"	"	1810760	12/20/18	12/21/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1810753	12/19/18	12/19/18	SM2320B	
Chloride	**3.2**	0.50	"	"	1810712	12/19/18	12/19/18	EPA 300.0	
Cyanide (total)	ND	5.0	µg/L	"	1810779	12/20/18	12/20/18	SM4500-CN E	
Hardness as CaCO3	**69**	1.0	mg/L	"	1810760	12/20/18	12/21/18	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1810713	12/19/18	12/20/18	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Ion Balance, RPD %	**3.0**		meq/L	"	1810876	12/24/18	12/24/18	NONE	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Magnesium	**9.5**	1.0	mg/L	1	1810760	12/20/18	12/21/18	200.7/2340B	
Potassium	**1.1**	1.0	"	"	"	"	"	"	
Sodium	**4.3**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**170**	1.0	µmhos/cm	"	1810743	12/19/18	12/19/18	EPA 120.1	
Total Alkalinity	**67**	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Total Anions	**1.6**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Total Cations	**1.6**		"	"	"	"	"	"	
Total Dissolved Solids	**82**	10	mg/L	"	1810777	12/20/18	12/21/18	SM2540C	
Total Phosphorus as P	ND	50	µg/L	"	1810746	12/19/18	12/19/18	SM4500-P E	
Trivalent Chromium	ND	10	"	"	1810916	12/26/18	12/26/18	N/A	Cr3
Turbidity	**1.9**	0.10	NTU	"	1810752	12/19/18	12/19/18	EPA 180.1	
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Bicarbonate as CaCO3	**50**	5.0	mg/L	1	1810753	12/19/18	12/19/18	SM2320B	
Calcium	**11**	1.0	"	"	1810760	12/20/18	12/26/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1810753	12/19/18	12/19/18	SM2320B	
Chloride	**3.0**	0.50	"	"	1810712	12/19/18	12/19/18	EPA 300.0	
Cyanide (total)	**1.8**	5.0	µg/L	"	1810779	12/20/18	12/20/18	SM4500-CN E	J
Hardness as CaCO3	**64**	1.0	mg/L	"	1810760	12/20/18	12/26/18	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1810713	12/19/18	12/20/18	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Ion Balance, RPD %	**9.8**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Magnesium	**9.2**	1.0	mg/L	"	1810760	12/20/18	12/26/18	200.7/2340B	
Potassium	**1.3**	1.0	"	"	"	"	"	"	
Sodium	**4.2**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	1810743	12/19/18	12/19/18	EPA 120.1	
Total Alkalinity	**50**	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Total Anions	**1.6**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Total Cations	**1.5**		"	"	"	"	"	"	
Total Dissolved Solids	**91**	10	mg/L	"	1810777	12/20/18	12/21/18	SM2540C	
Total Phosphorus as P	ND	50	µg/L	"	1810746	12/19/18	12/19/18	SM4500-P E	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Trivalent Chromium	ND	10	µg/L	1	1810916	12/26/18	12/26/18	N/A	Cr3
Turbidity	**2.4**	0.10	NTU	"	1810752	12/19/18	12/19/18	EPA 180.1	
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
Bicarbonate as CaCO3	**87**	5.0	mg/L	1	1810753	12/19/18	12/19/18	SM2320B	
Calcium	**16**	1.0	"	"	1810760	12/20/18	12/26/18	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1810753	12/19/18	12/19/18	SM2320B	
Chloride	**4.5**	0.50	"	"	1810712	12/19/18	12/19/18	EPA 300.0	
Cyanide (total)	**2.6**	5.0	µg/L	"	1810779	12/20/18	12/20/18	SM4500-CN E	J
Hardness as CaCO3	**100**	1.0	mg/L	"	1810760	12/20/18	12/26/18	200.7/2340B	
Hexavalent Chromium	ND	1.0	µg/L	"	1810713	12/19/18	12/20/18	EPA 218.6	
Hydroxide as CaCO3	ND	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Ion Balance, RPD %	**4.0**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Magnesium	**15**	1.0	mg/L	"	1810760	12/20/18	12/26/18	200.7/2340B	
Potassium	**1.5**	1.0	"	"	"	"	"	"	
Sodium	**5.5**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**200**	1.0	µmhos/cm	"	1810743	12/19/18	12/19/18	EPA 120.1	
Total Alkalinity	**87**	5.0	mg/L	"	1810753	12/19/18	12/19/18	SM2320B	
Total Anions	**2.0**		meq/L	"	1810876	12/24/18	12/24/18	NONE	
Total Cations	**2.1**		"	"	"	"	"	"	
Total Dissolved Solids	**140**	10	mg/L	"	1810777	12/20/18	12/21/18	SM2540C	
Total Phosphorus as P	ND	50	µg/L	"	1810746	12/19/18	12/19/18	SM4500-P E	
Trivalent Chromium	ND	10	"	"	1810916	12/26/18	12/26/18	N/A	Cr3
Turbidity	**2.5**	0.10	NTU	"	1810752	12/19/18	12/19/18	EPA 180.1	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
Aluminum	**16**	50	µg/L	1	1810760	12/20/18	12/21/18	EPA 200.7	J
Antimony	ND	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Arsenic	**2.1**	1.0	"	"	"	"	"	"	
Beryllium	ND	1.0	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Boron	**26**	50	"	"	"	"	"	"	J
Cadmium	ND	0.25	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Chromium	**0.32**	2.0	"	"	"	"	"	"	J
Copper	**0.40**	0.50	"	"	"	"	"	"	J
Iron	**1400**	100	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Lead	ND	0.50	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Manganese	**230**	20	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Mercury	ND	0.050	"	"	1810775	12/20/18	12/20/18	EPA 245.1	
Nickel	ND	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Selenium	ND	5.0	"	"	"	"	12/26/18	"	
Silver	ND	1.0	"	"	"	"	12/26/18	"	
Thallium	**0.12**	1.0	"	"	"	"	12/26/18	"	J
Zinc	**5.5**	10	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Aluminum	**100**	50	µg/L	1	1810760	12/20/18	12/21/18	EPA 200.7	
Antimony	ND	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Arsenic	**4.0**	1.0	"	"	"	"	"	"	
Beryllium	ND	1.0	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Boron	**18**	50	"	"	"	"	"	"	J
Cadmium	ND	0.25	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Chromium	**0.76**	2.0	"	"	"	"	"	"	J
Copper	**1.4**	0.50	"	"	"	"	"	"	
Iron	**310**	100	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Lead	ND	0.50	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Manganese	**35**	20	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Mercury	ND	0.050	"	"	1810775	12/20/18	12/20/18	EPA 245.1	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Nickel	**3.4**	5.0	µg/L	1	1810721	12/19/18	12/21/18	EPA 200.8	J
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	1.0	"	"	"	"	12/26/18	"	
Thallium	ND	1.0	"	"	"	"	12/26/18	"	
Zinc	**4.7**	10	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Aluminum	**130**	50	µg/L	1	1810760	12/20/18	12/21/18	EPA 200.7	
Antimony	ND	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Arsenic	**1.8**	1.0	"	"	"	"	"	"	
Beryllium	ND	1.0	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Boron	**10**	50	"	"	"	"	"	"	J
Cadmium	ND	0.25	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Chromium	**0.67**	2.0	"	"	"	"	"	"	J
Copper	**1.3**	0.50	"	"	"	"	"	"	
Iron	**250**	100	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Lead	ND	0.50	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Manganese	**16**	20	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J
Mercury	ND	0.050	"	"	1810775	12/20/18	12/20/18	EPA 245.1	
Nickel	**3.2**	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	J
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	1.0	"	"	"	"	12/26/18	"	
Thallium	ND	1.0	"	"	"	"	12/21/18	"	
Zinc	**3.2**	10	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J

EMKO Environmental, Inc.	Project:	Brunswick NPDES
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
Aluminum	**110**	50	µg/L	1	1810760	12/20/18	12/21/18	EPA 200.7	
Antimony	ND	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Arsenic	**1.3**	1.0	"	"	"	"	"	"	
Beryllium	ND	1.0	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Boron	**10**	50	"	"	"	"	"	"	J
Cadmium	ND	0.25	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Chromium	**0.77**	2.0	"	"	"	"	"	"	J
Copper	**2.0**	0.50	"	"	"	"	"	"	
Iron	**240**	100	"	"	1810760	12/20/18	12/21/18	EPA 200.7	
Lead	ND	0.50	"	"	1810721	12/19/18	12/21/18	EPA 200.8	
Manganese	**15**	20	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J
Mercury	ND	0.050	"	"	1810775	12/20/18	12/20/18	EPA 245.1	
Nickel	**4.5**	5.0	"	"	1810721	12/19/18	12/21/18	EPA 200.8	J
Selenium	ND	5.0	"	"	"	"	"	"	
Silver	ND	1.0	"	"	"	"	12/26/18	"	
Thallium	ND	1.0	"	"	"	"	12/21/18	"	
Zinc	**7.2**	10	"	"	1810760	12/20/18	12/21/18	EPA 200.7	J

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
4,4´-DDD	ND	0.050	µg/L	1	1810754	12/19/18	12/20/18	EPA 608M	
4,4´-DDE	ND	0.050	"	"	"	"	"	"	
4,4´-DDT	ND	0.010	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
alpha-BHC	ND	0.010	"	"	"	"	"	"	
Aroclor 1016	ND	0.50	"	"	"	"	"	"	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
Chlordane	ND	0.10	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.010	"	"	"	"	"	"	
Endosulfan I	ND	0.020	"	"	"	"	"	"	
Endosulfan II	ND	0.010	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.050	"	"	"	"	"	"	
Endrin	ND	0.010	"	"	"	"	"	"	
Endrin aldehyde	ND	0.010	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.020	"	"	"	"	"	"	
Heptachlor	ND	0.010	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.010	"	"	"	"	"	"	
Methoxychlor	ND	10	"	"	"	"	"	"	
Toxaphene	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*56 %*		*43-139*	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*77 %*		*43-147*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
4,4´-DDD	ND	0.050	µg/L	1	1810754	12/19/18	12/20/18	EPA 608M	
4,4´-DDE	ND	0.050	"	"	"	"	"	"	
4,4´-DDT	ND	0.010	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
alpha-BHC	ND	0.010	"	"	"	"	"	"	
Aroclor 1016	ND	0.50	"	"	"	"	"	"	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
Chlordane	ND	0.10	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.010	"	"	"	"	"	"	
Endosulfan I	ND	0.020	"	"	"	"	"	"	
Endosulfan II	ND	0.010	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.050	"	"	"	"	"	"	
Endrin	ND	0.010	"	"	"	"	"	"	
Endrin aldehyde	ND	0.010	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.020	"	"	"	"	"	"	
Heptachlor	ND	0.010	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.010	"	"	"	"	"	"	
Methoxychlor	ND	10	"	"	"	"	"	"	
Toxaphene	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*87 %*		*43-139*	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*85 %*		*43-147*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
4,4´-DDD	ND	0.050	µg/L	1	1810754	12/19/18	12/20/18	EPA 608M	
4,4´-DDE	ND	0.050	"	"	"	"	"	"	
4,4´-DDT	ND	0.010	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
alpha-BHC	ND	0.010	"	"	"	"	"	"	
Aroclor 1016	ND	0.50	"	"	"	"	"	"	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
Chlordane	ND	0.10	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.010	"	"	"	"	"	"	
Endosulfan I	ND	0.020	"	"	"	"	"	"	
Endosulfan II	ND	0.010	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.050	"	"	"	"	"	"	
Endrin	ND	0.010	"	"	"	"	"	"	
Endrin aldehyde	ND	0.010	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.020	"	"	"	"	"	"	
Heptachlor	ND	0.010	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.010	"	"	"	"	"	"	
Methoxychlor	ND	10	"	"	"	"	"	"	
Toxaphene	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*90 %*		*43-139*	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*87 %*		*43-147*	"	"	"	"	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
4,4´-DDD	ND	0.050	µg/L	1	1810754	12/19/18	12/20/18	EPA 608M	
4,4´-DDE	ND	0.050	"	"	"	"	"	"	
4,4´-DDT	ND	0.010	"	"	"	"	"	"	
Aldrin	ND	0.0050	"	"	"	"	"	"	
alpha-BHC	ND	0.010	"	"	"	"	"	"	
Aroclor 1016	ND	0.50	"	"	"	"	"	"	
Aroclor 1221	ND	0.50	"	"	"	"	"	"	
Aroclor 1232	ND	0.50	"	"	"	"	"	"	
Aroclor 1242	ND	0.50	"	"	"	"	"	"	
Aroclor 1248	ND	0.50	"	"	"	"	"	"	
Aroclor 1254	ND	0.50	"	"	"	"	"	"	
Aroclor 1260	ND	0.50	"	"	"	"	"	"	
beta-BHC	ND	0.0050	"	"	"	"	"	"	
Chlordane	ND	0.10	"	"	"	"	"	"	
delta-BHC	ND	0.0050	"	"	"	"	"	"	
Dieldrin	ND	0.010	"	"	"	"	"	"	
Endosulfan I	ND	0.020	"	"	"	"	"	"	
Endosulfan II	ND	0.010	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.050	"	"	"	"	"	"	
Endrin	ND	0.010	"	"	"	"	"	"	
Endrin aldehyde	ND	0.010	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.020	"	"	"	"	"	"	
Heptachlor	ND	0.010	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.010	"	"	"	"	"	"	
Methoxychlor	ND	10	"	"	"	"	"	"	
Toxaphene	ND	0.50	"	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*86 %*		*43-139*	"	"	"	"	
Surrogate: Tetrachloro-meta-xylene		*80 %*		*43-147*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
Acenaphthene	ND	0.50	µg/L	1	1810758	12/19/18	12/21/18	EPA 610	
Acenaphthylene	ND	0.20	"	"	"	"	"	"	
Anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.50	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.20	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.20	"	"	"	"	"	"	
Chrysene	ND	0.20	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.10	"	"	"	"	"	"	
Fluoranthene	ND	0.20	"	"	"	"	"	"	
Fluorene	ND	0.20	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.050	"	"	"	"	"	"	
Naphthalene	ND	0.20	"	"	"	"	"	"	
Phenanthrene	ND	0.20	"	"	"	"	"	"	
Pyrene	ND	0.20	"	"	"	"	"	"	
Surrogate: Terphenyl-dl4		*99 %*	*70-130*		*"*	*"*	*"*	*"*	
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Acenaphthene	ND	0.50	µg/L	1	1810758	12/19/18	12/21/18	EPA 610	
Acenaphthylene	ND	0.20	"	"	"	"	"	"	
Anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.50	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.20	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.20	"	"	"	"	"	"	
Chrysene	ND	0.20	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.10	"	"	"	"	"	"	
Fluoranthene	ND	0.20	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Fluorene	ND	0.20	µg/L	1	1810758	"	12/21/18	EPA 610	
Indeno (1,2,3-cd) pyrene	ND	0.050	"	"	"	"	"	"	
Naphthalene	ND	0.20	"	"	"	"	"	"	
Phenanthrene	ND	0.20	"	"	"	"	"	"	
Pyrene	ND	0.20	"	"	"	"	"	"	
Surrogate: Terphenyl-dl4		*96 %*	*70-130*		"	"	"	"	
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Acenaphthene	ND	0.50	µg/L	1	1810758	12/19/18	12/21/18	EPA 610	
Acenaphthylene	ND	0.20	"	"	"	"	"	"	
Anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.50	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.20	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.20	"	"	"	"	"	"	
Chrysene	ND	0.20	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.10	"	"	"	"	"	"	
Fluoranthene	ND	0.20	"	"	"	"	"	"	
Fluorene	ND	0.20	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.050	"	"	"	"	"	"	
Naphthalene	ND	0.20	"	"	"	"	"	"	
Phenanthrene	ND	0.20	"	"	"	"	"	"	
Pyrene	ND	0.20	"	"	"	"	"	"	
Surrogate: Terphenyl-dl4		*94 %*	*70-130*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
Acenaphthene	ND	0.50	µg/L	1	1810758	12/19/18	12/21/18	EPA 610	
Acenaphthylene	ND	0.20	"	"	"	"	"	"	
Anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.20	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.10	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.50	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.20	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.20	"	"	"	"	"	"	
Chrysene	ND	0.20	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.10	"	"	"	"	"	"	
Fluoranthene	ND	0.20	"	"	"	"	"	"	
Fluorene	ND	0.20	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.050	"	"	"	"	"	"	
Naphthalene	ND	0.20	"	"	"	"	"	"	
Phenanthrene	ND	0.20	"	"	"	"	"	"	
Pyrene	ND	0.20	"	"	"	"	"	"	
Surrogate: Terphenyl-dl4		*97 %*		*70-130*	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
1,1,1-Trichloroethane	ND	0.50	µg/L	1	1810803	12/20/18	12/20/18	EPA 624M	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
1,3-Dichloropropene (total)	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Acrolein	ND	2.0	"	"	"	"	"	"	
Acrylonitrile	ND	2.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	2.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**4.2**	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	2.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
NBS-Pump (18L0968-01) Water Sampled: 12/18/18 11:04 Received: 12/18/18 16:00									
Methylene chloride	ND	2.0	µg/L	1	1810803	"	12/20/18	EPA 624M	
Naphthalene	ND	1.0	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	2.0	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	2.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*91 %*		*66-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*		*73-125*	"	"	"	"	
Surrogate: Toluene-d8		*112 %*		*72-125*	"	"	"	"	
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
1,1,1-Trichloroethane	ND	0.50	µg/L	1	1810803	12/20/18	12/20/18	EPA 624M	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
1,3-Dichloropropene (total)	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Down (18L0968-02) Water Sampled: 12/18/18 13:25 Received: 12/18/18 16:00									
Acrolein	ND	2.0	µg/L	1	1810803	"	12/20/18	EPA 624M	
Acrylonitrile	ND	2.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	2.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	2.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	2.0	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	2.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*96 %*	*66-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*114 %*	*73-125*		"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*72-125*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
1,1,1-Trichloroethane	ND	0.50	µg/L	1	1810803	12/20/18	12/20/18	EPA 624M	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
1,3-Dichloropropene (total)	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	
Acrolein	ND	2.0	"	"	"	"	"	"	
Acrylonitrile	ND	2.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	2.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	2.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Mid (18L0968-03) Water Sampled: 12/18/18 12:02 Received: 12/18/18 16:00									
Methylene chloride	ND	2.0	µg/L	1	1810803	"	12/20/18	EPA 624M	
Naphthalene	ND	1.0	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	2.0	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	2.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*99 %*	*66-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*114 %*	*73-125*		"	"	"	"	
Surrogate: Toluene-d8		*83 %*	*72-125*		"	"	"	"	
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
1,1,1-Trichloroethane	ND	0.50	µg/L	1	1810803	12/20/18	12/20/18	EPA 624M	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
1,3-Dichloropropene (total)	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	1.0	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-Up (18L0968-04) Water Sampled: 12/18/18 12:46 Received: 12/18/18 16:00									
Acrolein	ND	2.0	µg/L	1	1810803	"	12/20/18	EPA 624M	
Acrylonitrile	ND	2.0	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	2.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	2.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.0	"	"	"	"	"	"	
Methylene chloride	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
Styrene	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	2.0	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	2.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*98 %*	*66-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*113 %*	*73-125*		"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*72-125*		"	"	"	"	

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810715 - EPA 3510B GCMS										
Blank (1810715-BLK1)				Prepared & Analyzed: 12/19/18						
2-Chlorophenol	ND	2.0	µg/L							
2,4-Dichlorophenol	ND	1.0	"							
2,4-Dimethylphenol	ND	2.0	"							
4,6-Dinitro-2-methylphenol	ND	10	"							
2,4-Dinitrophenol	ND	5.0	"							
2-Nitrophenol	ND	10	"							
4-Nitrophenol	2.05	10	"							J
4-Chloro-3-methylphenol	ND	1.0	"							
Pentachlorophenol	ND	5.0	"							
Phenol	0.790	1.0	"							J
2,4,6-Trichlorophenol	ND	10	"							
Benzidine	ND	5.0	"							
Bis(2-chloroethoxy)methane	ND	5.0	"							
Bis(2-chloroethyl)ether	ND	1.0	"							
Bis(2-chloroisopropyl)ether	ND	2.0	"							
Bis(2-ethylhexyl)phthalate	ND	1.5	"							
4-Bromophenyl phenyl ether	ND	5.0	"							
Butyl benzyl phthalate	ND	10	"							
2-Chloronaphthalene	ND	10	"							
4-Chlorophenyl phenyl ether	ND	5.0	"							
3,3´-Dichlorobenzidine	ND	5.0	"							
Diethyl phthalate	ND	2.0	"							
Dimethyl phthalate	ND	2.0	"							
Di-n-butyl phthalate	ND	10	"							
2,4-Dinitrotoluene (2,4-DNT)	ND	5.0	"							
2,6-Dinitrotoluene (2,6-DNT)	ND	5.0	"							
Di-n-octyl phthalate	ND	10	"							
1,2-Diphenylhydrazine	ND	1.0	"							
Hexachlorobenzene	ND	1.0	"							
Hexachlorocyclopentadiene	ND	5.0	"							
Hexachloroethane	ND	1.0	"							

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810715 - EPA 3510B GCMS										
Blank (1810715-BLK1)				Prepared & Analyzed: 12/19/18						
Isophorone	ND	1.0	µg/L							
Nitrobenzene (NB)	ND	1.0	"							
N-Nitrosodimethylamine	ND	5.0	"							
N-Nitrosodi-n-propylamine	ND	5.0	"							
N-Nitrosodiphenylamine	ND	1.0	"							
Bis(2-ethylhexyl)adipate	ND	5.0	"							
Surrogate: 2-Fluorophenol	*29.6*		"	*40.0*		*74*	*21-110*			
Surrogate: Phenol-d6	*19.6*		"	*40.0*		*49*	*10-110*			
Surrogate: Nitrobenzene-d5	*35.7*		"	*40.0*		*89*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*31.0*		"	*40.0*		*78*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*39.3*		"	*40.0*		*98*	*10-123*			
Surrogate: Terphenyl-dl4	*33.2*		"	*40.0*		*83*	*33-141*			
LCS (1810715-BS1)				Prepared & Analyzed: 12/19/18						
2-Chlorophenol	38.2	2.0	µg/L	50.0		76	23-134			
4-Nitrophenol	19.0	10	"	50.0		38	10-108			
4-Chloro-3-methylphenol	42.2	1.0	"	50.0		84	23-117			
Pentachlorophenol	34.8	5.0	"	50.0		70	10-113			
Phenol	19.9	1.0	"	50.0		40	5-112			
Bis(2-ethylhexyl)phthalate	9.69	1.5	"	10.0		97	40-130			
2,4-Dinitrotoluene (2,4-DNT)	32.2	5.0	"	40.0		80	24-116			
N-Nitrosodi-n-propylamine	30.1	5.0	"	40.0		75	41-126			
1,4-Dichlorobenzene	23.1	5.0	"	40.0		58	36-117			
1,2,4-Trichlorobenzene	24.3	5.0	"	40.0		61	39-118			
Acenaphthene	30.4	5.0	"	40.0		76	46-118			
Pyrene	28.3	5.0	"	40.0		71	26-127			
Surrogate: 2-Fluorophenol	*31.1*		"	*40.0*		*78*	*21-110*			
Surrogate: Phenol-d6	*20.7*		"	*40.0*		*52*	*10-110*			
Surrogate: Nitrobenzene-d5	*38.5*		"	*40.0*		*96*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*33.5*		"	*40.0*		*84*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*45.2*		"	*40.0*		*113*	*10-123*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810715 - EPA 3510B GCMS										
LCS (1810715-BS1)				Prepared & Analyzed: 12/19/18						
Surrogate: Terphenyl-dl4	*37.9*		*µg/L*	*40.0*		*95*	*33-141*			
LCS Dup (1810715-BSD1)				Prepared & Analyzed: 12/19/18						
2-Chlorophenol	40.2	2.0	µg/L	50.0		80	23-134	5	40	
4-Nitrophenol	19.7	10	"	50.0		39	10-108	3	45	
4-Chloro-3-methylphenol	43.8	1.0	"	50.0		88	23-117	4	42	
Pentachlorophenol	35.7	5.0	"	50.0		71	10-113	3	45	
Phenol	22.0	1.0	"	50.0		44	5-112	10	42	
Bis(2-ethylhexyl)phthalate	10.0	1.5	"	10.0		100	40-130	3	30	
2,4-Dinitrotoluene (2,4-DNT)	33.1	5.0	"	40.0		83	24-116	3	38	
N-Nitrosodi-n-propylamine	31.5	5.0	"	40.0		79	41-126	4	38	
1,4-Dichlorobenzene	24.9	5.0	"	40.0		62	36-117	7	28	
1,2,4-Trichlorobenzene	26.0	5.0	"	40.0		65	39-118	7	28	
Acenaphthene	32.1	5.0	"	40.0		80	46-118	6	31	
Pyrene	29.4	5.0	"	40.0		73	26-127	4	31	
Surrogate: 2-Fluorophenol	*32.7*		*"*	*40.0*		*82*	*21-110*			
Surrogate: Phenol-d6	*22.0*		*"*	*40.0*		*55*	*10-110*			
Surrogate: Nitrobenzene-d5	*39.4*		*"*	*40.0*		*98*	*35-114*			
Surrogate: 2-Fluorobiphenyl	*35.1*		*"*	*40.0*		*88*	*43-116*			
Surrogate: 2,4,6-Tribromophenol	*46.0*		*"*	*40.0*		*115*	*10-123*			
Surrogate: Terphenyl-dl4	*38.3*		*"*	*40.0*		*96*	*33-141*			

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810712 - General Preparation										
Blank (1810712-BLK1)				Prepared & Analyzed: 12/19/18						
Chloride	ND	0.50	mg/L							
LCS (1810712-BS1)				Prepared & Analyzed: 12/19/18						
Chloride	4.48	0.50	mg/L	5.00		90	80-120			
LCS Dup (1810712-BSD1)				Prepared & Analyzed: 12/19/18						
Chloride	4.50	0.50	mg/L	5.00		90	80-120	0.5	20	
Matrix Spike (1810712-MS1)		**Source: 18L0968-03**		Prepared & Analyzed: 12/19/18						
Chloride	7.76	0.50	mg/L	5.00	3.05	94	80-120			
Matrix Spike Dup (1810712-MSD1)		**Source: 18L0968-03**		Prepared & Analyzed: 12/19/18						
Chloride	7.75	0.50	mg/L	5.00	3.05	94	80-120	0.1	20	
Batch 1810713 - General Prep										
Blank (1810713-BLK1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Hexavalent Chromium	ND	1.0	µg/L							
LCS (1810713-BS1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Hexavalent Chromium	9.71	1.0	µg/L	10.0		97	80-120			
LCS Dup (1810713-BSD1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Hexavalent Chromium	10.5	1.0	µg/L	10.0		105	80-120	8	20	
Matrix Spike (1810713-MS1)		**Source: 18L0982-04**		Prepared: 12/19/18 Analyzed: 12/20/18						
Hexavalent Chromium	12.4	1.0	µg/L	10.0	5.25	71	80-120			QM-7

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810713 - General Prep										
Matrix Spike Dup (1810713-MSD1)	**Source: 18L0982-04**			Prepared: 12/19/18 Analyzed: 12/20/18						
Hexavalent Chromium	12.8	1.0	µg/L	10.0	5.25	75	80-120	3	20	QM-7
Batch 1810743 - General Prep										
Blank (1810743-BLK1)				Prepared & Analyzed: 12/19/18						
Specific Conductance (EC)	ND	1.0	µmhos/cm							
Duplicate (1810743-DUP1)	**Source: 18L0949-03**			Prepared & Analyzed: 12/19/18						
Specific Conductance (EC)	345	1.0	µmhos/cm		355			2.86	20	
Batch 1810746 - General Preparation										
Blank (1810746-BLK1)				Prepared & Analyzed: 12/19/18						
Total Phosphorus as P	ND	50	µg/L							
LCS (1810746-BS1)				Prepared & Analyzed: 12/19/18						
Total Phosphorus as P	298	50	µg/L	300		99	80-120			
LCS Dup (1810746-BSD1)				Prepared & Analyzed: 12/19/18						
Total Phosphorus as P	301	50	µg/L	300		100	80-120	0.9	20	
Matrix Spike (1810746-MS1)	**Source: 18L0968-01**			Prepared & Analyzed: 12/19/18						
Total Phosphorus as P	305	50	µg/L	300	ND	102	75-125			
Matrix Spike Dup (1810746-MSD1)	**Source: 18L0968-01**			Prepared & Analyzed: 12/19/18						
Total Phosphorus as P	311	50	µg/L	300	ND	104	75-125	2	25	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810752 - General										
Blank (1810752-BLK1)				Prepared & Analyzed: 12/19/18						
Turbidity	ND	0.10	NTU							
Duplicate (1810752-DUP1)	**Source: 18L0968-01**			Prepared & Analyzed: 12/19/18						
Turbidity	4.68	0.10	NTU		4.71			0.7	20	
Batch 1810753 - General Preparation										
Blank (1810753-BLK1)				Prepared & Analyzed: 12/19/18						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Duplicate (1810753-DUP1)	**Source: 18L0955-02**			Prepared & Analyzed: 12/19/18						
Total Alkalinity	113	5.0	mg/L		112			0.5	20	
Bicarbonate as CaCO3	113	5.0	"		112			0.5	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	
Batch 1810760 - EPA 200 Series										
Blank (1810760-BLK1)				Prepared: 12/20/18 Analyzed: 12/21/18						
Calcium	ND	1.0	mg/L							
Hardness as CaCO3	ND	1.0	"							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							

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COC #: 194536, 194533, 194691, 194534

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810760 - EPA 200 Series										
LCS (1810760-BS1)				Prepared: 12/20/18 Analyzed: 12/21/18						
Calcium	4.37	1.0	mg/L	5.00		87	85-115			
Magnesium	4.36	1.0	"	5.00		87	85-115			
Potassium	4.51	1.0	"	5.00		90	85-115			
Sodium	4.51	1.0	"	5.00		90	85-115			
Matrix Spike (1810760-MS1)		**Source: 18L0968-01**		Prepared: 12/20/18 Analyzed: 12/21/18						
Calcium	52.3	1.0	mg/L	5.00	50.9	29	70-130			QM-7
Magnesium	17.0	1.0	"	5.00	13.5	69	70-130			QM-7
Potassium	6.06	1.0	"	5.00	1.39	93	70-130			
Sodium	11.8	1.0	"	5.00	7.70	83	70-130			
Matrix Spike (1810760-MS2)		**Source: 18L0948-01**		Prepared: 12/20/18 Analyzed: 12/21/18						
Calcium	73.0	1.0	mg/L	5.00	73.9	NR	70-130			QM-7
Magnesium	27.5	1.0	"	5.00	25.8	35	70-130			QM-7
Potassium	7.02	1.0	"	5.00	2.58	89	70-130			
Sodium	67.8	1.0	"	5.00	68.1	NR	70-130			QM-7
Batch 1810777 - General Preparation										
Blank (1810777-BLK1)				Prepared: 12/20/18 Analyzed: 12/21/18						
Total Dissolved Solids	ND	10	mg/L							
Duplicate (1810777-DUP1)		**Source: 18L0968-01**		Prepared: 12/20/18 Analyzed: 12/21/18						
Total Dissolved Solids	212	10	mg/L		214			0.9	20	
Batch 1810779 - General Preparation										
Blank (1810779-BLK1)				Prepared & Analyzed: 12/20/18						
Cyanide (total)	2.20	5.0	µg/L							J

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Project Manager: Dr. Andrew Kopania

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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810779 - General Preparation										
LCS (1810779-BS1)				Prepared & Analyzed: 12/20/18						
Cyanide (total)	88.3	5.0	µg/L	100		88	75-125			
LCS Dup (1810779-BSD1)				Prepared & Analyzed: 12/20/18						
Cyanide (total)	89.5	5.0	µg/L	100		90	75-125	1	25	
Matrix Spike (1810779-MS1)		**Source: 18L0968-01**		Prepared & Analyzed: 12/20/18						
Cyanide (total)	94.2	5.0	µg/L	100	2.20	92	75-125			
Matrix Spike Dup (1810779-MSD1)		**Source: 18L0968-01**		Prepared & Analyzed: 12/20/18						
Cyanide (total)	88.3	5.0	µg/L	100	2.20	86	75-125	6	25	

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Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

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COC #: 194536, 194533, 194691, 194534

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810721 - EPA 200 Series										
Blank (1810721-BLK1)				Prepared: 12/19/18 Analyzed: 12/21/18						
Antimony	ND	5.0	µg/L							
Arsenic	ND	1.0	"							
Cadmium	ND	0.25	"							
Chromium	ND	2.0	"							
Copper	ND	0.50	"							
Lead	ND	0.50	"							
Nickel	ND	5.0	"							
Selenium	ND	5.0	"							
Silver	ND	1.0	"							
Thallium	ND	1.0	"							
LCS (1810721-BS1)				Prepared: 12/19/18 Analyzed: 12/21/18						
Antimony	102	5.0	µg/L	100		102	85-115			
Arsenic	98.6	1.0	"	100		99	85-115			
Cadmium	107	0.25	"	100		107	85-115			
Chromium	104	2.0	"	100		104	85-115			
Copper	104	0.50	"	100		104	85-115			
Lead	99.0	0.50	"	100		99	85-115			
Nickel	103	5.0	"	100		103	85-115			
Selenium	109	5.0	"	100		109	85-115			
Silver	98.6	1.0	"	100		99	85-115			
Thallium	101	1.0	"	100		101	85-115			
Matrix Spike (1810721-MS1)	**Source: 18L0855-01**			Prepared: 12/19/18 Analyzed: 12/21/18						
Antimony	98.0	5.0	µg/L	100	0.910	97	70-130			
Arsenic	98.2	1.0	"	100	1.20	97	70-130			
Cadmium	103	0.25	"	100	ND	103	70-130			
Chromium	107	2.0	"	100	0.800	106	70-130			
Copper	138	0.50	"	100	42.0	96	70-130			
Lead	106	0.50	"	100	5.29	101	70-130			
Nickel	98.5	5.0	"	100	0.570	98	70-130			
Selenium	107	5.0	"	100	2.50	105	70-130			

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Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810721 - EPA 200 Series										
Matrix Spike (1810721-MS1)	**Source: 18L0855-01**			Prepared: 12/19/18 Analyzed: 12/26/18						
Silver	26.4	1.0	µg/L	100	ND	26	70-130			QM-7
Thallium	102	1.0	"	100	0.150	102	70-130			
Matrix Spike (1810721-MS2)	**Source: 18L0968-04**			Prepared: 12/19/18 Analyzed: 12/21/18						
Antimony	98.7	5.0	µg/L	100	ND	99	70-130			
Arsenic	105	1.0	"	100	1.30	104	70-130			
Cadmium	107	0.25	"	100	ND	107	70-130			
Chromium	113	2.0	"	100	0.770	112	70-130			
Copper	109	0.50	"	100	2.00	107	70-130			
Lead	106	0.50	"	100	ND	106	70-130			
Nickel	110	5.0	"	100	4.47	106	70-130			
Selenium	113	5.0	"	100	ND	113	70-130			
Silver	29.7	1.0	"	100	ND	30	70-130			QM-7
Thallium	107	1.0	"	100	ND	107	70-130			
Batch 1810760 - EPA 200 Series										
Blank (1810760-BLK1)				Prepared: 12/20/18 Analyzed: 12/21/18						
Aluminum	ND	50	µg/L							
Beryllium	ND	1.0	"							
Iron	13.1	100	"							J
Manganese	ND	20	"							
Zinc	ND	10	"							
Boron	ND	50	"							
LCS (1810760-BS1)				Prepared: 12/20/18 Analyzed: 12/21/18						
Aluminum	4400	50	µg/L	5000		88	85-115			
Beryllium	909	1.0	"	1000		91	85-115			
Iron	907	100	"	1000		91	85-115			
Manganese	968	20	"	1000		97	85-115			
Zinc	908	10	"	1000		91	85-115			
Boron	918	50	"	1000		92	85-115			

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Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810760 - EPA 200 Series										
Matrix Spike (1810760-MS1)	**Source: 18L0968-01**			Prepared: 12/20/18 Analyzed: 12/21/18						
Aluminum	4550	50	µg/L	5000	15.9	91	70-130			
Beryllium	959	1.0	"	1000	ND	96	70-130			
Iron	2210	100	"	1000	1400	81	70-130			
Manganese	1210	20	"	1000	228	98	70-130			
Zinc	944	10	"	1000	5.54	94	70-130			
Boron	985	50	"	1000	26.4	96	70-130			
Matrix Spike (1810760-MS2)	**Source: 18L0948-01**			Prepared: 12/20/18 Analyzed: 12/21/18						
Aluminum	16100	50	µg/L	5000	12200	78	70-130			
Beryllium	917	1.0	"	1000	ND	92	70-130			
Iron	12100	100	"	1000	12000	11	70-130			QM-7
Manganese	1080	20	"	1000	158	92	70-130			
Zinc	933	10	"	1000	36.4	90	70-130			
Boron	1510	50	"	1000	610	90	70-130			
Batch 1810775 - EPA 7470A										
Blank (1810775-BLK1)				Prepared & Analyzed: 12/20/18						
Mercury	ND	0.050	µg/L							
LCS (1810775-BS1)				Prepared & Analyzed: 12/20/18						
Mercury	4.96	0.050	µg/L	5.00		99	85-115			
Matrix Spike (1810775-MS1)	**Source: 18L0925-01**			Prepared & Analyzed: 12/20/18						
Mercury	4.67	0.050	µg/L	5.00	ND	93	70-130			
Matrix Spike (1810775-MS2)	**Source: 18L0976-01**			Prepared & Analyzed: 12/20/18						
Mercury	4.89	0.050	µg/L	5.00	0.0491	97	70-130			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810754 - EPA 3510B GCNV										
Blank (1810754-BLK1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Aldrin	ND	0.0050	µg/L							
alpha-BHC	ND	0.010	"							
beta-BHC	ND	0.0050	"							
delta-BHC	ND	0.0050	"							
gamma-BHC (Lindane)	ND	0.020	"							
Chlordane	ND	0.10	"							
4,4´-DDD	ND	0.050	"							
4,4´-DDE	ND	0.050	"							
4,4´-DDT	ND	0.010	"							
Dieldrin	ND	0.010	"							
Endosulfan I	ND	0.020	"							
Endosulfan II	ND	0.010	"							
Endosulfan sulfate	ND	0.050	"							
Endrin	ND	0.010	"							
Endrin aldehyde	ND	0.010	"							
Heptachlor	ND	0.010	"							
Heptachlor epoxide	ND	0.010	"							
Methoxychlor	ND	10	"							
Aroclor 1016	ND	0.50	"							
Aroclor 1221	ND	0.50	"							
Aroclor 1232	ND	0.50	"							
Aroclor 1242	ND	0.50	"							
Aroclor 1248	ND	0.50	"							
Aroclor 1254	ND	0.50	"							
Aroclor 1260	ND	0.50	"							
Toxaphene	ND	0.50	"							
Surrogate: Tetrachloro-meta-xylene	*0.216*		*"*	*0.250*		*87*	*43-147*			
Surrogate: Decachlorobiphenyl	*0.231*		*"*	*0.250*		*92*	*43-139*			

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810754 - EPA 3510B GCNV										
LCS (1810754-BS1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Aldrin	0.435	0.0050	µg/L	0.500		87	50-130			
gamma-BHC (Lindane)	0.421	0.020	"	0.500		84	50-130			
4,4´-DDT	0.413	0.010	"	0.500		83	50-134			
Dieldrin	0.455	0.010	"	0.500		91	48-129			
Endrin	0.447	0.010	"	0.500		89	30-147			
Heptachlor	0.429	0.010	"	0.500		86	34-137			
Surrogate: Tetrachloro-meta-xylene	*0.184*		*"*	*0.250*		*74*	*43-147*			
Surrogate: Decachlorobiphenyl	*0.220*		*"*	*0.250*		*88*	*43-139*			
LCS Dup (1810754-BSD1)				Prepared: 12/19/18 Analyzed: 12/20/18						
Aldrin	0.495	0.0050	µg/L	0.500		99	50-130	13	30	
gamma-BHC (Lindane)	0.516	0.020	"	0.500		103	50-130	20	30	
4,4´-DDT	0.528	0.010	"	0.500		106	50-134	24	30	
Dieldrin	0.560	0.010	"	0.500		112	48-129	21	30	
Endrin	0.570	0.010	"	0.500		114	30-147	24	30	
Heptachlor	0.497	0.010	"	0.500		99	34-137	15	30	
Surrogate: Tetrachloro-meta-xylene	*0.206*		*"*	*0.250*		*82*	*43-147*			
Surrogate: Decachlorobiphenyl	*0.250*		*"*	*0.250*		*100*	*43-139*			
Matrix Spike (1810754-MS1)		**Source: 18L0919-01**		Prepared: 12/19/18 Analyzed: 12/20/18						
Aldrin	0.440	0.0050	µg/L	0.500	ND	88	48-143			
gamma-BHC (Lindane)	0.446	0.020	"	0.500	ND	89	37-146			
4,4´-DDT	0.452	0.010	"	0.500	ND	90	56-161			
Dieldrin	0.467	0.010	"	0.500	ND	93	42-146			
Endrin	0.421	0.010	"	0.500	ND	84	28-137			
Heptachlor	0.444	0.010	"	0.500	ND	89	36-135			
Surrogate: Tetrachloro-meta-xylene	*0.193*		*"*	*0.250*		*77*	*43-147*			
Surrogate: Decachlorobiphenyl	*0.231*		*"*	*0.250*		*93*	*43-139*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Organochlorine Pesticides by EPA Method 608 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810754 - EPA 3510B GCNV										
Matrix Spike Dup (1810754-MSD1)	**Source: 18L0919-01**			Prepared: 12/19/18 Analyzed: 12/20/18						
Aldrin	0.411	0.0050	µg/L	0.500	ND	82	48-143	7	30	
gamma-BHC (Lindane)	0.420	0.020	"	0.500	ND	84	37-146	6	30	
4,4´-DDT	0.427	0.010	"	0.500	ND	85	56-161	6	30	
Dieldrin	0.442	0.010	"	0.500	ND	88	42-146	5	30	
Endrin	0.395	0.010	"	0.500	ND	79	28-137	7	30	
Heptachlor	0.414	0.010	"	0.500	ND	83	36-135	7	30	
Surrogate: Tetrachloro-meta-xylene	*0.183*		*"*	*0.250*		*73*	*43-147*			
Surrogate: Decachlorobiphenyl	*0.223*		*"*	*0.250*		*89*	*43-139*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810758 - EPA 3510B HPLC										
Blank (1810758-BLK1)				Prepared: 12/19/18 Analyzed: 12/21/18						
Acenaphthene	ND	0.50	µg/L							
Acenaphthylene	ND	0.20	"							
Anthracene	ND	0.20	"							
Benzo (a) anthracene	ND	0.20	"							
Benzo (a) pyrene	ND	0.10	"							
Benzo (g,h,i) perylene	ND	0.20	"							
Benzo (b) fluoranthene	ND	0.50	"							
Benzo (k) fluoranthene	ND	0.20	"							
Chrysene	ND	0.20	"							
Dibenz (a,h) anthracene	ND	0.10	"							
Fluoranthene	ND	0.20	"							
Fluorene	ND	0.20	"							
Indeno (1,2,3-cd) pyrene	ND	0.050	"							
Naphthalene	ND	0.20	"							
Phenanthrene	ND	0.20	"							
Pyrene	ND	0.20	"							
Surrogate: Terphenyl-dl4	*0.959*		*"*	*1.00*		*96*	*70-130*			
LCS (1810758-BS1)				Prepared: 12/19/18 Analyzed: 12/21/18						
Benzo (g,h,i) perylene	1.25	0.20	µg/L	1.00		125	60-140			
Chrysene	1.07	0.20	"	1.00		107	60-140			
Phenanthrene	0.998	0.20	"	1.00		100	50-150			
Surrogate: Terphenyl-dl4	*1.00*		*"*	*1.00*		*100*	*70-130*			
LCS Dup (1810758-BSD1)				Prepared: 12/19/18 Analyzed: 12/21/18						
Benzo (g,h,i) perylene	1.21	0.20	µg/L	1.00		121	60-140	3	35	
Chrysene	1.11	0.20	"	1.00		111	60-140	3	35	
Phenanthrene	1.08	0.20	"	1.00		108	50-150	8	35	
Surrogate: Terphenyl-dl4	*1.01*		*"*	*1.00*		*101*	*70-130*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810758 - EPA 3510B HPLC										
Matrix Spike (1810758-MS1)	**Source: 18L1047-01**			Prepared: 12/20/18 Analyzed: 12/21/18						
Benzo (g,h,i) perylene	1.22	0.20	µg/L	1.00	ND	122	60-140			
Chrysene	1.06	0.20	"	1.00	ND	106	60-140			
Phenanthrene	1.12	0.20	"	1.00	ND	112	50-150			
Surrogate: Terphenyl-dl4	*0.986*		*"*	*1.00*		*99*	*70-130*			
Matrix Spike Dup (1810758-MSD1)	**Source: 18L1047-01**			Prepared: 12/20/18 Analyzed: 12/21/18						
Benzo (g,h,i) perylene	1.13	0.20	µg/L	1.00	ND	113	60-140	7	35	
Chrysene	0.998	0.20	"	1.00	ND	100	60-140	6	35	
Phenanthrene	1.00	0.20	"	1.00	ND	100	50-150	11	35	
Surrogate: Terphenyl-dl4	*0.903*		*"*	*1.00*		*90*	*70-130*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810803 - EPA 5030 Water MS										
Blank (1810803-BLK1)				Prepared & Analyzed: 12/20/18						
Acrolein	ND	2.0	µg/L							
Acrylonitrile	ND	2.0	"							
Benzene	ND	0.50	"							
Bromoform	ND	0.50	"							
Carbon tetrachloride	ND	0.50	"							
Chlorobenzene	ND	0.50	"							
Dibromochloromethane	ND	0.50	"							
Chloroethane	ND	0.50	"							
2-Chloroethylvinyl ether	ND	1.0	"							
Chloroform	ND	0.50	"							
Bromodichloromethane	ND	0.50	"							
1,1-Dichloroethane	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,1-Dichloroethene	ND	0.50	"							
1,2-Dichloropropane	ND	0.50	"							
1,3-Dichloropropene (total)	ND	0.50	"							
Ethylbenzene	ND	2.0	"							
Bromomethane	ND	0.50	"							
Chloromethane	ND	2.0	"							
Methylene chloride	ND	2.0	"							
1,1,2,2-Tetrachloroethane	ND	0.50	"							
Tetrachloroethene	ND	0.50	"							
Toluene	ND	2.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1,1-Trichloroethane	ND	0.50	"							
1,1,2-Trichloroethane	ND	0.50	"							
Trichloroethene	ND	2.0	"							
Vinyl chloride	ND	0.50	"							
1,2-Dichlorobenzene	ND	0.50	"							
1,3-Dichlorobenzene	ND	2.0	"							
1,4-Dichlorobenzene	ND	0.50	"							

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Brunswick NPDES
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 18L0968
COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810803 - EPA 5030 Water MS										
Blank (1810803-BLK1)				Prepared & Analyzed: 12/20/18						
Hexachlorobutadiene	ND	1.0	µg/L							
1,2,4-Trichlorobenzene	ND	5.0	"							
Xylenes (total)	ND	0.50	"							
Styrene	ND	0.50	"							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	"							
cis-1,2-Dichloroethene	ND	0.50	"							
Naphthalene	ND	1.0	"							
Trichlorofluoromethane	ND	5.0	"							
Total Trihalomethanes (THM)	ND	0.50	"							
Methyl tert-butyl ether	ND	3.0	"							
Surrogate: 1,2-Dichloroethane-d4	*9.07*		*"*	*10.0*		*91*	*66-135*			
Surrogate: Toluene-d8	*11.0*		*"*	*10.0*		*110*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*11.8*		*"*	*10.0*		*118*	*73-125*			
LCS (1810803-BS1)				Prepared & Analyzed: 12/20/18						
Benzene	20.6	0.50	µg/L	20.0		103	60-135			
Chlorobenzene	17.4	0.50	"	20.0		87	60-133			
1,1-Dichloroethene	22.1	0.50	"	20.0		111	42-150			
Toluene	17.8	2.0	"	20.0		89	60-137			
Trichloroethene	22.2	2.0	"	20.0		111	62-140			
Surrogate: 1,2-Dichloroethane-d4	*9.01*		*"*	*10.0*		*90*	*66-135*			
Surrogate: Toluene-d8	*11.4*		*"*	*10.0*		*114*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*11.3*		*"*	*10.0*		*113*	*73-125*			
LCS Dup (1810803-BSD1)				Prepared & Analyzed: 12/20/18						
Benzene	22.9	0.50	µg/L	20.0		115	60-135	11	25	
Chlorobenzene	17.8	0.50	"	20.0		89	60-133	2	25	
1,1-Dichloroethene	21.9	0.50	"	20.0		110	42-150	0.9	25	
Toluene	17.0	2.0	"	20.0		85	60-137	5	25	
Trichloroethene	21.3	2.0	"	20.0		107	62-140	4	25	
Surrogate: 1,2-Dichloroethane-d4	*8.30*		*"*	*10.0*		*83*	*66-135*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Purgeables by EPA Method 624 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1810803 - EPA 5030 Water MS										
LCS Dup (1810803-BSD1)				Prepared & Analyzed: 12/20/18						
Surrogate: Toluene-d8	*12.0*		*µg/L*	*10.0*		*120*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*10.8*		*"*	*10.0*		*108*	*73-125*			
Matrix Spike (1810803-MS1)	**Source: 18L1047-01**			Prepared & Analyzed: 12/20/18						
Benzene	25.6	0.50	µg/L	20.0	ND	128	32-152			
Chlorobenzene	23.6	0.50	"	20.0	ND	118	62-134			
1,1-Dichloroethene	23.8	0.50	"	20.0	ND	119	32-152			
Toluene	18.8	2.0	"	20.0	3.53	76	58-139			
Trichloroethene	22.5	2.0	"	20.0	ND	113	55-138			
Surrogate: 1,2-Dichloroethane-d4	*9.46*		*"*	*10.0*		*95*	*66-135*			
Surrogate: Toluene-d8	*11.6*		*"*	*10.0*		*116*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*10.8*		*"*	*10.0*		*108*	*73-125*			
Matrix Spike Dup (1810803-MSD1)	**Source: 18L1047-01**			Prepared & Analyzed: 12/20/18						
Benzene	22.0	0.50	µg/L	20.0	ND	110	32-152	15	25	
Chlorobenzene	21.7	0.50	"	20.0	ND	109	62-134	8	25	
1,1-Dichloroethene	22.9	0.50	"	20.0	ND	114	32-152	4	25	
Toluene	17.7	2.0	"	20.0	3.53	71	58-139	6	25	
Trichloroethene	22.5	2.0	"	20.0	ND	113	55-138	0	25	
Surrogate: 1,2-Dichloroethane-d4	*11.6*		*"*	*10.0*		*116*	*66-135*			
Surrogate: Toluene-d8	*11.0*		*"*	*10.0*		*110*	*72-125*			
Surrogate: 4-Bromofluorobenzene	*8.57*		*"*	*10.0*		*86*	*73-125*			

EMKO Environmental, Inc.	Project:	Brunswick NPDES	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 18L0968**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 194536, 194533, 194691, 194534

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
Cr3	The result was obtained based upon the assumption that total chromium is the summation of trivalent chromium and hexavalent chromium.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1812967

Report Created for: CLS Labs

3249 Fitzgerald Road
Rancho Cordova, CA 95742

Project Contact: Mark Smith
Project P.O.:
Project: 18L0968

Project Received: 12/19/2018

Analytical Report reviewed & approved for release on 12/26/2018 by:



Christine Askari
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.



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Glossary of Terms & Qualifier Definitions

Client: CLS Labs
Project: 18L0968
WorkOrder: 1812967

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

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Glossary of Terms & Qualifier Definitions

Client: CLS Labs
Project: 18L0968
WorkOrder: 1812967

Aquatic Toxicity Test Abbreviation

--	No Data, Cell Intended to be Blank
ANOVA	Analysis of Variance
ASTM	American Society for Testing and Materials
AUX	Auxiliary Control
Aux Control	Method Blank or Lab Control water subjected to same tratment as the 100% sample.
BLK	Treatment Blank
CFR	Code of Federal Regulations
CTL	Laboratory Control
CV	Coefficient of Variation
EPA	U.S. Environmental Protection Agency
IC25	Inhibition Concentration, 25 percent
IWC	Instream Waste Concentration
LC50	Lethal Concentration, 50 percent
LOEC	Lowest Observed Effect Concentration
MDL	Maximum Daily Limit
MSD	Minimum Significant Difference
N/A	Not Applicable
NELAP	National Environment Laboratory Accreditation Program
NM	Not Measured
NOEC	No Observed Effect Concentration
NPDES	National Pollutant Discharge Elimination System
PMSD	Percent Minimum Significant Difference
QA	Quality Assurance
QC	Quality Control
RW	Receiving Water
RWC	Receiving Water Concentration
TAC	Test Acceptability Criteria
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSD	EPA's Technical Support Document for Water Quality-based Toxics Control
TU	Toxic Unit (Tua = acute toxicity; Tuc = chronic toxicity)
VF	Variability Factor
WLA	Waste Load Allocation

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-001A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	NBS-Pump	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Concentration	Temperature (°C)	pH		D. O. (mg/L)		EC (µS/cm)		Survival		Comments	
	Initial	Initial	Final	Initial	Final	Initial	Final	A	B		
Control	12.8	7.89		9.20		341		10	10	DateTime:	12/19/18 16:47
100%	12.7	7.46		9.90		405		10	10	SampleID:	1812967-001A
Meter ID	1AT	MM02		MM02		MM02				Soln Prep:	AA
										New WQ:	AA
										Test Init.:	CP
Control	12.1		7.49		8.90		346	10	10	DateTime:	12/20/18 11:15
100%	12.3		7.50		8.76		408	10	10	Test Maint:	CP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	CP
Control	12.2	8.07	7.73	9.43	8.56	341	349	10	10	DateTime:	12/21/18 14:55
100%	12.3	7.54	7.75	10.1	7.97	403	408	10	10	SampleID:	1812967-001A
Meter ID	1AT	MM02	MM02	MM02	MM02	MM02	MM02			Soln Prep:	CP
										New WQ:	RAP
										Test Maint:	CP
										Old WQ:	CP
Control	12.4		7.56		8.65		345	10	10	DateTime:	12/22/18 9:07
100%	12.3		7.79		8.40		407	10	10	Test Maint:	AA
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	AA
Control	12.1		7.51		8.46		350	10	10	DateTime:	12/23/18 14:55
100%	12.2		7.97		7.97		412	10	10	Test Term.:	RAP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	RAP

(Cont.)

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968

WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-001A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	NBS-Pump	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Sample LogIn Water Quality Characteristics

Sample ID	Sample Collected DateTime	Sample Received DateTime	Temp (°C)	pH	Dissolved O_2 (mg/L)	Specific Conductivity (uS/cm)	Bulk WQ Scientist	Total Chlorine (mg Cl_2/L)	Total Ammonia (mg NH_3-N/L)	Hardness (mg $CaCO_3$/L)	Total Alkalinity (mg $CaCO_3$/L)
1812967-001A	12/18/18 11:04	12/19/18 10:10	1.4	7.22	8.63	405.8	CP	<0.03	<0.05	197	217
--	--	--	--	--	--	--	--	--	--	--	--

Result: This sample passed the effluent toxicity test. There was 100% survival in the Control treatment and 100% survival in the 100% effluent treatment after 96hrs.

12/21/18: Only one 10 Liter effluent sample was provided for initiation & renewal, therefore could only preform a 25% renewal on day 2. Client was notified regarding the limited volume for the test solution renewal prior to test initiation. -CP

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-002A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Down	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Concentration	Temperature (°C)	pH		D. O. (mg/L)		EC (µS/cm)		Survival		Comments	
	Initial	Initial	Final	Initial	Final	Initial	Final	A	B		
Control	12.8	7.89		9.20		341		10	10	DateTime:	12/19/18 16:47
100%	12.7	7.56		11.8		163		10	10	SampleID:	1812967-002A
Meter ID	1AT	MM02		MM02		MM02				Soln Prep:	AA
										New WQ:	AA
										Test Init.:	CP
Control	12.1		7.49		8.90		346	10	10	DateTime:	12/20/18 11:15
100%	12.3		7.41		9.71		162	10	10	Test Maint:	CP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	CP
Control	12.2	8.07	7.73	9.43	8.56	341	349	10	10	DateTime:	12/21/18 14:55
100%	12.3	7.61	7.63	10.5	8.30	159	164	10	10	SampleID:	1812967-002A
Meter ID	1AT	MM02	MM02	MM02	MM02	MM02	MM02			Soln Prep:	CP
										New WQ:	RAP
										Test Maint:	CP
										Old WQ:	CP
Control	12.4		7.56		8.65		345	10	10	DateTime:	12/22/18 9:07
100%	12.3		7.48		7.85		163	10	10	Test Maint:	AA
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	AA
Control	12.1		7.51		8.46		350	10	10	DateTime:	12/23/18 14:55
100%	12.3		7.52		8.22		167	10	10	Test Term.:	RAP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	RAP

(Cont.)

CA ELAP 1644

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968

WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-002A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Down	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Sample LogIn Water Quality Characteristics

Sample ID	Sample Collected DateTime	Sample Received DateTime	Temp (°C)	pH	Dissolved O_2 (mg/L)	Specific Conductivity (uS/cm)	Bulk WQ Scientist	Total Chlorine (mg Cl_2/L)	Total Ammonia (mg NH_3-N/L)	Hardness (mg $CaCO_3$/L)	Total Alkalinity (mg $CaCO_3$/L)
1812967-002A	12/18/18 13:25	12/19/18 10:10	1.4	7.25	11.47	158.6	CP	<0.03	<0.05	76	77
--	--	--	--	--	--	--	--	--	--	--	--

Result: This sample passed the effluent toxicity test. There was 100% survival in the Control treatment and 100% survival in the 100% effluent treatment after 96hrs.

12/21/18: Only one 10 Liter effluent sample was provided for initiation & renewal, therefore could only preform a 25% renewal on day 2. Client was notified regarding the limited volume for the test solution renewal prior to test initiation. -CP

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-003A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Mid	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Concentration	Temperature (°C)	pH		D. O. (mg/L)		EC (µS/cm)		Survival		Comments	
	Initial	Initial	Final	Initial	Final	Initial	Final	A	B		
Control	12.8	7.89		9.20		341		10	10	DateTime:	12/19/18 16:47
100%	12.8	7.70		11.6		135		10	10	SampleID:	1812967-003A
Meter ID	1AT	MM02		MM02		MM02				Soln Prep:	AA
										New WQ:	AA
										Test Init.:	CP
Control	12.1		7.49		8.90		346	10	10	DateTime:	12/20/18 11:15
100%	12.3		7.41		9.61		135	10	10	Test Maint:	CP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	CP
Control	12.2	8.07	7.73	9.43	8.56	341	349	10	10	DateTime:	12/21/18 14:55
100%	12.3	7.69	7.43	11.1	8.42	134	136	10	10	SampleID:	1812967-003A
Meter ID	1AT	MM02	MM02	MM02	MM02	MM02	MM02			Soln Prep:	CP
										New WQ:	RAP
										Test Maint:	CP
										Old WQ:	CP
Control	12.4		7.56		8.65		345	10	10	DateTime:	12/22/18 9:07
100%	12.3		7.41		8.27		136	10	10	Test Maint:	AA
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	AA
Control	12.1		7.51		8.46		350	10	10	DateTime:	12/23/18 14:55
100%	12.3		7.39		8.56		139	10	10	Test Term.:	RAP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	RAP

(Cont.)

CA ELAP 1644

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-003A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Mid	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Sample LogIn Water Quality Characteristics

Sample ID	Sample Collected DateTime	Sample Received DateTime	Temp (°C)	pH	Dissolved O_2 (mg/L)	Specific Conductivity (uS/cm)	Bulk WQ Scientist	Total Chlorine (mg Cl_2/L)	Total Ammonia (mg NH_3-N/L)	Hardness (mg $CaCO_3$/L)	Total Alkalinity (mg $CaCO_3$/L)
1812967-003A	12/18/18 12:02	12/19/18 10:10	1.4	7.42	11.8	133	CP	<0.03	<0.05	61	61
--	--	--	--	--	--	--	--	--	--	--	--

Result: This sample passed the effluent toxicity test. There was 100% survival in the Control treatment and 100% survival in the 100% effluent treatment after 96hrs.

12/21/18: Only one 10 Liter effluent sample was provided for initiation & renewal, therefore could only preform a 25% renewal on day 2. Client was notified regarding the limited volume for the test solution renewal prior to test initiation. -CP

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-004A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Up	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Concentration	Temperature (°C)	pH		D. O. (mg/L)		EC (µS/cm)		Survival		Comments	
	Initial	Initial	Final	Initial	Final	Initial	Final	A	B		
Control	12.8	7.89		9.20		341		10	10	DateTime:	12/19/18 16:47
100%	12.7	7.76		11.7		202		10	10	SampleID:	1812967-004A
Meter ID	1AT	MM02		MM02		MM02				Soln Prep:	AA
										New WQ:	AA
										Test Init.:	CP
Control	12.1		7.49		8.90		346	10	10	DateTime:	12/20/18 11:15
100%	12.2		7.59		9.74		210	10	10	Test Maint:	CP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	CP
Control	12.2	8.07	7.73	9.43	8.56	341	349	10	10	DateTime:	12/21/18 14:55
100%	12.3	7.79	7.44	11.1	8.50	202	212	10	10	SampleID:	1812967-004A
Meter ID	1AT	MM02	MM02	MM02	MM02	MM02	MM02			Soln Prep:	CP
										New WQ:	RAP
										Test Maint:	CP
										Old WQ:	CP
Control	12.4		7.56		8.65		345	10	10	DateTime:	12/22/18 9:07
100%	12.3		7.50		8.17		209	10	10	Test Maint:	AA
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	AA
Control	12.1		7.51		8.46		350	10	10	DateTime:	12/23/18 14:55
100%	12.3		7.51		8.30		212	10	10	Test Term.:	RAP
Meter ID	1AT		MM02		MM02		MM02			Old WQ:	RAP

(Cont.)

CA ELAP 1644

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Analytical Report

Client: CLS Labs
Date Received: 12/19/18 10:10
Project: 18L0968
WorkOrder: 1812967
Analytical Method: EPA 2019.0
Sample Matrix: Water

Acute (96hr) 100% Concentration Only Fish Bioassay with a 48hr Renewal Using Rainbow Trout

Lab ID	1812967-004A	Species	*Oncorhynchus mykiss*	Organism Age (Days)	23
Client ID	WC-Up	Common Name	Rainbow Trout	T0 Feed	N/A
Control Water Batch#	EPAMH 156	Organism Supplier	TFC	T48 Feed	N/A
Control Water	Moderately hard synthetic water	Organism Log#	181218RBT	Sample Type	Effluent
Randomization №	2.2.A	BatchID	170234	Test Location	TR1.2B

Sample LogIn Water Quality Characteristics

Sample ID	Sample Collected DateTime	Sample Received DateTime	Temp (°C)	pH	Dissolved O_2 (mg/L)	Specific Conductivity (uS/cm)	Bulk WQ Scientist	Total Chlorine (mg Cl_2/L)	Total Ammonia (mg NH_3-N/L)	Hardness (mg $CaCO_3$/L)	Total Alkalinity (mg $CaCO_3$/L)
1812967-004A	12/18/18 12:46	12/19/18 10:10	1.4	7.47	11.91	202.2	CP	<0.03	<0.05	95	89
--	--	--	--	--	--	--	--	--	--	--	--

Result: This sample passed the effluent toxicity test. There was 100% survival in the Control treatment and 100% survival in the 100% effluent treatment after 96hrs.

12/21/18: Only one 10 Liter effluent sample was provided for initiation & renewal, therefore could only preform a 25% renewal on day 2. Client was notified regarding the limited volume for the test solution renewal prior to test initiation. -CP

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1812967 **ClientCode: CLSR**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
▣ Detection Summary ▣ Dry-Weight

Report to:
Mark Smith
CLS Labs
3249 Fitzgerald Road
Rancho Cordova, CA 95742
(916) 638-7301 FAX: (916) 638-4510

Email: marks@californialab.com; dataroom@calif
cc/3rd Party:
PO:
Project: 18L0968

Bill to:
Accounts Payable
CLS Labs
3249 Fitzgerald Road
Rancho Cordova, CA 95742

Requested TAT: **10 days;**

Date Received: **12/19/2018**
Date Logged: **12/19/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1812967-001	NBS-Pump	Water	12/18/2018 11:04	☐	A											
1812967-002	WC-Down	Water	12/18/2018 13:25	☐	A											
1812967-003	WC-Mid	Water	12/18/2018 12:02	☐	A											
1812967-004	WC-Up	Water	12/18/2018 12:46	☐	A											

Test Legend:

1	AAOM_Scn_96_R2	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: CLS LABS **Project:** 18L0968 **Work Order:** 1812967
Client Contact: Mark Smith **QC Level:** LEVEL 2
Contact's Email: marks@californialab.com; dataroom@californialab.com **Comments:** **Date Logged:** 12/19/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1812967-001A	NBS-Pump	Water	Acute 96-hr Static 48-hr Renewal Screen w/ RBT	2	2.5 G HDPE	☐	12/18/2018 11:04	10 days		☐	
1812967-002A	WC-Down	Water	Acute 96-hr Static 48-hr Renewal Screen w/ RBT	2	2.5 G HDPE	☐	12/18/2018 13:25	10 days		☐	
1812967-003A	WC-Mid	Water	Acute 96-hr Static 48-hr Renewal Screen w/ RBT	2	2.5 G HDPE	☐	12/18/2018 12:02	10 days		☐	
1812967-004A	WC-Up	Water	Acute 96-hr Static 48-hr Renewal Screen w/ RBT	2	2.5 G HDPE	☐	12/18/2018 12:46	10 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1812967

SUBCONTRACT ORDER

18L0968

QUOTE ID:
182034

SENDING LABORATORY:

CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
Phone: 916-638-7301
Fax: 916-638-4510
Project Manager: Mark Smith
[redacted]

RECEIVING LABORATORY:

McCampbell Analytical Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Bioassay-Acute Tox, Rainbow Trout SUB	10	01/04/19 12:00	12/19/18 23:04	18L0968-01	12/18/18 11:04	12/18/18 16:00	Water

Client sample ID: NBS-Pump
[redacted]
Laboratory sample ID: 18L0968-01
Please use client sample ID on all reports

Containers Supplied:
2.5 gal Cubitainer (S)

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Bioassay-Acute Tox, Rainbow Trout SUB	10	01/04/19 12:00	12/20/18 01:25	18L0968-02	12/18/18 13:25	12/18/18 16:00	Water

Client sample ID: WC-Down
[redacted]
Laboratory sample ID: 18L0968-02
Please use client sample ID on all reports

Containers Supplied:
2.5 gal Cubitainer (S)

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Bioassay-Acute Tox, Rainbow Trout SUB	10	01/04/19 12:00	12/20/18 00:02	18L0968-03	12/18/18 12:02	12/18/18 16:00	Water

Client sample ID: WC-Mid
[redacted]
Laboratory sample ID: 18L0968-03
Please use client sample ID on all reports

Containers Supplied:
2.5 gal Cubitainer (S)

Relinquished By	Date	Received By	Date
	12/19/18 1010		12/19/18 1010
Relinquished By	Date	Received By	Date
CLS			
Shipped By	Airbill Number		Page 3 of 3

1.4° wet

SUBCONTRACT ORDER

18L0968

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Bioassay-Acute Tox, Rainbow Trout SUB	10	01/04/19 12:00	12/20/18 00:46	18L0968-04	12/18/18 12:46	12/18/18 16:00	Water

Client sample ID: WC-Up

Laboratory sample ID: 18L0968-04

Please use client sample ID on all reports

Sampler:

Containers Supplied:

2.5 gal Cubitainer (S)

Relinquished By	Date	Received By	Date
	12/19/18		12/19/18 0720
	12/19/18 1010		12/19/18 1010
Shipped By	Airbill Number		Page 6 of 6

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Sample Receipt Checklist

Client Name:	**CLS Labs**	Date and Time Received	**12/19/2018 10:10**
Project:	**18L0968**	Date Logged:	**12/19/2018**
		Received by:	Jena Alfaro
WorkOrder №:	**1812967** Matrix: Water	Logged by:	Jena Alfaro
Carrier:	Client Drop-In		

Chain of Custody (COC) Information

Chain of custody present?	Yes	☑	No	☐		
Chain of custody signed when relinquished and received?	Yes	☑	No	☐		
Chain of custody agrees with sample labels?	Yes	☑	No	☐		
Sample IDs noted by Client on COC?	Yes	☑	No	☐		
Date and Time of collection noted by Client on COC?	Yes	☑	No	☐		
Sampler's name noted on COC?	Yes	☐	No	☑		
COC agrees with Quote?	Yes	☐	No	☐	NA	☑

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	☐	No	☐	NA	☑
Shipping container/cooler in good condition?	Yes	☑	No	☐		
Samples in proper containers/bottles?	Yes	☑	No	☐		
Sample containers intact?	Yes	☑	No	☐		
Sufficient sample volume for indicated test?	Yes	☑	No	☐		

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	☑	No	☐	NA	☐
Samples Received on Ice?	Yes	☑	No	☐		
(Ice Type: WET ICE)						
Sample/Temp Blank temperature	Temp: 1.4°C				NA	☐
Water - VOA vials have zero headspace / no bubbles?	Yes	☐	No	☐	NA	☑
Sample labels checked for correct preservation?	Yes	☑	No	☐		
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA	☑
UCMR Samples:						
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	Yes	☐	No	☐	NA	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	Yes	☐	No	☐	NA	☑

Comments:

EMSL Analytical, Inc.
464 McCormick Street San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order ID: 091826975
Customer ID: CALI52
Customer PO: 18L0968
Project ID:

Attn: Mark Smith
California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742

Phone: (916) 638-7301
Fax: (916) 638-4510
Received: 12/19/2018
Analyzed: 01/02/2019

Proj: 18L0968

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID / Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)	
NBS-PUMP 091826975-0001	12/19/2018 02:17 PM	10	1298	0.2460	None Detected	ND	0.53	<0.53	0.00 - 1.90
Collection Date/Time:	*12/18/2018 16:00*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
WC-DOWN 091826975-0002	12/19/2018 02:17 PM	50	1298	0.1353	None Detected	ND	0.19	<0.19	0.00 - 0.71
Collection Date/Time:	*12/18/2018 16:00*								
WC-MID 091826975-0003	12/19/2018 02:17 PM	50	1298	0.1353	None Detected	ND	0.19	<0.19	0.00 - 0.71
Collection Date/Time:	*12/18/2018 16:00*								
WC-UP 091826975-0004	12/19/2018 02:17 PM	50	1298	0.1353	None Detected	ND	0.19	<0.19	0.00 - 0.71
Collection Date/Time:	*12/18/2018 16:00*								

Analyst(s)
Vicky Zhao (4)

Matthew Batongbacal
or Other Approved Signatory

Any questions please contact Matthew Batongbacal.

Initial report from: 01/02/2019 11:04:49

Sample collection and containers provided by the client, acceptable bottle blank level is defined as ≤0.01MFL>10um. ND=None Detected. This report may not be reproduced, except in full, without written permission by EMSL Analytical, Inc. This report relates only to those items tested.Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA CA ELAP 1620, HI reciprocity, ID CA 01477, WA C884

OrderID: 091826975

SUBCONTRACT ORDER

18L0968

091826975

SENDING LABORATORY:

CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
Phone: 916-638-7301
Fax: 916-638-4510
Project Manager: Mark Smith
[redacted]

RECEIVING LABORATORY:

EMSL Analytical
464 McCormick Street
San Leandro, CA 94577
Phone :(510) 895-3675
Fax: (510) 895-3680

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
NPDES Asbestos-Water SUB	10	01/04/19 12:00	12/20/18 11:04	18L0968-01	12/18/18 11:04	12/18/18 16:00	Water

Client sample ID: NBS-Pump
[redacted]
Laboratory sample ID: 18L0968-01
Please use client sample ID on all reports

2.6

Containers Supplied:
1L Amber- Unpres. (H)

NPDES Asbestos-Water SUB	10	01/04/19 12:00	12/20/18 13:25	18L0968-02	12/18/18 13:25	12/18/18 16:00	Water

Client sample ID: WC-Down
[redacted]
Laboratory sample ID: 18L0968-02
Please use client sample ID on all reports

3.3

Containers Supplied:
1L Amber- Unpres. (H)

NPDES Asbestos-Water SUB	10	01/04/19 12:00	12/20/18 12:02	18L0968-03	12/18/18 12:02	12/18/18 16:00	Water

Client sample ID: WC-Mid
[redacted]
Laboratory sample ID: 18L0968-03
Please use client sample ID on all reports

2.9

Containers Supplied:
1L Amber- Unpres. (H)

Relinquished By	Date	Received By	Date
	12/19/18		12/19/18 - 0720H
Relinquished By	Date	Received By	Date
	12/19/18 1110H		12/19/18 11:15 AM
Shipped By	Airbill Number		
CYS			

Courier

OrderID: 091826975

SUBCONTRACT ORDER

18L0968

091826975

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
NPDES	10	01/04/19 12:00	12/20/18 12:46	18L0968-04	12/18/18 12:46	12/18/18 16:00	Water

Asbestos-Water SUB

Client sample ID: WC-Up

[redacted]

Laboratory sample ID: 18L0968-04

2.0 **Please use client sample ID on all reports**

Containers Supplied:

1L Amber- Unpres. (H)

Relinquished By — Date 12/19/18 — Received By — Date 12/19/18 0720

Relinquished By — Date 12/19/18 1100 — Received By — Date 12/19/18 11:15 AM courier

Shipped By CUS — Airbill Number

January 8, 2019

FAL Project ID: 12089

Mr. Mark Smith
California Laboratory Services
3249 Fitzgerald Road
Rancho Cordova, CA 95742

Dear Mr. Smith,

The following results are associated with Frontier Analytical Laboratory project **12089**. This corresponds to your subcontract order number **18L0968**. Four aqueous samples were received on 12/19/2018 in good condition. These samples were extracted and analyzed by EPA Method 1613 for 2,3,7,8-TCDD only. Frontier Analytical Laboratory's standard turnaround time of ten business days was provided for project **12089**.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains our sample tracking log and the analytical results. The Sample Receipt section contains your chain of custody, our sample login form and a sample photo. The attached results are specifically for the samples referenced in this report only. These results meet all National Environmental Laboratory Accreditation Program (NELAP) requirements and shall not be reproduced except in full. Frontier Analytical Laboratory's State of Oregon NELAP certificate number is **4041** and our State of California ELAP certificate number is **2934**. This report has been emailed to you as a portable document format (PDF) file. A hardcopy will not be sent to you unless specifically requested.

If you have any questions regarding project **12089**, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Bradley B. Silverbush
Director of Operations

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: **12089**

Received on: **12/19/2018** Project Due: **01/07/2019** Storage: **R-3**

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
12089-001-SA	0	18L0968	NBS-Pump	EPA 1613 TCDD	Aqueous	12/18/2018	11:04 am	12/18/2019
12089-002-SA	0	18L0968	WC-Down	EPA 1613 TCDD	Aqueous	12/18/2018	01:25 pm	12/18/2019
12089-003-SA	0	18L0968	WC-Mid	EPA 1613 TCDD	Aqueous	12/18/2018	12:02 pm	12/18/2019
12089-004-SA	0	18L0968	WC-Up	EPA 1613 TCDD	Aqueous	12/18/2018	12:46 pm	12/18/2019

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EPA Method 1613
TCDD

FAL ID: 12089-001-MB
Client ID: Method Blank
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	DL	Qual	MDL
2,3,7,8-TCDD	ND	0.687		0.233

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	89.1	31.0 - 137	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	83.5	42.0 - 164	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 1/8/2019

Reviewed By: DPV

Date: 1/8/2019

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EPA Method 1613
TCDD

FAL ID: 12089-001-OPR
Client ID: OPR
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: ng/ml

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	QC Limits
2,3,7,8-TCDD	9.90	7.30 - 14.6

Internal Standards	% Rec	QC Limits
13C-2,3,7,8-TCDD	86.4	25.0 - 141

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	89.5	37.0 - 158

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 1/8/2019

Reviewed By: DPV

Date: 1/8/2019

5172 Hillsdale Circle * El Dorado Hills, CA 95762 * Tel (916) 934-0900 * Fax (916) 934-0999 * www.frontieranalytical.com

EPA Method 1613
TCDD

FAL ID: 12089-001-SA
Client ID: NBS-Pump
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: 12-19-2018
Amount: 0.980 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	DL	Qual	MDL
2,3,7,8-TCDD	ND	0.735		0.233

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	80.4	31.0 - 137	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	83.4	42.0 - 164	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/8/2019

Reviewed By: DPV
Date: 1/8/2019

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EPA Method 1613
TCDD

FAL ID: 12089-002-SA
Client ID: WC-Down
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: 12-19-2018
Amount: 0.975 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	DL	Qual	MDL
2,3,7,8-TCDD	ND	0.749		0.233

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	85.3	31.0 - 137	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	86.6	42.0 - 164	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 1/8/2019

Reviewed By: DPV

Date: 1/8/2019

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EPA Method 1613
TCDD

FAL ID: 12089-003-SA
Client ID: WC-Mid
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: 12-19-2018
Amount: 0.956 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	DL	Qual	MDL
2,3,7,8-TCDD	ND	0.738		0.233

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	90.9	31.0 - 137	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	90.7	42.0 - 164	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 1/8/2019

Reviewed By: DPV

Date: 1/8/2019

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EPA Method 1613
TCDD

FAL ID: 12089-004-SA
Client ID: WC-Up
Matrix: Aqueous
Batch No: X4756

Date Extracted: 01-03-2019
Date Received: 12-19-2018
Amount: 0.960 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-07-2019
WHO TEQ: NA

Compound	Conc	DL	Qual	MDL
2,3,7,8-TCDD	ND	0.772		0.233

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	89.3	31.0 - 137	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	90.7	42.0 - 164	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/8/2019

Reviewed By: DPV
Date: 1/8/2019

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SUBCONTRACT ORDER

18L0968

12089
OOC

SENDING LABORATORY:

CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742
Phone: 916-638-7301
Fax: 916-638-4510
Project Manager: Mark Smith
[redacted]

RECEIVING LABORATORY:

Frontier Analytical
5172 Hillsdale Circle
El Dorado Hills, CA 95762
Phone :(916) 934-0900
Fax: (916) 934-0999

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Dioxin 1613 SUB	10	01/04/19 12:00	12/18/19 11:04	18L0968-01	12/18/18 11:04	12/18/18 16:00	Water

Client sample ID: NBS-Pump
Laboratory sample ID: 18L0968-01
Please use client sample ID on all reports

[redacted] 2,3,7,8-TCDD

Containers Supplied:
1L Amber- Unpres. (G)

Dioxin 1613 SUB	10	01/04/19 12:00	12/18/19 13:25	18L0968-02	12/18/18 13:25	12/18/18 16:00	Water

Client sample ID: WC-Down
Laboratory sample ID: 18L0968-02
Please use client sample ID on all reports

[redacted] 2,3,7,8-TCDD

Containers Supplied:
1L Amber- Unpres. (G)

Dioxin 1613 SUB	10	01/04/19 12:00	12/18/19 12:02	18L0968-03	12/18/18 12:02	12/18/18 16:00	Water

Client sample ID: WC-Mid
Laboratory sample ID: 18L0968-03
Please use client sample ID on all reports

[redacted] 2,3,7,8-TCDD

Containers Supplied:
1L Amber- Unpres. (G)

Relinquished By	Date 12/19/18	Received By	Date 12/19/18
Relinquished By	Date 12/19/18	Received By	Date 12/19/18. 1255
Shipped By CLS	Airbill Number		

SUBCONTRACT ORDER

18L0968

12089
OC

Analysis	TAT	Due	Expires	Laboratory ID	Sample Date	Received	Matrix
Dioxin 1613 SUB	10	01/04/19 12:00	12/18/19 12:46	18L0968-04	12/18/18 12:46	12/18/18 16:00	Water

Client sample ID: WC-Up
Laboratory sample ID: 18L0968-04
Please use client sample ID on all reports

[redacted] 2,3,7,8-TCDD

Containers Supplied:

1L Amber- Unpres. (G)

Relinquished By	Date	Received By	Date
Relinquished By	Date	Received By	Date
Shipped By	Airbill Number		

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **12089**

Client:	California Laboratory Services
Client Project ID:	18L0968
Date Received:	12/19/2018
Time Received:	12:55 pm
Received By:	KZ
Logged In By:	KZ
# of Samples Received:	4
Duplicates:	0
Storage Location:	R-3

Method of Delivery:	Courier
Tracking Number:	NA
Shipping Container Received Intact	Yes
Custody seals(s) present?	No
Custody seals(s) intact?	No
Sample Arrival Temperature (C)	0
Cooling Method	Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test aqueous sample for residual Chlorine	Yes
Sodium Thiosulfate Added	No
Adequate Sample Volume	Yes
Appropriate Sample Container	Yes
pH Range of Aqueous Sample	Between 4 and 9
Anomalies or additional comments:	

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CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

May 06, 2019

CLS Work Order #: 19D1152
COC #: 198230

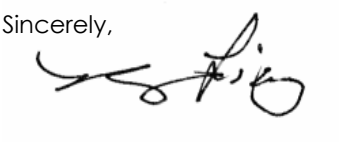
Dr. Andrew Kopania
EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project Name: Wolf Creek

Enclosed are the results of analyses for samples received by the laboratory on 04/18/19 08:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

CHAIN OF CUSTODY

CLS ID No.: 19D1152

LOG № 198230

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

REPORT TO:

NAME AND ADDRESS: EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

PROJECT MANAGER: Andy Kopania PHONE#: 916-718-5511

PROJECT NAME: Wolf Creek

SAMPLED BY: Andy Kopania

JOB DESCRIPTION:

SITE LOCATION: Grass Valley

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

GEOTHRACKER:
EDF REPORT ☐ YES ☒ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	General Minerals	Drinking Water Metals	Ammonia - 2.5 ug/L	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
4/17/19	10:35	IMD-1-419	W	1	1L	3	X						X	Ammonia Reporting Limit - 2.5ug/L
4/17/19	10:35	IMD-1-419	W	1	500mL	2		X					X	
4/17/19	10:35	IMD-1-419	W	1	125mL	5			X				X	
4/17/19	13:15	SF-Culvert	W	1	1L	3	X						X	
	13:15	SF-Culvert	W	1	500mL	2		X					X	
	13:15	SF-Culvert	W	1	125mL	5			X				X	
	13:55	SF-Pad	W	1	1L	3	X						X	
	13:55	SF-Pad	W	1	500mL	2		X					X	
	13:55	SF-Pad	W	1	125mL	5			X				X	INVOICE TO:
	15:45	WC-D	W	1	1L	3	X						X	
	15:45	WC-D	W	1	500mL	2		X					X	
↓	15:45	WC-D	W	1	125mL	5			X				X	P.O. #
														QUOTE #

Email/Address: akopania@sbcglobal.net

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Andy Kopania / EMKO	4/18/19 8:10 AM		

REC'D AT LAB BY: DATE / TIME: 4.18.19 0.4

CONDITIONS / COMMENTS: 4.4

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

CLS LABS

SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # 1901152

Problem discovered by: Graci Date: 9/18/19

Nature of problem

Sulfite Chlorine, Total Chlorine, Residual (Ph) Dissolved O2

(Circle analysis above) Received out of HOLD time.

Client contacted? Yes _____ No _____ Spoke With: _____

By whom: _____ Date: ___/___/___ Time: _____ HRS

Client instructions:

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1MD-1-419 (19D1152-01) Water Sampled: 04/17/19 10:35 Received: 04/18/19 08:10									
Ammonia as N	**0.087**	0.025	mg/L	1	1903235	04/22/19	04/22/19	SM4500-NH3F-1997	
Bicarbonate as CaCO3	**240**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Calcium	**46**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Chloride	**2.3**	0.50	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
Fluoride	ND	0.10	"	"	"	"	"	"	
Hardness as CaCO3	**120**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Magnesium	**18**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1903140	04/18/19	04/18/19	SM5540 C	
Nitrate as N	ND	0.40	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
pH	**7.20**	0.01	pH Units	"	1903121	04/18/19	04/18/19	SM4500-H B	HT-F
Potassium	**2.4**	1.0	mg/L	"	1903170	04/19/19	04/24/19	200.7/2340B	
Sodium	**11**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**450**	1.0	µmhos/cm	"	1903186	04/19/19	04/19/19	EPA 120.1	
Sulfate as SO4	**0.91**	0.50	mg/L	"	1903119	04/18/19	04/18/19	EPA 300.0	
Total Alkalinity	**240**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Total Dissolved Solids	**250**	10	"	"	1903164	04/18/19	04/22/19	SM2540C	
SF-Culvert (19D1152-02) Water Sampled: 04/17/19 13:15 Received: 04/18/19 08:10									
Ammonia as N	**0.040**	0.025	mg/L	1	1903235	04/22/19	04/22/19	SM4500-NH3F-1997	
Bicarbonate as CaCO3	**23**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Calcium	**4.6**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Chloride	**2.7**	0.50	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
Fluoride	ND	0.10	"	"	"	"	"	"	
Hardness as CaCO3	**11**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Magnesium	**1.8**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1903140	04/18/19	04/18/19	SM5540 C	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SF-Culvert (19D1152-02) Water Sampled: 04/17/19 13:15 Received: 04/18/19 08:10									
Nitrate as N	ND	0.40	mg/L	1	1903119	04/18/19	04/18/19	EPA 300.0	
pH	**6.82**	0.01	pH Units	"	1903121	"	"	SM4500-H B	HT-F
Potassium	**1.7**	1.0	mg/L	"	1903170	04/19/19	04/24/19	200.7/2340B	
Sodium	**3.1**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**68**	1.0	µmhos/cm	"	1903186	04/19/19	04/19/19	EPA 120.1	
Sulfate as SO4	**1.3**	0.50	mg/L	"	1903119	04/18/19	04/18/19	EPA 300.0	
Total Alkalinity	**23**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Total Dissolved Solids	**58**	10	"	"	1903164	04/18/19	04/22/19	SM2540C	
SF-Pad (19D1152-03) Water Sampled: 04/17/19 13:55 Received: 04/18/19 08:10									
Ammonia as N	ND	0.10	mg/L	1	1903235	04/22/19	04/22/19	SM4500-NH3F-1997	
Bicarbonate as CaCO3	**32**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Calcium	**7.1**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Chloride	**2.4**	0.50	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
Fluoride	ND	0.10	"	"	"	"	"	"	
Hardness as CaCO3	**18**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Magnesium	**2.9**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1903140	04/18/19	04/18/19	SM5540 C	
Nitrate as N	ND	0.40	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
pH	**7.38**	0.01	pH Units	"	1903121	"	04/18/19	SM4500-H B	HT-F
Potassium	**1.5**	1.0	mg/L	"	1903170	04/19/19	04/24/19	200.7/2340B	
Sodium	**2.9**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**82**	1.0	µmhos/cm	"	1903186	04/19/19	04/19/19	EPA 120.1	
Sulfate as SO4	**2.5**	0.50	mg/L	"	1903119	04/18/19	04/18/19	EPA 300.0	
Total Alkalinity	**32**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Total Dissolved Solids	**64**	10	"	"	1903164	04/18/19	04/22/19	SM2540C	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-D (19D1152-04) Water Sampled: 04/17/19 15:45 Received: 04/18/19 08:10									
Ammonia as N	ND	0.10	mg/L	1	1903235	04/22/19	04/22/19	SM4500-NH3F-1997	
Bicarbonate as CaCO3	**27**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Calcium	**5.1**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Carbonate as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Chloride	**2.0**	0.50	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
Fluoride	ND	0.10	"	"	"	"	"	"	
Hardness as CaCO3	**13**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
Hydroxide as CaCO3	ND	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Magnesium	**2.8**	1.0	"	"	1903170	04/19/19	04/24/19	200.7/2340B	
MBAS as LAS, mol wt 340	ND	0.10	"	"	1903140	04/18/19	04/18/19	SM5540 C	
Nitrate as N	ND	0.40	"	"	1903119	04/18/19	04/18/19	EPA 300.0	
pH	**7.55**	0.01	pH Units	"	1903121	"	04/18/19	SM4500-H B	HT-F
Potassium	ND	1.0	mg/L	"	1903170	04/19/19	04/24/19	200.7/2340B	
Sodium	**2.5**	1.0	"	"	"	"	"	"	
Specific Conductance (EC)	**69**	1.0	µmhos/cm	"	1903186	04/19/19	04/19/19	EPA 120.1	
Sulfate as SO4	**2.3**	0.50	mg/L	"	1903119	04/18/19	04/18/19	EPA 300.0	
Total Alkalinity	**27**	5.0	"	"	1903230	04/22/19	04/22/19	SM2320B	
Total Dissolved Solids	**56**	10	"	"	1903164	04/18/19	04/22/19	SM2540C	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1MD-1-419 (19D1152-01) Water Sampled: 04/17/19 10:35 Received: 04/18/19 08:10									
Aluminum	ND	50	µg/L	1	1903170	04/19/19	04/24/19	EPA 200.7	
Antimony	ND	4.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Arsenic	**38**	2.0	"	"	"	"	"	"	
Barium	**130**	100	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	**110**	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Chromium	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**1800**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Manganese	**180**	20	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Mercury	ND	1.0	"	"	1903159	04/18/19	04/19/19	EPA 245.1	
Nickel	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Selenium	ND	5.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Silver	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Thallium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
SF-Culvert (19D1152-02) Water Sampled: 04/17/19 13:15 Received: 04/18/19 08:10									
Aluminum	**210**	50	µg/L	1	1903170	04/19/19	04/24/19	EPA 200.7	
Antimony	ND	4.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Chromium	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**940**	100	"	"	"	"	"	"	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SF-Culvert (19D1152-02) Water Sampled: 04/17/19 13:15 Received: 04/18/19 08:10									
Lead	ND	5.0	µg/L	1	1903169	04/19/19	04/19/19	EPA 200.8	
Manganese	**140**	20	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Mercury	ND	1.0	"	"	1903159	04/18/19	04/19/19	EPA 245.1	
Nickel	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Selenium	ND	5.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Silver	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Thallium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
SF-Pad (19D1152-03) Water Sampled: 04/17/19 13:55 Received: 04/18/19 08:10									
Aluminum	**130**	50	µg/L	1	1903170	04/19/19	04/24/19	EPA 200.7	
Antimony	ND	4.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Chromium	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**310**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Manganese	**57**	20	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Mercury	ND	1.0	"	"	1903159	04/18/19	04/19/19	EPA 245.1	
Nickel	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Selenium	ND	5.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Silver	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Thallium	ND	1.0	"	"	1903169	04/19/19	04/19/19	EPA 200.8	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1903170	04/19/19	04/24/19	EPA 200.7	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WC-D (19D1152-04) Water Sampled: 04/17/19 15:45 Received: 04/18/19 08:10									
Aluminum	**130**	50	µg/L	1	1903170	04/19/19	04/24/19	EPA 200.7	
Antimony	ND	4.0	"	"	1903169	04/19/19	04/22/19	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Barium	ND	100	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Beryllium	ND	1.0	"	"	"	"	"	"	
Boron	ND	100	"	"	"	"	"	"	
Cadmium	ND	1.0	"	"	1903169	04/19/19	04/22/19	EPA 200.8	
Chromium	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Copper	ND	50	"	"	"	"	"	"	
Iron	**220**	100	"	"	"	"	"	"	
Lead	ND	5.0	"	"	1903169	04/19/19	04/22/19	EPA 200.8	
Manganese	**21**	20	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Mercury	ND	1.0	"	"	1903159	04/18/19	04/19/19	EPA 245.1	
Nickel	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Selenium	ND	5.0	"	"	1903169	04/19/19	04/22/19	EPA 200.8	
Silver	ND	10	"	"	1903170	04/19/19	04/24/19	EPA 200.7	
Thallium	ND	1.0	"	"	1903169	04/19/19	04/22/19	EPA 200.8	
Vanadium	ND	3.0	"	"	"	"	"	"	
Zinc	ND	50	"	"	1903170	04/19/19	04/24/19	EPA 200.7	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903119 - General Prep										
Blank (1903119-BLK1)				Prepared & Analyzed: 04/18/19						
Fluoride	ND	0.10	mg/L							
Sulfate as SO4	ND	0.50	"							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1903119-BS1)				Prepared & Analyzed: 04/18/19						
Chloride	4.78	0.50	mg/L	5.00		96	80-120			
Sulfate as SO4	5.12	0.50	"	5.00		102	80-120			
Fluoride	2.17	0.10	"	2.00		108	80-120			
Nitrate as N	1.98	0.40	"	2.00		99	80-120			
LCS Dup (1903119-BSD1)				Prepared & Analyzed: 04/18/19						
Chloride	4.69	0.50	mg/L	5.00		94	80-120	2	20	
Fluoride	2.08	0.10	"	2.00		104	80-120	4	20	
Sulfate as SO4	5.03	0.50	"	5.00		101	80-120	2	20	
Nitrate as N	1.94	0.40	"	2.00		97	80-120	2	20	
Matrix Spike (1903119-MS1)		**Source: 19D1124-04**		Prepared & Analyzed: 04/18/19						
Chloride	56.5	1.0	mg/L	10.0	49.9	66	80-120			QM-4X
Sulfate as SO4	40.7	1.0	"	10.0	31.4	94	80-120			
Fluoride	4.52	0.20	"	4.00	ND	113	80-120			
Nitrate as N	14.5	0.80	"	4.00	11.1	83	80-120			
Matrix Spike Dup (1903119-MSD1)		**Source: 19D1124-04**		Prepared & Analyzed: 04/18/19						
Sulfate as SO4	40.7	1.0	mg/L	10.0	31.4	94	80-120	0.06	20	
Fluoride	4.43	0.20	"	4.00	ND	111	80-120	2	20	
Chloride	56.8	1.0	"	10.0	49.9	69	80-120	0.4	20	QM-4X
Nitrate as N	14.5	0.80	"	4.00	11.1	84	80-120	0.08	20	

EMKO Environmental, Inc.	Project:	Wolf Creek
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 19D1152
COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903121 - General Prep										
Duplicate (1903121-DUP1)		**Source: 19D1107-01**		Prepared & Analyzed: 04/18/19						
pH	7.99	0.01	pH Units		7.98			0.125	20	
Batch 1903140 - General Preparation										
Blank (1903140-BLK1)				Prepared & Analyzed: 04/18/19						
MBAS as LAS, mol wt 340	ND	0.10	mg/L							
LCS (1903140-BS1)				Prepared & Analyzed: 04/18/19						
MBAS as LAS, mol wt 340	0.518	0.10	mg/L	0.500		104	80-120			
LCS Dup (1903140-BSD1)				Prepared & Analyzed: 04/18/19						
MBAS as LAS, mol wt 340	0.519	0.10	mg/L	0.500		104	80-120	0.2	20	
Matrix Spike (1903140-MS1)		**Source: 19D1152-01**		Prepared & Analyzed: 04/18/19						
MBAS as LAS, mol wt 340	0.549	0.10	mg/L	0.500	ND	110	75-125			
Matrix Spike Dup (1903140-MSD1)		**Source: 19D1152-01**		Prepared & Analyzed: 04/18/19						
MBAS as LAS, mol wt 340	0.539	0.10	mg/L	0.500	ND	108	75-125	2	25	
Batch 1903164 - General Preparation										
Blank (1903164-BLK1)				Prepared: 04/18/19 Analyzed: 04/22/19						
Total Dissolved Solids	ND	10	mg/L							
Duplicate (1903164-DUP1)		**Source: 19D1176-01**		Prepared: 04/18/19 Analyzed: 04/22/19						
Total Dissolved Solids	236	10	mg/L		230			3	20	

EMKO Environmental, Inc.	Project:	Wolf Creek
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El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 19D1152
COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903170 - EPA 200 Series										
Blank (1903170-BLK1)				Prepared: 04/19/19 Analyzed: 04/22/19						
Calcium	ND	1.0	mg/L							
Hardness as CaCO3	ND	1.0	"							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
LCS (1903170-BS1)				Prepared: 04/19/19 Analyzed: 04/22/19						
Calcium	4.68	1.0	mg/L	5.00		94	85-115			
Magnesium	4.37	1.0	"	5.00		87	85-115			
Potassium	5.78	1.0	"	5.00		116	85-115			QM-1
Sodium	5.22	1.0	"	5.00		104	85-115			
Matrix Spike (1903170-MS1)		**Source: 19D1176-01**		Prepared: 04/19/19 Analyzed: 04/22/19						
Calcium	21.1	1.0	mg/L	5.00	17.5	73	70-130			
Magnesium	19.9	1.0	"	5.00	16.7	63	70-130			QM-5
Potassium	7.34	1.0	"	5.00	2.63	94	70-130			
Sodium	41.9	1.0	"	5.00	39.5	49	70-130			QM-5
Matrix Spike (1903170-MS2)		**Source: 19D1081-01**		Prepared: 04/19/19 Analyzed: 04/22/19						
Calcium	26.0	1.0	mg/L	5.00	21.7	88	70-130			
Magnesium	35.2	1.0	"	5.00	31.6	72	70-130			
Potassium	7.11	1.0	"	5.00	2.04	101	70-130			
Sodium	61.0	1.0	"	5.00	56.6	89	70-130			
Batch 1903186 - General Preparation										
Blank (1903186-BLK1)				Prepared & Analyzed: 04/19/19						
Specific Conductance (EC)	ND	1.0	µmhos/cm							

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903186 - General Preparation										
Duplicate (1903186-DUP1)		**Source: 19D1193-05**		Prepared & Analyzed: 04/19/19						
Specific Conductance (EC)	530	1.0	µmhos/cm		550			3.70	20	
Batch 1903230 - General Prep										
Blank (1903230-BLK1)				Prepared & Analyzed: 04/22/19						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Duplicate (1903230-DUP1)		**Source: 19D1176-01**		Prepared & Analyzed: 04/22/19						
Total Alkalinity	108	5.0	mg/L		112			4	20	
Bicarbonate as CaCO3	108	5.0	"		112			4	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	
Batch 1903235 - General Preparation										
Blank (1903235-BLK1)				Prepared & Analyzed: 04/22/19						
Ammonia as N	ND	0.10	mg/L							
LCS (1903235-BS1)				Prepared & Analyzed: 04/22/19						
Ammonia as N	0.434	0.10	mg/L	0.500		87	80-120			
LCS Dup (1903235-BSD1)				Prepared & Analyzed: 04/22/19						
Ammonia as N	0.429	0.10	mg/L	0.500		86	80-120	1	25	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903235 - General Preparation										
Matrix Spike (1903235-MS1)		**Source: 19D1242-01**		Prepared & Analyzed: 04/22/19						
Ammonia as N	0.421	0.10	mg/L	0.500	0.0440	75	75-125			
Matrix Spike Dup (1903235-MSD1)		**Source: 19D1242-01**		Prepared & Analyzed: 04/22/19						
Ammonia as N	0.417	0.10	mg/L	0.500	0.0440	75	75-125	1	25	

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903159 - EPA 7470A										
Blank (1903159-BLK1)				Prepared: 04/18/19 Analyzed: 04/19/19						
Mercury	ND	1.0	µg/L							
LCS (1903159-BS1)				Prepared: 04/18/19 Analyzed: 04/19/19						
Mercury	4.47	1.0	µg/L	5.00		89	85-115			
Matrix Spike (1903159-MS1)	**Source: 19D1152-01**			Prepared: 04/18/19 Analyzed: 04/19/19						
Mercury	5.04	1.0	µg/L	5.00	0.182	97	70-130			
Matrix Spike (1903159-MS2)	**Source: 19D1176-04**			Prepared: 04/18/19 Analyzed: 04/19/19						
Mercury	4.67	1.0	µg/L	5.00	0.274	88	70-130			
Matrix Spike Dup (1903159-MSD1)	**Source: 19D1152-01**			Prepared: 04/18/19 Analyzed: 04/19/19						
Mercury	5.09	1.0	µg/L	5.00	0.182	98	70-130	1	25	
Batch 1903169 - EPA 200 Series										
Blank (1903169-BLK1)				Prepared & Analyzed: 04/19/19						
Antimony	ND	4.0	µg/L							
Arsenic	ND	2.0	"							
Cadmium	ND	1.0	"							
Lead	ND	5.0	"							
Nickel	ND	10	"							
Selenium	ND	5.0	"							
Silver	ND	10	"							
Vanadium	ND	3.0	"							
Thallium	1.13	1.0	"							QB-2

EMKO Environmental, Inc.
551 Lakecrest Dr.
El Dorado Hills, CA 95762

Project: Wolf Creek
Project Number: [none]
Project Manager: Dr. Andrew Kopania

CLS Work Order #: 19D1152
COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903169 - EPA 200 Series										
LCS (1903169-BS1)				Prepared & Analyzed: 04/19/19						
Antimony	94.6	4.0	µg/L	100		95	85-115			
Arsenic	97.7	2.0	"	100		98	85-115			
Cadmium	91.1	1.0	"	100		91	85-115			
Lead	95.9	5.0	"	100		96	85-115			
Nickel	104	10	"	100		104	85-115			
Selenium	102	5.0	"	100		102	85-115			
Silver	137	10	"	100		137	85-115			QM-1
Vanadium	93.4	3.0	"	100		93	85-115			
Thallium	113	1.0	"	100		113	85-115			
Matrix Spike (1903169-MS1)	**Source: 19D1176-01**			Prepared & Analyzed: 04/19/19						
Antimony	91.3	4.0	µg/L	100	ND	91	70-130			
Arsenic	92.7	2.0	"	100	ND	93	70-130			
Cadmium	88.9	1.0	"	100	ND	89	70-130			
Lead	93.5	5.0	"	100	ND	94	70-130			
Nickel	97.3	10	"	100	ND	97	70-130			
Selenium	95.3	5.0	"	100	ND	95	70-130			
Silver	79.0	10	"	100	ND	79	70-130			
Vanadium	91.9	3.0	"	100	0.786	91	70-130			
Thallium	110	1.0	"	100	0.449	110	70-130			
Matrix Spike (1903169-MS2)	**Source: 19D1081-01**			Prepared & Analyzed: 04/19/19						
Antimony	91.8	4.0	µg/L	100	ND	92	70-130			
Arsenic	96.2	2.0	"	100	3.49	93	70-130			
Cadmium	89.1	1.0	"	100	ND	89	70-130			
Lead	93.5	5.0	"	100	ND	94	70-130			
Nickel	101	10	"	100	2.18	99	70-130			
Selenium	96.3	5.0	"	100	1.09	95	70-130			
Silver	99.4	10	"	100	ND	99	70-130			
Vanadium	102	3.0	"	100	11.6	91	70-130			
Thallium	110	1.0	"	100	0.185	110	70-130			

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903170 - EPA 200 Series										
Blank (1903170-BLK1)				Prepared: 04/19/19 Analyzed: 04/22/19						
Aluminum	ND	50	µg/L							
Barium	ND	100	"							
Boron	ND	100	"							
Beryllium	ND	1.0	"							
Chromium	ND	10	"							
Copper	ND	50	"							
Iron	ND	100	"							
Manganese	ND	20	"							
Zinc	ND	50	"							
LCS (1903170-BS1)				Prepared: 04/19/19 Analyzed: 04/22/19						
Aluminum	4520	50	µg/L	5000		90	85-115			
Barium	1080	100	"	1000		108	85-115			
Boron	1060	100	"	1000		106	85-115			
Beryllium	1010	1.0	"	1000		101	85-115			
Chromium	1140	10	"	1000		114	85-115			
Copper	1090	50	"	1000		109	85-115			
Iron	964	100	"	1000		96	85-115			
Manganese	1090	20	"	1000		109	85-115			
Zinc	1030	50	"	1000		103	85-115			
Matrix Spike (1903170-MS1)	**Source: 19D1176-01**			Prepared: 04/19/19 Analyzed: 04/22/19						
Aluminum	5440	50	µg/L	5000	1120	87	70-130			
Barium	1080	100	"	1000	47.3	103	70-130			
Boron	1190	100	"	1000	179	101	70-130			
Beryllium	973	1.0	"	1000	ND	97	70-130			
Chromium	1070	10	"	1000	ND	107	70-130			
Copper	1360	50	"	1000	383	98	70-130			
Iron	948	100	"	1000	12.9	94	70-130			
Manganese	1010	20	"	1000	ND	101	70-130			
Zinc	1010	50	"	1000	31.6	98	70-130			

EMKO Environmental, Inc.	Project:	Wolf Creek
551 Lakecrest Dr.	Project Number:	[none]
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania

CLS Work Order #: 19D1152
COC #: 198230

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1903170 - EPA 200 Series										
Matrix Spike (1903170-MS2)	**Source: 19D1081-01**			Prepared: 04/19/19 Analyzed: 04/22/19						
Aluminum	4450	50	µg/L	5000	29.0	88	70-130			
Barium	1100	100	"	1000	96.8	101	70-130			
Boron	2410	100	"	1000	1410	99	70-130			
Beryllium	957	1.0	"	1000	ND	96	70-130			
Chromium	1030	10	"	1000	ND	103	70-130			
Copper	976	50	"	1000	ND	98	70-130			
Iron	1260	100	"	1000	149	112	70-130			
Manganese	1060	20	"	1000	56.7	100	70-130			
Zinc	1190	50	"	1000	211	98	70-130			

EMKO Environmental, Inc.	Project:	Wolf Creek	
551 Lakecrest Dr.	Project Number:	[none]	**CLS Work Order #: 19D1152**
El Dorado Hills, CA 95762	Project Manager:	Dr. Andrew Kopania	COC #: 198230

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
QB-2	The analyte was detected in the method blank or calibration verfication blank. A re-analysis was not performed since all sample results for the analyte are ND.
HT-F	This is a field test method and it is performed in the lab outside holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Appendix D – Laboratory Analytical Reports - Geochemistry

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 18, 2019

Report to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

cc: Andy Kopania

Bill to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

Project ID:
ACZ Project ID: L55806

Ben Mossman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 11, 2019. This project has been assigned to ACZ's project number, L55806. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L55806. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 17, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-1

ACZ Sample ID: ***L55806-01***
Date Sampled: *10/29/19 10:45*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.94		*	mg/L	0.05	0.3	11/26/19 10:18	kja
Aluminum, total (3050)	M6010D ICP	100	23000		*	mg/Kg	5	30	12/03/19 0:25	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0006	B	*	mg/L	0.0004	0.002	11/27/19 15:12	mfm
Antimony, total (3050)	M6020B ICP-MS	500		U	*	mg/Kg	0.2	1	12/04/19 13:49	bsu
Arsenic (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0002	0.001	11/27/19 15:12	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.2	B		mg/Kg	0.1	0.5	12/04/19 13:49	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:18	kja
Barium, total (3050)	M6010D ICP	100	2.3	B		mg/Kg	0.7	4	12/03/19 0:25	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:12	mfm
Beryllium, total (3050)	M6020B ICP-MS	500	0.07	B		mg/Kg	0.04	0.1	12/04/19 13:49	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:18	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 0:25	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:12	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.29			mg/Kg	0.03	0.1	12/04/19 13:49	bsu
Calcium (WET DI)	6010D ICP	1	6.0			mg/L	0.1	0.5	11/26/19 10:18	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:18	kja
Chromium, total (3050)	M6010D ICP	100	144			mg/Kg	1	5	12/03/19 0:25	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:18	kja
Cobalt, total (3050)	M6010D ICP	100	24		*	mg/Kg	1	5	12/03/19 0:25	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:18	kja
Copper, total (3050)	M6010D ICP	100	141			mg/Kg	1	5	12/03/19 0:25	kja
Iron (WET DI)	6010D ICP	1	0.05	B	*	mg/L	0.03	0.08	11/26/19 10:18	kja
Iron, total (3050)	M6010D ICP	100	45600		*	mg/Kg	3	8	12/03/19 0:25	kja
Lead (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	11/27/19 15:12	mfm
Lead, total (3050)	M6020B ICP-MS	500	1.45			mg/Kg	0.05	0.3	12/04/19 13:49	bsu
Magnesium (WET DI)	6010D ICP	1	0.6	B		mg/L	0.2	1	11/26/19 10:18	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:18	kja
Manganese, total (3050)	M6010D ICP	100	604		*	mg/Kg	1	5	12/03/19 0:25	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:49	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	25.9		*	ng/g	1.57	7.85	11/19/19 13:29	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:18	kja
Molybdenum, total (3050)	M6010D ICP	100		U	*	mg/Kg	2	10	12/03/19 0:25	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:18	kja
Nickel, total (3050)	M6010D ICP	100	51.0		*	mg/Kg	0.8	4	12/03/19 0:25	kja
Potassium (WET DI)	6010D ICP	1	1.2			mg/L	0.2	1	11/26/19 10:18	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0003	11/27/19 15:12	mfm
Selenium, total (3050)	M6020B ICP-MS	500	1.07			mg/Kg	0.05	0.1	12/04/19 13:49	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:12	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.12	B		mg/Kg	0.05	0.3	12/04/19 13:49	bsu
Sodium (WET DI)	M6010D ICP	1	4.9			mg/L	0.2	1	11/26/19 10:18	kja
Thallium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:12	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-1

ACZ Sample ID: ***L55806-01***
Date Sampled: *10/29/19 10:45*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 13:49	bsu
Vanadium (WET DI)	6010D ICP	1	0.030		*	mg/L	0.005	0.03	11/26/19 10:18	kja
Vanadium, total (3050)	M6010D ICP	200	126		*	mg/Kg	1	5	12/04/19 3:38	jlw
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:18	kja
Zinc, total (3050)	M6010D ICP	100	60			mg/Kg	1	5	12/03/19 0:25	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.7			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/02/19 19:30	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:15	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:15	llr
Digestion - Hot Plate	M3050B ICP								11/26/19 13:34	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:34	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 1:14	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	21.6			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	2.8	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	24.4			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	4.4		*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	61			umhos/cm	1	10	11/25/19 14:24	emk
Fluoride (WET DI)	SM4500F-C	1	0.2	B	*	mg/L	0.1	0.4	11/26/19 12:52	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		18			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2			UH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.02	0.1	11/21/19 23:54	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/21/19 23:54	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	2	76	B	*	mg/L	40	80	11/22/19 12:21	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	3.3	B	*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-2

ACZ Sample ID: ***L55806-02***
Date Sampled: *10/29/19 11:05*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	1.08		*	mg/L	0.05	0.3	11/26/19 10:22	kja
Aluminum, total (3050)	M6010D ICP	100	24400		*	mg/Kg	5	30	12/03/19 0:29	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0041		*	mg/L	0.0004	0.002	11/27/19 15:14	mfm
Antimony, total (3050)	M6020B ICP-MS	500		U	*	mg/Kg	0.2	1	12/04/19 13:51	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0051		*	mg/L	0.0002	0.001	11/27/19 15:14	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	6.1			mg/Kg	0.1	0.5	12/04/19 13:51	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:22	kja
Barium, total (3050)	M6010D ICP	100	9.4			mg/Kg	0.7	4	12/03/19 0:29	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:14	mfm
Beryllium, total (3050)	M6020B ICP-MS	500	0.16			mg/Kg	0.04	0.1	12/04/19 13:51	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:22	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 0:29	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:14	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.18			mg/Kg	0.03	0.1	12/04/19 13:51	bsu
Calcium (WET DI)	6010D ICP	1	4.6			mg/L	0.1	0.5	11/26/19 10:22	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:22	kja
Chromium, total (3050)	M6010D ICP	100	43			mg/Kg	1	5	12/03/19 0:29	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:22	kja
Cobalt, total (3050)	M6010D ICP	100	18		*	mg/Kg	1	5	12/03/19 0:29	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:22	kja
Copper, total (3050)	M6010D ICP	100	43			mg/Kg	1	5	12/03/19 0:29	kja
Iron (WET DI)	6010D ICP	1	0.08		*	mg/L	0.03	0.08	11/26/19 10:22	kja
Iron, total (3050)	M6010D ICP	100	42100		*	mg/Kg	3	8	12/03/19 0:29	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:14	mfm
Lead, total (3050)	M6020B ICP-MS	500	4.44			mg/Kg	0.05	0.3	12/04/19 13:51	bsu
Magnesium (WET DI)	6010D ICP	1	0.6	B		mg/L	0.2	1	11/26/19 10:22	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:22	kja
Manganese, total (3050)	M6010D ICP	100	747		*	mg/Kg	1	5	12/03/19 0:29	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:50	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	35.1		*	ng/g	1.59	7.95	11/19/19 13:36	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:22	kja
Molybdenum, total (3050)	M6010D ICP	100		U	*	mg/Kg	2	10	12/03/19 0:29	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:22	kja
Nickel, total (3050)	M6010D ICP	100	26.8		*	mg/Kg	0.8	4	12/03/19 0:29	kja
Potassium (WET DI)	6010D ICP	1	3.0			mg/L	0.2	1	11/26/19 10:22	kja
Selenium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0003	11/27/19 15:14	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.12			mg/Kg	0.05	0.1	12/04/19 13:51	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:14	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.42			mg/Kg	0.05	0.3	12/04/19 13:51	bsu
Sodium (WET DI)	M6010D ICP	1	6.9			mg/L	0.2	1	11/26/19 10:22	kja
Thallium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:14	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-2

ACZ Sample ID: ***L55806-02***
Date Sampled: *10/29/19 11:05*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 13:51	bsu
Vanadium (WET DI)	6010D ICP	1	0.035		*	mg/L	0.005	0.03	11/26/19 10:22	kja
Vanadium, total (3050)	M6010D ICP	200	167		*	mg/Kg	1	5	12/04/19 3:42	jlw
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:22	kja
Zinc, total (3050)	M6010D ICP	100	59			mg/Kg	1	5	12/03/19 0:29	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.6			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/02/19 21:03	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:23	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:23	llr
Digestion - Hot Plate	M3050B ICP								11/26/19 13:53	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:53	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 4:22	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	26.2			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	4.4	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	30.6			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	3.3		*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	67			umhos/cm	1	10	11/25/19 14:33	emk
Fluoride (WET DI)	SM4500F-C	1	0.2	B	*	mg/L	0.1	0.4	11/26/19 12:56	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		14.0			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2			UH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.02	0.1	11/21/19 23:56	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/21/19 23:56	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	72		*	mg/L	20	40	11/22/19 12:24	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	1.4	B	*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-3

ACZ Sample ID: ***L55806-03***
Date Sampled: *10/29/19 11:45*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.60		*	mg/L	0.05	0.3	11/26/19 10:25	kja
Aluminum, total (3050)	M6010D ICP	198	31100		*	mg/Kg	10	50	12/04/19 3:46	jlw
Antimony (WET DI)	6020B ICP-MS	1	0.0016	B	*	mg/L	0.0004	0.002	11/27/19 15:17	mfm
Antimony, total (3050)	M6020B ICP-MS	495		U	*	mg/Kg	0.2	1	12/04/19 13:53	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0014		*	mg/L	0.0002	0.001	11/27/19 15:17	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.5			mg/Kg	0.1	0.5	12/04/19 13:53	bsu
Barium (WET DI)	6010D ICP	1	0.230		*	mg/L	0.007	0.04	11/26/19 10:25	kja
Barium, total (3050)	M6010D ICP	99	122			mg/Kg	0.7	3	12/03/19 0:33	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:17	mfm
Beryllium, total (3050)	M6020B ICP-MS	495	0.09	B		mg/Kg	0.04	0.1	12/04/19 13:53	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:25	kja
Boron, total (3050)	M6010D ICP	99		U		mg/Kg	2	10	12/03/19 0:33	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:17	mfm
Cadmium, total (3050)	M6020B ICP-MS	495	0.25			mg/Kg	0.02	0.1	12/04/19 13:53	bsu
Calcium (WET DI)	6010D ICP	1	4.5			mg/L	0.1	0.5	11/26/19 10:25	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:25	kja
Chromium, total (3050)	M6010D ICP	99	152			mg/Kg	1	5	12/03/19 0:33	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:25	kja
Cobalt, total (3050)	M6010D ICP	99	27		*	mg/Kg	1	5	12/03/19 0:33	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:25	kja
Copper, total (3050)	M6010D ICP	99	87			mg/Kg	1	5	12/03/19 0:33	kja
Iron (WET DI)	6010D ICP	1	0.20		*	mg/L	0.03	0.08	11/26/19 10:25	kja
Iron, total (3050)	M6010D ICP	198	54900		*	mg/Kg	6	10	12/04/19 3:46	jlw
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:17	mfm
Lead, total (3050)	M6020B ICP-MS	495	0.59			mg/Kg	0.05	0.2	12/04/19 13:53	bsu
Magnesium (WET DI)	6010D ICP	1	0.9	B		mg/L	0.2	1	11/26/19 10:25	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:25	kja
Manganese, total (3050)	M6010D ICP	99	1230		*	mg/Kg	1	5	12/03/19 0:33	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:53	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	11.4		*	ng/g	1.57	7.85	11/19/19 13:43	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:25	kja
Molybdenum, total (3050)	M6010D ICP	99		U	*	mg/Kg	2	10	12/03/19 0:33	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:25	kja
Nickel, total (3050)	M6010D ICP	99	52.5		*	mg/Kg	0.8	4	12/03/19 0:33	kja
Potassium (WET DI)	6010D ICP	1	1.8			mg/L	0.2	1	11/26/19 10:25	kja
Selenium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0003	11/27/19 15:17	mfm
Selenium, total (3050)	M6020B ICP-MS	495	0.26			mg/Kg	0.05	0.1	12/04/19 13:53	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:17	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.74			mg/Kg	0.05	0.2	12/04/19 13:53	bsu
Sodium (WET DI)	M6010D ICP	1	8.6			mg/L	0.2	1	11/26/19 10:25	kja
Thallium (WET DI)	6020B ICP-MS	1	0.001		*	mg/L	0.0001	0.0005	11/27/19 15:17	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-3

ACZ Sample ID: ***L55806-03***
Date Sampled: *10/29/19 11:45*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	495		U		mg/Kg	0.05	0.2	12/04/19 13:53	bsu
Vanadium (WET DI)	6010D ICP	1	0.029	B	*	mg/L	0.005	0.03	11/26/19 10:25	kja
Vanadium, total (3050)	M6010D ICP	198	147		*	mg/Kg	1	5	12/04/19 3:46	jlw
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:25	kja
Zinc, total (3050)	M6010D ICP	99	82			mg/Kg	1	5	12/03/19 0:33	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.7			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.8		*	%	0.1	0.5	12/02/19 22:37	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:31	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:31	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:13	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 14:13	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 7:31	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	28.0			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	3.0	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	31.0			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	0.7	B	*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	74			umhos/cm	1	10	11/25/19 14:43	emk
Fluoride (WET DI)	SM4500F-C	1	0.1	B	*	mg/L	0.1	0.4	11/26/19 13:03	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		15			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2		0.04	BH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.05	BH	*	mg/L	0.02	0.1	11/21/19 23:58	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.01	B	*	mg/L	0.01	0.05	11/21/19 23:58	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	68		*	mg/L	20	40	11/22/19 12:26	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	6.6		*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: MAA-1

ACZ Sample ID: ***L55806-04***
Date Sampled: *10/29/19 11:20*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.49		*	mg/L	0.05	0.3	11/26/19 10:29	kja
Aluminum, total (3050)	M6010D ICP	100	421		*	mg/Kg	5	30	12/03/19 0:37	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0104		*	mg/L	0.0004	0.002	11/27/19 15:19	mfm
Antimony, total (3050)	M6020B ICP-MS	500	1.1		*	mg/Kg	0.2	1	12/04/19 13:55	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0148		*	mg/L	0.0002	0.001	11/27/19 15:19	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	34.8			mg/Kg	0.1	0.5	12/04/19 13:55	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:29	kja
Barium, total (3050)	M6010D ICP	100	1.6	B		mg/Kg	0.7	4	12/03/19 0:37	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:19	mfm
Beryllium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.04	0.1	12/04/19 13:55	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:29	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 0:37	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:19	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.35			mg/Kg	0.03	0.1	12/04/19 13:55	bsu
Calcium (WET DI)	6010D ICP	1	8.8			mg/L	0.1	0.5	11/26/19 10:29	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:29	kja
Chromium, total (3050)	M6010D ICP	100		U		mg/Kg	1	5	12/03/19 0:37	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:29	kja
Cobalt, total (3050)	M6010D ICP	100	6		*	mg/Kg	1	5	12/03/19 0:37	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:29	kja
Copper, total (3050)	M6010D ICP	100	27			mg/Kg	1	5	12/03/19 0:37	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 10:29	kja
Iron, total (3050)	M6010D ICP	100	15500		*	mg/Kg	3	8	12/03/19 0:37	kja
Lead (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	11/27/19 15:19	mfm
Lead, total (3050)	M6020B ICP-MS	500	22.8			mg/Kg	0.05	0.3	12/04/19 13:55	bsu
Magnesium (WET DI)	6010D ICP	1	3.9			mg/L	0.2	1	11/26/19 10:29	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:29	kja
Manganese, total (3050)	M6010D ICP	100	311		*	mg/Kg	1	5	12/03/19 0:37	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:54	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	43.4		*	ng/g	1.6	8	11/19/19 13:49	slm
Molybdenum (WET DI)	6010D ICP	1	0.06	B	*	mg/L	0.02	0.1	11/26/19 10:29	kja
Molybdenum, total (3050)	M6010D ICP	200	271			mg/Kg	4	20	12/04/19 3:53	jlw
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:29	kja
Nickel, total (3050)	M6010D ICP	100	3.0	B	*	mg/Kg	0.8	4	12/03/19 0:37	kja
Potassium (WET DI)	6010D ICP	1		U		mg/L	0.2	1	11/26/19 10:29	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0004		*	mg/L	0.0001	0.0003	11/27/19 15:19	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.96			mg/Kg	0.05	0.1	12/04/19 13:55	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:19	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.59			mg/Kg	0.05	0.3	12/04/19 13:55	bsu
Sodium (WET DI)	M6010D ICP	1	7.4			mg/L	0.2	1	11/26/19 10:29	kja
Thallium (WET DI)	6020B ICP-MS	1	0.0002	B	*	mg/L	0.0001	0.0005	11/27/19 15:19	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: MAA-1

ACZ Sample ID: ***L55806-04***
Date Sampled: *10/29/19 11:20*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 13:55	bsu
Vanadium (WET DI)	6010D ICP	1	0.007	B	*	mg/L	0.005	0.03	11/26/19 10:29	kja
Vanadium, total (3050)	M6010D ICP	100	4.9			mg/Kg	0.5	3	12/03/19 0:37	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:29	kja
Zinc, total (3050)	M6010D ICP	100	11			mg/Kg	1	5	12/03/19 0:37	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.7			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/03/19 0:11	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:40	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:40	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:33	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 14:33	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 10:40	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	32.4			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	14.4	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	46.7			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	6.6		*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	106			umhos/cm	1	10	11/25/19 14:53	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:09	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		38.0			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2			UH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.02	0.1	11/21/19 23:59	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/21/19 23:59	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	86		*	mg/L	20	40	11/22/19 12:28	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	1.9	B	*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: MS-1

ACZ Sample ID: ***L55806-05***
Date Sampled: *10/29/19 11:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.99		*	mg/L	0.05	0.3	11/26/19 10:40	kja
Aluminum, total (3050)	M6010D ICP	99	22900		*	mg/Kg	5	20	12/03/19 0:41	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0021		*	mg/L	0.0004	0.002	11/27/19 15:21	mfm
Antimony, total (3050)	M6020B ICP-MS	495		U	*	mg/Kg	0.2	1	12/04/19 14:00	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0005	B	*	mg/L	0.0002	0.001	11/27/19 15:21	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.7			mg/Kg	0.1	0.5	12/04/19 14:00	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:40	kja
Barium, total (3050)	M6010D ICP	99	18.3			mg/Kg	0.7	3	12/03/19 0:41	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:21	mfm
Beryllium, total (3050)	M6020B ICP-MS	495	0.13			mg/Kg	0.04	0.1	12/04/19 14:00	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:40	kja
Boron, total (3050)	M6010D ICP	99		U		mg/Kg	2	10	12/03/19 0:41	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:21	mfm
Cadmium, total (3050)	M6020B ICP-MS	495	0.37			mg/Kg	0.02	0.1	12/04/19 14:00	bsu
Calcium (WET DI)	6010D ICP	1	4.1			mg/L	0.1	0.5	11/26/19 10:40	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:40	kja
Chromium, total (3050)	M6010D ICP	99	54			mg/Kg	1	5	12/03/19 0:41	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:40	kja
Cobalt, total (3050)	M6010D ICP	99	22		*	mg/Kg	1	5	12/03/19 0:41	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:40	kja
Copper, total (3050)	M6010D ICP	99	89			mg/Kg	1	5	12/03/19 0:41	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 10:40	kja
Iron, total (3050)	M6010D ICP	99	33700		*	mg/Kg	3	7	12/03/19 0:41	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:21	mfm
Lead, total (3050)	M6020B ICP-MS	495	1.08			mg/Kg	0.05	0.2	12/04/19 14:00	bsu
Magnesium (WET DI)	6010D ICP	1	0.3	B		mg/L	0.2	1	11/26/19 10:40	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:40	kja
Manganese, total (3050)	M6010D ICP	99	696		*	mg/Kg	1	5	12/03/19 0:41	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:56	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	19		*	ng/g	1.58	7.9	11/19/19 13:56	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:40	kja
Molybdenum, total (3050)	M6010D ICP	99		U	*	mg/Kg	2	10	12/03/19 0:41	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:40	kja
Nickel, total (3050)	M6010D ICP	99	32.4		*	mg/Kg	0.8	4	12/03/19 0:41	kja
Potassium (WET DI)	6010D ICP	1	1.6			mg/L	0.2	1	11/26/19 10:40	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	11/27/19 15:21	mfm
Selenium, total (3050)	M6020B ICP-MS	495	0.40			mg/Kg	0.05	0.1	12/04/19 14:00	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:21	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.17	B		mg/Kg	0.05	0.2	12/04/19 14:00	bsu
Sodium (WET DI)	M6010D ICP	1	6.7			mg/L	0.2	1	11/26/19 10:40	kja
Thallium (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	11/27/19 15:21	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: MS-1

ACZ Sample ID: ***L55806-05***
Date Sampled: *10/29/19 11:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	495		U		mg/Kg	0.05	0.2	12/04/19 14:00	bsu
Vanadium (WET DI)	6010D ICP	1	0.040		*	mg/L	0.005	0.03	11/26/19 10:40	kja
Vanadium, total (3050)	M6010D ICP	198	129		*	mg/Kg	1	5	12/04/19 3:57	jlw
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:40	kja
Zinc, total (3050)	M6010D ICP	99	47			mg/Kg	1	5	12/03/19 0:41	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	10.0			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/03/19 1:45	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:48	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:48	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:52	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 14:52	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 13:49	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	19.9	B		mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	9.9	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	29.8			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	1.4	B	*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	57			umhos/cm	1	10	11/25/19 15:03	emk
Fluoride (WET DI)	SM4500F-C	1	0.2	B	*	mg/L	0.1	0.4	11/26/19 13:14	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		12			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2			UH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.02	0.1	11/22/19 0:00	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/22/19 0:00	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	54		*	mg/L	20	40	11/22/19 12:31	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	1.1	B	*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: S-1

ACZ Sample ID: ***L55806-06***
Date Sampled: *10/29/19 11:25*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.32		*	mg/L	0.05	0.3	11/26/19 10:44	kja
Aluminum, total (3050)	M6010D ICP	1000	41300		*	mg/Kg	50	300	12/04/19 4:01	jlw
Antimony (WET DI)	6020B ICP-MS	20	0.105		*	mg/L	0.008	0.04	12/03/19 20:37	bsu
Antimony, total (3050)	M6020B ICP-MS	500	0.6	B	*	mg/Kg	0.2	1	12/04/19 14:02	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.169		*	mg/L	0.0002	0.001	11/27/19 15:23	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	36.8			mg/Kg	0.1	0.5	12/04/19 14:02	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:44	kja
Barium, total (3050)	M6010D ICP	100	1.1	B		mg/Kg	0.7	4	12/03/19 0:45	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:23	mfm
Beryllium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.04	0.1	12/04/19 14:02	bsu
Boron (WET DI)	6010D ICP	1	0.13		*	mg/L	0.02	0.1	11/26/19 10:44	kja
Boron, total (3050)	M6010D ICP	100	7	B		mg/Kg	2	10	12/03/19 0:45	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:23	mfm
Cadmium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.03	0.1	12/04/19 14:02	bsu
Calcium (WET DI)	6010D ICP	1		U		mg/L	0.1	0.5	11/26/19 10:44	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:44	kja
Chromium, total (3050)	M6010D ICP	1000	1740			mg/Kg	10	50	12/04/19 4:01	jlw
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:44	kja
Cobalt, total (3050)	M6010D ICP	100	76		*	mg/Kg	1	5	12/03/19 0:45	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:44	kja
Copper, total (3050)	M6010D ICP	100	30			mg/Kg	1	5	12/03/19 0:45	kja
Iron (WET DI)	6010D ICP	1	0.33		*	mg/L	0.03	0.08	11/26/19 10:44	kja
Iron, total (3050)	M6010D ICP	100	36800		*	mg/Kg	3	8	12/03/19 0:45	kja
Lead (WET DI)	6020B ICP-MS	1	0.0002	B	*	mg/L	0.0001	0.0005	11/27/19 15:23	mfm
Lead, total (3050)	M6020B ICP-MS	500	1.92			mg/Kg	0.05	0.3	12/04/19 14:02	bsu
Magnesium (WET DI)	6010D ICP	1	1.1			mg/L	0.2	1	11/26/19 10:44	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:44	kja
Manganese, total (3050)	M6010D ICP	100	176		*	mg/Kg	1	5	12/03/19 0:45	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:57	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	25.7		*	ng/g	1.6	8	11/19/19 14:03	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:44	kja
Molybdenum, total (3050)	M6010D ICP	100	3	B	*	mg/Kg	2	10	12/03/19 0:45	kja
Nickel (WET DI)	6010D ICP	1	0.012	B	*	mg/L	0.008	0.04	11/26/19 10:44	kja
Nickel, total (3050)	M6010D ICP	1000	1810			mg/Kg	8	40	12/04/19 4:01	jlw
Potassium (WET DI)	6010D ICP	1	2.7			mg/L	0.2	1	11/26/19 10:44	kja
Selenium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0003	11/27/19 15:23	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.20			mg/Kg	0.05	0.1	12/04/19 14:02	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:23	mfm
Silver, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 14:02	bsu
Sodium (WET DI)	M6010D ICP	1	38.7			mg/L	0.2	1	11/26/19 10:44	kja
Thallium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:23	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: S-1

ACZ Sample ID: ***L55806-06***
Date Sampled: *10/29/19 11:25*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 14:02	bsu
Vanadium (WET DI)	6010D ICP	1	0.031		*	mg/L	0.005	0.03	11/26/19 10:44	kja
Vanadium, total (3050)	M6010D ICP	100	63.4			mg/Kg	0.5	3	12/03/19 0:45	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:44	kja
Zinc, total (3050)	M6010D ICP	100	17			mg/Kg	1	5	12/03/19 0:45	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	10.6		*	units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.5		*	%	0.1	0.5	12/03/19 3:19	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 8:56	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 8:56	llr
Digestion - Hot Plate	M3050B ICP								11/26/19 9:58	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 9:58	mlp
Waste Extraction Test - DI H2O	California Method, Title 22				*				11/20/19 16:58	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	73.6			mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1	30.0			mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	104			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	0.7	B	*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	200			umhos/cm	1	10	11/25/19 15:13	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:19	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		4.5	B		mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2			UH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		UH	*	mg/L	0.02	0.1	11/22/19 0:02	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1		U	*	mg/L	0.01	0.05	11/22/19 0:02	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	178		*	mg/L	20	40	11/22/19 12:33	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	2.8	B	*	mg/L	1	5	12/12/19 16:05	ttg

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486937													
WG486937PBW	PBW	11/25/19 13:53				U	mg/L		-20	20			
WG486937LCSW2	LCSW	11/25/19 14:08	WC191115-7	820.0001		820	mg/L	100	90	110			
WG486427PBS	PBS	11/25/19 14:16				3	mg/L		-20	20			
L55808-01DUP	DUP	11/25/19 15:32			45.2	43.2	mg/L				5	20	
WG486937LCSW4	LCSW	11/25/19 16:15	WC191115-7	820.0001		823	mg/L	100	90	110			

Aluminum (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		2.009	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.15	0.15			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.15	0.15			
L55806-04AS	AS	11/26/19 10:33	II191106-4	1.0012	.49	1.474	mg/L	98	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	1.0012	.49	1.446	mg/L	95	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			.17	.161	mg/L				5	20	RA

Aluminum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.987	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.15	0.15			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-15	15			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	8610		9552	mg/Kg		4410	12800			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	8610		9199	mg/Kg		4410	12800	4	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	100.12	26600	27240	mg/Kg	639	75	125			M3
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	100.12	26600	27750	mg/Kg	1149	75	125	2	20	M3
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		1.972	mg/L	99	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.15	0.15			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-15	15			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	8610		9593	mg/Kg		4410	12800			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	8610		9325	mg/Kg		4410	12800	3	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	100.11	27500	28280	mg/Kg	779	75	125			M3
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	100.11	27500	28620	mg/Kg	1119	75	125	1	20	M3

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.02004		.01989	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0012	0.0012			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0012	0.0012			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.01	.1871	.11517	mg/L	-719	75	125			M3
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.01	.1871	.13123	mg/L	-559	75	125	13	20	M3
L55808-01DUP	DUP	11/27/19 15:33			.0015	.00134	mg/L				11	20	RA
WG487291													
WG487291ICV	ICV	12/03/19 20:24	MS191014-8	.02004		.02046	mg/L	102	90	110			
WG487291ICB	ICB	12/03/19 20:26				U	mg/L		-0.0012	0.0012			
WG486427PBS	PBS	12/03/19 20:35				U	mg/L		-0.0012	0.0012			
L55806-06AS	AS	12/03/19 20:40	MS191119-5	.2	.105	.2853	mg/L	90	75	125			
L55806-06ASD	ASD	12/03/19 20:42	MS191119-5	.2	.105	.3078	mg/L	101	75	125	8	20	
L55808-01DUP	DUP	12/03/19 20:46			.0014	.00127	mg/L				10	20	RA

Antimony, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02018	mg/L	101	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0012	0.0012			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.6	0.6			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	68.6		55	mg/Kg		2.03	135			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	68.6		51.1	mg/Kg		2.03	135	7	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5	U	.54	mg/Kg	11	75	125			M2
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5	U	.52	mg/Kg	10	75	125	4	20	M2

Arsenic (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.0494	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0006	0.0006			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0006	0.0006			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	.1689	.23507	mg/L	132	75	125			M1
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	.1689	.23995	mg/L	142	75	125	2	20	M1
L55808-01DUP	DUP	11/27/19 15:33			.0018	.00184	mg/L				2	20	RA

Arsenic, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04988	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0006	0.0006			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.3	0.3			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	69.4		75.2	mg/Kg		57.2	81.5			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	69.4		73.1	mg/Kg		57.2	81.5	3	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	1.8	25.78	mg/Kg	96	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	1.8	26.17	mg/Kg	97	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Barium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		2.017	mg/L	101	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.021	0.021			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.021	0.021			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.4838	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.4853	mg/L	97	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Barium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.973	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.021	0.021			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-2.1	2.1			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	362		360.2	mg/Kg		297	427			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	362		348	mg/Kg		297	427	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	3.5	49.09	mg/Kg	91	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	3.5	50.03	mg/Kg	93	75	125	2	20	

Beryllium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.049417	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.00024	0.00024			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.00024	0.00024			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.052448	mg/L	105	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.053013	mg/L	106	75	125	1	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Beryllium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.048696	mg/L	97	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00024	0.00024			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.12	0.12			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	223		233.15	mg/Kg		185	260			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	223		228.47	mg/Kg		185	260	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.09	26.614	mg/Kg	106	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.09	26.054	mg/Kg	104	75	125	2	20	

Boron (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.951	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.06	0.06			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.06	0.06			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.496	mg/L	99	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.495	mg/L	99	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Boron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		2.02	mg/L	101	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	79.4		79.5	mg/Kg		57.2	102			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	79.4		78.3	mg/Kg		57.2	102	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	U	47.3	mg/Kg	95	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	U	47.6	mg/Kg	95	75	125	1	20	

Cadmium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.047696	mg/L	95	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.00015	0.00015			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.00015	0.00015			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.048323	mg/L	97	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.050596	mg/L	101	75	125	5	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Cadmium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.049073	mg/L	98	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00015	0.00015			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.09	0.09			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	166		169.14	mg/Kg		138	195			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	166		176.08	mg/Kg		138	195	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.25	23.716	mg/Kg	94	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.25	23.642	mg/Kg	93	75	125	0	20	

Calcium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		98.14	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.3	0.3			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.3	0.3			
L55806-04AS	AS	11/26/19 10:33	II191106-4	68.00334	8.8	74.72	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	68.00334	8.8	73.19	mg/L	95	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			9	8.78	mg/L				2	20	

Chloride (WET DI) SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488294													
WG488294ICB	ICB	12/17/19 8:29				U	mg/L		-1.5	1.5			
WG488294ICV	ICV	12/17/19 8:29	WI190501-1	54.835		53.88	mg/L	98	90	110			
WG488294LFB	LFB	12/17/19 11:23	WI190812-3	30		32.28	mg/L	108	90	110			
WG486427PBS	PBS	12/17/19 11:23				U	mg/L		-1.5	1.5			
L55806-01AS	AS	12/17/19 11:23	WI190812-3	30	4.4	36.52	mg/L	107	90	110			
L55808-01DUP	DUP	12/17/19 11:24			1.7	2.19	mg/L				25	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Chromium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.501	U	.471	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.501	U	.474	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Chromium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.979	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	249		249.9	mg/Kg		203	295			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	249		242.2	mg/Kg		203	295	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.1	163	208.1	mg/Kg	90	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.1	163	211.8	mg/Kg	97	75	125	2	20	
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		1.964	mg/L	98	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	249		249.6	mg/Kg		203	295			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	249		244.1	mg/Kg		203	295	2	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	50.1	171	222.4	mg/Kg	103	75	125			
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	50.1	171	225.6	mg/Kg	109	75	125	1	20	

Cobalt (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2.002		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5	U	.471	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5	U	.474	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Cobalt, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2.002		1.924	mg/L	96	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	90.6		88.8	mg/Kg		75.1	106			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	90.6		86.1	mg/Kg		75.1	106	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50	23	65.8	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50	23	67.8	mg/Kg	90	75	125	3	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Conductivity @25C (WET-DI) SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486937													
WG486937PBW	PBW	11/25/19 13:53				U	umhos/cm		-10	10			
WG486937LCSW1	LCSW	11/25/19 13:56	PCN59515	1408		1430	umhos/cm	102	90	110			
WG486427PBS	PBS	11/25/19 14:16				2.7	umhos/cm		-4	4			
L55808-01DUP	DUP	11/25/19 15:32			105	104	umhos/cm				1	20	
WG486937LCSW3	LCSW	11/25/19 16:02	PCN59515	1408		1420	umhos/cm	101	90	110			

Copper (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.934	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.476	mg/L	95	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.481	mg/L	96	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Copper, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.938	mg/L	97	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	280		269.7	mg/Kg		233	326			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	280		264.9	mg/Kg		233	326	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	60	103.3	mg/Kg	87	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	60	107.5	mg/Kg	95	75	125	4	20	

Fluoride (WET DI) SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486964													
WG486964ICV	ICV	11/26/19 9:32	WC191119-7	2.004		2.1	mg/L	105	90	110			
WG486964ICB	ICB	11/26/19 9:37				U	mg/L		-0.3	0.3			
WG486997													
WG486997ICV	ICV	11/26/19 12:27	WC191126-1	2.004		1.94	mg/L	97	90	110			
WG486997ICB	ICB	11/26/19 12:31				.12	mg/L		-0.3	0.3			
WG486997LFB	LFB	11/26/19 12:43	WC191014-1	5.01		4.65	mg/L	93	90	110			
WG486427PBS	PBS	11/26/19 12:48				.15	mg/L		-0.3	0.3			
L55808-01AS	AS	11/26/19 13:30	WC191014-1	5.01	U	4.82	mg/L	96	90	110			
L55808-01DUP	DUP	11/26/19 13:34			U	.12	mg/L				200	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Iron (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.935	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.09	0.09			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.09	0.09			
L55806-04AS	AS	11/26/19 10:33	II191106-4	1.0018	U	.969	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	1.0018	U	.98	mg/L	98	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Iron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.925	mg/L	96	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.09	0.09			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-9	9			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	14000		13230	mg/Kg		8380	19600			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	14000		12950	mg/Kg		8380	19600	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	100.18	36600	37030	mg/Kg	429	75	125			M3
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	100.18	36600	37770	mg/Kg	1168	75	125	2	20	M3
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		1.927	mg/L	96	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.09	0.09			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-9	9			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	14000		13610	mg/Kg		8380	19600			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	14000		13380	mg/Kg		8380	19600	2	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	100.14	40000	40860	mg/Kg	859	75	125			M3
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	100.14	40000	41440	mg/Kg	1438	75	125	1	20	M3

Lead (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.05009	mg/L	100	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00012	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	.0002	.05087	mg/L	101	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	.0002	.05183	mg/L	103	75	125	2	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Lead, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05102	mg/L	102	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	225		242.29	mg/Kg		184	266			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	225		236.5	mg/Kg		184	266	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.29	24.786	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.29	24.658	mg/Kg	97	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Magnesium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		95.84	mg/L	96	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	49.99771	3.9	51.1	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	49.99771	3.9	49.91	mg/L	92	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.8	3.66	mg/L				4	20	

Manganese (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.959	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5015	U	.486	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5015	U	.487	mg/L	97	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Manganese, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.937	mg/L	97	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	332		324.8	mg/Kg		272	392			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	332		318.3	mg/Kg		272	392	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.15	652	713.1	mg/Kg	122	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.15	652	727.9	mg/Kg	151	75	125	2	20	M3

Mercury (WET DI) M7470 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486782													
WG486782ICV	ICV	11/25/19 14:43	HG190911-3	.004995		.00493	mg/L	99	90	110			
WG486782ICB	ICB	11/25/19 14:44				U	mg/L		-0.0006	0.0006			
WG486782PBW	PBW	11/25/19 14:46				U	mg/L		-0.00044	0.00044			
WG486782LCSW	LCSW	11/25/19 14:47	HG191125-3	.002002		.00193	mg/L	96	85	115			
WG486427PBS	PBS	11/25/19 14:48				U	mg/L		-0.0006	0.0006			
L55806-02MS	MS	11/25/19 14:51	HG191125-3	.002002	U	.00189	mg/L	94	85	115			
L55806-02MSD	MSD	11/25/19 14:52	HG191125-3	.002002	U	.0019	mg/L	95	85	115	1	20	
L55808-01DUP	DUP	11/25/19 14:59			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury by Direct Combustion AA M7473 CVAAS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486193													
WG486193ICV1	ICV	11/14/19 11:38	HG191112-8	100		99.3	ng/g	99	90	110			
WG486193ICV2	ICV	11/14/19 11:50	HG191112-10	100		98.2	ng/g	98	90	110			
WG486193ICV3	ICV	11/14/19 12:02	HG191112-7	1000		1070	ng/g	107	90	110			
WG486193ICV4	ICV	11/14/19 12:13	HG191112-7	1000		1090	ng/g	109	90	110			
WG486482													
WG486482ICV1	ICV	11/19/19 8:20	HG191112-8	100		92.7	ng/g	93	90	110			
WG486482ICV2	ICV	11/19/19 8:29	HG191112-10	100		99.3	ng/g	99	90	110			
WG486482ICV3	ICV	11/19/19 9:05	HG191112-7	1000		1090	ng/g	109	90	110			
WG486482ICV4	ICV	11/19/19 9:44	HG191112-7	1000		909	ng/g	91	90	110			
WG486482PBS	PBS	11/19/19 10:38				2.3	ng/g		-6	6			
WG486482LCSS	LCSS	11/19/19 10:45	PCN56165	80		82.3	ng/g		80	120			
WG486482LCSSD	LCSSD	11/19/19 10:51	PCN56165	80		85.7	ng/g		80	120	4	20	
L55782-01MS	MS	11/19/19 12:35	PCN56165				ng/g	100	80	120			
L55782-02DUP	DUP	11/19/19 12:49			3.86	2.3	ng/g				51	20	RA

Molybdenum (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.974	mg/L	99	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.06	0.06			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.06	0.06			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.4975	.06	.552	mg/L	99	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.4975	.06	.541	mg/L	97	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Molybdenum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.98	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	158		161.1	mg/Kg		127	190			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	158		156.1	mg/Kg		127	190	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	49.75	U	44	mg/Kg	88	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	49.75	U	44.8	mg/Kg	90	75	125	2	20	
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		1.966	mg/L	98	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	158		162.1	mg/Kg		127	190			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	158		159.2	mg/Kg		127	190	2	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	49.95	U	46.4	mg/Kg	93	75	125			
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	49.95	U	47.7	mg/Kg	95	75	125	3	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.024	0.024			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.024	0.024			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.501	U	.48	mg/L	96	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.501	U	.4765	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Nickel, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.984	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.024	0.024			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-2.4	2.4			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	114		114.2	mg/Kg		93.9	134			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	114		112	mg/Kg		93.9	134	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.1	53.4	96.55	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.1	53.4	98.37	mg/Kg	90	75	125	2	20	
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		1.942	mg/L	97	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.024	0.024			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-2.4	2.4			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	114		114.2	mg/Kg		93.9	134			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	114		111.3	mg/Kg		93.9	134	3	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	50	57	103.9	mg/Kg	94	75	125			
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	50	57	106	mg/Kg	98	75	125	2	20	

Nitrate/Nitrite as N (WET DI) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486755													
WG486755ICV	ICV	11/21/19 22:24	WI191112-1	2.416		2.505	mg/L	104	90	110			
WG486755ICB	ICB	11/21/19 22:25				U	mg/L		-0.02	0.02			
WG486756													
WG486756LFB	LFB	11/21/19 23:51	WI191004-3	2		2.028	mg/L	101	90	110			
WG486427PBS	PBS	11/21/19 23:53				U	mg/L		-0.02	0.02			
L55806-01AS	AS	11/21/19 23:55	WI191004-3	2	U	2.148	mg/L	107	90	110			
L55808-01DUP	DUP	11/22/19 0:08			.06	.058	mg/L				3	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nitrite as N (WET DI) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486755													
WG486755ICV	ICV	11/21/19 22:24	WI191112-1	.609		.601	mg/L	99	90	110			
WG486755ICB	ICB	11/21/19 22:25				U	mg/L		-0.01	0.01			
WG486756													
WG486756LFB	LFB	11/21/19 23:51	WI191004-3	1		1.004	mg/L	100	90	110			
WG486427PBS	PBS	11/21/19 23:53				U	mg/L		-0.01	0.01			
L55806-01AS	AS	11/21/19 23:55	WI191004-3	1	U	1.047	mg/L	105	90	110			
L55808-01DUP	DUP	11/22/19 0:08			.03	.028	mg/L				7	20	RA

Ph M9045D/M9040C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487845													
WG487845ICV	ICV	11/21/19 13:21	PCN58503	4		4	units	100	3.9	4.1			
L55808-01DUP	DUP	11/21/19 14:24			9.4	9.4	units				0	20	

Potassium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	20		19.91	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	99.95798	U	97.96	mg/L	98	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	99.95798	U	95.96	mg/L	96	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.8	3.74	mg/L				2	20	

Residue, Filterable (TDS) @180C (WET DI) SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486804													
WG486804PBS	PBS	11/22/19 12:15				20	mg/L		-60	60			
WG486804LCSW	LCSW	11/22/19 12:17	PCN59803	1000		990	mg/L	99	80	120			
WG486427PBS	PBS	11/22/19 12:19				20	mg/L		-60	60			
L55808-01DUP	DUP	11/22/19 12:38			64	72	mg/L				12	10	RA

Selenium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.04859	mg/L	97	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00022	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.05274	mg/L	105	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.05272	mg/L	105	75	125	0	20	
L55808-01DUP	DUP	11/27/19 15:33			.0003	.00024	mg/L				22	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04942	mg/L	99	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				.053	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	195		210.19	mg/Kg		154	237			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	195		200.58	mg/Kg		154	237	5	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	12.5125	.18	12.345	mg/Kg	97	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	12.5125	.18	12.476	mg/Kg	98	75	125	1	20	

Silver (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.02004		.0215	mg/L	107	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.01002	U	.01074	mg/L	107	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.01002	U	.01071	mg/L	107	75	125	0	20	
L55808-01DUP	DUP	11/27/19 15:33			.0001	U	mg/L				200	20	RA

Silver, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02011	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	61.8		65.02	mg/Kg		49.2	74.4			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	61.8		62.73	mg/Kg		49.2	74.4	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5.01	U	4.472	mg/Kg	89	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5.01	U	4.416	mg/Kg	88	75	125	1	20	

Sodium (WET DI) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		97.18	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				.39	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	100.0046	7.4	103.8	mg/L	96	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	100.0046	7.4	101.7	mg/L	94	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.7	3.64	mg/L				2	20	

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487194													
L55808-04DUP	DUP	12/03/19 11:09			100	99.97	%				0	20	
WG487194PBS	PBS	12/03/19 12:43				U	%		-0.1	0.1			

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Sulfate (WET DI) D516-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488017													
WG488017ICB	ICB	12/12/19 12:55				U	mg/L		-3	3			
WG488017ICV	ICV	12/12/19 12:55	WI191204-6	20		20.6	mg/L	103	90	110			
WG488017LFB	LFB	12/12/19 16:05	WI190801-3	10.01		10.7	mg/L	107	90	110			
WG486427PBS	PBS	12/12/19 16:05				U	mg/L		-3	3			
L55806-01AS	AS	12/12/19 16:05	WI190801-3	10.01	3.3	14.6	mg/L	113	90	110			M1
L55808-01DUP	DUP	12/12/19 16:06			8.4	7.6	mg/L				10	20	RA

Thallium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.04968	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00016	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.0501	U	.0493	mg/L	98	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.0501	U	.05122	mg/L	102	75	125	4	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Thallium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05153	mg/L	103	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	135		147.23	mg/Kg		109	161			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	135		146.45	mg/Kg		109	161	1	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.05	U	24.466	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.05	U	24.369	mg/Kg	97	75	125	0	20	

Vanadium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.996	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.015	0.015			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.015	0.015			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.4995	.007	.5198	mg/L	103	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.4995	.007	.4969	mg/L	98	75	125	5	20	
L55808-01DUP	DUP	11/26/19 10:59			.008	.0101	mg/L				23	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Vanadium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		2.049	mg/L	102	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.015	0.015			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-1.5	1.5			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	86.4		92.69	mg/Kg		67.4	105			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	86.4		90.38	mg/Kg		67.4	105	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	49.95	124	183.1	mg/Kg	118	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	49.95	124	186.4	mg/Kg	125	75	125	2	20	
WG487264													
WG487264ICV	ICV	12/04/19 2:59	II191122-1	2		2.035	mg/L	102	90	110			
WG487264ICB	ICB	12/04/19 3:02				U	mg/L		-0.015	0.015			
WG486958PBS	PBS	12/04/19 3:27				U	mg/Kg		-1.5	1.5			
WG486958LCSS	LCSS	12/04/19 3:30	PCN59282	86.4		93.43	mg/Kg		67.4	105			
WG486958LCSSD	LCSSD	12/04/19 3:34	PCN59282	86.4		91.55	mg/Kg		67.4	105	2	20	
L55822-21MS	MS	12/04/19 4:17	II2XSOIL	50	131	194.5	mg/Kg	127	75	125			M1
L55822-21MSD	MSD	12/04/19 4:21	II2XSOIL	50	131	196.7	mg/Kg	131	75	125	1	20	M1

Zinc (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.937	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.50075	U	.524	mg/L	105	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.50075	U	.505	mg/L	101	75	125	4	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Zinc, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.957	mg/L	98	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	122		120.1	mg/Kg		98.6	145			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	122		117.9	mg/Kg		98.6	145	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.075	36	84	mg/Kg	96	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.075	36	84.5	mg/Kg	97	75	125	1	20	

Rise Grass Valley Inc. ACZ Project ID: ***L55806***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-01	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	DJ	Sample dilution required due to insufficient sample.
			SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			SM2540C	Z3	Sample volume yielded a residue less than 2.5 mg
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Vanadium, total (3050)	M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486811	Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-02	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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Inorganic Extended Qualifier Report

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Vanadium, total (3050)	M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486811	Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-03	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Vanadium, total (3050)	M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486811	Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-04	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-05	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Vanadium, total (3050)	M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486811	Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55806-06	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487264	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487291	Antimony (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487845	pH	M9045D/M9040C	EB	A pH value outside the range of the probe standardization is estimated.
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L55806***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486427	Waste Extraction Test - DI H2O	California Method, Title 22	EB	A pH value outside the range of the probe standardization is estimated.
	WG486811	Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rise Grass Valley Inc. ACZ Project ID: ***L55806***

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Boron (WET DI)	6010D ICP

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Solids, Percent	D2216-80

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Sulfate (WET DI)	D516-07 - Turbidimetric

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID: L55806
Date Received: 11/11/2019 14:20
Received By: mjj
Date Printed: 11/12/2019

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?		X	

L55806-02 : Sample container was broken, was placed in ziplock bag.

16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?		X	

Some parameters were received past hold time.

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA31789	18.8	<=6.0	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

REPAD LPII 2012-03

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID:	L55806
Date Received:	11/11/2019 14:20
Received By:	mjj
Date Printed:	11/12/2019

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L55806

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania
Company: EMKO Environmental
E-mail: akopania@sbcglobal.net
Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: AH **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: CORE-Tailings-2
PO#:
Reporting state for compliance testing: CA
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	DI-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
MA-1	10/29/19:10:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-2	10/29/19:11:05 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-3	10/29/19:11:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MAA-1	10/29/19:11:20 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MS-1	10/29/19:11:00 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
S-1	10/29/19:11:25 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

R = rock matrix

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15pm	[signature]	11/11/19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L55806 Chain of Custod

ACZ Laboratories, Inc. L55806

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: AH **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: CORE-Tailings-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	DI-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
MA-1	10/29/19:10:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-2	10/29/19:11:05 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-3	10/29/19:11:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MAA-1	10/29/19:11:20 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MS-1	10/29/19:11:00 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
S-1	10/29/19:11:25 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

R = rock matrix

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15pm	[signature]	11/11/19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.



ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 18, 2019

Report to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

cc: Andy Kopania

Bill to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

Project ID:
ACZ Project ID: L55808

Ben Mossman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 11, 2019. This project has been assigned to ACZ's project number, L55808. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L55808. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 17, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Rise Grass Valley Inc.
Project ID:
Sample ID: F-1 (ABC)

ACZ Sample ID: ***L55808-01***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.17	B	*	mg/L	0.05	0.3	11/26/19 10:48	kja
Aluminum, total (3050)	M6010D ICP	100	16100		*	mg/Kg	5	30	12/03/19 0:49	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0015	B	*	mg/L	0.0004	0.002	11/27/19 15:32	mfm
Antimony, total (3050)	M6020B ICP-MS	500	0.2	B	*	mg/Kg	0.2	1	12/04/19 14:06	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0018		*	mg/L	0.0002	0.001	11/27/19 15:32	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.7			mg/Kg	0.1	0.5	12/04/19 14:06	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 10:48	kja
Barium, total (3050)	M6010D ICP	100	18.4			mg/Kg	0.7	4	12/03/19 0:49	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:32	mfm
Beryllium, total (3050)	M6020B ICP-MS	500	0.23			mg/Kg	0.04	0.1	12/04/19 14:06	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:48	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 0:49	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:32	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.61			mg/Kg	0.03	0.1	12/04/19 14:06	bsu
Calcium (WET DI)	6010D ICP	1	9.0			mg/L	0.1	0.5	11/26/19 10:48	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:48	kja
Chromium, total (3050)	M6010D ICP	100	73			mg/Kg	1	5	12/03/19 0:49	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:48	kja
Cobalt, total (3050)	M6010D ICP	100	13		*	mg/Kg	1	5	12/03/19 0:49	kja
Copper (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:48	kja
Copper, total (3050)	M6010D ICP	100	86			mg/Kg	1	5	12/03/19 0:49	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 10:48	kja
Iron, total (3050)	M6010D ICP	100	35500		*	mg/Kg	3	8	12/03/19 0:49	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:32	mfm
Lead, total (3050)	M6020B ICP-MS	500	11.8			mg/Kg	0.05	0.3	12/04/19 14:06	bsu
Magnesium (WET DI)	6010D ICP	1	3.8			mg/L	0.2	1	11/26/19 10:48	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:48	kja
Manganese, total (3050)	M6010D ICP	100	1000		*	mg/Kg	1	5	12/03/19 0:49	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 14:58	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	39.9		*	ng/g	1.6	8	11/19/19 14:10	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 10:48	kja
Molybdenum, total (3050)	M6010D ICP	100	22		*	mg/Kg	2	10	12/03/19 0:49	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 10:48	kja
Nickel, total (3050)	M6010D ICP	100	31.1		*	mg/Kg	0.8	4	12/03/19 0:49	kja
Potassium (WET DI)	6010D ICP	1	3.8			mg/L	0.2	1	11/26/19 10:48	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	11/27/19 15:32	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.11			mg/Kg	0.05	0.1	12/04/19 14:06	bsu
Silver (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	11/27/19 15:32	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.23	B		mg/Kg	0.05	0.3	12/04/19 14:06	bsu
Sodium (WET DI)	M6010D ICP	1	3.7			mg/L	0.2	1	11/26/19 10:48	kja
Thallium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:32	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: F-1 (ABC)

ACZ Sample ID: ***L55808-01***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 14:06	bsu
Vanadium (WET DI)	6010D ICP	1	0.008	B	*	mg/L	0.005	0.03	11/26/19 10:48	kja
Vanadium, total (3050)	M6010D ICP	100	72.0			mg/Kg	0.5	3	12/03/19 0:49	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 10:48	kja
Zinc, total (3050)	M6010D ICP	100	65			mg/Kg	1	5	12/03/19 0:49	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.4			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/03/19 4:53	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 9:05	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 9:05	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 10:17	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 10:17	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/20/19 20:06	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	40.7			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	4.5	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	45.2			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	1.7	B	*	mg/L	0.5	2	12/17/19 11:23	ttg
Conductivity @25C (WET-DI)	SM2510B	1	105			umhos/cm	1	10	11/25/19 15:22	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:26	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		38			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2		0.03	BH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.06	BH	*	mg/L	0.02	0.1	11/22/19 0:03	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.03	B	*	mg/L	0.01	0.05	11/22/19 0:03	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	64		*	mg/L	20	40	11/22/19 12:35	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	8.4		*	mg/L	1	5	12/12/19 16:05	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: F-2 (ABC)

ACZ Sample ID: ***L55808-02***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.18	B	*	mg/L	0.05	0.3	11/26/19 11:03	kja
Aluminum, total (3050)	M6010D ICP	100	16300		*	mg/Kg	5	30	12/03/19 1:01	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0015	B	*	mg/L	0.0004	0.002	11/27/19 15:35	mfm
Antimony, total (3050)	M6020B ICP-MS	500		U	*	mg/Kg	0.2	1	12/04/19 14:08	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0013		*	mg/L	0.0002	0.001	11/27/19 15:35	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.4			mg/Kg	0.1	0.5	12/04/19 14:08	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 11:03	kja
Barium, total (3050)	M6010D ICP	100	16.6			mg/Kg	0.7	4	12/03/19 1:01	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:35	mfm
Beryllium, total (3050)	M6020B ICP-MS	500	0.22			mg/Kg	0.04	0.1	12/04/19 14:08	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:03	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 1:01	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:35	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.62			mg/Kg	0.03	0.1	12/04/19 14:08	bsu
Calcium (WET DI)	6010D ICP	1	8.5			mg/L	0.1	0.5	11/26/19 11:03	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:03	kja
Chromium, total (3050)	M6010D ICP	100	75			mg/Kg	1	5	12/03/19 1:01	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:03	kja
Cobalt, total (3050)	M6010D ICP	100	13		*	mg/Kg	1	5	12/03/19 1:01	kja
Copper (WET DI)	6010D ICP	1	0.01	B	*	mg/L	0.01	0.05	11/26/19 11:03	kja
Copper, total (3050)	M6010D ICP	100	86			mg/Kg	1	5	12/03/19 1:01	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 11:03	kja
Iron, total (3050)	M6010D ICP	100	36000		*	mg/Kg	3	8	12/03/19 1:01	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:35	mfm
Lead, total (3050)	M6020B ICP-MS	500	9.34			mg/Kg	0.05	0.3	12/04/19 14:08	bsu
Magnesium (WET DI)	6010D ICP	1	3.5			mg/L	0.2	1	11/26/19 11:03	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:03	kja
Manganese, total (3050)	M6010D ICP	100	1010		*	mg/Kg	1	5	12/03/19 1:01	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 15:00	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	45.1		*	ng/g	1.54	7.7	11/19/19 14:16	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:03	kja
Molybdenum, total (3050)	M6010D ICP	100	33		*	mg/Kg	2	10	12/03/19 1:01	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 11:03	kja
Nickel, total (3050)	M6010D ICP	100	31.5		*	mg/Kg	0.8	4	12/03/19 1:01	kja
Potassium (WET DI)	6010D ICP	1	4.2			mg/L	0.2	1	11/26/19 11:03	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0002	B	*	mg/L	0.0001	0.0003	11/27/19 15:35	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.12			mg/Kg	0.05	0.1	12/04/19 14:08	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:35	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.21	B		mg/Kg	0.05	0.3	12/04/19 14:08	bsu
Sodium (WET DI)	M6010D ICP	1	3.6			mg/L	0.2	1	11/26/19 11:03	kja
Thallium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:35	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: F-2 (ABC)

ACZ Sample ID: ***L55808-02***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 14:08	bsu
Vanadium (WET DI)	6010D ICP	1	0.010	B	*	mg/L	0.005	0.03	11/26/19 11:03	kja
Vanadium, total (3050)	M6010D ICP	100	73.2			mg/Kg	0.5	3	12/03/19 1:01	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:03	kja
Zinc, total (3050)	M6010D ICP	100	63			mg/Kg	1	5	12/03/19 1:01	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.3			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	99.9		*	%	0.1	0.5	12/03/19 6:27	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 9:13	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 9:13	llr
Digestion - Hot Plate	M3050B ICP								11/26/19 10:37	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 10:37	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/21/19 2:24	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	40.2			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	3.2	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	43.4			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	1.9	B	*	mg/L	0.5	2	12/17/19 11:24	ttg
Conductivity @25C (WET-DI)	SM2510B	1	100			umhos/cm	1	10	11/25/19 15:41	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:39	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		36			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2		0.05	BH		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.08	BH	*	mg/L	0.02	0.1	11/22/19 0:10	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.03	B	*	mg/L	0.01	0.05	11/22/19 0:10	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	72		*	mg/L	20	40	11/22/19 12:40	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	6.3		*	mg/L	1	5	12/12/19 16:06	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: F-3 (AB)

ACZ Sample ID: ***L55808-03***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.26	B	*	mg/L	0.05	0.3	11/26/19 11:07	kja
Aluminum, total (3050)	M6010D ICP	99	16300		*	mg/Kg	5	20	12/03/19 1:05	kja
Antimony (WET DI)	6020B ICP-MS	1	0.0031		*	mg/L	0.0004	0.002	11/27/19 15:37	mfm
Antimony, total (3050)	M6020B ICP-MS	495		U	*	mg/Kg	0.2	1	12/04/19 14:09	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0019		*	mg/L	0.0002	0.001	11/27/19 15:37	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	2.0			mg/Kg	0.1	0.5	12/04/19 14:09	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 11:07	kja
Barium, total (3050)	M6010D ICP	99	17.9			mg/Kg	0.7	3	12/03/19 1:05	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:37	mfm
Beryllium, total (3050)	M6020B ICP-MS	495	0.22			mg/Kg	0.04	0.1	12/04/19 14:09	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:07	kja
Boron, total (3050)	M6010D ICP	99		U		mg/Kg	2	10	12/03/19 1:05	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:37	mfm
Cadmium, total (3050)	M6020B ICP-MS	495	0.62			mg/Kg	0.02	0.1	12/04/19 14:09	bsu
Calcium (WET DI)	6010D ICP	1	7.5			mg/L	0.1	0.5	11/26/19 11:07	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:07	kja
Chromium, total (3050)	M6010D ICP	99	88			mg/Kg	1	5	12/03/19 1:05	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:07	kja
Cobalt, total (3050)	M6010D ICP	99	13		*	mg/Kg	1	5	12/03/19 1:05	kja
Copper (WET DI)	6010D ICP	1	0.02	B	*	mg/L	0.01	0.05	11/26/19 11:07	kja
Copper, total (3050)	M6010D ICP	99	87			mg/Kg	1	5	12/03/19 1:05	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 11:07	kja
Iron, total (3050)	M6010D ICP	99	35200		*	mg/Kg	3	7	12/03/19 1:05	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:37	mfm
Lead, total (3050)	M6020B ICP-MS	495	10.2			mg/Kg	0.05	0.2	12/04/19 14:09	bsu
Magnesium (WET DI)	6010D ICP	1	3.5			mg/L	0.2	1	11/26/19 11:07	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:07	kja
Manganese, total (3050)	M6010D ICP	99	990		*	mg/Kg	1	5	12/03/19 1:05	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 15:01	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	41.9		*	ng/g	1.55	7.75	11/19/19 14:30	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:07	kja
Molybdenum, total (3050)	M6010D ICP	99	42		*	mg/Kg	2	10	12/03/19 1:05	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 11:07	kja
Nickel, total (3050)	M6010D ICP	99	30.3		*	mg/Kg	0.8	4	12/03/19 1:05	kja
Potassium (WET DI)	6010D ICP	1	7.8			mg/L	0.2	1	11/26/19 11:07	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	11/27/19 15:37	mfm
Selenium, total (3050)	M6020B ICP-MS	495	0.13			mg/Kg	0.05	0.1	12/04/19 14:09	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:37	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.23			mg/Kg	0.05	0.2	12/04/19 14:09	bsu
Sodium (WET DI)	M6010D ICP	1	5.1			mg/L	0.2	1	11/26/19 11:07	kja
Thallium (WET DI)	6020B ICP-MS	1	0.0003	B	*	mg/L	0.0001	0.0005	11/27/19 15:37	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: F-3 (AB)

ACZ Sample ID: ***L55808-03***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	495		U		mg/Kg	0.05	0.2	12/04/19 14:09	bsu
Vanadium (WET DI)	6010D ICP	1	0.018	B	*	mg/L	0.005	0.03	11/26/19 11:07	kja
Vanadium, total (3050)	M6010D ICP	99	73.4			mg/Kg	0.5	2	12/03/19 1:05	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:07	kja
Zinc, total (3050)	M6010D ICP	99	63			mg/Kg	1	5	12/03/19 1:05	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.3			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	100		*	%	0.1	0.5	12/03/19 8:01	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 9:21	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 9:21	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 10:56	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 10:56	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/21/19 8:42	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	43.5			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	2.6	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	46.1			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	2.8		*	mg/L	0.5	2	12/17/19 11:24	ttg
Conductivity @25C (WET-DI)	SM2510B	1	115			umhos/cm	1	10	11/25/19 15:51	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:45	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		33			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2		0.22	H		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.28	H	*	mg/L	0.02	0.1	11/22/19 0:11	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.06		*	mg/L	0.01	0.05	11/22/19 0:11	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	78		*	mg/L	20	40	11/22/19 12:42	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	8.5		*	mg/L	1	5	12/12/19 16:06	ttg

Rise Grass Valley Inc.
Project ID:
Sample ID: F-4 (AB)

ACZ Sample ID: ***L55808-04***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum (WET DI)	6010D ICP	1	0.28	B	*	mg/L	0.05	0.3	11/26/19 11:10	kja
Aluminum, total (3050)	M6010D ICP	100	16300		*	mg/Kg	5	30	12/03/19 1:08	kja
Antimony (WET DI)	6020B ICP-MS	1	0.002		*	mg/L	0.0004	0.002	11/27/19 15:39	mfm
Antimony, total (3050)	M6020B ICP-MS	500		U	*	mg/Kg	0.2	1	12/04/19 14:11	bsu
Arsenic (WET DI)	6020B ICP-MS	1	0.0014		*	mg/L	0.0002	0.001	11/27/19 15:39	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.2			mg/Kg	0.1	0.5	12/04/19 14:11	bsu
Barium (WET DI)	6010D ICP	1		U	*	mg/L	0.007	0.04	11/26/19 11:10	kja
Barium, total (3050)	M6010D ICP	100	17.6			mg/Kg	0.7	4	12/03/19 1:08	kja
Beryllium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00008	0.0003	11/27/19 15:39	mfm
Beryllium, total (3050)	M6020B ICP-MS	500	0.22			mg/Kg	0.04	0.1	12/04/19 14:11	bsu
Boron (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:10	kja
Boron, total (3050)	M6010D ICP	100		U		mg/Kg	2	10	12/03/19 1:08	kja
Cadmium (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.00005	0.0003	11/27/19 15:39	mfm
Cadmium, total (3050)	M6020B ICP-MS	500	0.59			mg/Kg	0.03	0.1	12/04/19 14:11	bsu
Calcium (WET DI)	6010D ICP	1	8.3			mg/L	0.1	0.5	11/26/19 11:10	kja
Chromium (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:10	kja
Chromium, total (3050)	M6010D ICP	100	88			mg/Kg	1	5	12/03/19 1:08	kja
Cobalt (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:10	kja
Cobalt, total (3050)	M6010D ICP	100	13		*	mg/Kg	1	5	12/03/19 1:08	kja
Copper (WET DI)	6010D ICP	1	0.09		*	mg/L	0.01	0.05	11/26/19 11:10	kja
Copper, total (3050)	M6010D ICP	100	84			mg/Kg	1	5	12/03/19 1:08	kja
Iron (WET DI)	6010D ICP	1		U	*	mg/L	0.03	0.08	11/26/19 11:10	kja
Iron, total (3050)	M6010D ICP	100	35200		*	mg/Kg	3	8	12/03/19 1:08	kja
Lead (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:39	mfm
Lead, total (3050)	M6020B ICP-MS	500	8.88			mg/Kg	0.05	0.3	12/04/19 14:11	bsu
Magnesium (WET DI)	6010D ICP	1	3.8			mg/L	0.2	1	11/26/19 11:10	kja
Manganese (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:10	kja
Manganese, total (3050)	M6010D ICP	100	994		*	mg/Kg	1	5	12/03/19 1:08	kja
Mercury (WET DI)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	11/25/19 15:02	slm
Mercury by Direct Combustion AA	M7473 CVAAS	1	71.3		*	ng/g	1.58	7.9	11/19/19 14:37	slm
Molybdenum (WET DI)	6010D ICP	1		U	*	mg/L	0.02	0.1	11/26/19 11:10	kja
Molybdenum, total (3050)	M6010D ICP	100	37		*	mg/Kg	2	10	12/03/19 1:08	kja
Nickel (WET DI)	6010D ICP	1		U	*	mg/L	0.008	0.04	11/26/19 11:10	kja
Nickel, total (3050)	M6010D ICP	100	29.9		*	mg/Kg	0.8	4	12/03/19 1:08	kja
Potassium (WET DI)	6010D ICP	1	7.4			mg/L	0.2	1	11/26/19 11:10	kja
Selenium (WET DI)	6020B ICP-MS	1	0.0003		*	mg/L	0.0001	0.0003	11/27/19 15:39	mfm
Selenium, total (3050)	M6020B ICP-MS	500	0.11			mg/Kg	0.05	0.1	12/04/19 14:11	bsu
Silver (WET DI)	6020B ICP-MS	1		U	*	mg/L	0.0001	0.0005	11/27/19 15:39	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.20	B		mg/Kg	0.05	0.3	12/04/19 14:11	bsu
Sodium (WET DI)	M6010D ICP	1	4.7			mg/L	0.2	1	11/26/19 11:10	kja
Thallium (WET DI)	6020B ICP-MS	1	0.0001	B	*	mg/L	0.0001	0.0005	11/27/19 15:39	mfm

Rise Grass Valley Inc.
Project ID:
Sample ID: F-4 (AB)

ACZ Sample ID: ***L55808-04***
Date Sampled: *11/04/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Thallium, total (3050)	M6020B ICP-MS	500		U		mg/Kg	0.05	0.3	12/04/19 14:11	bsu
Vanadium (WET DI)	6010D ICP	1	0.014	B	*	mg/L	0.005	0.03	11/26/19 11:10	kja
Vanadium, total (3050)	M6010D ICP	100	73.0			mg/Kg	0.5	3	12/03/19 1:08	kja
Zinc (WET DI)	6010D ICP	1		U	*	mg/L	0.01	0.05	11/26/19 11:10	kja
Zinc, total (3050)	M6010D ICP	100	63			mg/Kg	1	5	12/03/19 1:08	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
pH, (WET-DI)	M9045D/M9040C									
pH		1	9.3			units	0.1	0.1	11/21/19 0:00	llr
Temperature		1	20.3			C	0.1	0.1	11/21/19 0:00	llr
Solids, Percent	D2216-80	1	100		*	%	0.1	0.5	12/03/19 9:35	ms/mlp

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								11/19/19 9:30	llr
Crush and Pulverize	EPA-600/2-78-054 3.1.3								11/19/19 9:30	llr
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 11:16	mlp
Digestion - Hot Plate	M3050B ICP								11/26/19 11:16	mlp
Waste Extraction Test - DI H2O	California Method, Title 22								11/21/19 11:51	llr

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity (WET DI)	SM2320B - Titration									
Bicarbonate as CaCO3		1	44.6			mg/L	2	20	11/25/19 0:00	emk
Carbonate as CaCO3		1	3.1	B		mg/L	2	20	11/25/19 0:00	emk
Hydroxide as CaCO3		1		U		mg/L	2	20	11/25/19 0:00	emk
Total Alkalinity		1	47.7			mg/L	2	20	11/25/19 0:00	emk
Chloride (WET DI)	SM4500Cl-E	1	2.5		*	mg/L	0.5	2	12/17/19 11:24	ttg
Conductivity @25C (WET-DI)	SM2510B	1	118			umhos/cm	1	10	11/25/19 16:00	emk
Fluoride (WET DI)	SM4500F-C	1		U	*	mg/L	0.1	0.4	11/26/19 13:49	emk
Hardness as CaCO3 (WET-DI)	SM2340B - Calculation		36			mg/L	0.2	5	12/18/19 0:00	calc
Nitrate (WET-DI)	Calculation: NO3NO2 minus NO2		0.19	H		mg/L	0.02	0.1	12/18/19 0:00	calc
Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.24	H	*	mg/L	0.02	0.1	11/22/19 0:12	pjb
Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	1	0.05		*	mg/L	0.01	0.05	11/22/19 0:12	pjb
Residue, Filterable (TDS) @180C (WET DI)	SM2540C	1	78		*	mg/L	20	40	11/22/19 12:44	emk
Sulfate (WET DI)	D516-07 - Turbidimetric	1	8.7		*	mg/L	1	5	12/12/19 16:06	ttg

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486937													
WG486937PBW	PBW	11/25/19 13:53				U	mg/L		-20	20			
WG486937LCSW2	LCSW	11/25/19 14:08	WC191115-7	820.0001		820	mg/L	100	90	110			
WG486427PBS	PBS	11/25/19 14:16				3	mg/L		-20	20			
L55808-01DUP	DUP	11/25/19 15:32			45.2	43.2	mg/L				5	20	
WG486937LCSW4	LCSW	11/25/19 16:15	WC191115-7	820.0001		823	mg/L	100	90	110			

Aluminum (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		2.009	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.15	0.15			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.15	0.15			
L55806-04AS	AS	11/26/19 10:33	II191106-4	1.0012	.49	1.474	mg/L	98	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	1.0012	.49	1.446	mg/L	95	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			.17	.161	mg/L				5	20	RA

Aluminum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.987	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.15	0.15			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-15	15			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	8610		9552	mg/Kg		4410	12800			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	8610		9199	mg/Kg		4410	12800	4	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	100.12	26600	27240	mg/Kg	639	75	125			M3
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	100.12	26600	27750	mg/Kg	1149	75	125	2	20	M3

Antimony (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.02004		.01989	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0012	0.0012			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0012	0.0012			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.01	.1871	.11517	mg/L	-719	75	125			M3
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.01	.1871	.13123	mg/L	-559	75	125	13	20	M3
L55808-01DUP	DUP	11/27/19 15:33			.0015	.00134	mg/L				11	20	RA

Antimony, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02018	mg/L	101	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0012	0.0012			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.6	0.6			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	68.6		55	mg/Kg		2.03	135			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	68.6		51.1	mg/Kg		2.03	135	7	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5	U	.54	mg/Kg	11	75	125			M2
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5	U	.52	mg/Kg	10	75	125	4	20	M2

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Arsenic (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.0494	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0006	0.0006			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0006	0.0006			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	.1689	.23507	mg/L	132	75	125			M1
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	.1689	.23995	mg/L	142	75	125	2	20	M1
L55808-01DUP	DUP	11/27/19 15:33			.0018	.00184	mg/L				2	20	RA

Arsenic, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04988	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0006	0.0006			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.3	0.3			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	69.4		75.2	mg/Kg		57.2	81.5			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	69.4		73.1	mg/Kg		57.2	81.5	3	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	1.8	25.78	mg/Kg	96	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	1.8	26.17	mg/Kg	97	75	125	2	20	

Barium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		2.017	mg/L	101	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.021	0.021			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.021	0.021			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.4838	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.4853	mg/L	97	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Barium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.973	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.021	0.021			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-2.1	2.1			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	362		360.2	mg/Kg		297	427			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	362		348	mg/Kg		297	427	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	3.5	49.09	mg/Kg	91	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	3.5	50.03	mg/Kg	93	75	125	2	20	

Beryllium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.049417	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.00024	0.00024			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.00024	0.00024			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.052448	mg/L	105	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.053013	mg/L	106	75	125	1	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Beryllium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.048696	mg/L	97	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00024	0.00024			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.12	0.12			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	223		233.15	mg/Kg		185	260			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	223		228.47	mg/Kg		185	260	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.09	26.614	mg/Kg	106	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.09	26.054	mg/Kg	104	75	125	2	20	

Boron (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.951	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.06	0.06			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.06	0.06			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.496	mg/L	99	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.495	mg/L	99	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Boron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		2.02	mg/L	101	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	79.4		79.5	mg/Kg		57.2	102			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	79.4		78.3	mg/Kg		57.2	102	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	U	47.3	mg/Kg	95	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	U	47.6	mg/Kg	95	75	125	1	20	

Cadmium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.047696	mg/L	95	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.00015	0.00015			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.00015	0.00015			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.048323	mg/L	97	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.050596	mg/L	101	75	125	5	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cadmium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.049073	mg/L	98	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00015	0.00015			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.09	0.09			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	166		169.14	mg/Kg		138	195			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	166		176.08	mg/Kg		138	195	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.25	23.716	mg/Kg	94	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.25	23.642	mg/Kg	93	75	125	0	20	

Calcium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		98.14	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.3	0.3			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.3	0.3			
L55806-04AS	AS	11/26/19 10:33	II191106-4	68.00334	8.8	74.72	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	68.00334	8.8	73.19	mg/L	95	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			9	8.78	mg/L				2	20	

Chloride (WET DI) SM4500Cl-E

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488294													
WG488294ICB	ICB	12/17/19 8:29				U	mg/L		-1.5	1.5			
WG488294ICV	ICV	12/17/19 8:29	WI190501-1	54.835		53.88	mg/L	98	90	110			
WG488294LFB	LFB	12/17/19 11:23	WI190812-3	30		32.28	mg/L	108	90	110			
WG486427PBS	PBS	12/17/19 11:23				U	mg/L		-1.5	1.5			
L55806-01AS	AS	12/17/19 11:23	WI190812-3	30	4.4	36.52	mg/L	107	90	110			
L55808-01DUP	DUP	12/17/19 11:24			1.7	2.19	mg/L				25	20	RA

Chromium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.501	U	.471	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.501	U	.474	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Chromium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.979	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	249		249.9	mg/Kg		203	295			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	249		242.2	mg/Kg		203	295	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.1	163	208.1	mg/Kg	90	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.1	163	211.8	mg/Kg	97	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cobalt (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2.002		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5	U	.471	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5	U	.474	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Cobalt, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2.002		1.924	mg/L	96	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	90.6		88.8	mg/Kg		75.1	106			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	90.6		86.1	mg/Kg		75.1	106	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50	23	65.8	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50	23	67.8	mg/Kg	90	75	125	3	20	

Conductivity @25C (WET-DI) SM2510B

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486937													
WG486937PBW	PBW	11/25/19 13:53				U	umhos/cm		-10	10			
WG486937LCSW1	LCSW	11/25/19 13:56	PCN59515	1408		1430	umhos/cm	102	90	110			
WG486427PBS	PBS	11/25/19 14:16				2.7	umhos/cm		-4	4			
L55808-01DUP	DUP	11/25/19 15:32			105	104	umhos/cm				1	20	
WG486937LCSW3	LCSW	11/25/19 16:02	PCN59515	1408		1420	umhos/cm	101	90	110			

Copper (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.934	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5005	U	.476	mg/L	95	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5005	U	.481	mg/L	96	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Copper, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.938	mg/L	97	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	280		269.7	mg/Kg		233	326			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	280		264.9	mg/Kg		233	326	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.05	60	103.3	mg/Kg	87	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.05	60	107.5	mg/Kg	95	75	125	4	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Fluoride (WET DI) SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486964													
WG486964ICV	ICV	11/26/19 9:32	WC191119-7	2.004		2.1	mg/L	105	90	110			
WG486964ICB	ICB	11/26/19 9:37				U	mg/L		-0.3	0.3			
WG486997													
WG486997ICV	ICV	11/26/19 12:27	WC191126-1	2.004		1.94	mg/L	97	90	110			
WG486997ICB	ICB	11/26/19 12:31				.12	mg/L		-0.3	0.3			
WG486997LFB	LFB	11/26/19 12:43	WC191014-1	5.01		4.65	mg/L	93	90	110			
WG486427PBS	PBS	11/26/19 12:48				.15	mg/L		-0.3	0.3			
L55808-01AS	AS	11/26/19 13:30	WC191014-1	5.01	U	4.82	mg/L	96	90	110			
L55808-01DUP	DUP	11/26/19 13:34			U	.12	mg/L				200	20	RA

Iron (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.935	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.09	0.09			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.09	0.09			
L55806-04AS	AS	11/26/19 10:33	II191106-4	1.0018	U	.969	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	1.0018	U	.98	mg/L	98	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Iron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.925	mg/L	96	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.09	0.09			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-9	9			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	14000		13230	mg/Kg		8380	19600			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	14000		12950	mg/Kg		8380	19600	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	100.18	36600	37030	mg/Kg	429	75	125			M3
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	100.18	36600	37770	mg/Kg	1168	75	125	2	20	M3

Lead (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.05009	mg/L	100	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00012	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	.0002	.05087	mg/L	101	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	.0002	.05183	mg/L	103	75	125	2	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Lead, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05102	mg/L	102	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	225		242.29	mg/Kg		184	266			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	225		236.5	mg/Kg		184	266	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.29	24.786	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.29	24.658	mg/Kg	97	75	125	1	20	

Magnesium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		95.84	mg/L	96	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	49.99771	3.9	51.1	mg/L	94	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	49.99771	3.9	49.91	mg/L	92	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.8	3.66	mg/L				4	20	

Manganese (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.959	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.5015	U	.486	mg/L	97	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.5015	U	.487	mg/L	97	75	125	0	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Manganese, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.937	mg/L	97	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	332		324.8	mg/Kg		272	392			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	332		318.3	mg/Kg		272	392	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.15	652	713.1	mg/Kg	122	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.15	652	727.9	mg/Kg	151	75	125	2	20	M3

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury (WET DI) M7470 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486782													
WG486782ICV	ICV	11/25/19 14:43	HG190911-3	.004995		.00493	mg/L	99	90	110			
WG486782ICB	ICB	11/25/19 14:44				U	mg/L		-0.0006	0.0006			
WG486782PBW	PBW	11/25/19 14:46				U	mg/L		-0.00044	0.00044			
WG486782LCSW	LCSW	11/25/19 14:47	HG191125-3	.002002		.00193	mg/L	96	85	115			
WG486427PBS	PBS	11/25/19 14:48				U	mg/L		-0.0006	0.0006			
L55806-02MS	MS	11/25/19 14:51	HG191125-3	.002002	U	.00189	mg/L	94	85	115			
L55806-02MSD	MSD	11/25/19 14:52	HG191125-3	.002002	U	.0019	mg/L	95	85	115	1	20	
L55808-01DUP	DUP	11/25/19 14:59			U	U	mg/L				0	20	RA

Mercury by Direct Combustion AA M7473 CVAAS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486193													
WG486193ICV1	ICV	11/14/19 11:38	HG191112-8	100		99.3	ng/g	99	90	110			
WG486193ICV2	ICV	11/14/19 11:50	HG191112-10	100		98.2	ng/g	98	90	110			
WG486193ICV3	ICV	11/14/19 12:02	HG191112-7	1000		1070	ng/g	107	90	110			
WG486193ICV4	ICV	11/14/19 12:13	HG191112-7	1000		1090	ng/g	109	90	110			
WG486482													
WG486482ICV1	ICV	11/19/19 8:20	HG191112-8	100		92.7	ng/g	93	90	110			
WG486482ICV2	ICV	11/19/19 8:29	HG191112-10	100		99.3	ng/g	99	90	110			
WG486482ICV3	ICV	11/19/19 9:05	HG191112-7	1000		1090	ng/g	109	90	110			
WG486482ICV4	ICV	11/19/19 9:44	HG191112-7	1000		909	ng/g	91	90	110			
WG486482PBS	PBS	11/19/19 10:38				2.3	ng/g		-6	6			
WG486482LCSS	LCSS	11/19/19 10:45	PCN56165	80		82.3	ng/g		80	120			
WG486482LCSSD	LCSSD	11/19/19 10:51	PCN56165	80		85.7	ng/g		80	120	4	20	
L55782-01MS	MS	11/19/19 12:35	PCN56165				ng/g	100	80	120			
L55782-02DUP	DUP	11/19/19 12:49			3.86	2.3	ng/g				51	20	RA

Molybdenum (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.974	mg/L	99	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.06	0.06			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.06	0.06			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.4975	.06	.552	mg/L	99	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.4975	.06	.541	mg/L	97	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Molybdenum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.98	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	158		161.1	mg/Kg		127	190			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	158		156.1	mg/Kg		127	190	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	49.75	U	44	mg/Kg	88	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	49.75	U	44.8	mg/Kg	90	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.954	mg/L	98	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.024	0.024			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.024	0.024			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.501	U	.48	mg/L	96	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.501	U	.4765	mg/L	95	75	125	1	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Nickel, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.984	mg/L	99	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.024	0.024			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-2.4	2.4			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	114		114.2	mg/Kg		93.9	134			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	114		112	mg/Kg		93.9	134	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.1	53.4	96.55	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.1	53.4	98.37	mg/Kg	90	75	125	2	20	

Nitrate/Nitrite as N (WET DI) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486755													
WG486755ICV	ICV	11/21/19 22:24	WI191112-1	2.416		2.505	mg/L	104	90	110			
WG486755ICB	ICB	11/21/19 22:25				U	mg/L		-0.02	0.02			
WG486756													
WG486756LFB	LFB	11/21/19 23:51	WI191004-3	2		2.028	mg/L	101	90	110			
WG486427PBS	PBS	11/21/19 23:53				U	mg/L		-0.02	0.02			
L55806-01AS	AS	11/21/19 23:55	WI191004-3	2	U	2.148	mg/L	107	90	110			
L55808-01DUP	DUP	11/22/19 0:08			.06	.058	mg/L				3	20	RA

Nitrite as N (WET DI) M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486755													
WG486755ICV	ICV	11/21/19 22:24	WI191112-1	.609		.601	mg/L	99	90	110			
WG486755ICB	ICB	11/21/19 22:25				U	mg/L		-0.01	0.01			
WG486756													
WG486756LFB	LFB	11/21/19 23:51	WI191004-3	1		1.004	mg/L	100	90	110			
WG486427PBS	PBS	11/21/19 23:53				U	mg/L		-0.01	0.01			
L55806-01AS	AS	11/21/19 23:55	WI191004-3	1	U	1.047	mg/L	105	90	110			
L55808-01DUP	DUP	11/22/19 0:08			.03	.028	mg/L				7	20	RA

Ph M9045D/M9040C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487845													
WG487845ICV	ICV	11/21/19 13:21	PCN58503	4		4	units	100	3.9	4.1			
L55808-01DUP	DUP	11/21/19 14:24			9.4	9.4	units				0	20	

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ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Potassium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	20		19.91	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	99.95798	U	97.96	mg/L	98	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	99.95798	U	95.96	mg/L	96	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.8	3.74	mg/L				2	20	

Residue, Filterable (TDS) @180C (WET DI) SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486804													
WG486804PBS	PBS	11/22/19 12:15				20	mg/L		-60	60			
WG486804LCSW	LCSW	11/22/19 12:17	PCN59803	1000		990	mg/L	99	80	120			
WG486427PBS	PBS	11/22/19 12:19				20	mg/L		-60	60			
L55808-01DUP	DUP	11/22/19 12:38			64	72	mg/L				12	10	RA

Selenium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.04859	mg/L	97	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00022	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.05005	U	.05274	mg/L	105	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.05005	U	.05272	mg/L	105	75	125	0	20	
L55808-01DUP	DUP	11/27/19 15:33			.0003	.00024	mg/L				22	20	RA

Selenium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04942	mg/L	99	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				.053	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	195		210.19	mg/Kg		154	237			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	195		200.58	mg/Kg		154	237	5	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	12.5125	.18	12.345	mg/Kg	97	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	12.5125	.18	12.476	mg/Kg	98	75	125	1	20	

Silver (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.02004		.0215	mg/L	107	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				U	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.01002	U	.01074	mg/L	107	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.01002	U	.01071	mg/L	107	75	125	0	20	
L55808-01DUP	DUP	11/27/19 15:33			.0001	U	mg/L				200	20	RA

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ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Silver, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02011	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	61.8		65.02	mg/Kg		49.2	74.4			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	61.8		62.73	mg/Kg		49.2	74.4	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5.01	U	4.472	mg/Kg	89	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5.01	U	4.416	mg/Kg	88	75	125	1	20	

Sodium (WET DI) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	100		97.18	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.6	0.6			
WG486427PBS	PBS	11/26/19 10:14				.39	mg/L		-0.6	0.6			
L55806-04AS	AS	11/26/19 10:33	II191106-4	100.0046	7.4	103.8	mg/L	96	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	100.0046	7.4	101.7	mg/L	94	75	125	2	20	
L55808-01DUP	DUP	11/26/19 10:59			3.7	3.64	mg/L				2	20	

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487194													
L55808-04DUP	DUP	12/03/19 11:09			100	99.97	%				0	20	
WG487194PBS	PBS	12/03/19 12:43				U	%		-0.1	0.1			

Sulfate (WET DI) D516-07 - Turbidimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG488017													
WG488017ICB	ICB	12/12/19 12:55				U	mg/L		-3	3			
WG488017ICV	ICV	12/12/19 12:55	WI191204-6	20		20.6	mg/L	103	90	110			
WG488017LFB	LFB	12/12/19 16:05	WI190801-3	10.01		10.7	mg/L	107	90	110			
WG486427PBS	PBS	12/12/19 16:05				U	mg/L		-3	3			
L55806-01AS	AS	12/12/19 16:05	WI190801-3	10.01	3.3	14.6	mg/L	113	90	110			M1
L55808-01DUP	DUP	12/12/19 16:06			8.4	7.6	mg/L				10	20	RA

Thallium (WET DI) 6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487095													
WG487095ICV	ICV	11/27/19 14:58	MS191014-8	.05		.04968	mg/L	99	90	110			
WG487095ICB	ICB	11/27/19 15:00				U	mg/L		-0.0003	0.0003			
WG486427PBS	PBS	11/27/19 15:10				.00016	mg/L		-0.0003	0.0003			
L55806-06AS	AS	11/27/19 15:25	MS191119-5	.0501	U	.0493	mg/L	98	75	125			
L55806-06ASD	ASD	11/27/19 15:26	MS191119-5	.0501	U	.05122	mg/L	102	75	125	4	20	
L55808-01DUP	DUP	11/27/19 15:33			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Thallium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05153	mg/L	103	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	135		147.23	mg/Kg		109	161			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	135		146.45	mg/Kg		109	161	1	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.05	U	24.466	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.05	U	24.369	mg/Kg	97	75	125	0	20	

Vanadium (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.996	mg/L	100	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.015	0.015			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.015	0.015			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.4995	.007	.5198	mg/L	103	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.4995	.007	.4969	mg/L	98	75	125	5	20	
L55808-01DUP	DUP	11/26/19 10:59			.008	.0101	mg/L				23	20	RA

Vanadium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		2.049	mg/L	102	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.015	0.015			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-1.5	1.5			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	86.4		92.69	mg/Kg		67.4	105			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	86.4		90.38	mg/Kg		67.4	105	3	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	49.95	124	183.1	mg/Kg	118	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	49.95	124	186.4	mg/Kg	125	75	125	2	20	

Zinc (WET DI) 6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486811													
WG486811ICV	ICV	11/26/19 9:47	II191121-2	2		1.937	mg/L	97	90	110			
WG486811ICB	ICB	11/26/19 9:51				U	mg/L		-0.03	0.03			
WG486427PBS	PBS	11/26/19 10:14				U	mg/L		-0.03	0.03			
L55806-04AS	AS	11/26/19 10:33	II191106-4	.50075	U	.524	mg/L	105	75	125			
L55806-04ASD	ASD	11/26/19 10:36	II191106-4	.50075	U	.505	mg/L	101	75	125	4	20	
L55808-01DUP	DUP	11/26/19 10:59			U	U	mg/L				0	20	RA

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Zinc, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487169													
WG487169ICV	ICV	12/02/19 23:46	II191122-1	2		1.957	mg/L	98	90	110			
WG487169ICB	ICB	12/02/19 23:50				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/03/19 0:14				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/03/19 0:18	PCN59282	122		120.1	mg/Kg		98.6	145			
WG486958LCSSD	LCSSD	12/03/19 0:22	PCN59282	122		117.9	mg/Kg		98.6	145	2	20	
L55822-21MS	MS	12/03/19 1:20	II191106-4	50.075	36	84	mg/Kg	96	75	125			
L55822-21MSD	MSD	12/03/19 1:24	II191106-4	50.075	36	84.5	mg/Kg	97	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55808-01	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55808-02	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55808-03	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55808-04	WG486811	Aluminum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Aluminum, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Antimony (WET DI)	6020B ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487337	Antimony, total (3050)	M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Arsenic (WET DI)	6020B ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Barium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Beryllium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Boron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Cadmium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488294	Chloride (WET DI)	SM4500Cl-E	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			SM4500Cl-E	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Chromium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Cobalt (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Cobalt, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Copper (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486997	Fluoride (WET DI)	SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Iron (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Iron, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487095	Lead (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Manganese (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
					sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Manganese, total (3050)	M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486782	Mercury (WET DI)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486482	Mercury by Direct Combustion AA	M7473 CVAAS	Q6	Sample was received above recommended temperature.
			M7473 CVAAS	QR	Sample matrix is solid rock and a homogenous sample aliquot could not be created for Hg analysis prior to preparation and air drying. Hg analysis was performed on crushed, homogenized, and air dried (40C) sub sample. Some loss of Hg may have occurred. Residual moisture on the prepped sample fraction was used for data correction.
			M7473 CVAAS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Molybdenum (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Molybdenum, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486811	Nickel (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487169	Nickel, total (3050)	M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486756	Nitrate/Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Nitrite as N (WET DI)	M353.2 - Automated Cadmium Reduction	H3	Sample was received and analyzed past holding time.
			M353.2 - Automated Cadmium Reduction	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.
			M353.2 - Automated Cadmium Reduction	Q6	Sample was received above recommended temperature.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486804	Residue, Filterable (TDS) @180C (WET DI)	SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Selenium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG488017	Sulfate (WET DI)	D516-07 - Turbidimetric	HD	Analysis is outside the intended scope of the method, which does not provide hold time information for soil extracts. No hold time is observed for collection to extraction. The referenced method hold time is observed for extraction-to-analysis.

Rise Grass Valley Inc.

ACZ Project ID: ***L55808***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
			D516-07 - Turbidimetric	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			D516-07 - Turbidimetric	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG487095	Thallium (WET DI)	6020B ICP-MS	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG486811	Vanadium (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Zinc (WET DI)	6010D ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rise Grass Valley Inc. ACZ Project ID: ***L55808***

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Boron (WET DI)	6010D ICP

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Solids, Percent	D2216-80

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Sulfate (WET DI)	D516-07 - Turbidimetric

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID: L55808
Date Received: 11/11/2019 14:21
Received By: mjj
Date Printed: 11/12/2019

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA31791	19.8	NA	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID:	L55808
Date Received:	11/11/2019 14:21
Received By:	mjj
Date Printed:	11/12/2019

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☒ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: Core-Tailings-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? ☐

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	Di-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
F-1 (ABC)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-2 (ABC)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-3 (AB)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-4 (AB)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☒ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: Core-Tailings-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? ☐

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	Di-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
F-1 (ABC)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-2 (ABC)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-3 (AB)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
F-4 (AB)	11/4/19:12:00 pm	T	1	☒	☒	☒	☒	☒	☒	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐	☐	☐	☐

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 06, 2019

Report to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

cc: Andy Kopania

Bill to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

Project ID:
ACZ Project ID: L55821

Ben Mossman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 11, 2019. This project has been assigned to ACZ's project number, L55821. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L55821. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 05, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973589

ACZ Sample ID: ***L55821-01***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	24500	H	*	mg/Kg	10	50	12/02/19 20:18	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:13	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.9	H	*	mg/Kg	0.1	0.5	12/04/19 17:38	mfm
Barium, total (3050)	M6010D ICP	100	14.7	H	*	mg/Kg	0.7	4	11/26/19 5:12	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 16:13	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:12	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.45	H	*	mg/Kg	0.03	0.1	11/26/19 16:13	mfm
Chromium, total (3050)	M6010D ICP	100	142	H	*	mg/Kg	1	5	11/26/19 5:12	kja
Cobalt, total (3050)	M6010D ICP	100	31	H	*	mg/Kg	1	5	11/26/19 5:12	kja
Copper, total (3050)	M6010D ICP	100	99	H	*	mg/Kg	1	5	11/26/19 5:12	kja
Iron, total (3050)	M6010D ICP	200	39400	H	*	mg/Kg	6	20	12/02/19 20:18	kja
Lead, total (3050)	M6020B ICP-MS	500	0.37	H	*	mg/Kg	0.05	0.3	11/26/19 16:13	mfm
Manganese, total (3050)	M6010D ICP	200	737	H	*	mg/Kg	2	10	11/27/19 3:59	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:12	kja
Nickel, total (3050)	M6010D ICP	100	43.5	H	*	mg/Kg	0.8	4	11/26/19 5:12	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.23	H	*	mg/Kg	0.05	0.1	11/26/19 16:13	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/03/19 15:13	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 16:13	mfm
Vanadium, total (3050)	M6010D ICP	200	106	H	*	mg/Kg	1	5	11/27/19 3:59	kja
Zinc, total (3050)	M6010D ICP	100	49	H	*	mg/Kg	1	5	11/26/19 5:12	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.8	H	*	%	0.1	0.5	11/19/19 16:00	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 13:30	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 13:30	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973588

ACZ Sample ID: ***L55821-02***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	26900	H	*	mg/Kg	10	50	12/02/19 20:30	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:15	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.5	H	*	mg/Kg	0.1	0.5	11/26/19 16:15	mfm
Barium, total (3050)	M6010D ICP	100	14.7	H	*	mg/Kg	0.7	4	11/26/19 5:23	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 16:15	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:23	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.49	H	*	mg/Kg	0.03	0.1	11/26/19 16:15	mfm
Chromium, total (3050)	M6010D ICP	100	93	H	*	mg/Kg	1	5	11/26/19 5:23	kja
Cobalt, total (3050)	M6010D ICP	100	33	H	*	mg/Kg	1	5	11/26/19 5:23	kja
Copper, total (3050)	M6010D ICP	100	98	H	*	mg/Kg	1	5	11/26/19 5:23	kja
Iron, total (3050)	M6010D ICP	200	44300	H	*	mg/Kg	6	20	12/02/19 20:30	kja
Lead, total (3050)	M6020B ICP-MS	500	0.32	H	*	mg/Kg	0.05	0.3	11/26/19 16:15	mfm
Manganese, total (3050)	M6010D ICP	200	768	H	*	mg/Kg	2	10	11/27/19 4:10	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:23	kja
Nickel, total (3050)	M6010D ICP	100	47.7	H	*	mg/Kg	0.8	4	11/26/19 5:23	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.24	H	*	mg/Kg	0.05	0.1	11/26/19 16:15	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/03/19 15:15	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 16:15	mfm
Vanadium, total (3050)	M6010D ICP	200	129	H	*	mg/Kg	1	5	11/27/19 4:10	kja
Zinc, total (3050)	M6010D ICP	100	50	H	*	mg/Kg	1	5	11/26/19 5:23	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 18:17	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 14:18	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 14:18	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973551

ACZ Sample ID: ***L55821-03***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	99	19800	H	*	mg/Kg	5	20	12/02/19 20:33	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/03/19 15:20	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.4	BH	*	mg/Kg	0.1	0.5	11/26/19 16:20	mfm
Barium, total (3050)	M6010D ICP	99	4.9	H	*	mg/Kg	0.7	3	11/26/19 5:27	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 16:20	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:27	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.42	H	*	mg/Kg	0.02	0.1	11/26/19 16:20	mfm
Chromium, total (3050)	M6010D ICP	99	100	H	*	mg/Kg	1	5	11/26/19 5:27	kja
Cobalt, total (3050)	M6010D ICP	99	21	H	*	mg/Kg	1	5	11/26/19 5:27	kja
Copper, total (3050)	M6010D ICP	99	54	H	*	mg/Kg	1	5	11/26/19 5:27	kja
Iron, total (3050)	M6010D ICP	99	32900	H	*	mg/Kg	3	7	12/02/19 20:33	kja
Lead, total (3050)	M6020B ICP-MS	495	1.19	H	*	mg/Kg	0.05	0.2	11/26/19 16:20	mfm
Manganese, total (3050)	M6010D ICP	99	590	H	*	mg/Kg	1	5	11/27/19 4:14	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:27	kja
Nickel, total (3050)	M6010D ICP	99	36.0	H	*	mg/Kg	0.8	4	11/26/19 5:27	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.45	H	*	mg/Kg	0.05	0.1	11/26/19 16:20	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.09	BH	*	mg/Kg	0.05	0.2	12/03/19 15:20	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 16:20	mfm
Vanadium, total (3050)	M6010D ICP	99	97.8	H	*	mg/Kg	0.5	2	11/26/19 5:27	kja
Zinc, total (3050)	M6010D ICP	99	50	H	*	mg/Kg	1	5	11/26/19 5:27	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/19/19 19:25	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 15:06	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 15:06	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973552

ACZ Sample ID: ***L55821-04***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	21700	H	*	mg/Kg	10	50	12/02/19 20:37	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/03/19 15:22	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.5	H	*	mg/Kg	0.1	0.5	11/26/19 16:22	mfm
Barium, total (3050)	M6010D ICP	99	6.7	H	*	mg/Kg	0.7	3	11/26/19 5:30	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.04	BH	*	mg/Kg	0.04	0.1	11/26/19 16:22	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:30	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.30	H	*	mg/Kg	0.02	0.1	11/26/19 16:22	mfm
Chromium, total (3050)	M6010D ICP	99	115	H	*	mg/Kg	1	5	11/26/19 5:30	kja
Cobalt, total (3050)	M6010D ICP	99	20	H	*	mg/Kg	1	5	11/26/19 5:30	kja
Copper, total (3050)	M6010D ICP	99	49	H	*	mg/Kg	1	5	11/26/19 5:30	kja
Iron, total (3050)	M6010D ICP	198	28800	H	*	mg/Kg	6	10	12/02/19 20:37	kja
Lead, total (3050)	M6020B ICP-MS	495	0.59	H	*	mg/Kg	0.05	0.2	11/26/19 16:22	mfm
Manganese, total (3050)	M6010D ICP	198	640	H	*	mg/Kg	2	10	11/27/19 4:18	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:30	kja
Nickel, total (3050)	M6010D ICP	99	41.0	H	*	mg/Kg	0.8	4	11/26/19 5:30	kja
Selenium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.1	11/26/19 16:22	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.05	0.2	12/03/19 15:22	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 16:22	mfm
Vanadium, total (3050)	M6010D ICP	198	109	H	*	mg/Kg	1	5	11/27/19 4:18	kja
Zinc, total (3050)	M6010D ICP	99	43	H	*	mg/Kg	1	5	11/26/19 5:30	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 20:34	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 15:22	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 15:22	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973553

ACZ Sample ID: ***L55821-05***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	26500	H	*	mg/Kg	10	50	12/02/19 20:41	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/03/19 15:24	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.5	H	*	mg/Kg	0.1	0.5	11/26/19 16:24	mfm
Barium, total (3050)	M6010D ICP	99	5.7	H	*	mg/Kg	0.7	3	11/26/19 5:34	kja
Beryllium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.04	0.1	11/26/19 16:24	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:34	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.47	H	*	mg/Kg	0.02	0.1	11/26/19 16:24	mfm
Chromium, total (3050)	M6010D ICP	99	160	H	*	mg/Kg	1	5	11/26/19 5:34	kja
Cobalt, total (3050)	M6010D ICP	99	23	H	*	mg/Kg	1	5	11/26/19 5:34	kja
Copper, total (3050)	M6010D ICP	99	64	H	*	mg/Kg	1	5	11/26/19 5:34	kja
Iron, total (3050)	M6010D ICP	198	35200	H	*	mg/Kg	6	10	12/02/19 20:41	kja
Lead, total (3050)	M6020B ICP-MS	495	0.96	H	*	mg/Kg	0.05	0.2	11/26/19 16:24	mfm
Manganese, total (3050)	M6010D ICP	198	603	H	*	mg/Kg	2	10	11/27/19 4:21	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:34	kja
Nickel, total (3050)	M6010D ICP	99	64.6	H	*	mg/Kg	0.8	4	11/26/19 5:34	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.10	H	*	mg/Kg	0.05	0.1	11/26/19 16:24	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.05	0.2	12/03/19 15:24	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 16:24	mfm
Vanadium, total (3050)	M6010D ICP	198	123	H	*	mg/Kg	1	5	11/27/19 4:21	kja
Zinc, total (3050)	M6010D ICP	99	46	H	*	mg/Kg	1	5	11/26/19 5:34	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 21:42	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 15:38	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 15:38	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973554

ACZ Sample ID: ***L55821-06***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	21900	H	*	mg/Kg	10	50	12/02/19 20:53	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/03/19 15:29	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	1.3	H	*	mg/Kg	0.1	0.5	11/26/19 16:56	mfm
Barium, total (3050)	M6010D ICP	99	4.1	H	*	mg/Kg	0.7	3	11/26/19 5:45	kja
Beryllium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.04	0.1	11/26/19 16:56	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:45	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.40	H	*	mg/Kg	0.02	0.1	11/26/19 16:56	mfm
Chromium, total (3050)	M6010D ICP	99	81	H	*	mg/Kg	1	5	11/26/19 5:45	kja
Cobalt, total (3050)	M6010D ICP	99	23	H	*	mg/Kg	1	5	11/26/19 5:45	kja
Copper, total (3050)	M6010D ICP	99	75	H	*	mg/Kg	1	5	11/26/19 5:45	kja
Iron, total (3050)	M6010D ICP	198	35100	H	*	mg/Kg	6	10	12/02/19 20:53	kja
Lead, total (3050)	M6020B ICP-MS	495	0.65	H	*	mg/Kg	0.05	0.2	11/26/19 16:56	mfm
Manganese, total (3050)	M6010D ICP	198	550	H	*	mg/Kg	2	10	11/27/19 4:32	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:45	kja
Nickel, total (3050)	M6010D ICP	99	40.9	H	*	mg/Kg	0.8	4	11/26/19 5:45	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.25	H	*	mg/Kg	0.05	0.1	11/26/19 16:56	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.09	BH	*	mg/Kg	0.05	0.2	12/03/19 15:29	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 16:56	mfm
Vanadium, total (3050)	M6010D ICP	198	102	H	*	mg/Kg	1	5	11/27/19 4:32	kja
Zinc, total (3050)	M6010D ICP	99	48	H	*	mg/Kg	1	5	11/26/19 5:45	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 22:51	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 15:54	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 15:54	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973555

ACZ Sample ID: ***L55821-07***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	22000	H	*	mg/Kg	10	50	12/02/19 20:57	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/03/19 15:31	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	4.3	H	*	mg/Kg	0.1	0.5	12/04/19 17:45	mfm
Barium, total (3050)	M6010D ICP	99	4.7	H	*	mg/Kg	0.7	3	11/26/19 5:49	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 16:58	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:49	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.38	H	*	mg/Kg	0.02	0.1	11/26/19 16:58	mfm
Chromium, total (3050)	M6010D ICP	99	150	H	*	mg/Kg	1	5	11/26/19 5:49	kja
Cobalt, total (3050)	M6010D ICP	99	24	H	*	mg/Kg	1	5	11/26/19 5:49	kja
Copper, total (3050)	M6010D ICP	99	58	H	*	mg/Kg	1	5	11/26/19 5:49	kja
Iron, total (3050)	M6010D ICP	198	32100	H	*	mg/Kg	6	10	12/02/19 20:57	kja
Lead, total (3050)	M6020B ICP-MS	495	0.74	H	*	mg/Kg	0.05	0.2	11/26/19 16:58	mfm
Manganese, total (3050)	M6010D ICP	198	557	H	*	mg/Kg	2	10	11/27/19 4:36	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 5:49	kja
Nickel, total (3050)	M6010D ICP	99	63.3	H	*	mg/Kg	0.8	4	11/26/19 5:49	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.12	H	*	mg/Kg	0.05	0.1	11/26/19 16:58	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.05	0.2	12/03/19 15:31	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 16:58	mfm
Vanadium, total (3050)	M6010D ICP	198	109	H	*	mg/Kg	1	5	11/27/19 4:36	kja
Zinc, total (3050)	M6010D ICP	99	43	H	*	mg/Kg	1	5	11/26/19 5:49	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 23:59	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 16:10	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 16:10	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973556

ACZ Sample ID: ***L55821-08***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	25000	H	*	mg/Kg	10	50	12/02/19 21:00	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:34	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.3	H	*	mg/Kg	0.1	0.5	12/04/19 17:49	mfm
Barium, total (3050)	M6010D ICP	100	5.1	H	*	mg/Kg	0.7	4	11/26/19 5:53	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.04	0.1	11/26/19 16:59	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:53	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.40	H	*	mg/Kg	0.03	0.1	11/26/19 16:59	mfm
Chromium, total (3050)	M6010D ICP	100	156	H	*	mg/Kg	1	5	11/26/19 5:53	kja
Cobalt, total (3050)	M6010D ICP	100	25	H	*	mg/Kg	1	5	11/26/19 5:53	kja
Copper, total (3050)	M6010D ICP	100	58	H	*	mg/Kg	1	5	11/26/19 5:53	kja
Iron, total (3050)	M6010D ICP	200	35800	H	*	mg/Kg	6	20	12/02/19 21:00	kja
Lead, total (3050)	M6020B ICP-MS	500	0.69	H	*	mg/Kg	0.05	0.3	11/26/19 16:59	mfm
Manganese, total (3050)	M6010D ICP	200	633	H	*	mg/Kg	2	10	11/27/19 4:40	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:53	kja
Nickel, total (3050)	M6010D ICP	100	54.1	H	*	mg/Kg	0.8	4	11/26/19 5:53	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.12	H	*	mg/Kg	0.05	0.1	11/26/19 16:59	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/03/19 15:34	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 16:59	mfm
Vanadium, total (3050)	M6010D ICP	200	117	H	*	mg/Kg	1	5	11/27/19 4:40	kja
Zinc, total (3050)	M6010D ICP	100	48	H	*	mg/Kg	1	5	11/26/19 5:53	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 1:08	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 16:26	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 16:26	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973557

ACZ Sample ID: ***L55821-09***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	33100	H	*	mg/Kg	10	50	12/02/19 21:04	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:36	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	7.0	H	*	mg/Kg	0.1	0.5	12/04/19 17:54	mfm
Barium, total (3050)	M6010D ICP	100	11.9	H	*	mg/Kg	0.7	4	11/26/19 5:56	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.13	H	*	mg/Kg	0.04	0.1	11/26/19 17:01	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:56	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.41	H	*	mg/Kg	0.03	0.1	11/26/19 17:01	mfm
Chromium, total (3050)	M6010D ICP	100	126	H	*	mg/Kg	1	5	11/26/19 5:56	kja
Cobalt, total (3050)	M6010D ICP	100	31	H	*	mg/Kg	1	5	11/26/19 5:56	kja
Copper, total (3050)	M6010D ICP	100	79	H	*	mg/Kg	1	5	11/26/19 5:56	kja
Iron, total (3050)	M6010D ICP	200	51200	H	*	mg/Kg	6	20	12/02/19 21:04	kja
Lead, total (3050)	M6020B ICP-MS	500	0.88	H	*	mg/Kg	0.05	0.3	11/26/19 17:01	mfm
Manganese, total (3050)	M6010D ICP	200	933	H	*	mg/Kg	2	10	11/27/19 4:44	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 5:56	kja
Nickel, total (3050)	M6010D ICP	100	48.6	H	*	mg/Kg	0.8	4	11/26/19 5:56	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.36	H	*	mg/Kg	0.05	0.1	11/26/19 17:01	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.11	BH	*	mg/Kg	0.05	0.3	12/03/19 15:36	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:01	mfm
Vanadium, total (3050)	M6010D ICP	200	191	H	*	mg/Kg	1	5	11/27/19 4:44	kja
Zinc, total (3050)	M6010D ICP	100	72	H	*	mg/Kg	1	5	11/26/19 5:56	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 2:17	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 16:42	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 16:42	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973558

ACZ Sample ID: ***L55821-10***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	25000	H	*	mg/Kg	10	50	12/02/19 21:08	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:38	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	3.1	H	*	mg/Kg	0.1	0.5	11/26/19 17:03	mfm
Barium, total (3050)	M6010D ICP	100	4.5	H	*	mg/Kg	0.7	4	11/26/19 6:00	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 17:03	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:00	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.34	H	*	mg/Kg	0.03	0.1	11/26/19 17:03	mfm
Chromium, total (3050)	M6010D ICP	100	82	H	*	mg/Kg	1	5	11/26/19 6:00	kja
Cobalt, total (3050)	M6010D ICP	100	25	H	*	mg/Kg	1	5	11/26/19 6:00	kja
Copper, total (3050)	M6010D ICP	100	61	H	*	mg/Kg	1	5	11/26/19 6:00	kja
Iron, total (3050)	M6010D ICP	200	38200	H	*	mg/Kg	6	20	12/02/19 21:08	kja
Lead, total (3050)	M6020B ICP-MS	500	0.73	H	*	mg/Kg	0.05	0.3	11/26/19 17:03	mfm
Manganese, total (3050)	M6010D ICP	200	598	H	*	mg/Kg	2	10	11/27/19 4:47	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:00	kja
Nickel, total (3050)	M6010D ICP	100	36.8	H	*	mg/Kg	0.8	4	11/26/19 6:00	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.27	H	*	mg/Kg	0.05	0.1	11/26/19 17:03	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/03/19 15:38	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:03	mfm
Vanadium, total (3050)	M6010D ICP	200	114	H	*	mg/Kg	1	5	11/27/19 4:47	kja
Zinc, total (3050)	M6010D ICP	100	56	H	*	mg/Kg	1	5	11/26/19 6:00	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 3:25	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 10:34	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 10:34	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973586

ACZ Sample ID: ***L55821-11***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	1000	23500	H	*	mg/Kg	50	300	12/02/19 21:12	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:40	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	7.4	H	*	mg/Kg	0.1	0.5	11/26/19 17:05	mfm
Barium, total (3050)	M6010D ICP	100	0.9	BH	*	mg/Kg	0.7	4	11/26/19 6:04	kja
Beryllium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.04	0.1	11/26/19 17:05	mfm
Boron, total (3050)	M6010D ICP	100	31	H	*	mg/Kg	2	10	11/26/19 6:04	kja
Cadmium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.03	0.1	11/26/19 17:05	mfm
Chromium, total (3050)	M6010D ICP	100	319	H	*	mg/Kg	1	5	11/26/19 6:04	kja
Cobalt, total (3050)	M6010D ICP	100	99	H	*	mg/Kg	1	5	11/26/19 6:04	kja
Copper, total (3050)	M6010D ICP	100	75	H	*	mg/Kg	1	5	11/26/19 6:04	kja
Iron, total (3050)	M6010D ICP	1000	59200	H	*	mg/Kg	30	80	12/02/19 21:12	kja
Lead, total (3050)	M6020B ICP-MS	500	0.53	H	*	mg/Kg	0.05	0.3	11/26/19 17:05	mfm
Manganese, total (3050)	M6010D ICP	1000	830	H	*	mg/Kg	10	50	11/27/19 4:51	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:04	kja
Nickel, total (3050)	M6010D ICP	1000	1400	H	*	mg/Kg	8	40	11/27/19 4:51	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.23	H	*	mg/Kg	0.05	0.1	11/26/19 17:05	mfm
Silver, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/03/19 15:40	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:05	mfm
Vanadium, total (3050)	M6010D ICP	100	18.0	H	*	mg/Kg	0.5	3	11/26/19 6:04	kja
Zinc, total (3050)	M6010D ICP	100	20	H	*	mg/Kg	1	5	11/26/19 6:04	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.7	H	*	%	0.1	0.5	11/20/19 4:34	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 10:50	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 10:50	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973559

ACZ Sample ID: ***L55821-12***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	16400	H	*	mg/Kg	10	50	12/02/19 21:16	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:41	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.1	H	*	mg/Kg	0.1	0.5	12/04/19 17:56	mfm
Barium, total (3050)	M6010D ICP	100	11.2	H	*	mg/Kg	0.7	4	11/26/19 6:08	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.11	H	*	mg/Kg	0.04	0.1	11/26/19 17:07	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:08	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.68	H	*	mg/Kg	0.03	0.1	11/26/19 17:07	mfm
Chromium, total (3050)	M6010D ICP	100	74	H	*	mg/Kg	1	5	11/26/19 6:08	kja
Cobalt, total (3050)	M6010D ICP	100	17	H	*	mg/Kg	1	5	11/26/19 6:08	kja
Copper, total (3050)	M6010D ICP	100	60	H	*	mg/Kg	1	5	11/26/19 6:08	kja
Iron, total (3050)	M6010D ICP	200	32800	H	*	mg/Kg	6	20	12/02/19 21:16	kja
Lead, total (3050)	M6020B ICP-MS	500	2.71	H	*	mg/Kg	0.05	0.3	11/26/19 17:07	mfm
Manganese, total (3050)	M6010D ICP	200	541	H	*	mg/Kg	2	10	11/27/19 4:55	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:08	kja
Nickel, total (3050)	M6010D ICP	100	30.2	H	*	mg/Kg	0.8	4	11/26/19 6:08	kja
Selenium, total (3050)	M6020B ICP-MS	500	1.89	H	*	mg/Kg	0.05	0.1	11/26/19 17:07	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.20	BH	*	mg/Kg	0.05	0.3	12/03/19 15:41	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:07	mfm
Vanadium, total (3050)	M6010D ICP	200	102	H	*	mg/Kg	1	5	11/27/19 4:55	kja
Zinc, total (3050)	M6010D ICP	100	72	H	*	mg/Kg	1	5	11/26/19 6:08	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 5:42	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 11:06	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 11:06	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973560

ACZ Sample ID: ***L55821-13***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	26600	H	*	mg/Kg	10	50	12/02/19 21:20	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:43	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	5.6	H	*	mg/Kg	0.1	0.5	12/04/19 17:58	mfm
Barium, total (3050)	M6010D ICP	100	31.1	H	*	mg/Kg	0.7	4	11/26/19 6:11	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.12	H	*	mg/Kg	0.04	0.1	11/26/19 17:08	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:11	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.60	H	*	mg/Kg	0.03	0.1	11/26/19 17:08	mfm
Chromium, total (3050)	M6010D ICP	100	80	H	*	mg/Kg	1	5	11/26/19 6:11	kja
Cobalt, total (3050)	M6010D ICP	100	26	H	*	mg/Kg	1	5	11/26/19 6:11	kja
Copper, total (3050)	M6010D ICP	100	75	H	*	mg/Kg	1	5	11/26/19 6:11	kja
Iron, total (3050)	M6010D ICP	200	42000	H	*	mg/Kg	6	20	12/02/19 21:20	kja
Lead, total (3050)	M6020B ICP-MS	500	1.69	H	*	mg/Kg	0.05	0.3	11/26/19 17:08	mfm
Manganese, total (3050)	M6010D ICP	200	744	H	*	mg/Kg	2	10	11/27/19 4:58	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:11	kja
Nickel, total (3050)	M6010D ICP	100	35.9	H	*	mg/Kg	0.8	4	11/26/19 6:11	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.69	H	*	mg/Kg	0.05	0.1	11/26/19 17:08	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/03/19 15:43	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:08	mfm
Vanadium, total (3050)	M6010D ICP	200	139	H	*	mg/Kg	1	5	11/27/19 4:58	kja
Zinc, total (3050)	M6010D ICP	100	60	H	*	mg/Kg	1	5	11/26/19 6:11	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 6:51	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 11:22	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 11:22	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973561

ACZ Sample ID: ***L55821-14***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	23000	H	*	mg/Kg	10	50	12/02/19 21:23	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/03/19 15:45	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.0	H	*	mg/Kg	0.1	0.5	11/26/19 17:10	mfm
Barium, total (3050)	M6010D ICP	100	25.6	H	*	mg/Kg	0.7	4	11/26/19 6:15	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.04	0.1	11/26/19 17:10	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:15	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.29	H	*	mg/Kg	0.03	0.1	11/26/19 17:10	mfm
Chromium, total (3050)	M6010D ICP	100	63	H	*	mg/Kg	1	5	11/26/19 6:15	kja
Cobalt, total (3050)	M6010D ICP	100	19	H	*	mg/Kg	1	5	11/26/19 6:15	kja
Copper, total (3050)	M6010D ICP	100	63	H	*	mg/Kg	1	5	11/26/19 6:15	kja
Iron, total (3050)	M6010D ICP	200	31200	H	*	mg/Kg	6	20	12/02/19 21:23	kja
Lead, total (3050)	M6020B ICP-MS	500	1.39	H	*	mg/Kg	0.05	0.3	11/26/19 17:10	mfm
Manganese, total (3050)	M6010D ICP	200	527	H	*	mg/Kg	2	10	11/27/19 5:02	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:15	kja
Nickel, total (3050)	M6010D ICP	100	26.0	H	*	mg/Kg	0.8	4	11/26/19 6:15	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.43	H	*	mg/Kg	0.05	0.1	11/26/19 17:10	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.10	BH	*	mg/Kg	0.05	0.3	12/03/19 15:45	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:10	mfm
Vanadium, total (3050)	M6010D ICP	200	99	H	*	mg/Kg	1	5	11/27/19 5:02	kja
Zinc, total (3050)	M6010D ICP	100	50	H	*	mg/Kg	1	5	11/26/19 6:15	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 7:59	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 11:38	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 11:38	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973562

ACZ Sample ID: ***L55821-15***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	6620	H	*	mg/Kg	5	30	12/02/19 21:27	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	11/26/19 17:16	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.6	H	*	mg/Kg	0.1	0.5	11/26/19 17:16	mfm
Barium, total (3050)	M6010D ICP	100	14.2	H	*	mg/Kg	0.7	4	11/26/19 6:19	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.04	0.1	11/26/19 17:16	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:19	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.47	H	*	mg/Kg	0.03	0.1	11/26/19 17:16	mfm
Chromium, total (3050)	M6010D ICP	100	21	H	*	mg/Kg	1	5	11/26/19 6:19	kja
Cobalt, total (3050)	M6010D ICP	100	6	H	*	mg/Kg	1	5	11/26/19 6:19	kja
Copper, total (3050)	M6010D ICP	100	26	H	*	mg/Kg	1	5	11/26/19 6:19	kja
Iron, total (3050)	M6010D ICP	100	11000	H	*	mg/Kg	3	8	12/02/19 21:27	kja
Lead, total (3050)	M6020B ICP-MS	500	0.88	H	*	mg/Kg	0.05	0.3	11/26/19 17:16	mfm
Manganese, total (3050)	M6010D ICP	100	276	H	*	mg/Kg	1	5	11/27/19 5:06	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:19	kja
Nickel, total (3050)	M6010D ICP	100	10.2	H	*	mg/Kg	0.8	4	11/26/19 6:19	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.85	H	*	mg/Kg	0.05	0.1	11/26/19 17:16	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.11	BH	*	mg/Kg	0.05	0.3	12/04/19 17:59	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:16	mfm
Vanadium, total (3050)	M6010D ICP	100	31.0	H	*	mg/Kg	0.5	3	11/26/19 6:19	kja
Zinc, total (3050)	M6010D ICP	100	42	H	*	mg/Kg	1	5	11/26/19 6:19	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 9:08	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 11:54	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 11:54	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973563

ACZ Sample ID: ***L55821-16***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	16700	H	*	mg/Kg	5	30	12/02/19 21:39	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	11/26/19 17:17	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.6	H	*	mg/Kg	0.1	0.5	11/26/19 17:17	mfm
Barium, total (3050)	M6010D ICP	100	48.0	H	*	mg/Kg	0.7	4	11/26/19 6:30	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.04	0.1	11/26/19 17:17	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:30	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.52	H	*	mg/Kg	0.03	0.1	11/26/19 17:17	mfm
Chromium, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	11/26/19 6:30	kja
Cobalt, total (3050)	M6010D ICP	100	12	H	*	mg/Kg	1	5	11/26/19 6:30	kja
Copper, total (3050)	M6010D ICP	100	27	H	*	mg/Kg	1	5	11/26/19 6:30	kja
Iron, total (3050)	M6010D ICP	100	25200	H	*	mg/Kg	3	8	12/02/19 21:39	kja
Lead, total (3050)	M6020B ICP-MS	500	1.42	H	*	mg/Kg	0.05	0.3	11/26/19 17:17	mfm
Manganese, total (3050)	M6010D ICP	100	438	H	*	mg/Kg	1	5	11/27/19 5:17	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:30	kja
Nickel, total (3050)	M6010D ICP	100	17.0	H	*	mg/Kg	0.8	4	11/26/19 6:30	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.36	H	*	mg/Kg	0.05	0.1	11/26/19 17:17	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.14	BH	*	mg/Kg	0.05	0.3	12/04/19 18:01	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:17	mfm
Vanadium, total (3050)	M6010D ICP	100	80.8	H	*	mg/Kg	0.5	3	11/26/19 6:30	kja
Zinc, total (3050)	M6010D ICP	100	55	H	*	mg/Kg	1	5	11/26/19 6:30	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 10:17	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 12:10	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 12:10	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973583

ACZ Sample ID: ***L55821-17***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	23100	H	*	mg/Kg	10	50	12/02/19 21:43	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	11/26/19 17:19	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.2	H	*	mg/Kg	0.1	0.5	11/26/19 17:19	mfm
Barium, total (3050)	M6010D ICP	100	4.7	H	*	mg/Kg	0.7	4	11/26/19 6:34	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	11/26/19 17:19	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:34	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.47	H	*	mg/Kg	0.03	0.1	11/26/19 17:19	mfm
Chromium, total (3050)	M6010D ICP	100	112	H	*	mg/Kg	1	5	11/26/19 6:34	kja
Cobalt, total (3050)	M6010D ICP	100	25	H	*	mg/Kg	1	5	11/26/19 6:34	kja
Copper, total (3050)	M6010D ICP	200	220	H	*	mg/Kg	2	10	11/27/19 5:21	kja
Iron, total (3050)	M6010D ICP	200	35900	H	*	mg/Kg	6	20	12/02/19 21:43	kja
Lead, total (3050)	M6020B ICP-MS	500	0.59	H	*	mg/Kg	0.05	0.3	11/26/19 17:19	mfm
Manganese, total (3050)	M6010D ICP	200	666	H	*	mg/Kg	2	10	11/27/19 5:21	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:34	kja
Nickel, total (3050)	M6010D ICP	100	35.3	H	*	mg/Kg	0.8	4	11/26/19 6:34	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.26	H	*	mg/Kg	0.05	0.1	11/26/19 17:19	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/04/19 18:03	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:19	mfm
Vanadium, total (3050)	M6010D ICP	200	125	H	*	mg/Kg	1	5	11/27/19 5:21	kja
Zinc, total (3050)	M6010D ICP	100	42	H	*	mg/Kg	1	5	11/26/19 6:34	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 11:25	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 12:26	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 12:26	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973584

ACZ Sample ID: ***L55821-18***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	26100	H	*	mg/Kg	10	50	12/02/19 21:47	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	11/26/19 17:21	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	5.6	H	*	mg/Kg	0.1	0.5	11/26/19 17:21	mfm
Barium, total (3050)	M6010D ICP	99	4.6	H	*	mg/Kg	0.7	3	11/26/19 6:37	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.04	0.1	11/26/19 17:21	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 6:37	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.28	H	*	mg/Kg	0.02	0.1	11/26/19 17:21	mfm
Chromium, total (3050)	M6010D ICP	99	122	H	*	mg/Kg	1	5	11/26/19 6:37	kja
Cobalt, total (3050)	M6010D ICP	99	23	H	*	mg/Kg	1	5	11/26/19 6:37	kja
Copper, total (3050)	M6010D ICP	99	65	H	*	mg/Kg	1	5	11/26/19 6:37	kja
Iron, total (3050)	M6010D ICP	198	33700	H	*	mg/Kg	6	10	12/02/19 21:47	kja
Lead, total (3050)	M6020B ICP-MS	495	0.92	H	*	mg/Kg	0.05	0.2	11/26/19 17:21	mfm
Manganese, total (3050)	M6010D ICP	200	571	H	*	mg/Kg	2	10	11/27/19 5:25	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 6:37	kja
Nickel, total (3050)	M6010D ICP	99	51.5	H	*	mg/Kg	0.8	4	11/26/19 6:37	kja
Selenium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.1	11/26/19 17:21	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.05	0.2	12/04/19 18:05	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 17:21	mfm
Vanadium, total (3050)	M6010D ICP	200	103	H	*	mg/Kg	1	5	11/27/19 5:25	kja
Zinc, total (3050)	M6010D ICP	99	48	H	*	mg/Kg	1	5	11/26/19 6:37	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 12:34	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 16:58	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 16:58	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973585

ACZ Sample ID: ***L55821-19***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	26300	H	*	mg/Kg	10	50	12/02/19 21:51	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	11/26/19 17:23	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.8	H	*	mg/Kg	0.1	0.5	11/26/19 17:23	mfm
Barium, total (3050)	M6010D ICP	99	13.8	H	*	mg/Kg	0.7	3	11/26/19 6:41	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.04	0.1	11/26/19 17:23	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 6:41	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.26	H	*	mg/Kg	0.02	0.1	11/26/19 17:23	mfm
Chromium, total (3050)	M6010D ICP	99	135	H	*	mg/Kg	1	5	11/26/19 6:41	kja
Cobalt, total (3050)	M6010D ICP	99	25	H	*	mg/Kg	1	5	11/26/19 6:41	kja
Copper, total (3050)	M6010D ICP	99	67	H	*	mg/Kg	1	5	11/26/19 6:41	kja
Iron, total (3050)	M6010D ICP	198	35700	H	*	mg/Kg	6	10	12/02/19 21:51	kja
Lead, total (3050)	M6020B ICP-MS	495	0.85	H	*	mg/Kg	0.05	0.2	11/26/19 17:23	mfm
Manganese, total (3050)	M6010D ICP	198	741	H	*	mg/Kg	2	10	11/27/19 5:28	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	11/26/19 6:41	kja
Nickel, total (3050)	M6010D ICP	99	53.1	H	*	mg/Kg	0.8	4	11/26/19 6:41	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.20	H	*	mg/Kg	0.05	0.1	11/26/19 17:23	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.05	0.2	12/04/19 18:07	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	11/26/19 17:23	mfm
Vanadium, total (3050)	M6010D ICP	198	124	H	*	mg/Kg	1	5	11/27/19 5:28	kja
Zinc, total (3050)	M6010D ICP	99	63	H	*	mg/Kg	1	5	11/26/19 6:41	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 13:42	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 17:14	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 17:14	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973587

ACZ Sample ID: ***L55821-20***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	26700	H	*	mg/Kg	10	50	12/02/19 21:54	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	11/26/19 17:25	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.5	H	*	mg/Kg	0.1	0.5	11/26/19 17:25	mfm
Barium, total (3050)	M6010D ICP	100	2.3	BH	*	mg/Kg	0.7	4	11/26/19 6:45	kja
Beryllium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.04	0.1	11/26/19 17:25	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:45	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.39	H	*	mg/Kg	0.03	0.1	11/26/19 17:25	mfm
Chromium, total (3050)	M6010D ICP	100	156	H	*	mg/Kg	1	5	11/26/19 6:45	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	11/26/19 6:45	kja
Copper, total (3050)	M6010D ICP	100	66	H	*	mg/Kg	1	5	11/26/19 6:45	kja
Iron, total (3050)	M6010D ICP	200	45000	H	*	mg/Kg	6	20	12/02/19 21:54	kja
Lead, total (3050)	M6020B ICP-MS	500	0.27	BH	*	mg/Kg	0.05	0.3	11/26/19 17:25	mfm
Manganese, total (3050)	M6010D ICP	200	847	H	*	mg/Kg	2	10	11/27/19 5:32	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	11/26/19 6:45	kja
Nickel, total (3050)	M6010D ICP	100	55.4	H	*	mg/Kg	0.8	4	11/26/19 6:45	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.22	H	*	mg/Kg	0.05	0.1	11/26/19 17:25	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.05	0.3	12/04/19 18:08	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	11/26/19 17:25	mfm
Vanadium, total (3050)	M6010D ICP	200	136	H	*	mg/Kg	1	5	11/27/19 5:32	kja
Zinc, total (3050)	M6010D ICP	100	56	H	*	mg/Kg	1	5	11/26/19 6:45	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 14:51	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/22/19 17:30	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/22/19 17:30	mlp

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Aluminum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487088													
WG487088ICV	ICV	12/02/19 19:39	II191122-1	2		1.962	mg/L	98	90	110			
WG487088ICB	ICB	12/02/19 19:43				U	mg/L		-0.15	0.15			
WG486773PBS	PBS	12/02/19 20:07				U	mg/Kg		-15	15			
WG486773LCSS	LCSS	12/02/19 20:11	PCN59282	8610		9221	mg/Kg		4410	12800			
WG486773LCSSD	LCSSD	12/02/19 20:14	PCN59282	8610		9825	mg/Kg		4410	12800	6	20	
L55821-01MS	MS	12/02/19 20:22	II2XSOIL	100.11	24500	26660	mg/Kg	2158	75	125			M3
L55821-01MSD	MSD	12/02/19 20:26	II2XSOIL	100.11	24500	26800	mg/Kg	2297	75	125	1	20	M3

Antimony, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.02004		.02105	mg/L	105	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.0012	0.0012			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.6	0.6			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	68.6		42.8	mg/Kg		2.03	135			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	68.6		47.7	mg/Kg		2.03	135	11	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	4.95	U	.44	mg/Kg	9	75	125			M2
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	5	U	.46	mg/Kg	9	75	125	4	20	M2
WG487260													
WG487260ICV	ICV	12/03/19 14:55	MS191014-8	.02004		.02034	mg/L	101	90	110			
WG487260ICB	ICB	12/03/19 14:57				U	mg/L		-0.0012	0.0012			
WG486773PBS	PBS	12/03/19 15:08				U	mg/Kg		-0.6	0.6			
WG486773LCSS	LCSS	12/03/19 15:09	PCN59282	68.6		49.9	mg/Kg		2.03	135			
WG486773LCSSD	LCSSD	12/03/19 15:11	PCN59282	68.6		53.6	mg/Kg		2.03	135	7	20	
L55821-02MS	MS	12/03/19 15:17	MS191112-2	4.95	U	.24	mg/Kg	5	75	125			M2
L55821-02MSD	MSD	12/03/19 15:18	MS191112-2	5	U	.27	mg/Kg	5	75	125	12	20	M2

Arsenic, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.0503	mg/L	101	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.0006	0.0006			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.3	0.3			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	69.4		62.5	mg/Kg		57.2	81.5			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	69.4		62.6	mg/Kg		57.2	81.5	0	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	24.77475	.5	17.99	mg/Kg	71	75	125			M2
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	25.025	.5	17.45	mg/Kg	68	75	125	3	20	M2
WG487389													
WG487389ICV	ICV	12/04/19 17:20	MS191014-8	.05		.04705	mg/L	94	90	110			
WG487389ICB	ICB	12/04/19 17:22				U	mg/L		-0.0006	0.0006			
WG486773PBS	PBS	12/04/19 17:33				U	mg/Kg		-0.3	0.3			
WG486773LCSS	LCSS	12/04/19 17:34	PCN59282	69.4		60.9	mg/Kg		57.2	81.5			
WG486773LCSSD	LCSSD	12/04/19 17:36	PCN59282	69.4		62.9	mg/Kg		57.2	81.5	3	20	
L55821-02MS	MS	12/04/19 17:42	MS191112-2	24.77475	.8	23.21	mg/Kg	90	75	125			
L55821-02MSD	MSD	12/04/19 17:43	MS191112-2	25.025	.8	24.59	mg/Kg	95	75	125	6	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Barium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.943	mg/L	97	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.021	0.021			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-2.1	2.1			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	362		338	mg/Kg		297	427			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	362		360.4	mg/Kg		297	427	6	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.05	14.7	62.13	mg/Kg	95	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.05	14.7	61.33	mg/Kg	93	75	125	1	20	

Beryllium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.050316	mg/L	101	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.00024	0.00024			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.12	0.12			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	223		197.12	mg/Kg		185	260			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	223		207.03	mg/Kg		185	260	5	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	24.77475	.05	21.754	mg/Kg	88	75	125			
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	25.025	.05	21.226	mg/Kg	85	75	125	2	20	

Boron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		2.004	mg/L	100	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.06	0.06			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-6	6			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	79.4		81.4	mg/Kg		57.2	102			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	79.4		88.6	mg/Kg		57.2	102	8	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.05	U	48.6	mg/Kg	97	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.05	U	48.2	mg/Kg	96	75	125	1	20	

Cadmium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.051693	mg/L	103	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.00015	0.00015			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.09	0.09			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	166		155.63	mg/Kg		138	195			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	166		167.75	mg/Kg		138	195	7	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	24.77475	.49	23.859	mg/Kg	94	75	125			
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	25.025	.49	22.785	mg/Kg	89	75	125	5	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Chromium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.95	mg/L	98	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	249		237.9	mg/Kg		203	295			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	249		253.8	mg/Kg		203	295	6	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.1	142	195.8	mg/Kg	107	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.1	142	191.9	mg/Kg	100	75	125	2	20	

Cobalt, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2.002		1.933	mg/L	97	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	90.6		87.5	mg/Kg		75.1	106			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	90.6		93.4	mg/Kg		75.1	106	7	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50	31	77.1	mg/Kg	92	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50	31	75.7	mg/Kg	89	75	125	2	20	

Copper, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.917	mg/L	96	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	280		252.6	mg/Kg		233	326			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	280		268.7	mg/Kg		233	326	6	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.05	99	148.5	mg/Kg	99	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.05	99	147	mg/Kg	96	75	125	1	20	
WG486989													
WG486989ICV	ICV	11/27/19 3:22	II191122-1	2		1.893	mg/L	95	90	110			
WG486989ICB	ICB	11/27/19 3:25				U	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/27/19 3:48				U	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/27/19 3:52	PCN59282	280		249.7	mg/Kg		233	326			
WG486773LCSSD	LCSSD	11/27/19 3:55	PCN59282	280		276.3	mg/Kg		233	326	10	20	
L55821-01MS	MS	11/27/19 4:03	II2XSOIL	50	105	155.6	mg/Kg	101	75	125			
L55821-01MSD	MSD	11/27/19 4:06	II2XSOIL	50	105	155.6	mg/Kg	101	75	125	0	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Iron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487088													
WG487088ICV	ICV	12/02/19 19:39	II191122-1	2		1.915	mg/L	96	90	110			
WG487088ICB	ICB	12/02/19 19:43				U	mg/L		-0.09	0.09			
WG486773PBS	PBS	12/02/19 20:07				3.1	mg/Kg		-9	9			
WG486773LCSS	LCSS	12/02/19 20:11	PCN59282	14000		12120	mg/Kg		8380	19600			
WG486773LCSSD	LCSSD	12/02/19 20:14	PCN59282	14000		13430	mg/Kg		8380	19600	10	20	
L55821-01MS	MS	12/02/19 20:22	II2XSOIL	100.14	39400	43020	mg/Kg	3615	75	125			M3
L55821-01MSD	MSD	12/02/19 20:26	II2XSOIL	100.14	39400	42860	mg/Kg	3455	75	125	0	20	M3

Lead, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.05144	mg/L	103	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.0003	0.0003			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.15	0.15			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	225		201.38	mg/Kg		184	266			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	225		207.48	mg/Kg		184	266	3	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	24.77475	.32	23.116	mg/Kg	92	75	125			
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	25.025	.32	22.395	mg/Kg	88	75	125	3	20	

Manganese, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486989													
WG486989ICV	ICV	11/27/19 3:22	II191122-1	2		1.883	mg/L	94	90	110			
WG486989ICB	ICB	11/27/19 3:25				.013	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/27/19 3:48				1.3	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/27/19 3:52	PCN59282	332		298.6	mg/Kg		272	392			
WG486773LCSSD	LCSSD	11/27/19 3:55	PCN59282	332		329.5	mg/Kg		272	392	10	20	
L55821-01MS	MS	11/27/19 4:03	II2XSOIL	50.1	737	835.8	mg/Kg	197	75	125			M3
L55821-01MSD	MSD	11/27/19 4:06	II2XSOIL	50.1	737	832.2	mg/Kg	190	75	125	0	20	M3

Molybdenum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.918	mg/L	96	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.06	0.06			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-6	6			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	158		150.9	mg/Kg		127	190			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	158		159.9	mg/Kg		127	190	6	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	49.75	U	44.4	mg/Kg	89	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	49.75	U	43.6	mg/Kg	88	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.93	mg/L	97	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.024	0.024			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-2.4	2.4			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	114		108.2	mg/Kg		93.9	134			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	114		116.4	mg/Kg		93.9	134	7	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.1	43.5	89.43	mg/Kg	92	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.1	43.5	87.28	mg/Kg	87	75	125	2	20	
WG486989													
WG486989ICV	ICV	11/27/19 3:22	II191122-1	2		1.881	mg/L	94	90	110			
WG486989ICB	ICB	11/27/19 3:25				U	mg/L		-0.024	0.024			
WG486773PBS	PBS	11/27/19 3:48				U	mg/Kg		-2.4	2.4			
WG486773LCSS	LCSS	11/27/19 3:52	PCN59282	114		105.5	mg/Kg		93.9	134			
WG486773LCSSD	LCSSD	11/27/19 3:55	PCN59282	114		117.8	mg/Kg		93.9	134	11	20	
L55821-01MS	MS	11/27/19 4:03	II2XSOIL	50	48	97.5	mg/Kg	99	75	125			
L55821-01MSD	MSD	11/27/19 4:06	II2XSOIL	50	48	96.4	mg/Kg	97	75	125	1	20	

Selenium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.04987	mg/L	100	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.0003	0.0003			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.15	0.15			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	195		173.62	mg/Kg		154	237			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	195		185.94	mg/Kg		154	237	7	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	12.387375	.24	11.037	mg/Kg	87	75	125			
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	12.5125	.24	11.054	mg/Kg	86	75	125	0	20	

Silver, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487260													
WG487260ICV	ICV	12/03/19 14:55	MS191014-8	.02004		.02155	mg/L	108	90	110			
WG487260ICB	ICB	12/03/19 14:57				U	mg/L		-0.0003	0.0003			
WG486773PBS	PBS	12/03/19 15:08				U	mg/Kg		-0.15	0.15			
WG486773LCSS	LCSS	12/03/19 15:09	PCN59282	61.8		65.15	mg/Kg		49.2	74.4			
WG486773LCSSD	LCSSD	12/03/19 15:11	PCN59282	61.8		66.92	mg/Kg		49.2	74.4	3	20	
L55821-02MS	MS	12/03/19 15:17	MS191112-2	4.9599	.13	4.371	mg/Kg	86	75	125			
L55821-02MSD	MSD	12/03/19 15:18	MS191112-2	5.01	.13	4.635	mg/Kg	90	75	125	6	20	
WG487389													
WG487389ICV	ICV	12/04/19 17:20	MS191014-8	.02004		.01991	mg/L	99	90	110			
WG487389ICB	ICB	12/04/19 17:22				U	mg/L		-0.0003	0.0003			
WG486773PBS	PBS	12/04/19 17:33				U	mg/Kg		-0.15	0.15			
WG486773LCSS	LCSS	12/04/19 17:34	PCN59282	61.8		55.35	mg/Kg		49.2	74.4			
WG486773LCSSD	LCSSD	12/04/19 17:36	PCN59282	61.8		57.42	mg/Kg		49.2	74.4	4	20	
L55821-02MS	MS	12/04/19 17:42	MS191112-2	4.9599	.12	4.294	mg/Kg	84	75	125			
L55821-02MSD	MSD	12/04/19 17:43	MS191112-2	5.01	.12	4.389	mg/Kg	85	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486511													
L55821-01DUP	DUP	11/19/19 17:08			99.8	99.82	%				0	20	
WG486511PBS	PBS	11/20/19 15:59				U	%		-0.1	0.1			

Thallium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486982													
WG486982ICV	ICV	11/26/19 15:55	MS191014-8	.05		.05204	mg/L	104	90	110			
WG486982ICB	ICB	11/26/19 15:57				U	mg/L		-0.0003	0.0003			
WG486773PBS	PBS	11/26/19 16:07				U	mg/Kg		-0.15	0.15			
WG486773LCSS	LCSS	11/26/19 16:09	PCN59282	135		129.92	mg/Kg		109	161			
WG486773LCSSD	LCSSD	11/26/19 16:11	PCN59282	135		130.72	mg/Kg		109	161	1	20	
L55821-02MS	MS	11/26/19 16:16	MS191112-2	24.7995	U	22.118	mg/Kg	89	75	125			
L55821-02MSD	MSD	11/26/19 16:18	MS191112-2	25.05	U	21.038	mg/Kg	84	75	125	5	20	

Vanadium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		2.046	mg/L	102	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.015	0.015			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-1.5	1.5			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	86.4		89.31	mg/Kg		67.4	105			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	86.4		95.71	mg/Kg		67.4	105	7	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	49.95	108	178.1	mg/Kg	140	75	125			M1
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	49.95	108	173.1	mg/Kg	130	75	125	3	20	M1
WG486989													
WG486989ICV	ICV	11/27/19 3:22	II191122-1	2		1.937	mg/L	97	90	110			
WG486989ICB	ICB	11/27/19 3:25				U	mg/L		-0.015	0.015			
WG486773PBS	PBS	11/27/19 3:48				U	mg/Kg		-1.5	1.5			
WG486773LCSS	LCSS	11/27/19 3:52	PCN59282	86.4		84.76	mg/Kg		67.4	105			
WG486773LCSSD	LCSSD	11/27/19 3:55	PCN59282	86.4		93.84	mg/Kg		67.4	105	10	20	
L55821-01MS	MS	11/27/19 4:03	II2XSOIL	50	106	172.8	mg/Kg	134	75	125			M1
L55821-01MSD	MSD	11/27/19 4:06	II2XSOIL	50	106	176.5	mg/Kg	141	75	125	2	20	M1

Zinc, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486912													
WG486912ICV	ICV	11/26/19 4:35	II191121-2	2		1.958	mg/L	98	90	110			
WG486912ICB	ICB	11/26/19 4:38				U	mg/L		-0.03	0.03			
WG486773PBS	PBS	11/26/19 5:01				U	mg/Kg		-3	3			
WG486773LCSS	LCSS	11/26/19 5:05	PCN59282	122		116.8	mg/Kg		98.6	145			
WG486773LCSSD	LCSSD	11/26/19 5:08	PCN59282	122		123.4	mg/Kg		98.6	145	5	20	
L55821-01MS	MS	11/26/19 5:15	II191106-4	50.075	49	97.5	mg/Kg	97	75	125			
L55821-01MSD	MSD	11/26/19 5:19	II191106-4	50.075	49	95.5	mg/Kg	93	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-01	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Rise Grass Valley Inc.

ACZ Project ID: ***L55821***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-02	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ Project ID: ***L55821***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-03	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ Project ID: ***L55821***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-04	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-05	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-06	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-07	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-08	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-09	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-10	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-11	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486989	Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-12	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-13	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487389	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-14	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487260	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	IA	Internal standard recovery exceeded the acceptance limits. Concentration of associated target analyte(s) in the sample is < MDL.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487260	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-15	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-16	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-17	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486989	Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-18	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-19	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55821-20	WG487088	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG486912	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG486982	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486912	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487088	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486982	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG486982	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487389	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486511	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG486982	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486989	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG486912	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Rise Grass Valley Inc. ACZ Project ID: ***L55821***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Solids, Percent	D2216-80

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID: L55821
Date Received: 11/11/2019 14:20
Received By:
Date Printed: 11/13/2019

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?		X	

Some parameters were received past hold time.

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA31790	12.2	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID:	L55821
Date Received:	11/11/2019 14:20
Received By:	
Date Printed:	11/13/2019

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L55821

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973589	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973588	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973551	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973552	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973553	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973554	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973555	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973556	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973557	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973558	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[illegible]	11/6/19 2:15pm	[illegible]	11-11-19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L55821 Chain of Custod

ACZ Laboratories, Inc. L55821

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

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If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973586	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973559	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973560	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973561	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973562	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973563	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973583	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973584	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973585	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973587	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[illegible]	11619 2:15PM	[illegible]	11/11/19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc. L55821

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

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Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

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Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

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Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973589	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973588	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
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Y973552	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973553	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973554	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973555	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973556	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973557	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973558	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

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RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[illegible]	11/6/19 2:15pm	[illegible]	11-11-19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L55821 Chain of Custod

ACZ Laboratories, Inc. L55821

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
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Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973586	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973559	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973560	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973561	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973562	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973563	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973583	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973584	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973585	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973587	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
GVLOPL	11619 2:15PM	Jme	11/11/19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

December 12, 2019

Report to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

cc: Andy Kopania

Bill to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

Project ID:
ACZ Project ID: L55822

Ben Mossman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 11, 2019. This project has been assigned to ACZ's project number, L55822. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L55822. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 11, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973564

ACZ Sample ID: ***L55822-01***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	27600	H	*	mg/Kg	10	50	12/05/19 0:30	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/04/19 14:29	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	1.6	H	*	mg/Kg	0.1	0.5	12/04/19 14:29	mfm
Barium, total (3050)	M6010D ICP	99	6.6	H	*	mg/Kg	0.7	3	12/04/19 2:39	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.09	BH	*	mg/Kg	0.04	0.1	12/04/19 14:29	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 2:39	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.51	H	*	mg/Kg	0.02	0.1	12/04/19 14:29	mfm
Chromium, total (3050)	M6010D ICP	99	122	H	*	mg/Kg	1	5	12/04/19 2:39	kja
Cobalt, total (3050)	M6010D ICP	99	24	H	*	mg/Kg	1	5	12/04/19 2:39	kja
Copper, total (3050)	M6010D ICP	99	58	H	*	mg/Kg	1	5	12/04/19 2:39	kja
Iron, total (3050)	M6010D ICP	99	40200	H	*	mg/Kg	3	7	12/04/19 2:39	kja
Lead, total (3050)	M6020B ICP-MS	495	0.63	H	*	mg/Kg	0.05	0.2	12/04/19 14:29	mfm
Manganese, total (3050)	M6010D ICP	99	611	H	*	mg/Kg	1	5	12/04/19 2:39	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 2:39	kja
Nickel, total (3050)	M6010D ICP	99	43.6	H	*	mg/Kg	0.8	4	12/04/19 2:39	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.34	H	*	mg/Kg	0.05	0.1	12/04/19 14:29	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.09	BH	*	mg/Kg	0.05	0.2	12/10/19 15:05	mfm
Thallium, total (3050)	M6020B ICP-MS	495	0.07	BH	*	mg/Kg	0.05	0.2	12/04/19 14:29	mfm
Vanadium, total (3050)	M6010D ICP	198	162	H	*	mg/Kg	1	5	12/05/19 0:30	kja
Zinc, total (3050)	M6010D ICP	99	60	H	*	mg/Kg	1	5	12/04/19 2:39	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.8	H	*	%	0.1	0.5	11/19/19 17:00	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 10:08	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 10:08	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973565

ACZ Sample ID: ***L55822-02***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	17400	H	*	mg/Kg	5	30	12/04/19 2:50	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:31	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.8	H	*	mg/Kg	0.1	0.5	12/04/19 14:31	mfm
Barium, total (3050)	M6010D ICP	100	6.7	H	*	mg/Kg	0.7	4	12/04/19 2:50	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.16	H	*	mg/Kg	0.04	0.1	12/04/19 14:31	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:50	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.92	H	*	mg/Kg	0.03	0.1	12/04/19 14:31	mfm
Chromium, total (3050)	M6010D ICP	100	139	H	*	mg/Kg	1	5	12/04/19 2:50	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 2:50	kja
Copper, total (3050)	M6010D ICP	100	19	H	*	mg/Kg	1	5	12/04/19 2:50	kja
Iron, total (3050)	M6010D ICP	200	57700	H	*	mg/Kg	6	20	12/05/19 0:41	kja
Lead, total (3050)	M6020B ICP-MS	500	0.74	H	*	mg/Kg	0.05	0.3	12/04/19 14:31	mfm
Manganese, total (3050)	M6010D ICP	100	778	H	*	mg/Kg	1	5	12/04/19 2:50	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:50	kja
Nickel, total (3050)	M6010D ICP	100	37.1	H	*	mg/Kg	0.8	4	12/04/19 2:50	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.11	H	*	mg/Kg	0.05	0.1	12/04/19 14:31	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.10	BH	*	mg/Kg	0.05	0.3	12/10/19 15:06	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:31	mfm
Vanadium, total (3050)	M6010D ICP	200	200	H	*	mg/Kg	1	5	12/05/19 0:41	kja
Zinc, total (3050)	M6010D ICP	100	69	H	*	mg/Kg	1	5	12/04/19 2:50	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.8	H	*	%	0.1	0.5	11/19/19 19:11	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 11:06	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 11:06	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973566

ACZ Sample ID: ***L55822-03***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	25200	H	*	mg/Kg	10	50	12/05/19 0:44	kja
Antimony, total (3050)	M6020B ICP-MS	500	0.3	BH	*	mg/Kg	0.2	1	12/04/19 14:37	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.0	H	*	mg/Kg	0.1	0.5	12/04/19 14:37	mfm
Barium, total (3050)	M6010D ICP	100	12.4	H	*	mg/Kg	0.7	4	12/04/19 2:54	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.20	H	*	mg/Kg	0.04	0.1	12/04/19 14:37	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:54	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.68	H	*	mg/Kg	0.03	0.1	12/04/19 14:37	mfm
Chromium, total (3050)	M6010D ICP	100	143	H	*	mg/Kg	1	5	12/04/19 2:54	kja
Cobalt, total (3050)	M6010D ICP	100	41	H	*	mg/Kg	1	5	12/04/19 2:54	kja
Copper, total (3050)	M6010D ICP	100	15	H	*	mg/Kg	1	5	12/04/19 2:54	kja
Iron, total (3050)	M6010D ICP	200	63600	H	*	mg/Kg	6	20	12/05/19 0:44	kja
Lead, total (3050)	M6020B ICP-MS	500	1.23	H	*	mg/Kg	0.05	0.3	12/04/19 14:37	mfm
Manganese, total (3050)	M6010D ICP	100	1130	H	*	mg/Kg	1	5	12/04/19 2:54	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:54	kja
Nickel, total (3050)	M6010D ICP	100	53.4	H	*	mg/Kg	0.8	4	12/04/19 2:54	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.12	H	*	mg/Kg	0.05	0.1	12/04/19 14:37	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.3	12/10/19 15:12	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/04/19 14:37	mfm
Vanadium, total (3050)	M6010D ICP	200	172	H	*	mg/Kg	1	5	12/05/19 0:44	kja
Zinc, total (3050)	M6010D ICP	100	103	H	*	mg/Kg	1	5	12/04/19 2:54	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.8	H	*	%	0.1	0.5	11/19/19 20:17	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 12:03	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 12:03	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973567

ACZ Sample ID: ***L55822-04***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	22900	H	*	mg/Kg	5	30	12/04/19 2:58	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:38	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.8	H	*	mg/Kg	0.1	0.5	12/04/19 14:38	mfm
Barium, total (3050)	M6010D ICP	100	14.8	H	*	mg/Kg	0.7	4	12/04/19 2:58	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.16	H	*	mg/Kg	0.04	0.1	12/04/19 14:38	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:58	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.96	H	*	mg/Kg	0.03	0.1	12/04/19 14:38	mfm
Chromium, total (3050)	M6010D ICP	100	137	H	*	mg/Kg	1	5	12/04/19 2:58	kja
Cobalt, total (3050)	M6010D ICP	100	42	H	*	mg/Kg	1	5	12/04/19 2:58	kja
Copper, total (3050)	M6010D ICP	100	23	H	*	mg/Kg	1	5	12/04/19 2:58	kja
Iron, total (3050)	M6010D ICP	100	47400	H	*	mg/Kg	3	8	12/04/19 2:58	kja
Lead, total (3050)	M6020B ICP-MS	500	0.94	H	*	mg/Kg	0.05	0.3	12/04/19 14:38	mfm
Manganese, total (3050)	M6010D ICP	100	1050	H	*	mg/Kg	1	5	12/04/19 2:58	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 2:58	kja
Nickel, total (3050)	M6010D ICP	100	56.0	H	*	mg/Kg	0.8	4	12/04/19 2:58	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.11	H	*	mg/Kg	0.05	0.1	12/04/19 14:38	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.10	BH	*	mg/Kg	0.05	0.3	12/10/19 15:14	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/04/19 14:38	mfm
Vanadium, total (3050)	M6010D ICP	200	188	H	*	mg/Kg	1	5	12/05/19 0:48	kja
Zinc, total (3050)	M6010D ICP	100	101	H	*	mg/Kg	1	5	12/04/19 2:58	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 21:22	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 12:23	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 12:23	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973568

ACZ Sample ID: ***L55822-05***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	22100	H	*	mg/Kg	5	30	12/04/19 3:01	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:40	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.9	H	*	mg/Kg	0.1	0.5	12/04/19 14:40	mfm
Barium, total (3050)	M6010D ICP	100	7.9	H	*	mg/Kg	0.7	4	12/04/19 3:01	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.12	H	*	mg/Kg	0.04	0.1	12/04/19 14:40	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:01	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.70	H	*	mg/Kg	0.03	0.1	12/04/19 14:40	mfm
Chromium, total (3050)	M6010D ICP	100	169	H	*	mg/Kg	1	5	12/04/19 3:01	kja
Cobalt, total (3050)	M6010D ICP	100	39	H	*	mg/Kg	1	5	12/04/19 3:01	kja
Copper, total (3050)	M6010D ICP	100	34	H	*	mg/Kg	1	5	12/04/19 3:01	kja
Iron, total (3050)	M6010D ICP	100	47800	H	*	mg/Kg	3	8	12/04/19 3:01	kja
Lead, total (3050)	M6020B ICP-MS	500	0.38	H	*	mg/Kg	0.05	0.3	12/04/19 14:40	mfm
Manganese, total (3050)	M6010D ICP	100	815	H	*	mg/Kg	1	5	12/04/19 3:01	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:01	kja
Nickel, total (3050)	M6010D ICP	100	54.0	H	*	mg/Kg	0.8	4	12/04/19 3:01	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.05	0.1	12/04/19 14:40	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/10/19 15:21	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.05	0.3	12/04/19 14:40	mfm
Vanadium, total (3050)	M6010D ICP	200	173	H	*	mg/Kg	1	5	12/05/19 0:52	kja
Zinc, total (3050)	M6010D ICP	100	69	H	*	mg/Kg	1	5	12/04/19 3:01	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 22:28	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 12:42	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 12:42	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973569

ACZ Sample ID: ***L55822-06***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	27700	H	*	mg/Kg	10	50	12/05/19 1:03	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/04/19 14:45	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	4.9	H	*	mg/Kg	0.1	0.5	12/04/19 14:45	mfm
Barium, total (3050)	M6010D ICP	99	11.7	H	*	mg/Kg	0.7	3	12/04/19 3:13	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.12	H	*	mg/Kg	0.04	0.1	12/04/19 14:45	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 3:13	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.77	H	*	mg/Kg	0.02	0.1	12/04/19 14:45	mfm
Chromium, total (3050)	M6010D ICP	99	196	H	*	mg/Kg	1	5	12/04/19 3:13	kja
Cobalt, total (3050)	M6010D ICP	99	42	H	*	mg/Kg	1	5	12/04/19 3:13	kja
Copper, total (3050)	M6010D ICP	99	29	H	*	mg/Kg	1	5	12/04/19 3:13	kja
Iron, total (3050)	M6010D ICP	99	38400	H	*	mg/Kg	3	7	12/04/19 3:13	kja
Lead, total (3050)	M6020B ICP-MS	495	0.37	H	*	mg/Kg	0.05	0.2	12/04/19 14:45	mfm
Manganese, total (3050)	M6010D ICP	99	1090	H	*	mg/Kg	1	5	12/04/19 3:13	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 3:13	kja
Nickel, total (3050)	M6010D ICP	99	69.6	H	*	mg/Kg	0.8	4	12/04/19 3:13	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.05	0.1	12/04/19 14:45	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.05	0.2	12/10/19 15:22	mfm
Thallium, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.05	0.2	12/04/19 14:45	mfm
Vanadium, total (3050)	M6010D ICP	198	179	H	*	mg/Kg	1	5	12/05/19 1:03	kja
Zinc, total (3050)	M6010D ICP	99	81	H	*	mg/Kg	1	5	12/04/19 3:13	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 23:34	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 13:01	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:01	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973570

ACZ Sample ID: ***L55822-07***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	33900	H	*	mg/Kg	10	50	12/05/19 1:07	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:49	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.7	H	*	mg/Kg	0.1	0.5	12/04/19 14:49	mfm
Barium, total (3050)	M6010D ICP	100	20.2	H	*	mg/Kg	0.7	4	12/04/19 3:16	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.16	H	*	mg/Kg	0.04	0.1	12/04/19 14:49	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:16	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.61	H	*	mg/Kg	0.03	0.1	12/04/19 14:49	mfm
Chromium, total (3050)	M6010D ICP	100	210	H	*	mg/Kg	1	5	12/04/19 3:16	kja
Cobalt, total (3050)	M6010D ICP	100	44	H	*	mg/Kg	1	5	12/04/19 3:16	kja
Copper, total (3050)	M6010D ICP	100	23	H	*	mg/Kg	1	5	12/04/19 3:16	kja
Iron, total (3050)	M6010D ICP	100	45200	H	*	mg/Kg	3	8	12/04/19 3:16	kja
Lead, total (3050)	M6020B ICP-MS	500	0.29	BH	*	mg/Kg	0.05	0.3	12/04/19 14:49	mfm
Manganese, total (3050)	M6010D ICP	100	1080	H	*	mg/Kg	1	5	12/04/19 3:16	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:16	kja
Nickel, total (3050)	M6010D ICP	100	75.8	H	*	mg/Kg	0.8	4	12/04/19 3:16	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.20	H	*	mg/Kg	0.05	0.1	12/04/19 14:49	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/10/19 15:24	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.15	BH	*	mg/Kg	0.05	0.3	12/04/19 14:49	mfm
Vanadium, total (3050)	M6010D ICP	500	208	H	*	mg/Kg	3	10	12/05/19 13:13	kja
Zinc, total (3050)	M6010D ICP	100	88	H	*	mg/Kg	1	5	12/04/19 3:16	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 0:40	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 13:20	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:20	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973571

ACZ Sample ID: ***L55822-08***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	28500	H	*	mg/Kg	10	50	12/05/19 1:10	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:51	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.2	H	*	mg/Kg	0.1	0.5	12/04/19 14:51	mfm
Barium, total (3050)	M6010D ICP	100	6.8	H	*	mg/Kg	0.7	4	12/04/19 3:20	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.15	H	*	mg/Kg	0.04	0.1	12/04/19 14:51	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:20	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.69	H	*	mg/Kg	0.03	0.1	12/04/19 14:51	mfm
Chromium, total (3050)	M6010D ICP	100	163	H	*	mg/Kg	1	5	12/04/19 3:20	kja
Cobalt, total (3050)	M6010D ICP	100	41	H	*	mg/Kg	1	5	12/04/19 3:20	kja
Copper, total (3050)	M6010D ICP	100	72	H	*	mg/Kg	1	5	12/04/19 3:20	kja
Iron, total (3050)	M6010D ICP	200	63500	H	*	mg/Kg	6	20	12/05/19 1:10	kja
Lead, total (3050)	M6020B ICP-MS	500	0.17	BH	*	mg/Kg	0.05	0.3	12/04/19 14:51	mfm
Manganese, total (3050)	M6010D ICP	100	1140	H	*	mg/Kg	1	5	12/04/19 3:20	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:20	kja
Nickel, total (3050)	M6010D ICP	100	56.8	H	*	mg/Kg	0.8	4	12/04/19 3:20	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.10	H	*	mg/Kg	0.05	0.1	12/04/19 14:51	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.05	0.3	12/10/19 15:26	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.14	BH	*	mg/Kg	0.05	0.3	12/04/19 14:51	mfm
Vanadium, total (3050)	M6010D ICP	500	235	H	*	mg/Kg	3	10	12/05/19 13:17	kja
Zinc, total (3050)	M6010D ICP	100	75	H	*	mg/Kg	1	5	12/04/19 3:20	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 1:45	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 13:39	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:39	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973572

ACZ Sample ID: ***L55822-09***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	21700	H	*	mg/Kg	5	30	12/04/19 3:24	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:53	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.2	H	*	mg/Kg	0.1	0.5	12/04/19 14:53	mfm
Barium, total (3050)	M6010D ICP	100	2.7	BH	*	mg/Kg	0.7	4	12/04/19 3:24	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.04	0.1	12/04/19 14:53	mfm
Boron, total (3050)	M6010D ICP	100	3	BH	*	mg/Kg	2	10	12/04/19 3:24	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.76	H	*	mg/Kg	0.03	0.1	12/04/19 14:53	mfm
Chromium, total (3050)	M6010D ICP	100	45	H	*	mg/Kg	1	5	12/04/19 3:24	kja
Cobalt, total (3050)	M6010D ICP	100	28	H	*	mg/Kg	1	5	12/04/19 3:24	kja
Copper, total (3050)	M6010D ICP	100	57	H	*	mg/Kg	1	5	12/04/19 3:24	kja
Iron, total (3050)	M6010D ICP	100	27700	H	*	mg/Kg	3	8	12/04/19 3:24	kja
Lead, total (3050)	M6020B ICP-MS	500	0.16	BH	*	mg/Kg	0.05	0.3	12/04/19 14:53	mfm
Manganese, total (3050)	M6010D ICP	100	519	H	*	mg/Kg	1	5	12/04/19 3:24	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:24	kja
Nickel, total (3050)	M6010D ICP	100	33.5	H	*	mg/Kg	0.8	4	12/04/19 3:24	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.42	H	*	mg/Kg	0.05	0.1	12/04/19 14:53	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.05	0.3	12/10/19 15:28	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:53	mfm
Vanadium, total (3050)	M6010D ICP	100	94.8	H	*	mg/Kg	0.5	3	12/04/19 3:24	kja
Zinc, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 3:24	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 2:51	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 13:59	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 13:59	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973573

ACZ Sample ID: ***L55822-10***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	30000	H	*	mg/Kg	10	50	12/05/19 1:14	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/04/19 14:54	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	0.9	H	*	mg/Kg	0.1	0.5	12/04/19 14:54	mfm
Barium, total (3050)	M6010D ICP	99	2.1	BH	*	mg/Kg	0.7	3	12/04/19 3:28	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.11	H	*	mg/Kg	0.04	0.1	12/04/19 14:54	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 3:28	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.52	H	*	mg/Kg	0.02	0.1	12/04/19 14:54	mfm
Chromium, total (3050)	M6010D ICP	99	152	H	*	mg/Kg	1	5	12/04/19 3:28	kja
Cobalt, total (3050)	M6010D ICP	99	32	H	*	mg/Kg	1	5	12/04/19 3:28	kja
Copper, total (3050)	M6010D ICP	99	52	H	*	mg/Kg	1	5	12/04/19 3:28	kja
Iron, total (3050)	M6010D ICP	99	41200	H	*	mg/Kg	3	7	12/04/19 3:28	kja
Lead, total (3050)	M6020B ICP-MS	495	0.52	H	*	mg/Kg	0.05	0.2	12/04/19 14:54	mfm
Manganese, total (3050)	M6010D ICP	99	878	H	*	mg/Kg	1	5	12/04/19 3:28	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 3:28	kja
Nickel, total (3050)	M6010D ICP	99	49.4	H	*	mg/Kg	0.8	4	12/04/19 3:28	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.10	H	*	mg/Kg	0.05	0.1	12/04/19 14:54	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.11	BH	*	mg/Kg	0.05	0.2	12/10/19 15:30	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	12/04/19 14:54	mfm
Vanadium, total (3050)	M6010D ICP	198	160	H	*	mg/Kg	1	5	12/05/19 1:14	kja
Zinc, total (3050)	M6010D ICP	99	53	H	*	mg/Kg	1	5	12/04/19 3:28	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 3:57	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 14:18	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:18	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973574

ACZ Sample ID: ***L55822-11***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	32000	H	*	mg/Kg	10	50	12/05/19 1:18	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:56	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.4	H	*	mg/Kg	0.1	0.5	12/04/19 14:56	mfm
Barium, total (3050)	M6010D ICP	100	3.5	BH	*	mg/Kg	0.7	4	12/04/19 3:31	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.11	H	*	mg/Kg	0.04	0.1	12/04/19 14:56	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:31	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.47	H	*	mg/Kg	0.03	0.1	12/04/19 14:56	mfm
Chromium, total (3050)	M6010D ICP	100	146	H	*	mg/Kg	1	5	12/04/19 3:31	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 3:31	kja
Copper, total (3050)	M6010D ICP	100	51	H	*	mg/Kg	1	5	12/04/19 3:31	kja
Iron, total (3050)	M6010D ICP	100	44500	H	*	mg/Kg	3	8	12/04/19 3:31	kja
Lead, total (3050)	M6020B ICP-MS	500	0.57	H	*	mg/Kg	0.05	0.3	12/04/19 14:56	mfm
Manganese, total (3050)	M6010D ICP	100	853	H	*	mg/Kg	1	5	12/04/19 3:31	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:31	kja
Nickel, total (3050)	M6010D ICP	100	52.9	H	*	mg/Kg	0.8	4	12/04/19 3:31	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.14	H	*	mg/Kg	0.05	0.1	12/04/19 14:56	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.05	0.3	12/10/19 15:31	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:56	mfm
Vanadium, total (3050)	M6010D ICP	200	144	H	*	mg/Kg	1	5	12/05/19 1:18	kja
Zinc, total (3050)	M6010D ICP	100	66	H	*	mg/Kg	1	5	12/04/19 3:31	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 5:02	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 14:37	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:37	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973575

ACZ Sample ID: ***L55822-12***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	27500	H	*	mg/Kg	10	50	12/05/19 1:21	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:58	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.4	H	*	mg/Kg	0.1	0.5	12/04/19 14:58	mfm
Barium, total (3050)	M6010D ICP	100	2.0	BH	*	mg/Kg	0.7	4	12/04/19 3:35	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.04	0.1	12/04/19 14:58	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:35	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.48	H	*	mg/Kg	0.03	0.1	12/04/19 14:58	mfm
Chromium, total (3050)	M6010D ICP	100	177	H	*	mg/Kg	1	5	12/04/19 3:35	kja
Cobalt, total (3050)	M6010D ICP	100	32	H	*	mg/Kg	1	5	12/04/19 3:35	kja
Copper, total (3050)	M6010D ICP	100	62	H	*	mg/Kg	1	5	12/04/19 3:35	kja
Iron, total (3050)	M6010D ICP	100	44500	H	*	mg/Kg	3	8	12/04/19 3:35	kja
Lead, total (3050)	M6020B ICP-MS	500	0.22	BH	*	mg/Kg	0.05	0.3	12/04/19 14:58	mfm
Manganese, total (3050)	M6010D ICP	100	773	H	*	mg/Kg	1	5	12/04/19 3:35	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:35	kja
Nickel, total (3050)	M6010D ICP	100	49.1	H	*	mg/Kg	0.8	4	12/04/19 3:35	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.24	H	*	mg/Kg	0.05	0.1	12/04/19 14:58	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.3	12/10/19 15:33	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:58	mfm
Vanadium, total (3050)	M6010D ICP	200	153	H	*	mg/Kg	1	5	12/05/19 1:21	kja
Zinc, total (3050)	M6010D ICP	100	85	H	*	mg/Kg	1	5	12/04/19 3:35	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 6:08	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 14:56	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 14:56	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973576

ACZ Sample ID: ***L55822-13***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	5000	31500	H	*	mg/Kg	300	1000	12/05/19 1:25	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 15:00	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.3	H	*	mg/Kg	0.1	0.5	12/04/19 15:00	mfm
Barium, total (3050)	M6010D ICP	100	33.0	H	*	mg/Kg	0.7	4	12/04/19 3:39	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.04	0.1	12/04/19 15:00	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:39	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.41	H	*	mg/Kg	0.03	0.1	12/04/19 15:00	mfm
Chromium, total (3050)	M6010D ICP	100	313	H	*	mg/Kg	1	5	12/04/19 3:39	kja
Cobalt, total (3050)	M6010D ICP	100	47	H	*	mg/Kg	1	5	12/04/19 3:39	kja
Copper, total (3050)	M6010D ICP	100	52	H	*	mg/Kg	1	5	12/04/19 3:39	kja
Iron, total (3050)	M6010D ICP	100	46100	H	*	mg/Kg	3	8	12/04/19 3:39	kja
Lead, total (3050)	M6020B ICP-MS	500	0.18	BH	*	mg/Kg	0.05	0.3	12/04/19 15:00	mfm
Manganese, total (3050)	M6010D ICP	100	801	H	*	mg/Kg	1	5	12/04/19 3:39	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:39	kja
Nickel, total (3050)	M6010D ICP	5000	260	H	*	mg/Kg	40	200	12/05/19 1:25	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.1	12/04/19 15:00	mfm
Silver, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/10/19 15:35	mfm
Thallium, total (3050)	M6020B ICP-MS	500	0.19	BH	*	mg/Kg	0.05	0.3	12/04/19 15:00	mfm
Vanadium, total (3050)	M6010D ICP	5000	120	H	*	mg/Kg	30	100	12/05/19 1:25	kja
Zinc, total (3050)	M6010D ICP	100	53	H	*	mg/Kg	1	5	12/04/19 3:39	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 7:14	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 15:15	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 15:15	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973577

ACZ Sample ID: ***L55822-14***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	31400	H	*	mg/Kg	10	50	12/05/19 1:29	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 15:01	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	1.5	H	*	mg/Kg	0.1	0.5	12/04/19 15:01	mfm
Barium, total (3050)	M6010D ICP	100	8.5	H	*	mg/Kg	0.7	4	12/04/19 3:43	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.13	H	*	mg/Kg	0.04	0.1	12/04/19 15:01	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:43	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.48	H	*	mg/Kg	0.03	0.1	12/04/19 15:01	mfm
Chromium, total (3050)	M6010D ICP	100	118	H	*	mg/Kg	1	5	12/04/19 3:43	kja
Cobalt, total (3050)	M6010D ICP	100	38	H	*	mg/Kg	1	5	12/04/19 3:43	kja
Copper, total (3050)	M6010D ICP	100	57	H	*	mg/Kg	1	5	12/04/19 3:43	kja
Iron, total (3050)	M6010D ICP	200	56400	H	*	mg/Kg	6	20	12/05/19 1:29	kja
Lead, total (3050)	M6020B ICP-MS	500	0.42	H	*	mg/Kg	0.05	0.3	12/04/19 15:01	mfm
Manganese, total (3050)	M6010D ICP	100	952	H	*	mg/Kg	1	5	12/04/19 3:43	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:43	kja
Nickel, total (3050)	M6010D ICP	100	38.7	H	*	mg/Kg	0.8	4	12/04/19 3:43	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.29	H	*	mg/Kg	0.05	0.1	12/04/19 15:01	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.05	0.3	12/10/19 15:37	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 15:01	mfm
Vanadium, total (3050)	M6010D ICP	200	176	H	*	mg/Kg	1	5	12/05/19 1:29	kja
Zinc, total (3050)	M6010D ICP	100	55	H	*	mg/Kg	1	5	12/04/19 3:43	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 8:20	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 15:35	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 15:35	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973578

ACZ Sample ID: ***L55822-15***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	28800	H	*	mg/Kg	10	50	12/05/19 1:33	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/06/19 18:30	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.7	H	*	mg/Kg	0.1	0.5	12/06/19 18:30	mfm
Barium, total (3050)	M6010D ICP	100	2.5	BH	*	mg/Kg	0.7	4	12/04/19 3:46	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	12/06/19 18:30	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:46	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.39	H	*	mg/Kg	0.03	0.1	12/06/19 18:30	mfm
Chromium, total (3050)	M6010D ICP	100	138	H	*	mg/Kg	1	5	12/04/19 3:46	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 3:46	kja
Copper, total (3050)	M6010D ICP	100	81	H	*	mg/Kg	1	5	12/04/19 3:46	kja
Iron, total (3050)	M6010D ICP	100	46000	H	*	mg/Kg	3	8	12/04/19 3:46	kja
Lead, total (3050)	M6020B ICP-MS	500	0.28	BH	*	mg/Kg	0.05	0.3	12/06/19 18:30	mfm
Manganese, total (3050)	M6010D ICP	100	762	H	*	mg/Kg	1	5	12/04/19 3:46	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:46	kja
Nickel, total (3050)	M6010D ICP	100	46.7	H	*	mg/Kg	0.8	4	12/04/19 3:46	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.35	H	*	mg/Kg	0.05	0.1	12/06/19 18:30	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.05	0.3	12/10/19 15:42	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/06/19 18:30	mfm
Vanadium, total (3050)	M6010D ICP	200	142	H	*	mg/Kg	1	5	12/05/19 1:33	kja
Zinc, total (3050)	M6010D ICP	100	40	H	*	mg/Kg	1	5	12/04/19 3:46	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 9:25	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 15:54	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 15:54	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973579

ACZ Sample ID: ***L55822-16***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	29300	H	*	mg/Kg	10	50	12/05/19 1:36	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/06/19 18:31	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.8	H	*	mg/Kg	0.1	0.5	12/06/19 18:31	mfm
Barium, total (3050)	M6010D ICP	100	2.7	BH	*	mg/Kg	0.7	4	12/04/19 3:58	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	12/06/19 18:31	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:58	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.39	H	*	mg/Kg	0.03	0.1	12/06/19 18:31	mfm
Chromium, total (3050)	M6010D ICP	100	137	H	*	mg/Kg	1	5	12/04/19 3:58	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 3:58	kja
Copper, total (3050)	M6010D ICP	100	83	H	*	mg/Kg	1	5	12/04/19 3:58	kja
Iron, total (3050)	M6010D ICP	100	44500	H	*	mg/Kg	3	8	12/04/19 3:58	kja
Lead, total (3050)	M6020B ICP-MS	500	0.27	BH	*	mg/Kg	0.05	0.3	12/06/19 18:31	mfm
Manganese, total (3050)	M6010D ICP	100	770	H	*	mg/Kg	1	5	12/04/19 3:58	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 3:58	kja
Nickel, total (3050)	M6010D ICP	100	49.0	H	*	mg/Kg	0.8	4	12/04/19 3:58	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.39	H	*	mg/Kg	0.05	0.1	12/06/19 18:31	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.06	BH	*	mg/Kg	0.05	0.3	12/10/19 15:44	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/06/19 18:31	mfm
Vanadium, total (3050)	M6010D ICP	200	143	H	*	mg/Kg	1	5	12/05/19 1:36	kja
Zinc, total (3050)	M6010D ICP	100	38	H	*	mg/Kg	1	5	12/04/19 3:58	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 10:31	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:13	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:13	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973580

ACZ Sample ID: ***L55822-17***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	29400	H	*	mg/Kg	10	50	12/05/19 1:47	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/06/19 18:33	mfm
Arsenic, total (3050)	M6020B ICP-MS	495	1.5	H	*	mg/Kg	0.1	0.5	12/06/19 18:33	mfm
Barium, total (3050)	M6010D ICP	99	1.2	BH	*	mg/Kg	0.7	3	12/04/19 4:02	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.06	BH	*	mg/Kg	0.04	0.1	12/06/19 18:33	mfm
Boron, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 4:02	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.38	H	*	mg/Kg	0.02	0.1	12/06/19 18:33	mfm
Chromium, total (3050)	M6010D ICP	99	137	H	*	mg/Kg	1	5	12/04/19 4:02	kja
Cobalt, total (3050)	M6010D ICP	99	33	H	*	mg/Kg	1	5	12/04/19 4:02	kja
Copper, total (3050)	M6010D ICP	99	88	H	*	mg/Kg	1	5	12/04/19 4:02	kja
Iron, total (3050)	M6010D ICP	99	41000	H	*	mg/Kg	3	7	12/04/19 4:02	kja
Lead, total (3050)	M6020B ICP-MS	495	0.76	H	*	mg/Kg	0.05	0.2	12/06/19 18:33	mfm
Manganese, total (3050)	M6010D ICP	99	761	H	*	mg/Kg	1	5	12/04/19 4:02	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 4:02	kja
Nickel, total (3050)	M6010D ICP	99	61.5	H	*	mg/Kg	0.8	4	12/04/19 4:02	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.19	H	*	mg/Kg	0.05	0.1	12/06/19 18:33	mfm
Silver, total (3050)	M6020B ICP-MS	495	0.08	BH	*	mg/Kg	0.05	0.2	12/10/19 15:46	mfm
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	12/06/19 18:33	mfm
Vanadium, total (3050)	M6010D ICP	99	98.4	H	*	mg/Kg	0.5	2	12/04/19 4:02	kja
Zinc, total (3050)	M6010D ICP	99	48	H	*	mg/Kg	1	5	12/04/19 4:02	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 11:37	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:32	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:32	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973581

ACZ Sample ID: ***L55822-18***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	17600	H	*	mg/Kg	5	30	12/04/19 4:05	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/06/19 18:35	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	0.9	H	*	mg/Kg	0.1	0.5	12/06/19 18:35	mfm
Barium, total (3050)	M6010D ICP	100	11.1	H	*	mg/Kg	0.7	4	12/04/19 4:05	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.04	0.1	12/06/19 18:35	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:05	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.52	H	*	mg/Kg	0.03	0.1	12/06/19 18:35	mfm
Chromium, total (3050)	M6010D ICP	100	29	H	*	mg/Kg	1	5	12/04/19 4:05	kja
Cobalt, total (3050)	M6010D ICP	100	18	H	*	mg/Kg	1	5	12/04/19 4:05	kja
Copper, total (3050)	M6010D ICP	100	110	H	*	mg/Kg	1	5	12/04/19 4:05	kja
Iron, total (3050)	M6010D ICP	100	32200	H	*	mg/Kg	3	8	12/04/19 4:05	kja
Lead, total (3050)	M6020B ICP-MS	500	0.59	H	*	mg/Kg	0.05	0.3	12/06/19 18:35	mfm
Manganese, total (3050)	M6010D ICP	100	496	H	*	mg/Kg	1	5	12/04/19 4:05	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:05	kja
Nickel, total (3050)	M6010D ICP	100	14.9	H	*	mg/Kg	0.8	4	12/04/19 4:05	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.23	H	*	mg/Kg	0.05	0.1	12/06/19 18:35	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.09	BH	*	mg/Kg	0.05	0.3	12/10/19 15:48	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/06/19 18:35	mfm
Vanadium, total (3050)	M6010D ICP	200	130	H	*	mg/Kg	1	5	12/05/19 1:51	kja
Zinc, total (3050)	M6010D ICP	100	42	H	*	mg/Kg	1	5	12/04/19 4:05	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 12:42	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:51	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:51	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973582

ACZ Sample ID: ***L55822-19***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	32600	H	*	mg/Kg	10	50	12/05/19 1:55	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/06/19 18:37	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	3.7	H	*	mg/Kg	0.1	0.5	12/06/19 18:37	mfm
Barium, total (3050)	M6010D ICP	100	3.2	BH	*	mg/Kg	0.7	4	12/04/19 4:09	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.04	0.1	12/06/19 18:37	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:09	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.24	H	*	mg/Kg	0.03	0.1	12/06/19 18:37	mfm
Chromium, total (3050)	M6010D ICP	100	158	H	*	mg/Kg	1	5	12/04/19 4:09	kja
Cobalt, total (3050)	M6010D ICP	100	35	H	*	mg/Kg	1	5	12/04/19 4:09	kja
Copper, total (3050)	M6010D ICP	100	57	H	*	mg/Kg	1	5	12/04/19 4:09	kja
Iron, total (3050)	M6010D ICP	100	45500	H	*	mg/Kg	3	8	12/04/19 4:09	kja
Lead, total (3050)	M6020B ICP-MS	500	0.80	H	*	mg/Kg	0.05	0.3	12/06/19 18:37	mfm
Manganese, total (3050)	M6010D ICP	100	795	H	*	mg/Kg	1	5	12/04/19 4:09	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:09	kja
Nickel, total (3050)	M6010D ICP	100	60.4	H	*	mg/Kg	0.8	4	12/04/19 4:09	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.22	H	*	mg/Kg	0.05	0.1	12/06/19 18:37	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.3	12/10/19 15:49	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/06/19 18:37	mfm
Vanadium, total (3050)	M6010D ICP	200	136	H	*	mg/Kg	1	5	12/05/19 1:55	kja
Zinc, total (3050)	M6010D ICP	100	46	H	*	mg/Kg	1	5	12/04/19 4:09	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 13:48	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 17:11	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 17:11	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973590

ACZ Sample ID: ***L55822-20***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	40100	H	*	mg/Kg	10	50	12/05/19 1:59	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/06/19 18:39	mfm
Arsenic, total (3050)	M6020B ICP-MS	500	2.0	H	*	mg/Kg	0.1	0.5	12/06/19 18:39	mfm
Barium, total (3050)	M6010D ICP	100	6.3	H	*	mg/Kg	0.7	4	12/04/19 4:13	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.04	0.1	12/06/19 18:39	mfm
Boron, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:13	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.24	H	*	mg/Kg	0.03	0.1	12/06/19 18:39	mfm
Chromium, total (3050)	M6010D ICP	100	204	H	*	mg/Kg	1	5	12/04/19 4:13	kja
Cobalt, total (3050)	M6010D ICP	100	40	H	*	mg/Kg	1	5	12/04/19 4:13	kja
Copper, total (3050)	M6010D ICP	100	71	H	*	mg/Kg	1	5	12/04/19 4:13	kja
Iron, total (3050)	M6010D ICP	200	60800	H	*	mg/Kg	6	20	12/05/19 1:59	kja
Lead, total (3050)	M6020B ICP-MS	500	0.93	H	*	mg/Kg	0.05	0.3	12/06/19 18:39	mfm
Manganese, total (3050)	M6010D ICP	100	1100	H	*	mg/Kg	1	5	12/04/19 4:13	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 4:13	kja
Nickel, total (3050)	M6010D ICP	100	79.6	H	*	mg/Kg	0.8	4	12/04/19 4:13	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.41	H	*	mg/Kg	0.05	0.1	12/06/19 18:39	mfm
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/10/19 15:51	mfm
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/06/19 18:39	mfm
Vanadium, total (3050)	M6010D ICP	500	201	H	*	mg/Kg	3	10	12/05/19 13:21	kja
Zinc, total (3050)	M6010D ICP	100	56	H	*	mg/Kg	1	5	12/04/19 4:13	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	100	H	*	%	0.1	0.5	11/20/19 14:54	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 17:30	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 17:30	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973591

ACZ Sample ID: ***L55822-21***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	27200	H	*	mg/Kg	10	50	12/04/19 22:44	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:13	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	0.5	H	*	mg/Kg	0.1	0.5	12/04/19 14:13	bsu
Barium, total (3050)	M6010D ICP	100	3.3	BH	*	mg/Kg	0.7	4	12/04/19 5:22	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.08	BH	*	mg/Kg	0.04	0.1	12/04/19 14:13	bsu
Boron, total (3050)	M6010D ICP	200		UH	*	mg/Kg	4	20	12/04/19 22:44	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.25	H	*	mg/Kg	0.03	0.1	12/04/19 14:13	bsu
Chromium, total (3050)	M6010D ICP	200	170	H	*	mg/Kg	2	10	12/04/19 22:44	kja
Cobalt, total (3050)	M6010D ICP	100	27	H	*	mg/Kg	1	5	12/04/19 5:22	kja
Copper, total (3050)	M6010D ICP	100	52	H	*	mg/Kg	1	5	12/04/19 5:22	kja
Iron, total (3050)	M6010D ICP	100	35500	H	*	mg/Kg	3	8	12/04/19 5:22	kja
Lead, total (3050)	M6020B ICP-MS	500	0.56	H	*	mg/Kg	0.05	0.3	12/04/19 14:13	bsu
Manganese, total (3050)	M6010D ICP	100	628	H	*	mg/Kg	1	5	12/04/19 5:22	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 5:22	kja
Nickel, total (3050)	M6010D ICP	100	51.0	H	*	mg/Kg	0.8	4	12/04/19 5:22	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.11	H	*	mg/Kg	0.05	0.1	12/04/19 14:13	bsu
Silver, total (3050)	M6020B ICP-MS	500	0.05	BH	*	mg/Kg	0.05	0.3	12/04/19 14:13	bsu
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:13	bsu
Vanadium, total (3050)	M6010D ICP	200	125	H	*	mg/Kg	1	5	12/04/19 22:44	kja
Zinc, total (3050)	M6010D ICP	200	38	H	*	mg/Kg	2	10	12/04/19 22:44	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 17:00	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 11:36	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 11:36	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973592

ACZ Sample ID: ***L55822-22***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	29800	H	*	mg/Kg	10	50	12/04/19 22:55	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/04/19 14:15	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	1.8	H	*	mg/Kg	0.1	0.5	12/04/19 14:15	bsu
Barium, total (3050)	M6010D ICP	99	1.6	BH	*	mg/Kg	0.7	3	12/04/19 5:33	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.09	BH	*	mg/Kg	0.04	0.1	12/04/19 14:15	bsu
Boron, total (3050)	M6010D ICP	198		UH	*	mg/Kg	4	20	12/04/19 22:55	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.25	H	*	mg/Kg	0.02	0.1	12/04/19 14:15	bsu
Chromium, total (3050)	M6010D ICP	198	124	H	*	mg/Kg	2	10	12/04/19 22:55	kja
Cobalt, total (3050)	M6010D ICP	99	33	H	*	mg/Kg	1	5	12/04/19 5:33	kja
Copper, total (3050)	M6010D ICP	99	51	H	*	mg/Kg	1	5	12/04/19 5:33	kja
Iron, total (3050)	M6010D ICP	99	41000	H	*	mg/Kg	3	7	12/04/19 5:33	kja
Lead, total (3050)	M6020B ICP-MS	495	0.29	H	*	mg/Kg	0.05	0.2	12/04/19 14:15	bsu
Manganese, total (3050)	M6010D ICP	99	704	H	*	mg/Kg	1	5	12/04/19 5:33	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 5:33	kja
Nickel, total (3050)	M6010D ICP	99	43.1	H	*	mg/Kg	0.8	4	12/04/19 5:33	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.18	H	*	mg/Kg	0.05	0.1	12/04/19 14:15	bsu
Silver, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	12/04/19 14:15	bsu
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	12/04/19 14:15	bsu
Vanadium, total (3050)	M6010D ICP	198	134	H	*	mg/Kg	1	5	12/04/19 22:55	kja
Zinc, total (3050)	M6010D ICP	198	35	H	*	mg/Kg	2	10	12/04/19 22:55	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/19/19 22:48	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 15:12	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 15:12	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973593

ACZ Sample ID: ***L55822-23***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	198	34300	H	*	mg/Kg	10	50	12/04/19 22:59	kja
Antimony, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.2	1	12/04/19 14:24	bsu
Arsenic, total (3050)	M6020B ICP-MS	495	2.0	H	*	mg/Kg	0.1	0.5	12/04/19 14:24	bsu
Barium, total (3050)	M6010D ICP	99	2.6	BH	*	mg/Kg	0.7	3	12/04/19 5:36	kja
Beryllium, total (3050)	M6020B ICP-MS	495	0.17	H	*	mg/Kg	0.04	0.1	12/04/19 14:24	bsu
Boron, total (3050)	M6010D ICP	198		UH	*	mg/Kg	4	20	12/04/19 22:59	kja
Cadmium, total (3050)	M6020B ICP-MS	495	0.39	H	*	mg/Kg	0.02	0.1	12/04/19 14:24	bsu
Chromium, total (3050)	M6010D ICP	198	174	H	*	mg/Kg	2	10	12/04/19 22:59	kja
Cobalt, total (3050)	M6010D ICP	99	37	H	*	mg/Kg	1	5	12/04/19 5:36	kja
Copper, total (3050)	M6010D ICP	99	88	H	*	mg/Kg	1	5	12/04/19 5:36	kja
Iron, total (3050)	M6010D ICP	99	47000	H	*	mg/Kg	3	7	12/04/19 5:36	kja
Lead, total (3050)	M6020B ICP-MS	495	0.53	H	*	mg/Kg	0.05	0.2	12/04/19 14:24	bsu
Manganese, total (3050)	M6010D ICP	99	846	H	*	mg/Kg	1	5	12/04/19 5:36	kja
Molybdenum, total (3050)	M6010D ICP	99		UH	*	mg/Kg	2	10	12/04/19 5:36	kja
Nickel, total (3050)	M6010D ICP	99	48.0	H	*	mg/Kg	0.8	4	12/04/19 5:36	kja
Selenium, total (3050)	M6020B ICP-MS	495	0.23	H	*	mg/Kg	0.05	0.1	12/04/19 14:24	bsu
Silver, total (3050)	M6020B ICP-MS	495	0.07	BH	*	mg/Kg	0.05	0.2	12/04/19 14:24	bsu
Thallium, total (3050)	M6020B ICP-MS	495		UH	*	mg/Kg	0.05	0.2	12/04/19 14:24	bsu
Vanadium, total (3050)	M6010D ICP	198	175	H	*	mg/Kg	1	5	12/04/19 22:59	kja
Zinc, total (3050)	M6010D ICP	198	93	H	*	mg/Kg	2	10	12/04/19 22:59	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 1:43	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:11	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:11	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973594

ACZ Sample ID: ***L55822-24***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	100	23900	H	*	mg/Kg	5	30	12/04/19 5:40	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:26	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	6.1	H	*	mg/Kg	0.1	0.5	12/04/19 14:26	bsu
Barium, total (3050)	M6010D ICP	100	7.6	H	*	mg/Kg	0.7	4	12/04/19 5:40	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.20	H	*	mg/Kg	0.04	0.1	12/04/19 14:26	bsu
Boron, total (3050)	M6010D ICP	200		UH	*	mg/Kg	4	20	12/04/19 23:03	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.24	H	*	mg/Kg	0.03	0.1	12/04/19 14:26	bsu
Chromium, total (3050)	M6010D ICP	200	73	H	*	mg/Kg	2	10	12/04/19 23:03	kja
Cobalt, total (3050)	M6010D ICP	100	22	H	*	mg/Kg	1	5	12/04/19 5:40	kja
Copper, total (3050)	M6010D ICP	100	115	H	*	mg/Kg	1	5	12/04/19 5:40	kja
Iron, total (3050)	M6010D ICP	100	39700	H	*	mg/Kg	3	8	12/04/19 5:40	kja
Lead, total (3050)	M6020B ICP-MS	500	4.01	H	*	mg/Kg	0.05	0.3	12/04/19 14:26	bsu
Manganese, total (3050)	M6010D ICP	100	587	H	*	mg/Kg	1	5	12/04/19 5:40	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 5:40	kja
Nickel, total (3050)	M6010D ICP	100	28.8	H	*	mg/Kg	0.8	4	12/04/19 5:40	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.13	H	*	mg/Kg	0.05	0.1	12/04/19 14:26	bsu
Silver, total (3050)	M6020B ICP-MS	500	0.13	BH	*	mg/Kg	0.05	0.3	12/04/19 14:26	bsu
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:26	bsu
Vanadium, total (3050)	M6010D ICP	200	168	H	*	mg/Kg	1	5	12/04/19 23:03	kja
Zinc, total (3050)	M6010D ICP	200	57	H	*	mg/Kg	2	10	12/04/19 23:03	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 4:37	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:31	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:31	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973595

ACZ Sample ID: ***L55822-25***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	33900	H	*	mg/Kg	10	50	12/04/19 23:06	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:28	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	3.2	H	*	mg/Kg	0.1	0.5	12/04/19 14:28	bsu
Barium, total (3050)	M6010D ICP	100	11.8	H	*	mg/Kg	0.7	4	12/04/19 5:44	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.19	H	*	mg/Kg	0.04	0.1	12/04/19 14:28	bsu
Boron, total (3050)	M6010D ICP	200		UH	*	mg/Kg	4	20	12/04/19 23:06	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.25	H	*	mg/Kg	0.03	0.1	12/04/19 14:28	bsu
Chromium, total (3050)	M6010D ICP	200	228	H	*	mg/Kg	2	10	12/04/19 23:06	kja
Cobalt, total (3050)	M6010D ICP	100	27	H	*	mg/Kg	1	5	12/04/19 5:44	kja
Copper, total (3050)	M6010D ICP	100	38	H	*	mg/Kg	1	5	12/04/19 5:44	kja
Iron, total (3050)	M6010D ICP	100	39900	H	*	mg/Kg	3	8	12/04/19 5:44	kja
Lead, total (3050)	M6020B ICP-MS	500	1.42	H	*	mg/Kg	0.05	0.3	12/04/19 14:28	bsu
Manganese, total (3050)	M6010D ICP	100	610	H	*	mg/Kg	1	5	12/04/19 5:44	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 5:44	kja
Nickel, total (3050)	M6010D ICP	100	89.4	H	*	mg/Kg	0.8	4	12/04/19 5:44	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.1	12/04/19 14:28	bsu
Silver, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:28	bsu
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:28	bsu
Vanadium, total (3050)	M6010D ICP	200	174	H	*	mg/Kg	1	5	12/04/19 23:06	kja
Zinc, total (3050)	M6010D ICP	200	53	H	*	mg/Kg	2	10	12/04/19 23:06	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 7:31	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 16:50	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 16:50	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973596

ACZ Sample ID: ***L55822-26***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	200	37800	H	*	mg/Kg	10	50	12/04/19 23:18	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:30	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	1.2	H	*	mg/Kg	0.1	0.5	12/04/19 14:30	bsu
Barium, total (3050)	M6010D ICP	100	6.8	H	*	mg/Kg	0.7	4	12/04/19 5:55	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.29	H	*	mg/Kg	0.04	0.1	12/04/19 14:30	bsu
Boron, total (3050)	M6010D ICP	200		UH	*	mg/Kg	4	20	12/04/19 23:18	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.46	H	*	mg/Kg	0.03	0.1	12/04/19 14:30	bsu
Chromium, total (3050)	M6010D ICP	200	162	H	*	mg/Kg	2	10	12/04/19 23:18	kja
Cobalt, total (3050)	M6010D ICP	100	38	H	*	mg/Kg	1	5	12/04/19 5:55	kja
Copper, total (3050)	M6010D ICP	100	46	H	*	mg/Kg	1	5	12/04/19 5:55	kja
Iron, total (3050)	M6010D ICP	200	65300	H	*	mg/Kg	6	20	12/04/19 23:18	kja
Lead, total (3050)	M6020B ICP-MS	500	0.47	H	*	mg/Kg	0.05	0.3	12/04/19 14:30	bsu
Manganese, total (3050)	M6010D ICP	100	945	H	*	mg/Kg	1	5	12/04/19 5:55	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 5:55	kja
Nickel, total (3050)	M6010D ICP	100	52.4	H	*	mg/Kg	0.8	4	12/04/19 5:55	kja
Selenium, total (3050)	M6020B ICP-MS	500	0.20	H	*	mg/Kg	0.05	0.1	12/04/19 14:30	bsu
Silver, total (3050)	M6020B ICP-MS	500	0.07	BH	*	mg/Kg	0.05	0.3	12/04/19 14:30	bsu
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:30	bsu
Vanadium, total (3050)	M6010D ICP	500	247	H	*	mg/Kg	3	10	12/05/19 11:54	kja
Zinc, total (3050)	M6010D ICP	200	75	H	*	mg/Kg	2	10	12/04/19 23:18	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 10:26	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 17:10	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 17:10	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: Y973597

ACZ Sample ID: ***L55822-27***
Date Sampled: *03/05/19 12:00*
Date Received: *11/11/19*
Sample Matrix: *Soil*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total (3050)	M6010D ICP	500	76200	H	*	mg/Kg	30	100	12/04/19 23:21	kja
Antimony, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.2	1	12/04/19 14:31	bsu
Arsenic, total (3050)	M6020B ICP-MS	500	1.0	H	*	mg/Kg	0.1	0.5	12/04/19 14:31	bsu
Barium, total (3050)	M6010D ICP	100	2.1	BH	*	mg/Kg	0.7	4	12/04/19 5:59	kja
Beryllium, total (3050)	M6020B ICP-MS	500	0.21	H	*	mg/Kg	0.04	0.1	12/04/19 14:31	bsu
Boron, total (3050)	M6010D ICP	500		UH	*	mg/Kg	10	50	12/04/19 23:21	kja
Cadmium, total (3050)	M6020B ICP-MS	500	0.04	BH	*	mg/Kg	0.03	0.1	12/04/19 14:31	bsu
Chromium, total (3050)	M6010D ICP	500	746	H	*	mg/Kg	5	30	12/04/19 23:21	kja
Cobalt, total (3050)	M6010D ICP	100	42	H	*	mg/Kg	1	5	12/04/19 5:59	kja
Copper, total (3050)	M6010D ICP	500		UH	*	mg/Kg	5	30	12/04/19 23:21	kja
Iron, total (3050)	M6010D ICP	500	76800	H	*	mg/Kg	20	40	12/04/19 23:21	kja
Lead, total (3050)	M6020B ICP-MS	500	0.31	H	*	mg/Kg	0.05	0.3	12/04/19 14:31	bsu
Manganese, total (3050)	M6010D ICP	100	1060	H	*	mg/Kg	1	5	12/04/19 5:59	kja
Molybdenum, total (3050)	M6010D ICP	100		UH	*	mg/Kg	2	10	12/04/19 5:59	kja
Nickel, total (3050)	M6010D ICP	500	550	H	*	mg/Kg	4	20	12/04/19 23:21	kja
Selenium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.1	12/04/19 14:31	bsu
Silver, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:31	bsu
Thallium, total (3050)	M6020B ICP-MS	500		UH	*	mg/Kg	0.05	0.3	12/04/19 14:31	bsu
Vanadium, total (3050)	M6010D ICP	500	130	H	*	mg/Kg	3	10	12/04/19 23:21	kja
Zinc, total (3050)	M6010D ICP	500	100	H	*	mg/Kg	5	30	12/04/19 23:21	kja

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Solids, Percent	D2216-80	1	99.9	H	*	%	0.1	0.5	11/20/19 13:20	jms

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP								11/26/19 17:29	mlp
Digestion - Hot Plate	M3050B ICP-MS								11/26/19 17:29	mlp

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Aluminum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		2.01	mg/L	101	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.15	0.15			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-15	15			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	8610		9770	mg/Kg		4410	12800			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	8610		9773	mg/Kg		4410	12800	0	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	100.12	26700	27790	mg/Kg	1089	75	125			M3
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	99.1188	26700	27779.4	mg/Kg	1089	75	125	0	20	M3
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		2.038	mg/L	102	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.15	0.15			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-15	15			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	8610		9491	mg/Kg		4410	12800			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	8610		9306	mg/Kg		4410	12800	2	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	100.12	26600	27430	mg/Kg	829	75	125			M3
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	100.12	26600	27870	mg/Kg	1268	75	125	2	20	M3
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		1.973	mg/L	99	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.15	0.15			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-15	15			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	8610		9695	mg/Kg		4410	12800			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	8610		9289	mg/Kg		4410	12800	4	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	100.11	27200	28560	mg/Kg	1359	75	125			M3
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	100.11	27200	29100	mg/Kg	1898	75	125	2	20	M3
WG487350													
WG487350ICV	ICV	12/04/19 23:52	II191122-1	2		1.968	mg/L	98	90	110			
WG487350ICB	ICB	12/04/19 23:56				U	mg/L		-0.15	0.15			
WG486956PBS	PBS	12/05/19 0:19				U	mg/Kg		-15	15			
WG486956LCSS	LCSS	12/05/19 0:23	PCN59282	8610		9624	mg/Kg		4410	12800			
WG486956LCSSD	LCSSD	12/05/19 0:26	PCN59282	8610		9692	mg/Kg		4410	12800	1	20	
L55822-01MS	MS	12/05/19 0:33	II2XSOIL	100.11	27600	28840	mg/Kg	1239	75	125			M3
L55822-01MSD	MSD	12/05/19 0:37	II2XSOIL	99.1089	27600	28334	mg/Kg	741	75	125	2	20	M3

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02018	mg/L	101	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0012	0.0012			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.6	0.6			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	68.6		55	mg/Kg		2.03	135			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	68.6		51.1	mg/Kg		2.03	135	7	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5	U	.54	mg/Kg	11	75	125			M2
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5	U	.52	mg/Kg	10	75	125	4	20	M2
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.02004		.01996	mg/L	100	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.0012	0.0012			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.6	0.6			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	68.6		55.1	mg/Kg		2.03	135			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	68.6		57.6	mg/Kg		2.03	135	4	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	4.95	U	.58	mg/Kg	12	75	125			M2
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	4.95	U	.6	mg/Kg	12	75	125	3	20	M2
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.02004		.02084	mg/L	104	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.0012	0.0012			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.6	0.6			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	68.6		59	mg/Kg		2.03	135			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	68.6		58.9	mg/Kg		2.03	135	0	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	4.95	U	.54	mg/Kg	11	75	125			M2
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	4.95	U	.55	mg/Kg	11	75	125	2	20	M2

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Arsenic, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04988	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0006	0.0006			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.3	0.3			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	69.4		75.2	mg/Kg		57.2	81.5			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	69.4		73.1	mg/Kg		57.2	81.5	3	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	1.8	25.78	mg/Kg	96	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	1.8	26.17	mg/Kg	97	75	125	2	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.04778	mg/L	96	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.0006	0.0006			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.3	0.3			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	69.4		68	mg/Kg		57.2	81.5			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	69.4		72.7	mg/Kg		57.2	81.5	7	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	24.77475	1.8	24.11	mg/Kg	90	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	24.77475	1.8	24.35	mg/Kg	91	75	125	1	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.05229	mg/L	105	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.0006	0.0006			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.3	0.3			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	69.4		75.8	mg/Kg		57.2	81.5			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	69.4		78.6	mg/Kg		57.2	81.5	4	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	24.77475	2	25.6	mg/Kg	95	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	24.77475	2	24.46	mg/Kg	91	75	125	5	20	

Barium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.997	mg/L	100	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.021	0.021			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-2.1	2.1			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	362		370.1	mg/Kg		297	427			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	362		360.3	mg/Kg		297	427	3	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.05	6.6	53.6	mg/Kg	94	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.5495	6.6	52.64	mg/Kg	93	75	125	2	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		2.013	mg/L	101	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.021	0.021			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-2.1	2.1			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	362		351.2	mg/Kg		297	427			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	362		345.8	mg/Kg		297	427	2	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	50.05	3.3	48.1	mg/Kg	90	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	50.05	3.3	48.81	mg/Kg	91	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Beryllium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.048696	mg/L	97	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00024	0.00024			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.12	0.12			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	223		233.15	mg/Kg		185	260			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	223		228.47	mg/Kg		185	260	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.09	26.614	mg/Kg	106	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.09	26.054	mg/Kg	104	75	125	2	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.047505	mg/L	95	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.00024	0.00024			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.12	0.12			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	223		210.41	mg/Kg		185	260			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	223		212.8	mg/Kg		185	260	1	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	24.77475	.16	20.827	mg/Kg	83	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	24.77475	.16	21.067	mg/Kg	84	75	125	1	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.050501	mg/L	101	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.00024	0.00024			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.12	0.12			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	223		234.17	mg/Kg		185	260			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	223		227.59	mg/Kg		185	260	3	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	24.77475	.14	21.237	mg/Kg	85	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	24.77475	.14	20.802	mg/Kg	83	75	125	2	20	

Boron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		2.017	mg/L	101	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.06	0.06			
WG486956PBS	PBS	12/04/19 2:28				2	mg/Kg		-6	6			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	79.4		81.4	mg/Kg		57.2	102			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	79.4		79.5	mg/Kg		57.2	102	2	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.05	U	48.2	mg/Kg	96	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.5495	U	49.8	mg/Kg	101	75	125	3	20	
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		2.064	mg/L	103	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	79.4		82.7	mg/Kg		57.2	102			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	79.4		81.5	mg/Kg		57.2	102	1	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50.05	U	49.2	mg/Kg	98	75	125			
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50.05	U	49.5	mg/Kg	99	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cadmium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.049073	mg/L	98	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.00015	0.00015			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.09	0.09			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	166		169.14	mg/Kg		138	195			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	166		176.08	mg/Kg		138	195	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.25	23.716	mg/Kg	94	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.25	23.642	mg/Kg	93	75	125	0	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.048704	mg/L	97	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.00015	0.00015			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.09	0.09			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	166		161.6	mg/Kg		138	195			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	166		159.71	mg/Kg		138	195	1	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	24.77475	.92	23.095	mg/Kg	90	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	24.77475	.92	23.683	mg/Kg	92	75	125	3	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.051737	mg/L	103	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.00015	0.00015			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.09	0.09			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	166		176.76	mg/Kg		138	195			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	166		165.86	mg/Kg		138	195	6	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	24.77475	.84	23.221	mg/Kg	90	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	24.77475	.84	23.231	mg/Kg	90	75	125	0	20	

Chromium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.999	mg/L	100	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.03	0.03			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-3	3			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	249		253.9	mg/Kg		203	295			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	249		250.8	mg/Kg		203	295	1	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.1	122	169.4	mg/Kg	95	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.599	122	169.5	mg/Kg	96	75	125	0	20	
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		1.971	mg/L	99	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	249		250.9	mg/Kg		203	295			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	249		242.7	mg/Kg		203	295	3	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50.1	170	221.2	mg/Kg	102	75	125			
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50.1	170	224.2	mg/Kg	108	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Cobalt, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2.002		1.922	mg/L	96	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.03	0.03			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-3	3			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	90.6		90.7	mg/Kg		75.1	106			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	90.6		89.6	mg/Kg		75.1	106	1	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50	24	67.8	mg/Kg	88	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.5	24	70.6	mg/Kg	94	75	125	4	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2.002		1.949	mg/L	97	90	110			
WG487254ICB	ICB	12/04/19 4:47				.016	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 5:11				1.4	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	90.6		86.3	mg/Kg		75.1	106			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	90.6		84.7	mg/Kg		75.1	106	2	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	50	27	67.5	mg/Kg	81	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	50	27	70	mg/Kg	86	75	125	4	20	

Copper, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.991	mg/L	100	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.03	0.03			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-3	3			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	280		276.1	mg/Kg		233	326			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	280		275.9	mg/Kg		233	326	0	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.05	58	105.9	mg/Kg	96	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.5495	58	106.1	mg/Kg	97	75	125	0	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		1.977	mg/L	99	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	280		258.5	mg/Kg		233	326			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	280		256.7	mg/Kg		233	326	1	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	50.05	52	95.4	mg/Kg	87	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	50.05	52	99	mg/Kg	94	75	125	4	20	
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		1.952	mg/L	98	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	280		269.6	mg/Kg		233	326			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	280		262.6	mg/Kg		233	326	3	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50	55	101.1	mg/Kg	92	75	125			
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50	55	104.8	mg/Kg	100	75	125	4	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Iron, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.936	mg/L	97	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.09	0.09			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-9	9			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	14000		13130	mg/Kg		8380	19600			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	14000		12960	mg/Kg		8380	19600	1	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	100.18	40200	42330	mg/Kg	2126	75	125			M3
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	99.1782	40200	44193.6	mg/Kg	4027	75	125	4	20	M3
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		1.972	mg/L	99	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.09	0.09			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-9	9			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	14000		13020	mg/Kg		8380	19600			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	14000		12910	mg/Kg		8380	19600	1	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	100.18	35500	36210	mg/Kg	709	75	125			M3
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	100.18	35500	36770	mg/Kg	1268	75	125	2	20	M3
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		2.044	mg/L	102	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.09	0.09			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-9	9			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	14000		14150	mg/Kg		8380	19600			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	14000		13760	mg/Kg		8380	19600	3	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	100.14	39800	40580	mg/Kg	779	75	125			M3
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	100.14	39800	41260	mg/Kg	1458	75	125	2	20	M3
WG487350													
WG487350ICV	ICV	12/04/19 23:52	II191122-1	2		1.882	mg/L	94	90	110			
WG487350ICB	ICB	12/04/19 23:56				U	mg/L		-0.09	0.09			
WG486956PBS	PBS	12/05/19 0:19				3.7	mg/Kg		-9	9			
WG486956LCSS	LCSS	12/05/19 0:23	PCN59282	14000		12600	mg/Kg		8380	19600			
WG486956LCSSD	LCSSD	12/05/19 0:26	PCN59282	14000		12850	mg/Kg		8380	19600	2	20	
L55822-01MS	MS	12/05/19 0:33	II2XSOIL	100.14	45400	46960	mg/Kg	1558	75	125			M3
L55822-01MSD	MSD	12/05/19 0:37	II2XSOIL	99.1386	45400	45005.4	mg/Kg	-398	75	125	4	20	M3

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Lead, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05102	mg/L	102	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	225		242.29	mg/Kg		184	266			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	225		236.5	mg/Kg		184	266	2	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.025	.29	24.786	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.025	.29	24.658	mg/Kg	97	75	125	1	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.05077	mg/L	102	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	225		221.75	mg/Kg		184	266			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	225		226.73	mg/Kg		184	266	2	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	24.77475	.74	22.17	mg/Kg	86	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	24.77475	.74	22.553	mg/Kg	88	75	125	2	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.05137	mg/L	103	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	225		236.44	mg/Kg		184	266			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	225		236.74	mg/Kg		184	266	0	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	24.77475	.8	23.233	mg/Kg	91	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	24.77475	.8	22.613	mg/Kg	88	75	125	3	20	

Manganese, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.959	mg/L	98	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.03	0.03			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-3	3			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	332		351.5	mg/Kg		272	392			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	332		316.8	mg/Kg		272	392	10	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.15	611	674	mg/Kg	126	75	125			M3
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.6485	611	672.4	mg/Kg	124	75	125	0	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		1.974	mg/L	99	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	332		315.7	mg/Kg		272	392			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	332		313.8	mg/Kg		272	392	1	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	50.15	628	690.2	mg/Kg	124	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	50.15	628	702.4	mg/Kg	148	75	125	2	20	M3

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Molybdenum, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.981	mg/L	99	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.06	0.06			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-6	6			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	158		163.8	mg/Kg		127	190			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	158		163.3	mg/Kg		127	190	0	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	49.75	U	43.6	mg/Kg	88	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.2525	U	43.6	mg/Kg	89	75	125	0	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		1.987	mg/L	99	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.06	0.06			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-6	6			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	158		155.9	mg/Kg		127	190			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	158		152.5	mg/Kg		127	190	2	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	49.75	U	42.8	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	49.75	U	43.3	mg/Kg	87	75	125	1	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.996	mg/L	100	90	110			
WG487195ICB	ICB	12/04/19 2:04				.0097	mg/L		-0.024	0.024			
WG486956PBS	PBS	12/04/19 2:28				1.08	mg/Kg		-2.4	2.4			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	114		116.5	mg/Kg		93.9	134			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	114		115.8	mg/Kg		93.9	134	1	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.1	43.6	87.21	mg/Kg	87	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.599	43.6	88.05	mg/Kg	90	75	125	1	20	
WG487254													
WG487254ICV	ICV	12/04/19 4:43	II191122-1	2		2.003	mg/L	100	90	110			
WG487254ICB	ICB	12/04/19 4:47				U	mg/L		-0.024	0.024			
WG486958PBS	PBS	12/04/19 5:11				U	mg/Kg		-2.4	2.4			
WG486958LCSS	LCSS	12/04/19 5:14	PCN59282	114		111.4	mg/Kg		93.9	134			
WG486958LCSSD	LCSSD	12/04/19 5:18	PCN59282	114		108.3	mg/Kg		93.9	134	3	20	
L55822-21MS	MS	12/04/19 5:25	II191106-4	50.1	51	94.29	mg/Kg	86	75	125			
L55822-21MSD	MSD	12/04/19 5:29	II191106-4	50.1	51	95.47	mg/Kg	89	75	125	1	20	
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		1.986	mg/L	99	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.024	0.024			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-2.4	2.4			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	114		115.8	mg/Kg		93.9	134			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	114		111.8	mg/Kg		93.9	134	4	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50	58	105.6	mg/Kg	95	75	125			
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50	58	107.5	mg/Kg	99	75	125	2	20	
WG487350													
WG487350ICV	ICV	12/04/19 23:52	II191122-1	2		1.988	mg/L	99	90	110			
WG487350ICB	ICB	12/04/19 23:56				U	mg/L		-0.024	0.024			
WG486956PBS	PBS	12/05/19 0:19				U	mg/Kg		-2.4	2.4			
WG486956LCSS	LCSS	12/05/19 0:23	PCN59282	114		116.4	mg/Kg		93.9	134			
WG486956LCSSD	LCSSD	12/05/19 0:26	PCN59282	114		116.5	mg/Kg		93.9	134	0	20	
L55822-01MS	MS	12/05/19 0:33	II2XSOIL	50	48	99.5	mg/Kg	103	75	125			
L55822-01MSD	MSD	12/05/19 0:37	II2XSOIL	49.5	48	95.5	mg/Kg	96	75	125	4	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Selenium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.04942	mg/L	99	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				.053	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	195		210.19	mg/Kg		154	237			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	195		200.58	mg/Kg		154	237	5	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	12.5125	.18	12.345	mg/Kg	97	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	12.5125	.18	12.476	mg/Kg	98	75	125	1	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.04813	mg/L	96	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	195		187.23	mg/Kg		154	237			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	195		196.11	mg/Kg		154	237	5	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	12.387375	.11	9.661	mg/Kg	77	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	12.387375	.11	9.658	mg/Kg	77	75	125	0	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.05225	mg/L	105	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	195		207.04	mg/Kg		154	237			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	195		209.68	mg/Kg		154	237	1	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	12.387375	.1	10.265	mg/Kg	82	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	12.387375	.1	9.973	mg/Kg	80	75	125	3	20	

Silver, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.02004		.02011	mg/L	100	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	61.8		65.02	mg/Kg		49.2	74.4			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	61.8		62.73	mg/Kg		49.2	74.4	4	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	5.01	U	4.472	mg/Kg	89	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	5.01	U	4.416	mg/Kg	88	75	125	1	20	
WG487810													
WG487810ICV	ICV	12/10/19 14:40	MS191014-8	.02004		.02146	mg/L	107	90	110			
WG487810ICB	ICB	12/10/19 14:42				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/10/19 14:59				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/10/19 15:01	PCN59282	61.8		63.93	mg/Kg		49.2	74.4			
WG486956LCSSD	LCSSD	12/10/19 15:03	PCN59282	61.8		61.24	mg/Kg		49.2	74.4	4	20	
L55822-02MS	MS	12/10/19 15:08	MS191112-2	4.9599	.1	4.143	mg/Kg	82	75	125			
L55822-02MSD	MSD	12/10/19 15:10	MS191112-2	4.9599	.1	4.246	mg/Kg	84	75	125	2	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Solids, Percent D2216-80

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG486512													
L55822-01DUP	DUP	11/19/19 18:05			99.8	99.84	%				0	20	
WG486512PBS	PBS	11/20/19 16:00				U	%		-0.1	0.1			
WG486513													
L55822-21DUP	DUP	11/19/19 19:54			99.9	99.92	%				0	20	
WG486513PBS	PBS	11/20/19 16:14				U	%		-0.1	0.1			

Thallium, total (3050) M6020B ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487337													
WG487337ICV	ICV	12/04/19 13:33	MS191014-8	.05		.05153	mg/L	103	90	110			
WG487337ICB	ICB	12/04/19 13:35				U	mg/L		-0.0003	0.0003			
WG486958PBS	PBS	12/04/19 13:44				U	mg/Kg		-0.15	0.15			
WG486958LCSS	LCSS	12/04/19 13:46	PCN59282	135		147.23	mg/Kg		109	161			
WG486958LCSSD	LCSSD	12/04/19 13:47	PCN59282	135		146.45	mg/Kg		109	161	1	20	
L55822-22MS	MS	12/04/19 14:17	MS191112-2	25.05	U	24.466	mg/Kg	98	75	125			
L55822-22MSD	MSD	12/04/19 14:22	MS191112-2	25.05	U	24.369	mg/Kg	97	75	125	0	20	
WG487344													
WG487344ICV	ICV	12/04/19 14:12	MS191014-8	.05		.04927	mg/L	99	90	110			
WG487344ICB	ICB	12/04/19 14:13				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/04/19 14:24				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/04/19 14:26	PCN59282	135		136.64	mg/Kg		109	161			
WG486956LCSSD	LCSSD	12/04/19 14:28	PCN59282	135		138.51	mg/Kg		109	161	1	20	
L55822-02MS	MS	12/04/19 14:33	MS191112-2	24.7995	U	19.005	mg/Kg	77	75	125			
L55822-02MSD	MSD	12/04/19 14:35	MS191112-2	24.7995	U	19.262	mg/Kg	78	75	125	1	20	
WG487630													
WG487630ICV	ICV	12/06/19 17:35	MS191014-8	.05		.05224	mg/L	104	90	110			
WG487630ICB	ICB	12/06/19 17:36				U	mg/L		-0.0003	0.0003			
WG486956PBS	PBS	12/06/19 17:47				U	mg/Kg		-0.15	0.15			
WG486956LCSS	LCSS	12/06/19 17:49	PCN59282	135		140.84	mg/Kg		109	161			
WG486956LCSSD	LCSSD	12/06/19 17:51	PCN59282	135		136.5	mg/Kg		109	161	3	20	
L55822-02MS	MS	12/06/19 17:56	MS191112-2	24.7995	U	22.999	mg/Kg	93	75	125			
L55822-02MSD	MSD	12/06/19 17:58	MS191112-2	24.7995	U	22.334	mg/Kg	90	75	125	3	20	

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Vanadium, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		2.046	mg/L	102	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.015	0.015			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-1.5	1.5			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	86.4		92.65	mg/Kg		67.4	105			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	86.4		91.1	mg/Kg		67.4	105	2	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	49.95	149	208.9	mg/Kg	120	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.4505	149	211.56	mg/Kg	127	75	125	1	20	M3
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		2.043	mg/L	102	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.015	0.015			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-1.5	1.5			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	86.4		93.33	mg/Kg		67.4	105			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	86.4		89.72	mg/Kg		67.4	105	4	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50	125	192.9	mg/Kg	136	75	125			M1
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50	125	193.4	mg/Kg	137	75	125	0	20	M1
WG487350													
WG487350ICV	ICV	12/04/19 23:52	II191122-1	2		1.965	mg/L	98	90	110			
WG487350ICB	ICB	12/04/19 23:56				.0051	mg/L		-0.015	0.015			
WG486956PBS	PBS	12/05/19 0:19				U	mg/Kg		-1.5	1.5			
WG486956LCSS	LCSS	12/05/19 0:23	PCN59282	86.4		90.32	mg/Kg		67.4	105			
WG486956LCSSD	LCSSD	12/05/19 0:26	PCN59282	86.4		90.19	mg/Kg		67.4	105	0	20	
L55822-01MS	MS	12/05/19 0:33	II2XSOIL	50	162	227.4	mg/Kg	131	75	125			M3
L55822-01MSD	MSD	12/05/19 0:37	II2XSOIL	49.5	162	221.6	mg/Kg	120	75	125	3	20	
WG487445													
WG487445ICV	ICV	12/05/19 11:06	II191122-1	2		2.031	mg/L	102	90	110			
WG487445ICB	ICB	12/05/19 11:09				U	mg/L		-0.015	0.015			
WG486958PBS	PBS	12/05/19 11:32				U	mg/Kg		-1.5	1.5			
WG486958LCSS	LCSS	12/05/19 11:36	PCN59282	86.4		89.81	mg/Kg		67.4	105			
WG486958LCSSD	LCSSD	12/05/19 11:40	PCN59282	86.4		87.14	mg/Kg		67.4	105	3	20	
L55822-21MS	MS	12/05/19 11:47	II2XSOIL	50	132	200.4	mg/Kg	137	75	125			M1
L55822-21MSD	MSD	12/05/19 11:50	II2XSOIL	50	132	197.5	mg/Kg	131	75	125	1	20	M1
WG487446													
WG487446ICV	ICV	12/05/19 12:25	II191122-1	2		2.043	mg/L	102	90	110			
WG487446ICB	ICB	12/05/19 12:28				U	mg/L		-0.015	0.015			
WG486956PBS	PBS	12/05/19 12:51				U	mg/Kg		-1.5	1.5			
WG486956LCSS	LCSS	12/05/19 12:55	PCN59282	86.4		90.85	mg/Kg		67.4	105			
WG486956LCSSD	LCSSD	12/05/19 12:59	PCN59282	86.4		89.29	mg/Kg		67.4	105	2	20	
L55822-01MS	MS	12/05/19 13:06	II2XSOIL	50	202	331.2	mg/Kg	258	75	125			M3
L55822-01MSD	MSD	12/05/19 13:10	II2XSOIL	49.5	202	307.3	mg/Kg	213	75	125	7	20	M3

Rise Grass Valley Inc.

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NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Zinc, total (3050) M6010D ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG487195													
WG487195ICV	ICV	12/04/19 2:01	II191122-1	2		1.91	mg/L	96	90	110			
WG487195ICB	ICB	12/04/19 2:04				U	mg/L		-0.03	0.03			
WG486956PBS	PBS	12/04/19 2:28				U	mg/Kg		-3	3			
WG486956LCSS	LCSS	12/04/19 2:31	PCN59282	122		122.1	mg/Kg		98.6	145			
WG486956LCSSD	LCSSD	12/04/19 2:35	PCN59282	122		118.1	mg/Kg		98.6	145	3	20	
L55822-01MS	MS	12/04/19 2:42	II191106-4	50.075	60	104.4	mg/Kg	89	75	125			
L55822-01MSD	MSD	12/04/19 2:46	II191106-4	49.57425	60	110	mg/Kg	101	75	125	5	20	
WG487348													
WG487348ICV	ICV	12/04/19 22:07	II191122-1	2		2.03	mg/L	102	90	110			
WG487348ICB	ICB	12/04/19 22:10				U	mg/L		-0.03	0.03			
WG486958PBS	PBS	12/04/19 22:33				U	mg/Kg		-3	3			
WG486958LCSS	LCSS	12/04/19 22:37	PCN59282	122		123.8	mg/Kg		98.6	145			
WG486958LCSSD	LCSSD	12/04/19 22:41	PCN59282	122		121.3	mg/Kg		98.6	145	2	20	
L55822-21MS	MS	12/04/19 22:48	II2XSOIL	50.05	38	89.2	mg/Kg	102	75	125			
L55822-21MSD	MSD	12/04/19 22:52	II2XSOIL	50.05	38	90.4	mg/Kg	105	75	125	1	20	

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-01	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-02	WG487195	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-03	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-04	WG487195	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-05	WG487195	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-06	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-07	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487446	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-08	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487446	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-09	WG487195	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-10	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-11	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-12	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-13	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-14	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487344	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487344	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487344	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487344	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487344	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-15	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-16	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-17	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-18	WG487195	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-19	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487350	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-20	WG487350	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487630	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487630	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487350	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487630	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487195	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487630	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487810	Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486512	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487630	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487446	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487195	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

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ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-21	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

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ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-22	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-23	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-24	WG487254	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Rise Grass Valley Inc. ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-25	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6010D ICP	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-26	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
		Copper, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487348	Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
		Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487445	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487348	Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Rise Grass Valley Inc. ACZ Project ID: ***L55822***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L55822-27	WG487348	Aluminum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Antimony, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
			M6020B ICP-MS	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Arsenic, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Barium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Beryllium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Boron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Cadmium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Chromium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487254	Cobalt, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	ZG	The ICP or ICP-MS Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL.
	WG487348	Copper, total (3050)	M6010D ICP	DB	Sample required dilution due to low bias result.
			M6010D ICP	H3	Sample was received and analyzed past holding time.
		Iron, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG487337	Lead, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487254	Manganese, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
		Molybdenum, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487348	Nickel, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
	WG487337	Selenium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
		Silver, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG486513	Solids, Percent	D2216-80	H3	Sample was received and analyzed past holding time.
	WG487337	Thallium, total (3050)	M6020B ICP-MS	H3	Sample was received and analyzed past holding time.
	WG487348	Vanadium, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.
			M6010D ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Zinc, total (3050)	M6010D ICP	H3	Sample was received and analyzed past holding time.

Rise Grass Valley Inc. ACZ Project ID: ***L55822***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Solids, Percent	D2216-80

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID: L55822
Date Received: 11/11/2019 14:20
Received By:
Date Printed: 11/13/2019

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?		X	

Some parameters were received past hold time.

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA31790	12.2	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID:	L55822
Date Received:	11/11/2019 14:20
Received By:	
Date Printed:	11/13/2019

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L55822

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania
Company: EMKO Environmental
E-mail: akopania@sbcglobal.net
Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: PULP-2
PO#:
Reporting state for compliance testing: CA
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973564	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973565	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973566	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973567	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973568	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973569	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973570	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973571	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973572	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973573	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15pm	[signature] 11/12/19	14:20

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L55822 Chain of Custod

ACZ Laboratories, Inc. L55822

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
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Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973574	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973575	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973576	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973577	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973578	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973579	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973580	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973581	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973582	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973590	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15	[signature] 11/12/19	14:20

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc. L55822

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973591	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973592	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973593	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973594	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973595	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973596	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973597	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15 PM	[signature] 11/12/19	14:20

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc. L55822

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: Ben Mossman
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E-mail: ceo@risegoldcorp.com
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If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: PULP-2
PO#:
Reporting state for compliance testing: CA
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973564	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973565	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973566	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973567	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973568	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973569	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973570	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973571	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973572	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973573	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

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RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15pm	[signature] 11/12/19	14:20

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L55822 Chain of Custod

ACZ Laboratories, Inc. L55822

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

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E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☒ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes ☐ No ☒

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2

PO#:

Reporting state for compliance testing: CA

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ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973574	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973575	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973576	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973577	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973578	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973579	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973580	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973581	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973582	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐
Y973590	3/5/19:12:00 pm	T	1	☒	☐	☐	☐	☐	☐	☐	☐

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

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RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15	[signature] 11/12/19	14:20

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ACZ Laboratories, Inc. L55822

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

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***Sampler's Signature:** _____

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PROJECT INFORMATION

Quote #: PULP-2
PO#:
Reporting state for compliance testing: CA
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS							
Y973591	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973592	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973593	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973594	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973595	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973596	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Y973597	3/5/19:12:00 pm	T	1	[X]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	11/6/19 2:15 PM	[signature] 11/12/19	14:20

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

February 18, 2020

Report to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

cc: Andy Kopania

Bill to:
Ben Mossman
Rise Grass Valley Inc.
Suite 215 - 333 Crown Point Circle
Grass Valley, CA 95945

Project ID:
ACZ Project ID: L57125

Ben Mossman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on January 29, 2020. This project has been assigned to ACZ's project number, L57125. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L57125. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after March 19, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-1

ACZ Sample ID: ***L57125-01***
Date Sampled: *10/29/19 10:45*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		35.3			t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		241			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		206			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		6.82			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	24.1		*	%	0.1	0.5	02/10/20 18:03	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	9.4		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1	0.94		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.02	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1	0.13		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	1.13		*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:12	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:18	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-2

ACZ Sample ID: ***L57125-02***
Date Sampled: *10/29/19 11:05*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		12.5			t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		150			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		138			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		12			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	15.0		*	%	0.1	0.5	02/10/20 22:12	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	9.4		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1	0.11		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.27		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1	0.03	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.40		*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:17	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:20	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: MA-3

ACZ Sample ID: ***L57125-03***
Date Sampled: *10/29/19 11:45*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.25	B		t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		134			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		133			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		107			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	13.4		*	%	0.1	0.5	02/11/20 2:20	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	9.3		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1	0.01	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:23	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:22	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: MAA-1

ACZ Sample ID: ***L57125-04***
Date Sampled: *10/29/19 11:20*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		60.9			t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		83.0			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		22.1			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		1.36			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	8.3		*	%	0.1	0.5	02/11/20 5:12	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	9.7		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	1.78		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1	0.16		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	1.95		*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:28	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:24	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: MS-1

ACZ Sample ID: ***L57125-05***
Date Sampled: *10/29/19 11:00*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		6.25			t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		200			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		194			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		32			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	20.0		*	%	0.1	0.5	02/11/20 6:29	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	9.8		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1	0.11		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.06	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1	0.05	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.20		*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:33	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:26	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: S-1

ACZ Sample ID: ***L57125-06***
Date Sampled: *10/29/19 11:25*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		4.38			t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		36.0			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		31.6			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		8.23			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	3.6		*	%	0.1	0.5	02/11/20 7:52	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	10.1		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.13		*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1	0.02	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.14		*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:39	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:28	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: F-1 (ABC)

ACZ Sample ID: ***L57125-07***
Date Sampled: *11/04/19 12:00*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.25	B		t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		199			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		198			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		159			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	19.9		*	%	0.1	0.5	02/11/20 10:38	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	8.6		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:44	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:30	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: F-2 (ABC)

ACZ Sample ID: ***L57125-08***
Date Sampled: *11/04/19 12:00*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.56	B		t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		194			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		192			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		124			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	19.4		*	%	0.1	0.5	02/11/20 14:46	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	8.3		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.04	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1	0.01	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.05	B	*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:49	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:32	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: F-3 (AB)

ACZ Sample ID: ***L57125-09***
Date Sampled: *11/04/19 12:00*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.88	B		t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		204			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		202			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		109			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	20.4		*	%	0.1	0.5	02/11/20 18:55	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	8.9		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.06	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.06	B	*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 15:54	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:35	mlp

Rise Grass Valley Inc.
Project ID:
Sample ID: F-4 (AB)

ACZ Sample ID: ***L57125-10***
Date Sampled: *11/04/19 12:00*
Date Received: *01/29/20*
Sample Matrix: *Soil*

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acid Generation Potential (calc on Sulfur total)	M600/2-78-054 3.2.4		1.88	B		t CaCO3/Kt	0.31	3.1	02/18/20 0:00	calc
Acid Neutralization Potential (calc)	M600/2-78-054 1.3		189			t CaCO3/Kt	1	5	02/18/20 0:00	calc
Acid-Base Potential (calc on Sulfur total)	M600/2-78-054 1.3		187			t CaCO3/Kt			02/18/20 0:00	calc
ANP to AGP Ratio (calc)	M600/2-78-054 NV Modified Sobek Procedure		101			t CaCO3/Kt			02/18/20 0:00	calc
Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	1	18.9		*	%	0.1	0.5	02/11/20 23:03	nnk
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2									
Max Particle Size		1	250		*	um			02/12/20 0:00	mlp
pH		1	8.7		*	units	0.1	0.1	02/12/20 0:00	mlp
Sulfur Forms	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc									
Sulfur HCl Extractable		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur HNO3 Extractable		1	0.05	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Hot H2O Extractable		1	0.01	B	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Residual		1		U	*	%	0.01	0.1	02/12/20 0:00	llr
Sulfur Total		1	0.06	B	*	%	0.01	0.1	02/12/20 0:00	llr

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Crush and Pulverize (Ring & Puck)	EPA-600/2-78-054 3.1.3								02/10/20 16:00	jms
Saturated Paste Extraction	USDA No. 60 (2)								02/11/20 14:37	mlp

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L57125***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L57125-01	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-02	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-03	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rise Grass Valley Inc. ACZ Project ID: ***L57125***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L57125-04	WG491538	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-05	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-06	WG491538	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rise Grass Valley Inc.

ACZ Project ID: ***L57125***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L57125-07	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-08	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
L57125-09	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Inorganic Extended Qualifier Report

Rise Grass Valley Inc.

ACZ Project ID: ***L57125***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L57125-10	WG491537	Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
	WG491527	Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Proc	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).

Rise Grass Valley Inc. ACZ Project ID: ***L57125***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Neutralization Potential as CaCO3	M600/2-78-054 NV Modified Sobek Procedure
pH, Saturated Paste	EPA 600/2-78-054 section 3.2.2
Sulfur HCl Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Procedure
Sulfur HNO3 Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Procedure
Sulfur Hot H2O Extractable	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Procedure
Sulfur Residual	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Procedure
Sulfur Total	M600/2-78-054 3.2.4 & 3.2.6 NV Modified Sobek Procedure

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID: L57125
Date Received: 01/29/2020 11:12
Received By:
Date Printed: 1/30/2020

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
UNKNOWN		NA		

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Rise Grass Valley Inc.

ACZ Project ID:	L57125
Date Received:	01/29/2020 11:12
Received By:	
Date Printed:	1/30/2020

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

L57125 Re log

ACZ Laboratories, Inc. ~~L5580k~~ JH 1/29/20

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania
Company: EMKO Environmental
E-mail: akopania@sbcglobal.net
Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman
Company: Rise Gold Corp.
E-mail: ceo@risegoldcorp.com
Address: 333 Crown Point Circle Suite 215
Grass Valley Ca. 95945
Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: AH **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: CORE-Tailings-2
PO#:
Reporting state for compliance testing: CA
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	DI-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
MA-1	10/29/19:10:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-2	10/29/19:11:05 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MA-3	10/29/19:11:45 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MAA-1	10/29/19:11:20 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
MS-1	10/29/19:11:00 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
S-1	10/29/19:11:25 am	R	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

R = rock matrix

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[illegible]	11/6/19 2:15pm	[illegible]	11/11/19 1420

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L57125 Chain of Custod

(1)

ACZ Laboratories, Inc. L57125 Redos

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

Copy of Report to:

Name: Andy Kopania	E-mail: akopania@sbcglobal.net
Company: EMKO Environmental	Telephone: 916-718-5519

Invoice to:

Name: Ben Mossman	Address: 333 Crown Point Circle Suite 215
Company: Rise Gold Corp.	Grass Valley Ca. 95945
E-mail: ceo@risegoldcorp.com	Telephone: 604-219-9072

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: BM **Sampler's Site Information** **State** CA **Zip code** 95945 **Time Zone** PST

***Sampler's Signature:** _____

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: Core-Tailings-2

PO#:

Reporting state for compliance testing: CA

Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals by ICP & ICP/MS	Di-WET leach	Leachate-Metals by ICP & ICP/MS	PH	Percent Solids	Wet Chemistry		
F-1 (ABC)	11/4/19:12:00 pm	T	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
F-2 (ABC)	11/4/19:12:00 pm	T	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
F-3 (AB)	11/4/19:12:00 pm	T	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
F-4 (AB)	11/4/19:12:00 pm	T	1	[X]	[X]	[X]	[X]	[X]	[X]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
				[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

T = tailings (assay pulp)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

RE19043337 - Finalized
CLIENT : "SIRROE - Rise Gold Corp"
# of SAMPLES : 47
DATE RECEIVED : 2019-02-20 DATE FINALIZED : 2019-03-05
PROJECT : "Idaho Maryland"
CERTIFICATE COMMENTS : "ME-MS41:Gold determinations by this method are semi-quantitative c
PO NUMBER : "NA"

	SAMPLE DESCRIPTI	Hole ID	From (ft)	To (ft)	Length (ft)	Decription	Lithology
1	Y973586	I-18-11	4107.8	4117.55	9.75	Geochem s	Diabase Dike
2	Y973559	I-19-13	967	977	10	2%+ pyrite	Meta Sediments
3	Y973560	I-19-13	1067	1077	10	2%+ pyrite	Meta Sediments
4	Y973561	I-19-13	1157	1167	10	2%+ pyrite	Meta Sediments
5	Y973562	I-19-13	1267	1277	10	2%+ pyrite	Meta Sediments
6	Y973563	I-19-13	1367	1377	10	2%+ pyrite	Meta Sediments
7	Y973583	I-18-02	948	958	10	Geochem s	Meta-Andesite Volcanics
8	Y973584	I-18-10	2926	2936	10	Geochem s	Meta-Andesite Volcanics
9	Y973585	I-18-10	3104.35	3114.35	10	Geochem s	Meta-Andesite Volcanics
10	Y973587	I-18-10	3332	3342	10	Geochem s	Meta-Andesite Volcanics
11	Y973589	I-18-12	3665.65	3675.65	10	Geochem s	Meta-Andesite Volcanics
12	Y973588	I-18-12	3819.9	3829.9	10	Geochem s	Meta-Andesite Volcanics
13	Y973551	I-19-13	167	177	10	Unminerali	Meta-Andesite Volcanics
14	Y973552	I-19-13	267	277	10	Unminerali	Meta-Andesite Volcanics
15	Y973553	I-19-13	367	377	10	Unminerali	Meta-Andesite Volcanics
16	Y973554	I-19-13	467	477	10	Unminerali	Meta-Andesite Volcanics
17	Y973555	I-19-13	567	577	10	Unminerali	Meta-Andesite Volcanics
18	Y973556	I-19-13	667	677	10	Unminerali	Meta-Andesite Volcanics
19	Y973557	I-19-13	767	777	10	Unminerali	Meta-Andesite Volcanics
20	Y973558	I-19-13	867	877	10	Unminerali	Meta-Andesite Volcanics
21	Y973564	I-19-13	1467	1477	10	Unminerali	Meta-Andesite Volcanics
22	Y973565	I-19-13	1577	1587	10	Unminerali	Meta-Andesite Volcanics
23	Y973566	I-19-13	1677	1687	10	Unminerali	Meta-Andesite Volcanics
24	Y973567	I-19-13	1777	1787	10	Unminerali	Meta-Andesite Volcanics
25	Y973568	I-19-13	1890	1900	10	Unminerali	Meta-Andesite Volcanics
26	Y973569	I-19-13	1977	1987	10	Unminerali	Meta-Andesite Volcanics
27	Y973570	I-19-13	2077	2087	10	Unminerali	Meta-Andesite Volcanics
28	Y973571	I-19-13	2187	2197	10	Unminerali	Meta-Andesite Volcanics
29	Y973572	I-19-13	2277	2287	10	Unminerali	Meta-Andesite Volcanics
30	Y973573	I-19-13	2387	2397	10	Unminerali	Meta-Andesite Volcanics
31	Y973574	I-19-13	2477	2487	10	Unminerali	Meta-Andesite Volcanics
32	Y973575	I-19-13	2587	2597	10	Unminerali	Meta-Andesite Volcanics
33	Y973576	I-19-13	2677	2687	10	Unminerali	Meta-Andesite Volcanics
34	Y973577	I-19-13	2757	2767	10	Unminerali	Meta-Andesite Volcanics
35	Y973578	I-19-13	2837	2847	10	Unminerali	Meta-Andesite Volcanics
36	Y973579	I-19-13	2917	2927	10	Unminerali	Meta-Andesite Volcanics
37	Y973580	I-19-13	3017	3027	10	Unminerali	Meta-Andesite Volcanics

38	Y973581	I-19-13	3117	3127	10	Unminerali	Meta-Andesite Volcanics
39	Y973582	I-19-13	3217	3227	10	Unminerali	Meta-Andesite Volcanics
40	Y973590	I-19-13	3583	3593	10	Unminerali	Meta-Andesite Volcanics
41	Y973591	I-19-13	3687	3697	10	Unminerali	Meta-Andesite Volcanics
42	Y973592	I-19-13	3781.2	3791.2	10	Unminerali	Meta-Andesite Volcanics
43	Y973593	I-19-13	3878.3	3888.3	10	Unminerali	Meta-Andesite Volcanics
44	Y973594	I-19-13	3959.7	3969.7	10	Unminerali	Meta-Andesite Volcanics
45	Y973595	I-19-13	4313	4323	10	Unminerali	Meta-Andesite Volcanics
46	Y973596	I-19-13	4767.9	4772.7	4.8	Meta-volca	Serpentinite
47	Y973597	I-19-13	4772.7	4774.6	1.9	Serpentinit	Serpentinite

Alland Laboratories, Inc.

1016 Greg Street, Sparks, Nevada 89431
(775) 356-1300 * FAX (775) 356-8917
E-Mail: MLI@METTEST.COM

OUTGOING CHAIN OF CUSTODY RECORD

Name:	Benchmark Resources	Project Name:	
on:	Andrew Heinemann	Phone No.:	
ss:	2515 East Bidwell Street	Fax No.:	
ate/Zip:	Folsom, CA 95630	P.O. #:	
	(916)983-9193		

ent Method:

d Ex: X UPS:_____ Hand Deliver:_____ Other: DHL

FOR MLI USE ONLY:
MLI Lab #: 4466

LE INFORMATION:

	Time	Designation	Type Rock, Etc.	Weight (kg)	Reason for Shipment
9	12:00 PM	See attached for detailed sample list			Per Client's Instructions

L INSTRUCTIONS:

Jared Olson jaredolson@mettest.com
775-356-1300 Ext 125

	Signature	Print Name	Date/Time		Company
ed By:	L. Hartley	L. Hartley	11/04/19	12:00 PM	MLI
By:					
ed By:					
By:					

McCLELLAND LABORATORIES, INC.

1016 Greg Street Sparks, NV 89431 Tel: 775 356-1300 Fax: 775 356-8917

ASSAY JOB SUBMITTAL

Client Name:	Client MLI (McClelland Labs, Inc.)	**Date:**	04-Nov-19
Contact:	Jared Olson	**MLI Project #:**	4466
Batch Name:	4466 Benchmark	**Location:**	
Project Name:		**Project Manager:**	
Packages:			

B19-1863 **4466 Benchmark**

SAMPLE INFORMATION

Sample #	Identification	Type	Est. Feed Size	Weight, g
1	4466 F1 Ro. Tail A	Analysis Split - Residue	150M	115.850
2	4466 F1 Ro. Tail B	Analysis Split - Residue	150M	129.470
3	4466 F1 Ro. Tail C	Analysis Split - Residue	150M	167.640
4	4466 F2 Ro. Tail A	Analysis Split - Residue	150M	142.140
5	4466 F2 Ro. Tail B	Analysis Split - Residue	150M	153.470
6	4466 F2 Ro. Tail C	Analysis Split - Residue	150M	180.810
7	4466 F3 Ro. Tail TA-A	Analysis Split - Residue	48M	224.180
8	4466 F3 Ro. Tail TA-B	Analysis Split - Residue	48M	224.110
9	4466 F3 Ro. Tail TA-C (not sent)	Analysis Split - Residue	48M	195.890
10	4466 F4 Ro. Tail TA-A	Analysis Split - Residue	48M	209.710
11	4466 F4 Ro. Tail TA-B	Analysis Split - Residue	48M	221.060
12	4466 F4 Ro. Tail TA-C (not sent)	Analysis Split - Residue	48M	208.300

SPECIAL INSTRUCTIONS

Signature	Print Name	Date / Time
Relinquished by:		
Received by:		
Date Received:		

Appendix E – Drill Core Photos: Rise Drillhole B-17-01

Drillhole B-17-01: Collared South of Brunswick Shaft. Dip -58 degrees. 1 ft downhole = ~0.84 ft bgs.

Plate 1 – B-17-01: 18.0 ft to 66.5 ft



Plate 2 – B-17-01: 66.5 ft to 105.0 ft



Plate 3 – B-17-01: 105.0 ft to 125.5 ft



Plate 4 – B-17-01: 125.5ft to 143.0 ft



Plate 5 – B-17-01: 143.0 ft to 160.8 ft



Appendix F – Drill Core Photos: Rise Drillhole B-18-04

Drillhole B-18-04: Collared South of Brunswick Shaft. Dip -51 degrees. 1 ft downhole = ~0.78 ft bgs.

Plate 6 – B-18-04: 50.0 ft to 83.0 ft



Plate 7 – B-18-04: 83.0 ft to 112.0 ft



Plate 8 – B-13-04: 112.0 ft to 139.0 ft



Plate 9 – B-18-04: 139.0 ft to 168.0 ft



Plate 10 – B-18-04: 168.0 ft to 199.6 ft



Appendix G – Drill Core Photos: Rise Drillhole Z-18-09 (labelled Z-18-02)

Drillhole Z-18-09: Collared West of Union Hill Shaft. Dip -65 degrees. 1 ft downhole = ~0.91 ft bgs.

Plate 11 – Z-18-09: 0 ft to 51.7 ft

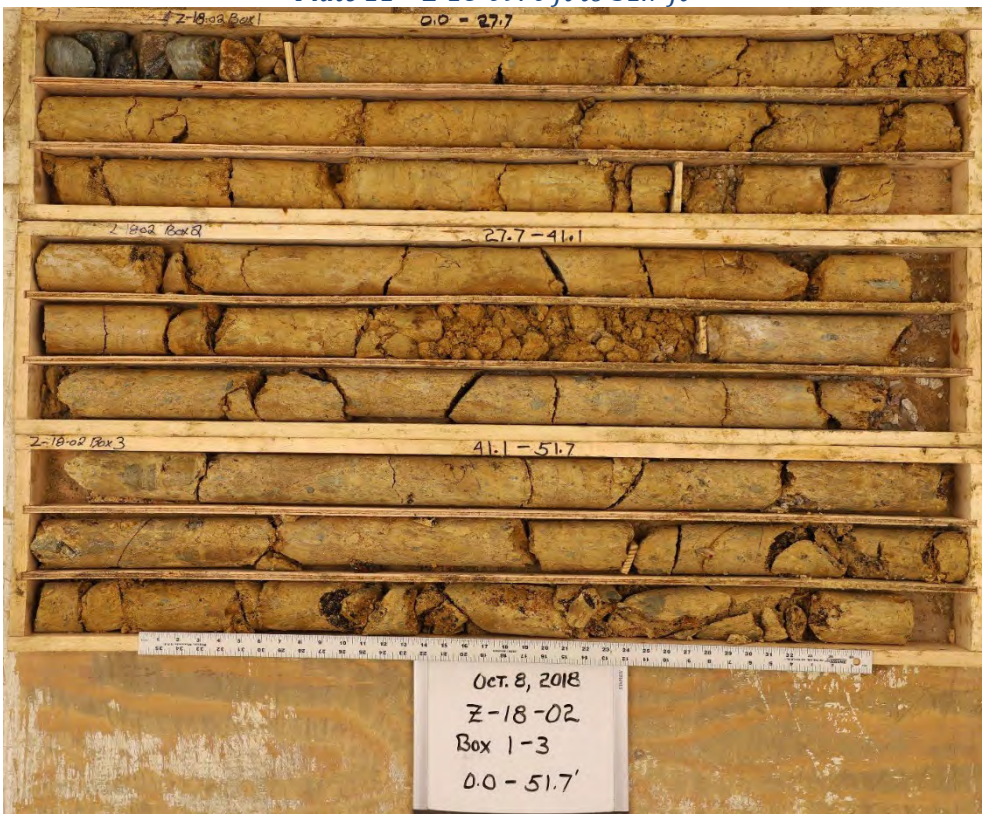


Plate 12 – Z-18-09: 51.7 ft to 81.9 ft



Plate 13 – Z-18-09: 81.9 ft to 117.8 ft



Plate 14 – Z-18-09: 117.8 ft to 150.6 ft



Appendix H – McClelland Metallurgical Testing Report

McClelland Laboratories, Inc.

1016 Greg Street, Sparks, Nevada 89431
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E-Mail: MLI@METTEST.COM

January 29, 2020

Mr. Ben Mossman
Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

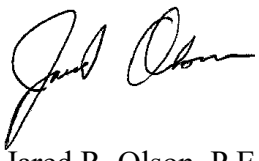
Dear Ben:

Enclosed is our report concerning results from gravity/flotation concentration testing of samples from the Maryland Mine.

Our invoice for the completed work will be sent under separate cover.

Thank you for allowing us the opportunity to serve you on the Maryland Mine project.

Sincerely,



Jared R. Olson, P.E.
Metallurgist / V.P. Operations

JRO:lj/mb
Enclosure

McClelland Laboratories, Inc.

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Report
on
Gravity/Flotation Concentration Testing -
Maryland Mine Flotation Composite
MLI Job No. 4466
January 29, 2020

for

Mr. Ben Mossman
Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

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McClelland Laboratories, Inc.

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Report
on
Gravity/Flotation Concentration Testing -
Maryland Mine Flotation Composite
MLI Job No. 4466
January 29, 2020

for

Mr. Ben Mossman
Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

SUMMARY

A sample from the Maryland mine, designated as the "flotation composite" was subjected to gravity concentration with bulk sulfide flotation of the gravity concentration tails, at feed sizes ranging from 80%-300µm to 80%-75µm. The average gold and silver grades of the flotation composite were 3.96 gAu/mt and 1.3 gAg/mt. In addition to generating metallurgical processing data, this testing was done to generate tailings for environmental characterization. Results from the environmental characterization will be discussed in a separate report.

Summary results from the gravity and flotation concentration tests are presented in Table 1.

Table 1. - Summary Gravity/Flotation Concentration Testing Results, Maryland Mine Flotation Composite

Feed Size, P_{80}, µm		Weight, %		gAu/mt				Au Distribution, % of total			
Grav.	Flot.	Gravity Cl. Conc.	Flotation Ro. Conc.	Gravity Cl. Conc.	Flotation Ro. Conc.	Flotation Ro. Tails	Calc'd. Head	Gravity Cl. Conc.	Flotation Ro. Conc.	Combined Conc.	Flotation Ro. Tails
180	75	0.28	6.19	576	46	0.10	4.55	35.4	62.5	97.9	2.1
180	180*	0.28	5.20	576	52	0.13	4.44	36.3	60.9	97.2	2.8
212	212*	0.14	7.52	1,480	35	0.21	4.91	42.2	53.8	96.0	4.0
300	300*	0.16	6.84	823	38	0.23	4.13	31.9	62.9	94.8	5.2

* Flotation testing feeds "polish" ground for 1 to 2 minutes to remove oxidation from sulfide mineral surfaces.

Summary results show that the flotation composite responded well to gravity concentration with tailings flotation. Gold recovery to the combined (gravity and flotation) concentrate ranged from 94.8% to 97.9%. Weight pulls to the rougher flotation concentrate were reasonable and ranged from 5.2% to 7.5% of the feed weight. The combined (gravity plus flotation) concentrate was equivalent to 5.5% to 7.7% of the feed weight, and would assay 56 to 79 gAu/mt. It is expected that the concentrate grade could be somewhat improved, and the weight pull could be somewhat reduced, by optimization of the flotation testing conditions.

Results show that the flotation gold recovery, and the combined recovery, increased slightly with decreasing flotation feed size. The highest combined recovery (97.9%) was achieved with the finest flotation feed (80%-75µm). Gold recovery by gravity concentration was similar at the different grind sizes tested (80%-300µm to 80%-180µm). It should be noted that due to polish grinding, some of the flotation feeds were likely somewhat finer than indicated in Table 1. The indicated P_{80} sizes of the flotation tailings ranged from 83µm to 227µm.

SAMPLE PREPARATION PROCEDURES AND HEAD ANALYSIS

A total of seven buckets containing 6 separate samples were received from the Maryland mine on July 10th, 2019. The samples weighed 4 to 47 kg, and appeared to be approximately -6mm in size. The largest sample ("flotation composite") was intended for analysis and metallurgical testing, as well as environmental characterization of the testing products. The five remaining samples were indicated to be waste rock samples of various types, for environmental characterization.

The flotation composite material was thoroughly blended by repeated coning and quartered to obtain two 12 kg splits for finer crushing. One of the 12 kg splits was stage-crushed to 100%-6 mesh (3.4mm) and then used for a Bond ball mill work index determination. The second 12 kg split was crushed to 100%-1.7mm. The -1.7mm material was further split using a rotary type splitter to obtain triplicate 0.5 kg splits for head analysis and 10 kg for a gravity concentration test. Later in the testing program, all of the remaining flotation composite material was crushed to -1.7mm, and then split to obtain two approximately 12 kg splits for additional gravity concentration tests.

Preparation and analysis of the waste rock samples will be discussed in a separate report.

The triplicate head assay samples from the flotation composite were analyzed for gold and silver content by conventional fire assay fusion and geochemical procedures. A single sulfide sulfur analysis was also conducted on one of the splits from the flotation composite using a sodium carbonate digestion and LECO analysis. Gold and silver head assay results and head grade comparisons for the flotation composite are presented in Table 2. Sulfide sulfur analysis results are shown in Table 3.

The grindability of the flotation composite was determined in terms of a Bond ball mill work index (BWi) using equipment and procedures in accordance with the Bond method. The test was conducted with a 150µm closing screen. Detailed Bond ball mill work index determination results are provided in Section 1 of the Appendix. The index was determined to be 18.8 kW-hr/mt, and the sample was classified as "hard."

Table 2. - Gold and Silver Head Assay Results and Head Grade Comparisons, Maryland Mine Flotation Composite

	Head Grade, g/mt ore	
Determination Method	Au	Ag
Direct Assay, Init.	3.33	1.4
Direct Assay, Dup.	3.37	1.3
Direct Assay, Trip.	3.57	1.3
Calc'd. Gravity Conc. Test		
80%-180µm	4.56	1.3
80%-212µm	4.03	1.4
80%-300µm	4.92	1.3
Average	3.96	1.3
Std. Deviation	0.66	0.1
Relative Std. Deviation, %	16.7	7.7

The average gold head grade of the flotation composite was 3.96 gAu/mt ore. Gold head grade relative standard deviation (16.7%) was slightly elevated. This relatively high degree of head grade variability is likely due to the presence of relatively coarse particulate gold, which was observed during gravity concentration testing. It was noted that the direct assay results were somewhat lower than the head grades calculated from the gravity concentration tests. Considering that this material contains some coarse gold, and the much larger size of the gravity concentration test ore charges relative to the fire assay pulps, it is expected that the calculated gravity concentration test head grades are more representative of the sample grade, than the direct fire assay results. The average gravity concentration test calculated head grade was 4.50 gAu/mt ore.

The average silver head grade of the flotation composite was 1.3 gAg/mt ore. Silver head grade agreement was good. Because of the low silver grade of the composite, silver recoveries will not be discussed in detail in this report.

Table 3. - Sulfide Sulfur Head Assay Result, Maryland Mine Flotation Composite

Composite	% Sulfide Sulfur
Flotation Composite	1.6

GRAVITY/FLOTATION CONCENTRATION TESTING PROCEDURES AND RESULTS

A series of tests consisting of gravity concentration followed by bulk sulfide flotation concentration of the gravity tailings was conducted on the Maryland mine flotation composite. These tests were conducted at varied gravity and flotation feed sizes. Tests were conducted to determine response of the composite to gravity and flotation concentration treatment, gold and silver recoveries, gold and silver concentrate grades, and sensitivity to grind size. Tests were also conducted to generate samples of flotation tailings for environmental characterization.

A total of three gravity concentration tests were conducted. Procedures were the same for each test except that the initial grind size was varied from 80%-180µm to 300µm. For each test, a 10 to 12 kg split was batch ground in a laboratory steel ball mill to the target size. The ground feed was processed once through a Knelson concentrator to produce a rougher concentrate and rougher tailings. The Knelson concentrator used was a laboratory (3" bowl) fixed bed, centrifugally enhanced concentrator (MD3). The rougher concentrate was cleaned once by hand panning to produce a cleaner concentrate and cleaner tailings (middlings).

The cleaner concentrate and middlings were examined using a microscope to determine the presence of any visible gold particles. Each product was dried and weighed. The cleaner concentrate and cleaner tailings were assayed to determine gold and silver content, with the cleaner concentrate being used entirely for the assay. The rougher tails were blended, split, and assayed in triplicate to determine residual gold and silver content. Representative splits were also taken from middlings and rougher tails, which were combined on a properly weighted basis to generate 1 kg splits of gravity tailings for flotation testing.

In one case, the 1 kg split of gravity concentration tailings was re-ground to a target size of 80%-75µm using a laboratory steel ball mill. For the three remaining tests, the gravity tailings splits were subjected to a short (1 to 2 minute) “polish grind.” This was done to generate fresh sulfide mineral surfaces before flotation.

Flotation was conducted using a Denver laboratory scale flotation unit at 1,200 rpm. The gravity tailings samples were slurried with water to achieve 33 weight percent solids, and conditioned for three minutes with 0.25 kg/mt $CuSO_4 \bullet 5H_2O$ (copper sulfate). Flotation was conducted in 5 stages with incremental additions, at each stage, of 0.005 kg/mt ore of PAX (potassium amyl xanthate) and 0.010 kg/mt ore of AERO 208 promoter (alkyl dithiophosphate). Total addition of reagents was 0.025 kg/mt ore PAX and 0.050 kg/mt ore AERO 208. AEROFROTH 65 (polygycol) was used as a frother. The pulp was floated at natural pH. The 5 stages of concentrate from each test were combined into a single flotation rougher concentrate.

Flotation rougher concentrates and rougher tails were dried and weighed. The rougher tails were screened to determine particle size distribution. Screened size fractions were weighed and then recombined. The rougher concentrates and rougher tails were each assayed to determine residual gold, silver, and sulfide sulfur content. The rougher tailings from two select tests were also subjected to environmental characterization (discussed in a separate report).

Gravity concentration testing results are presented in Tables 4 through 6. Flotation concentration testing results are given in Tables 7 through 10. Combined results from gravity and flotation concentration testing are shown in Tables 11 through 14. Particle size distributions for the flotation tailings are given in Tables 15 through 18 and shown graphically in Figure 1. Photographs of gravity concentration testing products are provided in Section 2 of the Appendix. Detailed flotation testing data are provided in Section 3 of the Appendix.

Table 4. - Gravity Concentration Test Results (Test G-1), Maryland Mine Flotation Composite, 80%-180µm Feed Size

					Distribution			
	Weight,	Cum. Wt.,	Assay, g/mt		Au		Ag	
Product	%	%	Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.28	0.28	576	99	35.4	35.4	21.7	21.7
Cl. Tail	0.71	0.99	74.4	15	11.6	47.0	8.4	30.1
Ro. Tail	99.01	100.00	2.44	0.9	53.0	100.0	69.9	100.0
Composite	100.00		4.56	1.3	100.0		100.0	

Table 5. - Gravity Concentration Test Results (Test G-3), Maryland Mine Flotation Composite, 80%-212µm Feed Size

					Distribution			
	Weight,	Cum. Wt.,	Assay, g/mt		Au		Ag	
Product	%	%	Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.14	0.14	1,480	295	42.1	42.1	29.8	29.8
Cl. Tail	0.53	0.67	52.6	15	5.7	47.8	5.7	35.5
Ro. Tail	99.33	100.00	2.59	0.9	52.2	100.0	64.5	100.0
Composite	100.00		4.92	1.4	100.0		100.0	

Table 6. - Gravity Concentration Test Results (Test G-2), Maryland Mine Flotation Composite, 80%-300µm Feed Size

					Distribution			
	Weight,	Cum. Wt.,	Assay, g/mt		Au		Ag	
Product	%	%	Au	Ag	%	Cum. %	%	Cum. %
Cl. Conc.	0.16	0.16	823	153	32.7	32.7	18.8	18.8
Cl. Tail	0.55	0.71	34.8	11	4.7	37.4	4.7	23.5
Ro. Tail	99.29	100.00	2.54	1.0	62.6	100.0	76.5	100.0
Composite	100.00		4.03	1.3	100.0		100.0	

Table 7. - Flotation Concentration Test Results (Test F-1), Maryland Mine
Gravity Test G-1 Recombined Tails, 80%-75µm Re-grind Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Ro. Conc.	6.2	6.2	46	3	23.4	96.8	96.8	28.4	28.4	96.3	96.3
Ro. Tail	93.8	100.0	0.10	0.5	0.06	3.2	100.0	71.6	100.0	3.7	100.0
Composite	100.0		2.95	1	1.51	100.0		100.0		100.0	

Table 8. - Flotation Concentration Test Results (Test F-2), Maryland Mine
Gravity Test G-1 Recombined Tails, 80%-180µm (Polish Grind) Feed Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Ro. Conc.	5.2	5.2	52	3	27.4	95.6	95.6	24.8	24.8	96.2	96.2
Ro. Tail	94.8	100.0	0.13	0.5	0.06	4.4	100.0	75.2	100.0	3.8	100.0
Composite	100.0		2.83	1	1.48	100.0		100.0		100.0	

Table 9. - Flotation Concentration Test Results (Test F-4), Maryland Mine
Gravity Test G-3 Recombined Tails, 80%-212µm (Polish Grind) Feed Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Ro. Conc.	7.5	7.5	35.1	9	19	93.1	93.1	64.6	64.6	93.9	93.9
Ro. Tail	92.5	100.0	0.21	0.4	0.10	6.9	100.0	35.4	100.0	6.1	100.0
Composite	100.0		2.83	1	1.52	100.0		100.0		100.0	

Table 10. - Flotation Concentration Test Results (Test F-3), Maryland Mine
Gravity Test G-2 Recombined Tails, 80%-300µm Re-grind Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Ro. Conc.	6.9	6.9	38	6	21.3	92.4	92.4	69.0	69.0	92.9	92.9
Ro. Tail	93.1	100.0	0.23	0.2	0.12	7.6	100.0	31.0	100.0	7.1	100.0
Composite	100.0		2.84	1	1.58	100.0		100.0		100.0	

Table 11. - Combined Gravity (G-1) and Flotation Concentration (F-1) Test Results, Maryland Mine Flotation Composite, 80%-180µm Primary Grind Size, 80%-75µm Flotation Re-Grind Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Grav. Cl. Conc.	0.28	0.28	576	99	N/A	35.4	35.4	29.7	29.7	N/A	N/A
Flot. Ro. Conc.	6.19	6.47	46	3	23.4	62.5	97.9	20.0	49.7	96.3	96.3
Flot. Ro. Tail	93.53	100.00	0.10	0.5	0.06	2.1	100.0	50.3	100.0	3.7	100.0
Composite	100.00		4.55	1	1.50	100.0		100.0		100.0	

Table 12. - Combined Gravity (G-1) and Flotation Concentration (F-2) Test Results, Maryland Mine Flotation Composite, 80%-180µm Feed Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Grav. Cl. Conc.	0.28	0.28	576	99	N/A	36.3	36.3	30.6	30.6	N/A	N/A
Flot. Ro. Conc.	5.20	5.48	52	3	27.4	60.9	97.2	17.2	47.8	96.2	96.2
Flot. Ro. Tail	94.52	100.00	0.13	0.5	0.06	2.8	100.0	52.2	100.0	3.8	100.0
Composite	100.00		4.44	1	1.48	100.0		100.0		100.0	

Table 13. - Combined Gravity (G-3) and Flotation Concentration (F-4) Test Results, Maryland Mine Flotation Composite, 80%-212µm Feed Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Grav. Cl. Conc.	0.14	0.14	1,480	295	N/A	42.2	42.2	28.3	28.3	N/A	N/A
Flot. Ro. Conc.	7.52	7.66	35.1	9	19	53.8	96.0	46.4	74.7	93.9	93.9
Flot. Ro. Tail	92.34	100.00	0.21	0.4	0.10	4.0	100.0	25.3	100.0	6.1	100.0
Composite	100.00		4.91	1	1.52	100.0		100.0		100.0	

Table 14. - Combined Gravity (G-2) and Flotation Concentration (F-3) Test Results, Maryland Mine Flotation Composite, 80%-300µm Feed Size

						Distribution					
	Weight,	Cum. Wt.,	Assay			Au		Ag		% $S^{=}$	
Product	%	%	gAu/mt	gAg/mt	% $S^{=}$	%	Cum. %	%	Cum. %	%	Cum. %
Grav. Cl. Conc.	0.16	0.16	823	153	N/A	31.9	31.9	29.1	29.1	N/A	N/A
Flot. Ro. Conc.	6.84	7.00	38	6	21.3	62.9	94.8	48.8	77.9	92.9	92.9
Flot. Ro. Tail	93.00	100.00	0.23	0.2	0.12	5.2	100.0	22.1	100.0	7.1	100.0
Composite	100.00		4.13	1	1.57	100.0		100.0		100.0	

The Maryland mine flotation composite responded very well to gravity concentration treatment with tailings flotation. Total recoveries (gravity recovery plus flotation recovery) ranged from 94.8% to 97.9%. Total gold recovery did increase slightly with decreasing flotation feed size, and the highest total recovery (97.9%) was observed with a 75µm re-grind size of the flotation feed.

Combined results show that 31.9% to 42.2% of the contained gold was recovered to the gravity cleaner concentrates. Gravity cleaner concentrate gold grades ranged from 576 to 1,480 gAu/mt. Gravity concentrate weights were equivalent to 0.14% to 0.28% of the feed weight. Gravity concentration gold recovery and concentrate grade were not significantly sensitive to grind size, within the range of grind sizes tested (180µm to 300µm). Gravity concentrate grade and recovery did vary, but this is likely due to sample variability and not to feed size sensitivity. The presence of relatively coarse particulate gold was observed in the clean concentrates of the flotation composite.

Combined results show that nearly all of the gold that remained in the gravity concentration tailings was recovered to the rougher flotation concentrate. Flotation gold recovery increased slightly with decreasing feed size. Relative to the portion of gold contained in the gravity tailings, gold recoveries to the flotation concentrates at feed sizes of 75, 180, 212, and 300µm were 96.8%, 95.6%, 93.1%, and 92.4%, respectively. Flotation concentrate grade and weight pulls were not correlated with feed size.

Flotation weight pulls ranged from 5.20% to 7.52% of the feed weight. Flotation rougher concentrate gold grades ranged from 35 to 52 gAu/mt. It is expected that the grade of the flotation concentrate could be improved, and the weight pull reduced, by adding cleaner flotation to this process.

Sulfide sulfur recoveries to the flotation concentrate were high and ranged from 92.9% to 96.3%. The sulfide sulfur grade of the tailings was reduced to 0.06% to 0.12%.

The combined weight of the flotation and gravity concentrate ranged from 5.48% to 7.66% of the feed weight. This combined concentrate would assay 56 to 79 gAu/mt.

**Table 15. - Particle Size Distribution Results,
Maryland Mine Flotation Rougher Tailings (F-1), 80%-75µm Feed Size**

	Weight	
Size Fraction	%	Cum. %
+212µm	0.1	0.1
-212+150µm	1.4	1.5
-150+106µm	8.4	9.9
-106+75µm	14.1	24.0
-75+53µm	10.8	34.8
-53+45µm	5.4	40.2
-45µm	59.8	100.0
Composite	100.0	
	Calculated P_{80} Size, µm:	83

**Table 16. - Particle Size Distribution Results,
Maryland Mine Flotation Rougher Tailings (F-2), 80%-180µm Feed Size**

	Weight	
Size Fraction	%	Cum. %
+212µm	4.5	4.5
-212+150µm	13.3	17.8
-150+106µm	15.1	32.9
-106+75µm	12.0	44.9
-75+53µm	7.1	52.0
-53+45µm	3.3	55.3
-45µm	44.7	100.0
Composite	100.0	
	Calculated P_{80} Size, µm:	143

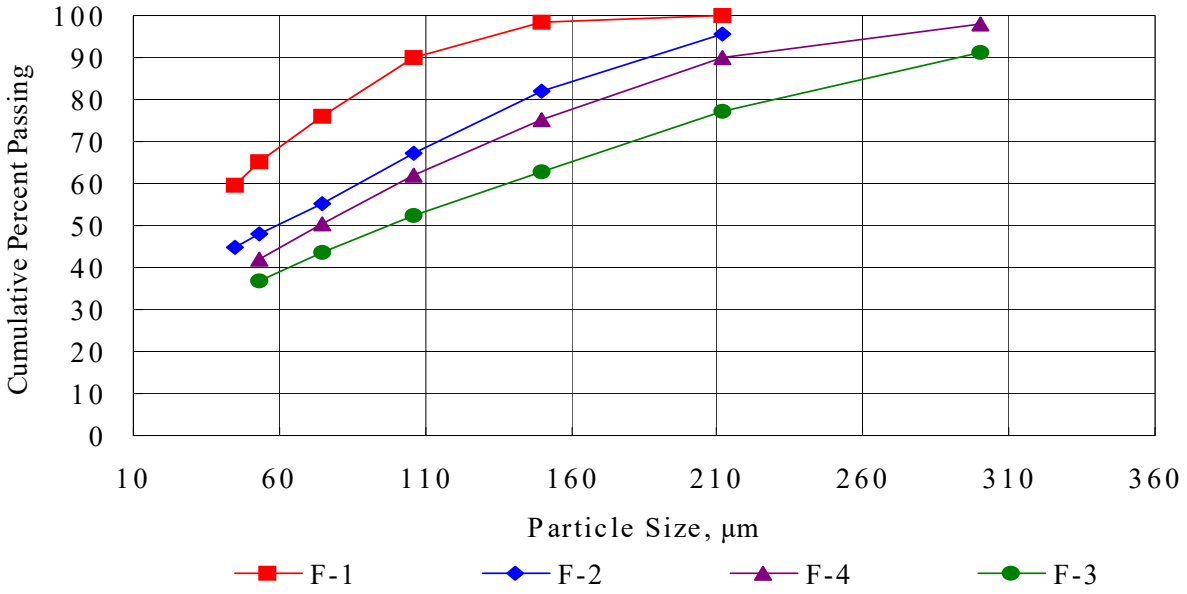
**Table 17. - Particle Size Distribution Results,
Maryland Mine Flotation Rougher Tailings (F-4), 80%-212µm Feed Size**

	Weight	
Size Fraction	%	Cum. %
+300µm	2.1	2.1
-300+212µm	7.8	9.9
-212+150µm	14.8	24.7
-150+106µm	13.4	38.1
-106+75µm	11.6	49.7
-75+53µm	8.3	58.0
-53µm	42.0	100.0
Composite	100.0	
	Calculated P_{80} Size, µm:	167

**Table 18. - Particle Size Distribution Results,
Maryland Mine Flotation Rougher Tailings (F-3), 80%-300µm Feed Size**

	Weight	
Size Fraction	%	Cum. %
+300µm	8.9	8.9
-300+212µm	13.8	22.7
-212+150µm	14.5	37.2
-150+106µm	10.2	47.4
-106+75µm	8.8	56.2
-75+53µm	6.9	63.1
-53µm	36.9	100.0
Composite	100.0	
	Calculated P_{80} Size, µm:	227

**Figure 1. - Particle Size Distribution,
Flotation Rougher Tailings**



Particle size distribution analysis results for the flotation tailings indicate that the feed to flotation test F-1 may have been slightly under-ground to a particle size of 80%-83µm (target size 75µm). It should be noted; however, that the particle size distribution of the flotation tailings may be different from that of the flotation feed. For the three remaining flotation tests, results indicate that the flotation feeds were significantly finer than the gravity test target grind sizes. This is primarily due to the short polish grind that is required for bench scale flotation testing feeds, to remove surface oxidation from sulfide particles that may have been generated between the initial grinding (prior to gravity concentration) and flotation testing.

CONCLUSIONS

- The flotation composite responded well to combined gravity concentration and flotation concentration treatment. The highest combined gold recovery (97.9%) was achieved to a 6.19% concentrate mass pull with a gravity concentration feed size of 80%-180µm and a flotation feed re-grind to 80%-75µm.

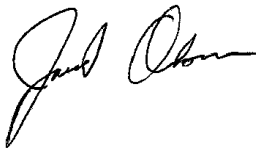
- Gold recovery to the gravity cleaner concentrate ranged from 31.9% to 42.2%, and was not sensitive to feed size within the range of sizes tested.

- Bulk sulfide flotation gold recovery increased slightly with decreasing feed size, and was highest at the finest grind size tested (75µm).

- Bulk sulfide rougher flotation mass pulls were equivalent to between 5.2% and 7.5% of the feed weight. Flotation mass pull was not sensitive to feed size.

RECOMMENDATIONS

It is recommended that additional flotation testing be conducted to optimize the flotation reagent addition scheme. Additional testing should include evaluation of cleaner flotation to increase concentrate grade and reduce mass pull. Testing should also be done to determine an appropriate method for recovering gold from the Maryland mine concentrate (e.g. cyanidation).



Jared R. Olson, P.E.
Metallurgist / V.P. Operations

JRO:lj/mb

APPENDIX

Section 1 - Ball Mill Work Index Results

Section 2 - Gravity Concentration Testing Product Photographs

Section 3 - Detailed Flotation Testing Results

APPENDIX

Section 1 - Ball Mill Work Index Results

McClelland Laboratories, Inc.

BOND BALL MILL GRINDABILITY TEST

BALL MILL GRINDABILITY TEST # **BM-01**

PROJECT # 4466
DATE: 7/22/2019

PURPOSE: To determine the ball mill grindability of the test sample in terms of a Bond work index number.

SAMPLE: **Flotation Comp**

PROCEDURE: The equipment and procedure duplicate the Bond method for determining ball-mill work indices.

TEST CONDITIONS:

Tyler Mesh of Grind (product top size):	100	150	Microns
Weight of compacted 700 CC of feed:		1301.8	grams
Weight of undersize product for 250% circulating load:		371.9	grams
Weight % of undersize material in the ball mill feed:		12.2	%

Cycle	New Feed	Undersize		Mill Revolutions	Undersize in Product	Undersize Produced	
		In feed	To be ground			Total wt	Per Mill Revolution
	g	g	g		g	g	g
1	1301.8	158.8	213.1	150	310.4	151.6	1.01
2	315.1	38.4	333.5	330	379.7	341.3	1.03
3	382.3	46.6	325.3	316	382.7	336.1	1.06
4	385.6	47.0	324.9	307	390.2	343.2	1.12
5	392.2	47.8	324.1	289	367.5	319.7	1.11
6	369.6	45.1	326.8	294	364.2	319.1	1.09
					Average of last three cycles =		1.11

$$Wi = \frac{44.5}{P_1^{0.23} \times GPR^{0.82} \left[\left(\frac{10}{P^{0.5}} \right) - \left(\frac{10}{F^{0.5}} \right) \right]}$$

Where:

P_1 = 100% passing size of product =	150	microns
GPR = Grams per Revolution =	1.11	grams
P = 80% passing size of product =	105	microns
F = 80% passing size of feed =	2114	microns

Ball Mill Work Index = 17.06 kW-hr/st
18.80 kW-hr/mt

McClelland Laboratories Inc.

Screen Analysis

SCREEN TEST No: BM-01 **PROJECT No:** 4466

DATE: 7/18/2019

SAMPLE: **Flotation Comp**

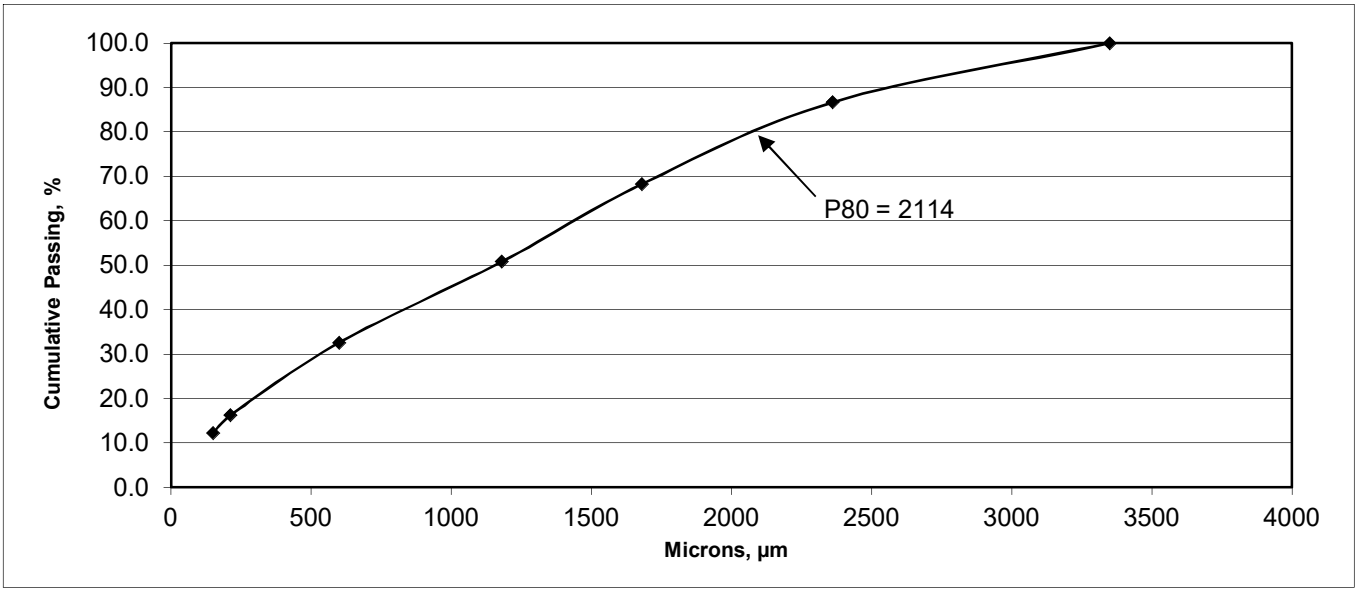
Ball mill feed

PROCEDURE: Dry screen the crushed feed on the following screens.

RESULTS:

Individual			Cumulative Passing		
Screen Fraction (Tyler) Mesh	Weight g	Weight %	(Tyler) Mesh	Microns	Weight %
+ 6 mesh	0.1	0.0			
-6 + 8 mesh	53.6	13.3	6	3350	100.0
-8 + 10 mesh	74.2	18.4	8	2360	86.7
-10 + 14 mesh	70.3	17.5	10	1680	68.2
-14 + 28 mesh	73.4	18.2	14	1180	50.8
-28 + 65 mesh	65.8	16.3	28	600	32.6
-65 + 100 mesh	16.4	4.1	65	212	16.2
-100 mesh	49.0	12.2	100	150	12.2
Total	402.8	100.0			

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McClelland Laboratories, Inc.

Screen Analysis

SCREEN TEST No: BM-01 **PROJECT No:** 4466

DATE: 7/23/2019

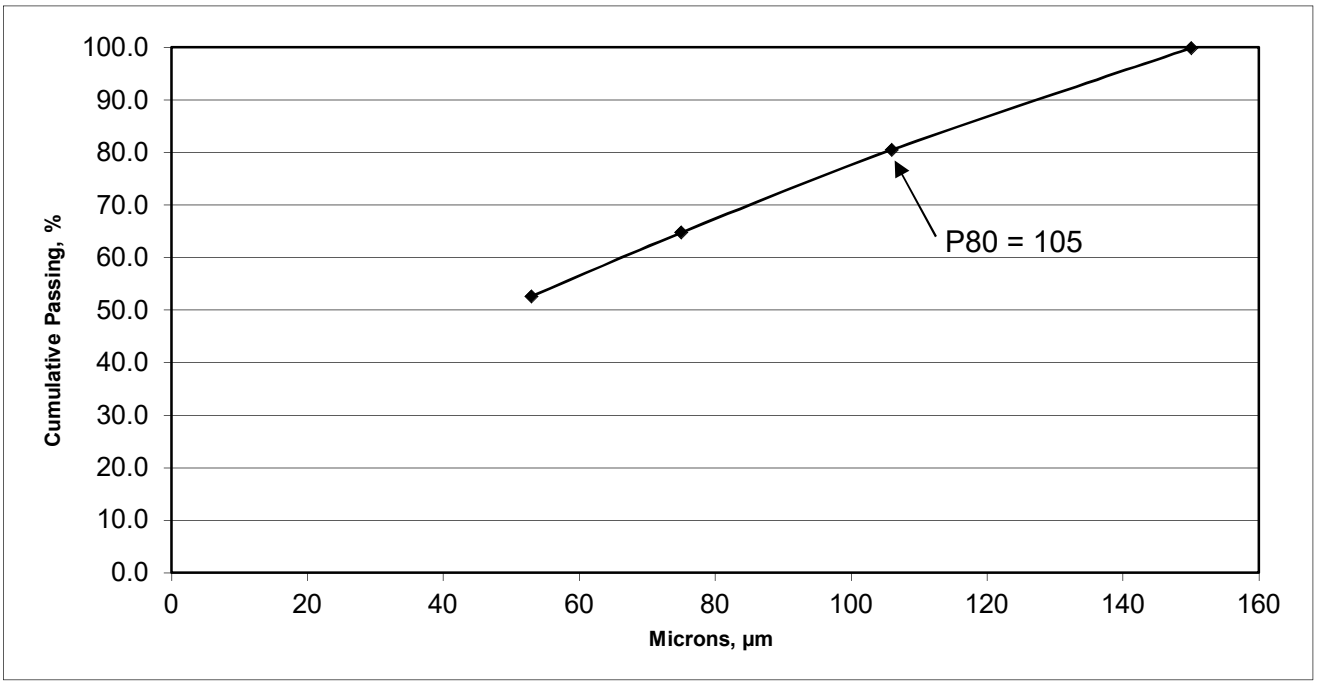
SAMPLE: **Flotation Comp**
Ball mill product

PROCEDURE: Wet screen at 270 mesh. Dry screen on the sieves listed below.

RESULTS:

Individual			Cumulative Passing		
Screen Fraction (Tyler) Mesh	Weight g	Weight %	(Tyler) Mesh	Microns	Weight %
+100 mesh	0.3	0.1			
-100+ 150 mesh	48.0	19.4	100	150	99.9
-150+ 200 mesh	39.1	15.8	150	106	80.5
-200 + 270 mesh	30.0	12.1	200	75	64.7
-270 mesh	130.4	52.6	270	53	52.6
Total	247.8	100.0			

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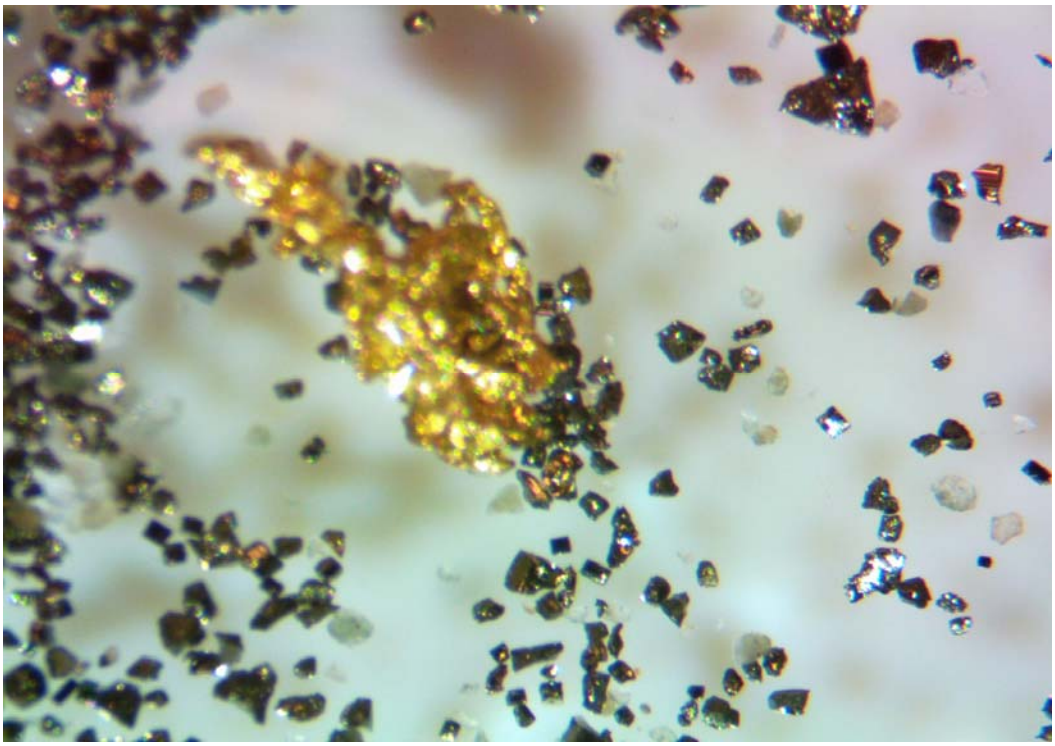


APPENDIX

Section 2 - Gravity Concentration Testing Product Photographs

Gravity Pictures - MLI Job No. 4466

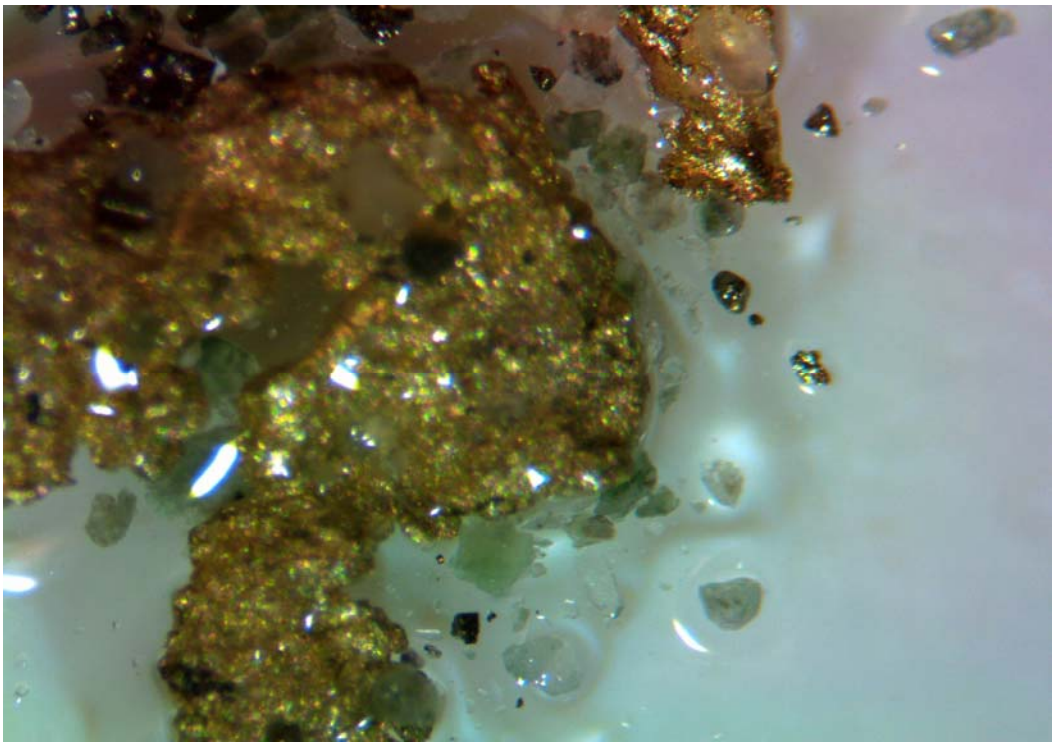
Maryland Mine



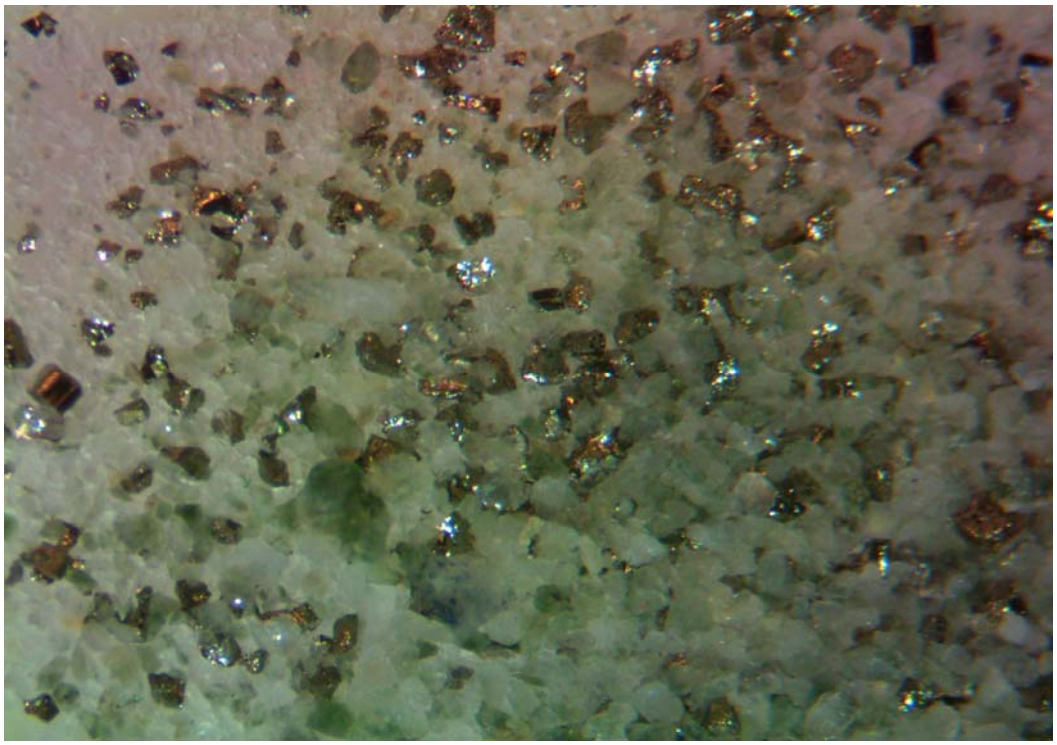
Flotation Composite, Test G-2, Cl. Conc. (Free Gold)

Gravity Pictures - MLI Job No. 4466

Maryland Mine



Flotation Composite, Test G-3, Cl. Conc. (Free Gold)



Flotation Composite, Test G-3, Cl. Tail

APPENDIX

Section 3 - Detailed Flotation Testing Results

Test: F-1
Sample I.D. G-1 Recombined Tails
Purpose: Bulk Sulfide Rougher/Cleaner flotation test, Flotation using standard reagent additions.
Feed Size: P_{80} 75µm

	Reagents Added, kg/mt ore						Product Weights, g			Agitation	Pull Time		Slurry Measurements			Assays		
													Solids Density		Redox.			
Products	$CuSO_4 \cdot 5H_2O$	PAX	AERO 208	Grams Aerofroth 65	Aerofroth 65 kg/mt ore	Soda Ash	Slurry	Dry Solids	Water	Rate, RPM	Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% $S^{=}$
Initial	0.25					0.0	3055.4	1008.3	2047.1				33.0%	8.4	90			
After Conditioning														8.0	92			
Cl. Conc.																		
Cl. Tail																		
Cl. Flot. Feed																		
Ro. Conc.							866.5	61.5	805.0				7.1%			46.0	3.0	23.4
Ro. Conc. Pull 1		0.005	0.010	0.07	0.071	0.0				1200	4.0	4.0		8.4	85			
Ro. Conc. Pull 2		0.005	0.010	0.05	0.050	0.0				1200	3.0	7.0		8.3	85			
Ro. Conc. Pull 3		0.005	0.010	0.06	0.061	0.0				1200	3.0	10.0		8.4	88			
Ro. Conc. Pull 4		0.005	0.010	0.02	0.020	0.0				1200	2.0	12.0		8.6	92			
Ro. Conc. Pull 5		0.005	0.010	0.00	0.000	0.0				1200	2.0	14.0		8.6	84			
Ro. Tail							5924.4	929.3	4995.1				15.7%			0.10	0.50	0.06
Composite	**0.250**	**0.025**	**0.050**		**0.202**	**0.0**		**990.8**			**14.0**							

Test: F-2
Sample I.D. G-1 Recombined Tails
Purpose: Bulk Sulfide Rougher/Cleaner flotation test, Flotation using standard reagent additions.
Feed Size: P_{80} 180µm (Polish)

	Reagents Added, kg/mt ore						Product Weights, g			Agitation	Pull Time		Slurry Measurements			Assays		
													Solids Density		Redox.			
Products	$CuSO_4 \cdot 5H_2O$	PAX	AERO 208	Grams Aerofroth 65	Aerofroth 65 kg/mt ore	Soda Ash	Slurry	Dry Solids	Water	Rate, RPM	Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% $S^{=}$
Initial	0.25					0.0	3101.2	1023.4	2077.8				33.0%	7.8	137			
After Conditioning																		
Cl. Conc.																		
Cl. Tail																		
Cl. Flot. Feed																		
Ro. Conc.							986.3	52.8	933.5	1200			5.4%			52.0	3.0	27.4
Ro. Conc. Pull 1		0.005	0.010	0.07	0.069	0.0				1200	4.0	4.0		7.8	111			
Ro. Conc. Pull 2		0.005	0.010	0.04	0.040	0.0				1200	3.0	7.0		7.8	131			
Ro. Conc. Pull 3		0.005	0.010	0.06	0.059	0.0				1200	3.0	10.0		7.9	124			
Ro. Conc. Pull 4		0.005	0.010	0.02	0.020	0.0				1200	2.0	12.0		8.1	131			
Ro. Conc. Pull 5		0.005	0.010	0.00	0.000	0.0				1200	2.0	14.0		8.1	125			
Ro. Tail							3605.9	958.9	2647.0				26.6%			0.13	0.50	0.06
Composite	**0.250**	**0.025**	**0.050**		**0.188**	**0.0**		**1011.7**			**14.0**							

Test: F-3
Sample I.D. G-2 Recombined Tails
Purpose: Bulk Sulfide Rougher/Cleaner flotation test, Flotation using standard reagent additions.
Feed Size: P_{80} 300µm (Polish)

Products	Reagents Added, kg/mt ore						Product Weights, g			Agitation Rate, RPM	Pull Time		Slurry Measurements: Solids Density	Slurry Measurements: Redox.		Assays		
	$CuSO_4$•$5H_2O$	PAX	AERO 208	Grams Aerofroth 65	Aerofroth 65 kg/mt ore	Soda Ash	Slurry	Dry Solids	Water		Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% $S^{=}$
Initial	0.25					0.0	3041.2	1003.6	2037.6				33.0%	8.2	94			
After Conditioning														7.8	105			
Cl. Conc.																		
Cl. Tail																		
Cl. Flot. Feed																		
Ro. Conc.							1259.5	68.2	1191.3	1200			5.4%			38.0	6.0	21.3
Ro. Conc. Pull 1		0.005	0.010	0.03	0.032	0.0				1200	4.0	4.0		8.4	92			
Ro. Conc. Pull 2		0.005	0.010	0.00	0.000	0.0				1200	3.0	7.0		8.5	85			
Ro. Conc. Pull 3		0.005	0.010	0.01	0.013	0.0				1200	3.0	10.0		8.6	80			
Ro. Conc. Pull 4		0.005	0.010	0.00	0.000	0.0				1200	2.0	12.0		8.6	78			
Ro. Conc. Pull 5		0.005	0.010	0.00	0.000	0.0				1200	2.0	14.0		8.6	75			
Ro. Tail							3685.3	927.3	2758.0				25.2%			0.23	0.20	0.12
Composite	**0.250**	**0.025**	**0.050**		**0.044**	**0.0**		**995.5**			**14.0**							

Test: F-4
Sample I.D. G-3 Recombined Tails
Purpose: Bulk Sulfide Rougher/Cleaner flotation test, Flotation using standard reagent additions.
Feed Size: P_{80} 212µm (Polish)

Products	Reagents Added, kg/mt ore						Product Weights, g			Agitation Rate, RPM	Pull Time		Slurry Measurements: Solids Density	Slurry Measurements: Redox.		Assays		
	$CuSO_4$•$5H_2O$	PAX	AERO 208	Grams Aerofroth 65	Aerofroth 65 kg/mt ore	Soda Ash	Slurry	Dry Solids	Water		Min.	Cum. Min.	Wt. %	pH	mV (vs. Ag/AgCl)	gAu/mt	gAg/mt	% $S^{=}$
Initial	0.25					0.0	3040.9	1003.5	2037.4				33.0%	8.3	70			
After Conditioning														7.9	110			
Cl. Conc.																		
Cl. Tail																		
Cl. Flot. Feed																		
Ro. Conc.							1308.2	75.2	1233.0	1200			5.7%			35.1	9.0	19.0
Ro. Conc. Pull 1		0.005	0.010	0.03	0.029	0.0				1200	4.0	4.0		8.4	95			
Ro. Conc. Pull 2		0.005	0.010	0.02	0.016	0.0				1200	3.0	7.0		8.5	83			
Ro. Conc. Pull 3		0.005	0.010	0.00	0.000	0.0				1200	3.0	10.0		8.6	82			
Ro. Conc. Pull 4		0.005	0.010	0.00	0.000	0.0				1200	2.0	12.0		8.6	84			
Ro. Conc. Pull 5		0.005	0.010	0.00	0.000	0.0				1200	2.0	14.0		8.6	78			
Ro. Tail							3488.7	924.0	2564.7				26.5%			0.21	0.40	0.10
Composite	**0.250**	**0.025**	**0.050**		**0.044**	**0.0**		**999.2**			**14.0**							

Table A3-1. - Flotation Rougher Tail Assay Results, Recombined Gravity Tailings, Maryland Mine

MLI			gAu/mt ore					gAg/mt ore					Sulfide Sulfur
Test #	Composite	Feed Size	Init.	Dup.	Trip.	Avg.	Std. Dev.	Init.	Dup.	Trip.	Avg.	Std. Dev.	%
F-1	G-1 Recombined Tails	P80-75µm	0.08	0.106	0.108	0.10	0.02	0.4	0.5	0.5	0.5	0	0.06
F-2	G-1 Recombined Tails	P80-180µm (Polish)	0.129	0.126	0.121	0.13	0.00	0.5	0.5	0.4	0.5	0	0.06
F-3	G-2 Recombined Tails	P80-300µm (Polish)	0.269	0.183	0.25	0.23	0.05	0.2	0.1	0.2	0.2	0.1	0.12
F-4	G-3 Recombined Tails	P80-212µm (Polish)	0.197	0.203	0.225	0.21	0.01	0.5	0.4	0.4	0.4	0.1	0.10

Appendix I – Record of South Fork Wolf Creek Streamflow

Memorandum

To: Ben Mossman, Rise Grass Valley

From: Brian Hastings, P.G., (reviewed by Jonathan Owens)

Date: January 22, 2021

Subject: Approved Record of Streamflow, South Fork Wolf Creek, Nevada County, California

Gaging Location

Balance Hydrologics (Balance) operates a recording stream gage on the South Fork (SF) Wolf Creek and measures streamflow from a 1.4 square mile watershed. This station is located on Rise Grass Valley property and approximately 200 feet upstream of the point of discharge for the proposed Idaho-Maryland Mine dewatering program. A gaging station location and watershed map is included in **Figure 1**.

Instrumentation and Period of Record

Balance installed a stilling well, staff plate (station datum), and a near-continuous (15-minute) water-level recorder on January 24, 2020. Data collection continues through the current day. Balance hydrologists conducted manual measurements of water levels and streamflow since installation to develop a stage-to-streamflow rating curve and convert the near-continuous record of stage to a near-continuous record of streamflow (roughly monthly and during periods of higher water). A station observer log for the period of record is included in **Table 1**.

Precipitation

Water year[1] 2020 (WY2020) precipitation was measured to be 35 inches, 66 percent compared to the long-term annual average of 53.30 inches for Grass Valley, California (Station: Grass Valley No. 2, WRCC, 2020). To date, partial WY2021 precipitation is 8.69 inches, roughly 30 percent of the long-term average for the same period (29.07 inches, October 1 to January 21). Because both WY2020 and WY2021 (to date) have had

[1] Water year describes a year beginning October 1 and ending on September 30 of the named year. For example, WY2020 began on October 1, 2019 and ended September 30, 2020.

below average rainfall, this period of record of streamflow should be considered below average.

Streamflow

Daily minimum, mean and maximum streamflow for the period of record in SF Wolf Creek are presented in **Figure 2**. Daily precipitation totals are shown for reference as well as manual measurements of streamflow. Daily mean flows ranged from less than 0.10 cfs to 19.7 cfs at this station. Peak flow for the period of record was recorded to be 33 cfs and occurred on April 5, 2020. We note that flows less than 0.1 cfs are difficult to measure at this station and should be considered as having less certainty than the higher flow portions of the data.

Streamflow Increases Not Associated with Rainfall

A flow pulse of up to 13 cfs was recorded on March 4, 2020 (**Figure 3**) and an additional flow pulse of up to 5.9 cfs recorded on November 24-25, 2020 occurred in the absence of precipitation (**Figure 4**). These events were reported as resulting from a "maintenance-flow" release by Nevada Irrigation District (NID) from the D-S Canal Extension immediately upstream of this station (Halvorson, M., NID, pers. comm., 2020). These releases resulted in flow increases in the channel above baseflow with durations between 8 and 36 hours, respectively.

Limitations

This memo was authorized by and prepared for the sole use of Rise Grass Valley. No other warranties, expressed or implied, are made. The observations and measurements made in this report pertain only to hydrologic processes within South Fork of Wolf Creek and these results should not be applied elsewhere. We note that low flows can be affected by natural leaf/litter dams; these have not been corrected for in our record.

References Cited

Halvorson, M., NID, pers. comm., 2020, Assistant water superintendent, Nevada Irrigation District (NID), (530) 273-6185.

Western Regional Climate Center (WRCC), 2021, Grass Valley No. 2 (043573) weather station, http://wrcc.dri.edu/cgi-bin/cliMAIN.pl?cagras+nca, last accessed on January 20, 2021.

Memorandum

Attachments

Table 1. Station observation log

Figure 1. Station location map
Figure 2. Daily streamflow for period of record
Figures 3 + 4. Streamflow increases in the absence of precipitation

Table 1. Station Observer Log:
South Fork Wolf Creek, Upstream Station, Nevada County, California; ID: SFWC-US

Site Conditions				*Streamflow*				*Water Quality Observations*						*Remarks*
Date/Time (observer time)	Observer	Stage	Hydrograph	Measured	Estimated Accuracy	HWM	HWM date	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	pH	Turbidity	Samples?	
		(feet)	*(R/F/S/B)*	*(cfs)*	*e/g/f/p*	*(ft)*		*(oC)*	*umhos/cm at 25 oC)*			*(NTU)*	*(Qbed, Qss)*	
9/25/2019 14:00	bkh, lg	--	B	0.17	g	--	--	13.0	71	93	7.57	--	--	Site visit; confirm and measure baseflow; majority of flow is from tributary that originates from County Air Park (0.15 cfs).
1/24/2020 15:00	bkh, bt	7.33	F	1.56	g	--	--	10.5	88	126	7.70	9.4	Qss (2)	Installed gaging station, right bank 40 feet downstream of tributary (staff plate: 6.66'-9.66', temporary logger); water slightly turbid, recent rain (0.66" measured at County Air Park)
1/26/2020 7:45	bkh, jj	7.77	F	11.0	g	7.78	1/26/2020	8.7	53	76	7.34	125	Qss (1)	Moderate rain, very turbid; most flow is from tributary (Co. Air Park); collected Qss; no samples in Helly-Smith sampler.
1/26/2020 10:45	bkh, jj	7.72	F	9.76	g	--	--	--	--	--	--	79	Qss (1)	Light rain; still turbid; riffle may have been disturbed resulting in stage shift.
2/8/2020 17:00	jo	7.24	S	--	--	--	--	--	--	--	--	--	--	Stage observation only; flow estimated; water slightly cloudy, red silt on bed
2/19/2020 11:56	bt	7.21	S	0.75	g/f	--	--	8.2	60	89	6.83	*0.4*	--	Installed Aqua Troll 600 for turbidity measurements; gage pool was to low to submerge the instrument so it is not reading pressure, but we still have the pressure transducer; water clear; low flow; no visual changes to channel since the gage install in January; turbidity gage is located ≈3ft. downstream of the staff plate; downloaded the pressure transducer and the barometric logger; turbidity is the reading from the new probe at 12:40
3/12/2020 12:15	bkh, bt	7.18	B	0.60	g	--	--	9.8	65	92.0	7.90	0.4	--	Observed conditions after roughly 0.3" of rain on 3/7/20; water clear, downloaded turbidimeter; riffle-pool in good condition
3/15/2020 10:45	jo, mw	7.88	R	11.6	f/p	7.89	3/15/2020	6.0	50	78	--		Qss (2), Qbd (2)	Mix rain and snow; 2/3 of flow at gage originates from Airport Park tributary; collected both Qss and Qbd samples; very little bedload movement, mostly sand.
3/15/2020 12:30	jo, mw	7.85	F	--	--	--	--	--	--	--	--		Qss (1), Qbd (1)	Second site visit of day; turbidity in creek is less than before, water from Airport Park is mostly clear. Snow accumulating on banks; collected Qbd and Qss; flow and turbidity was slightly less than first visit of the day
3/18/2020 11:45	bkh, lg	7.39	S	3.22	g	--	--	6.2	64	100	--	7.95	Qss (1)	Falling limb of 3/15 storm; still rain/snow but intermittent; 5 inches of snow on ground, water slightly turbid, most of flow is from Airport Park tributary; downloaded instruments
3/29/2020 12:30	bkh, jj	7.34	F	1.91	g	--	--	8.0	72	108	7.20	10.6	Qss (2)	Rain overnight (0.4"); slightly turbid; water from Airport Park is clear; woody veg beginning to leaf out; banks still saturated. Collected 2 Qss samples

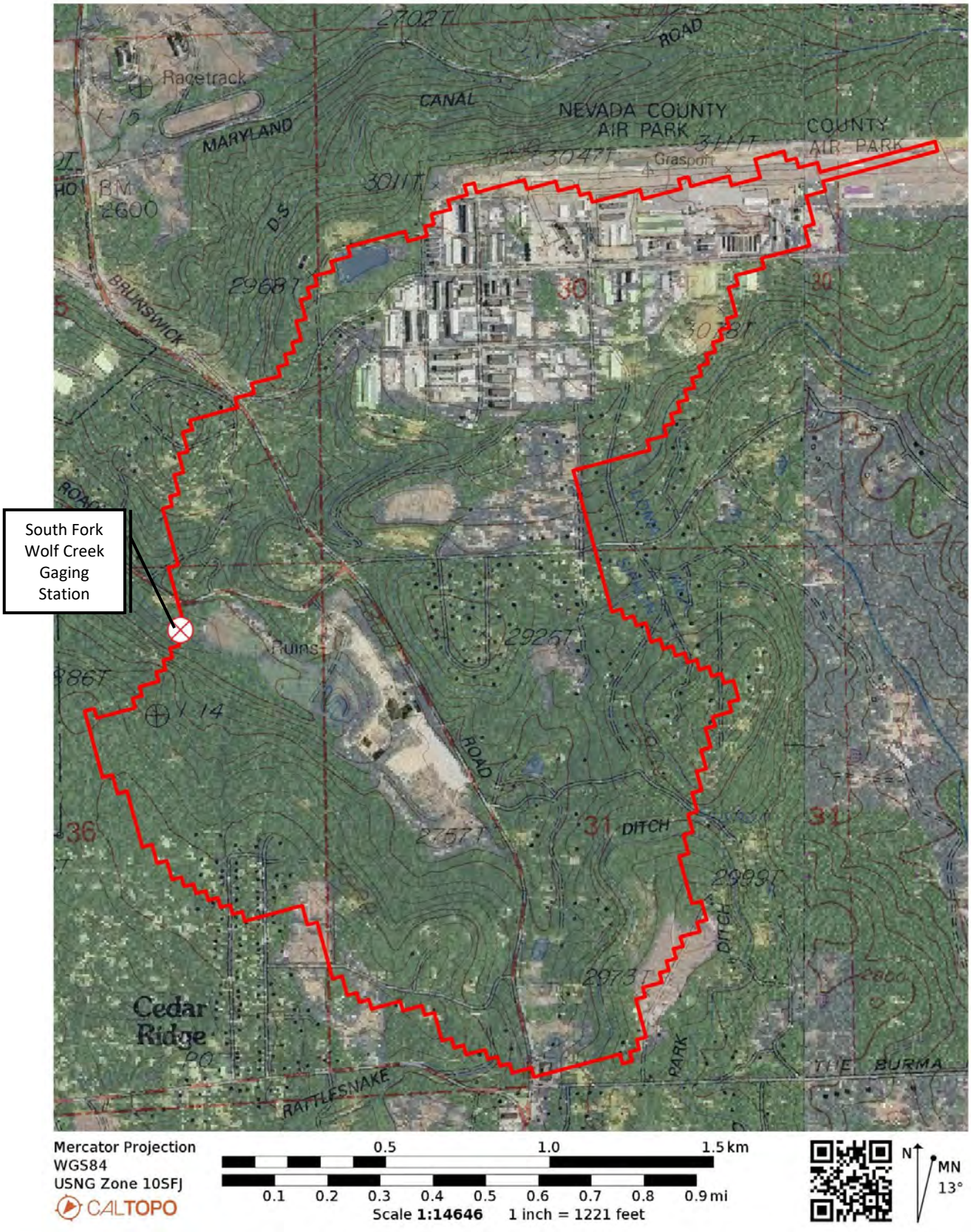
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Table 1. Station Observer Log:
South Fork Wolf Creek, Upstream Station, Nevada County, California; ID: SFWC-US

Site Conditions				*Streamflow*				*Water Quality Observations*						*Remarks*
Date/Time (observer time)	Observer	Stage	Hydrograph	Measured	Estimated Accuracy	HWM	HWM date	Water Temperature	Field Specific Conductance	Adjusted Specific Conductance	pH	Turbidity	Samples?	
		(feet)	*(R/F/S/B)*	*(cfs)*	*e/g/f/p*	*(ft)*		*(oC)*	*umhos/cm at 25 oC)*			*(NTU)*	*(Qbed, Qss)*	
4/5/2020 12:00	bkh, pk	8.05	F	20.4	g	--	--	7.1	49	74	7.29		Qss (1), Qbd (1)	Roughly 2 inches of rainfall; water turbid; intermittent rain; flow from Airport Park tributary is mostly clear; upper watershed channel is very turbid.
4/5/2020 13:40	bkh, pk	7.98	U	17.3	g/f	--	--	--	--	--	--		Qss (1), Qbd (1)	Heavy rain and hail; additional bedload and Qss samples;
4/7/2020 14:15	bkh	7.43	F	4.14	e	--	--	8.9	65	95	7.60		Qss (1)	Slightly turbid; fresh sand deposits in pools; water from Airport Park is clear
4/30/2020 11:30	bkh	7.27	B	1.36	g	--	--	11.8	65	87	7.67	4.8	--	All trees leafed out; warm; water clear; 2/3 of flow originates from Airport Park tributary; abundant fines on bed and originates from upper watershed
6/2/2020 10:45	bkh	7.195	B	0.81	g	--	--	12.3	92	122	7.06		--	Recent rain; flow mostly clear; coorridor lush and verdant
7/8/2020 11:33	bt	7.12	B	0.24	g	--	--	14.4	88	111	6.88	4.8	--	Water clear; baseflow conditions
8/11/2020 11:45	bkh	7.065	B	0.10	p	7.35	stain	17.7	58	64	7.36		--	Water clear; leaf dams present-removed at 10:40; less verdant, no rain in months
9/11/2020 12:30	bkh	7.05	B	0.10	p	--	--	14.7	58	72	7.90		--	Water clear; leaf dams present-removed at 12:15; no rain in months; flow too low to accurately measure with flow meter; NTU probe batteries at 49%, replace in October
10/13/2020 16:30	bkh	7.05	B	0.04	p	--	--	11.3	77	104	8.50			Continued dry conditions; no rain; leaf dams prominent; removed leaf dam at 16:15; stage 7.07 before
11/11/2020 9:45	bkh	7.09	B	--	--	--	--	--	--	--	--	--	--	Low flow; unable to measure accurately; estimated <0.05 cfs; leaf dams present; Turbidity probe required software upgrade; troubleshooting; reset; replace batteries.
12/14/2020 12:30	bkh	7.13	F	0.26	f	--	--	6.4	54	84	7.28		--	Download; upgrade turbidity probe with new software; reset program; 0.58" rain over last 48 hours; slightly turbid; new sand deposited in gaging pool; higher flow removed all leaf-fall from riffle and pool.
1/20/2021 12:00	bkh	7.12	B	0.16	g	7.35		6.6	58	90	7.19		Qss (1)	Sunny, dry; some recent rain in late December; still well below average for precipitation; flow from both mainstem and Airport tributary; collected winter baseflow turbidity sample

Observer Key: (bkh) is Brian Hastings, (bt) is Ben Trustman, (jj) is Jack Jacquet, (lg) is Lynell Garfield, (pk) is Peter Kulchawik, (jo) is Jonathan Owens, (mw) is Mark Woyshner
Stage: Water level observed at staff plate; arbitrary datum
Hydrograph: Describes stream stage as rising (R), falling (F), steady (S), or baseflow (B)
Estimated accuracy of manual streamflow measurements: Excellent (+/- 2%), Good (+/- 5%), Fair (+/- 8%), Poor (>8%)
Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation (1.8813774452 - [0.050433063928 * field temp] + [0.00058561144042 * field temp^2]) * Field specific conductar
Turbidity as measured using portable desktop turbidimeter and stream sample.
Sampling: Qss = suspended-sediment concentration; Qbed = Bedload sediment

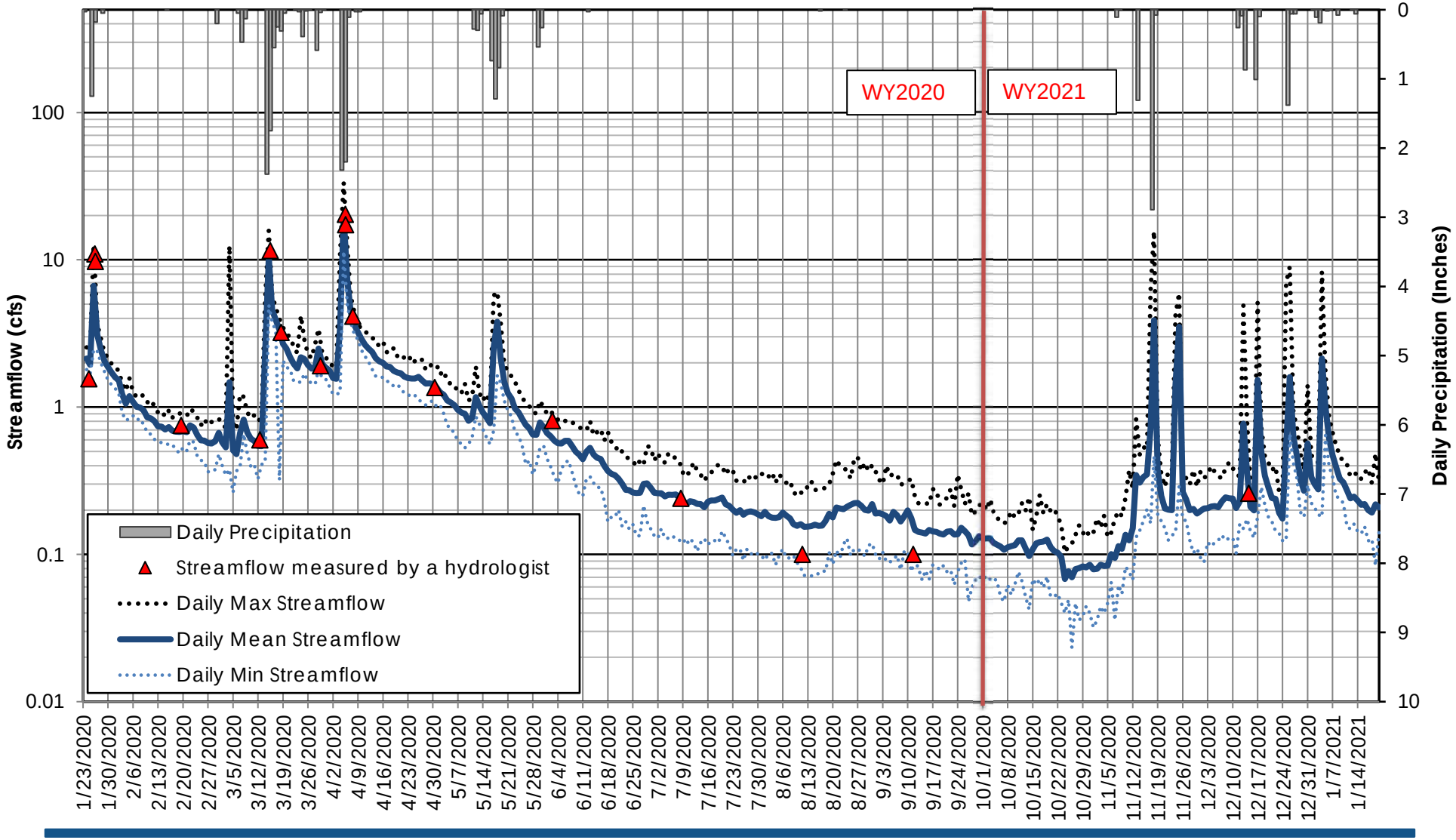
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Figure 1. **Stream gaging station location map, South Fork Wolf Creek, near Grass Valley, Nevada County, California**

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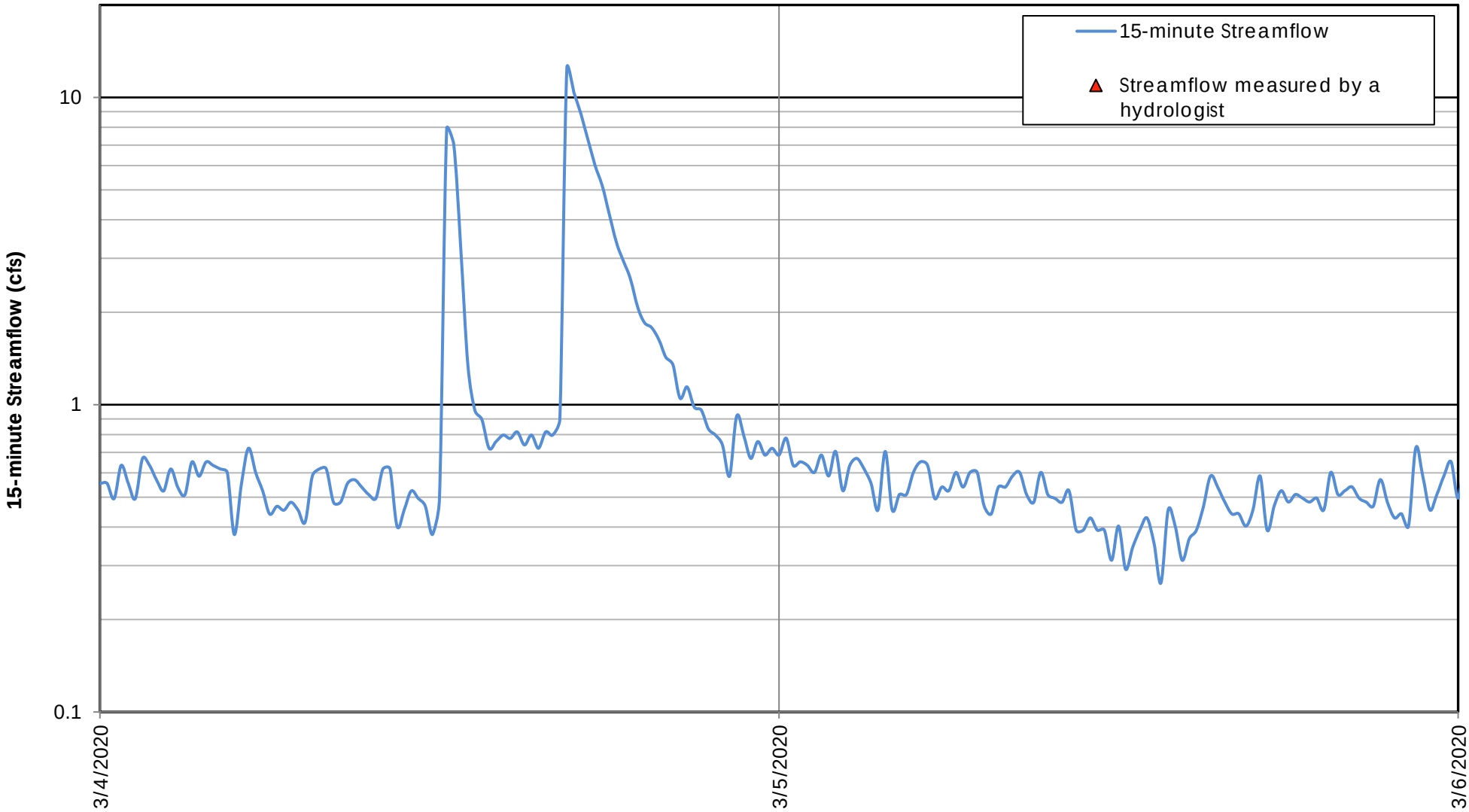


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Figure 2. **Daily Streamflow, South Fork Wolf Creek, Rise Gold Property, Nevada County, California, January 24, 2020 - January 20, 2021.**

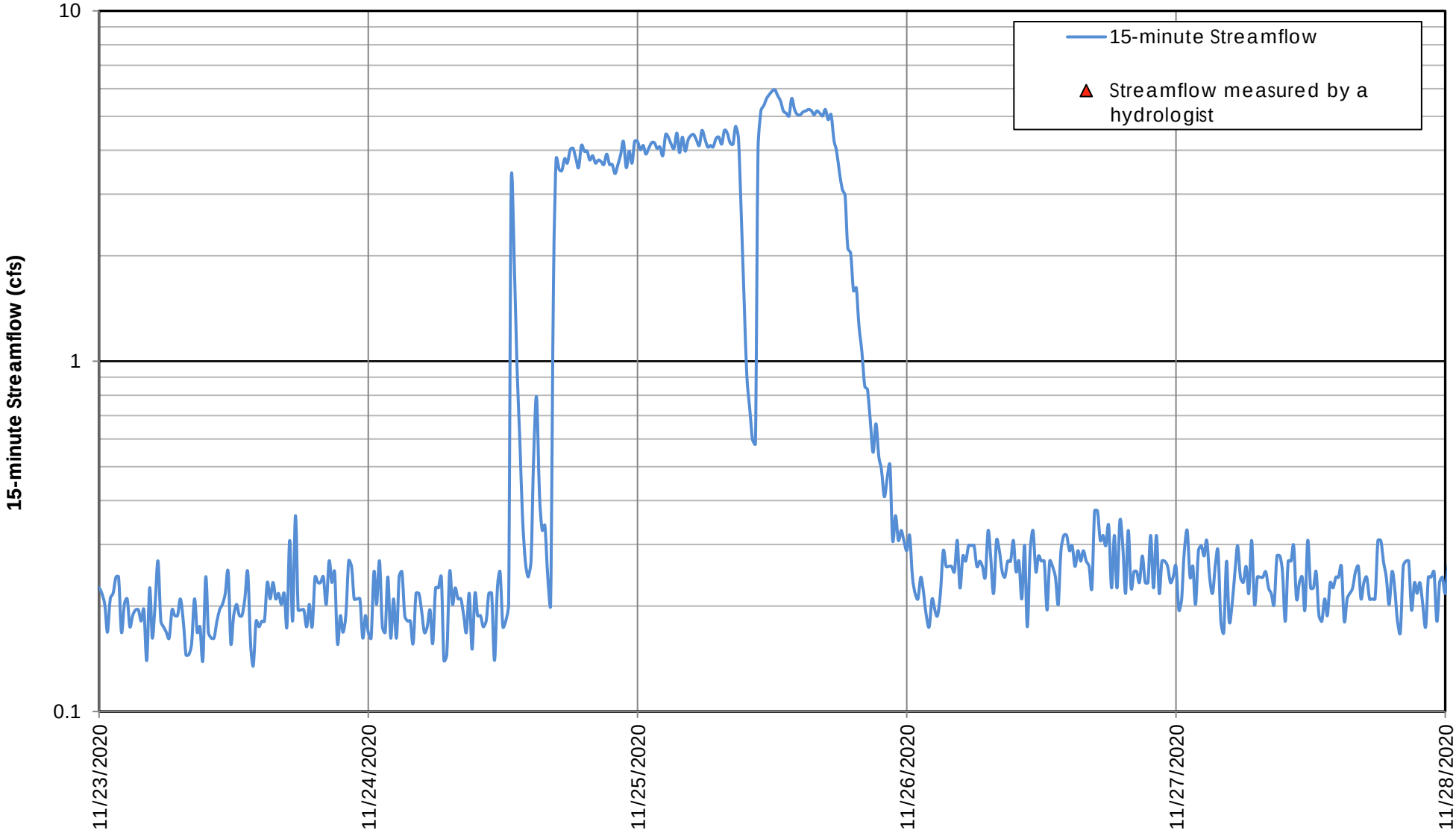
Data Source: Daily Precipitation, Station: COOPGRAC1 (Grass Valley #2), elevation 2,400 feet

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Figure 4. Streamflow Pulse in Absence of Precipitation, South Fork Wolf Creek, Nevada County, California, March 4, 2020



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Figure 4. Streamflow Pulse in Absence of Precipitation, South Fork Wolf Creek, Nevada County, California, November 24-25, 2020