



Idaho-Maryland Mine Project

**Asbestos, Serpentinite, and Ultramafic Rock
(ASUR) Management Plan**

Rise Grass Valley Inc.
November 2021

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1.0 MANAGEMENT PLAN OVERVIEW

Rise Grass Valley, Inc. (Rise) has prepared this Asbestos, Serpentine, and Ultramafic Rock Management Plan (ASUR Plan) for the Idaho-Maryland Mine Project (the Project) to minimize the potential for public exposure to airborne asbestos.

The ASUR Plan provides a brief overview of the Project, existing site conditions, and regulatory framework regarding airborne asbestos. Additionally, the ASUR Plan includes a description of the planning, mining, and testing methods that Rise will implement throughout the life of the project to minimize the potential for public exposure to airborne asbestos from the Project.

The ASUR Plan provides practices to be followed during underground and aboveground operations. In addition, the ASUR Plan provides a summary of the existing federal, state, and local regulations that Rise is required to follow to protect human health and the environment.

2.0 ABBREVIATIONS

ATCM – Airborne Toxic Control Measure

ASHAE – American Society of Heating, Refrigerating, and Air-Conditioning Engineers

CARB – California Air Resources Board

MERV – Minimum Efficiency Reporting Value according to ASHRAE Standard 52 for dust removal efficiency

MSHA – Mine Safety and Health Administration

PCM – Phase Contrast Microscopy

PLM – Polarized Light Microscopy

TEM - Transmission Electron Microscopy

3.0 REGULATORY DEFINITIONS

3.1 CARB Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Title 17, CCR, Section 93105

"Asbestos" means asbestiforms of the following minerals: chrysotile (fibrous serpentine), crocidolite (fibrous riebeckite), amosite (fibrous cummingtonite--grunerite), fibrous tremolite, fibrous actinolite, and fibrous anthophyllite.

"Asbestos-Containing Material" means any material that has an asbestos content of 0.25 percent or greater.

"Serpentinite" means a rock consisting almost entirely of serpentine, although small amounts of other minerals such as magnetite, chromite, talc, brucite, and tremolite-actinolite may also be present. **"Serpentinite"** is also a metamorphic derivative of the Ultramafic rocks, peridotite, pyroxenite, or dunite.

"Serpentine" means any form of the following hydrous magnesium silicate minerals: antigorite, lizardite, and chrysotile.

"Ultramafic Rock" means an igneous rock composed of 90 percent or greater of one or a combination of the following iron / magnesium-rich, dark-colored silicate minerals: olivine, pyroxene, or more rarely amphibole.

3.2 CARB Asbestos ATCM for Surfacing Applications Title 17, CCR, Section 93106

“Surfacing” means the act of providing or creating a temporary or permanent covering for a surface used for pedestrians, motor vehicles, non-motor vehicles, decoration, landscaping, soil stabilization, or erosion control. Examples of surfaces include, but are not limited to, roads, road shoulders, streets, access roads, alleys, lanes, driveways, parking lots, playgrounds, trails, squares, plazas, and fairgrounds.

4.0 PROJECT OVERVIEW

Rise proposes to reinitiate underground mining and gold mineralization processing of the Idaho-Maryland Mine in unincorporated Nevada County, California. The proposed facilities and operations will be located on two properties owned by Rise referred to as the Brunswick Industrial Site and the Centennial Industrial Site. The Project comprises five primary elements:

1. dewatering the existing underground mine workings,
2. mining existing and new underground mine workings,
3. processing gold mineralization and rock,
4. placing engineered fill at the Brunswick and Centennial Industrial Sites, and
5. export of engineered fill from the Brunswick Industrial Site to support local construction projects.

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 gold mineralization removal;
- gold mineralization 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 construction projects;
- placement of engineered fill at the Brunswick Industrial Site; and
- construction of a potable water pipeline to supply residences along a portion of East Bennett Road.

The majority of aboveground facilities, the access to the underground mining, the treated-water outfall structure, and a portion of the engineered fill will be located on Rise's 119-acre Brunswick Industrial Site. Engineered fill will also be placed on Rise's 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. In addition, Rise owns approximately 2,585 acres of subsurface rights that encompass the historic Idaho-Maryland Mine

workings and Idaho-Maryland Mine Project. Once the aboveground facilities are constructed, Rise will begin dewatering the mine, performing advanced exploration, and mining the underground workings.

4.1 Underground Mining

Exploration and mining of the underground workings will begin once dewatering is complete. Exploration and mining will occur 24 hours a day and 7 days a week.

4.1.1 Exploration

Underground exploration will take place after mine dewatering is complete and throughout the life of the mine. Exploration will be done primarily with diamond core drilling throughout the mine area. Exploration will produce core samples that will be brought to the surface for analysis to determine future mining areas.

4.1.2 Mine Development (Tunneling)

To provide access to the gold mineralization, 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. The tunnels are constructed in 10-foot advances per blast (a “round”). Parallel holes are drilled into the rock face, loaded with explosives, and then detonated to fragment the rock. The broken rock is moved to the surface, the tunnel is supported with rock bolts and screen, and then the process starts again to continue advancing the tunnel. A number of tunnels will be under construction throughout the mine area at all times during the life of the mine.

New underground tunnels and raises will be created as necessary to access gold-quartz veins or provide the necessary underground infrastructure to transport rock and provide ventilation and escape routes.

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 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.

4.1.3 Gold Mineralization Production (Tunneling and Production Blasting)

Generally, mining of a block of gold mineralization begins by creating horizontal tunnels along the length of a gold-quartz vein, using similar techniques as described in the previous section. Horizontal tunnels are created through the body of mineralization on vertical spacing of approximately every 50 feet. Once the tunnels are completed, a pattern of drill holes are drilled between the two levels. These long holes are then loaded with explosives and detonated to fragment the mineralized rock so that it can be transported to the shaft and then to the surface.

Gold mineralization production through tunneling and long-hole blasting produces 1,000 tons per day (365,000 tons per year) of mineralized material. Approximately 50 percent of the mineralization will be returned to the underground mine as backfill after processing and the remainder of the sand tailings will be used for engineered fill.

4.1.4 Backfill

Mining of gold-quartz veins creates voids that will 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.

5.0 GEOLOGICAL UNITS AND ASBESTOS TESTING

Extensive historic records show that serpentinite rock is located on the periphery of the Idaho veins of the Idaho-Maryland Mine. Serpentinite is not located near the Brunswick veins of the Idaho-Maryland Mine. Serpentinite occurs as a distinct and well-defined unit to the north of the Brunswick and Idaho mines.

Rise completed 19 exploration drill holes, totalling 67,500 feet of drilling, from 2017 to 2019.

Forty-two (42) samples, mainly from diamond drill core from various lithologies at the Idaho-Maryland Mine Project, were submitted for asbestos testing in 2019. Polarized Light Microscopy (PLM) asbestos testing was done on forty samples and Transmission Electron Microscopy (TEM) testing was done on two samples. (Vergence, 2020). In 2021, Rise requested the 40 samples previously submitted to be reanalyzed using the TEM method. Exploration asbestos test results are provided in Appendix C.

TEM is the preferred analytical method for outdoor asbestos samples because of its ability to detect small fibers (greater than or equal to 0.0002 microns in diameter) and to distinguish between asbestos fibers and non-asbestos fibers. The term "TEM structures" is often used to describe asbestos fibers detected by this method. TEM is the method recommended by the California Office of Environmental Health Hazard Assessment (OEHHA). However, TEM measurements cannot be directly related to the cancer potency factors because the studies upon which OEHHA's risk assessment was based used PCM analysis. Thus, the TEM measurements must be converted to PCM-equivalent units (OEHHA 2015).

The great majority of mine tunneling in barren rock for the Idaho-Maryland Mine Project is expected to occur in the meta-andesite porphyrite "Brunswick Block". No asbestos was detected by PLM in samples from the meta-andesite porphyrite lithology. Asbestos was detected in six of the eighteen samples by TEM methods and the eighteen samples averaged 0.26 TEM structures per nanogram (s/ng) or 0.002% PCM asbestos by weight.

In the Idaho mineralized veins, a diabase dike is commonly present in the footwall of the vein. No asbestos was detected by PLM in the diabase lithology. Asbestos was detected in three of the twelve samples by TEM methods and the twelve samples averaged 0.38 TEM s/ng or 0.004% PCM asbestos by weight.

Asbestos was detected in two samples of fresh, unaltered serpentinite and two samples of weakly altered serpentinite. TEM testing averaged 4.53 s/ng or 0.043% PCM asbestos by weight. Serpentinite does not readily sustain fractures (AMEC, 2017) and therefore is not a suitable host lithology for important mineralized gold veins. Veins hosted solely in serpentinite were rarely of historic economic importance due to the yielding nature of the serpentinite which typically does not allow wide or continuous open structures to form from faulting (AMEC, 2017).

Asbestos was not detected by PLM in serpentinite with strong ankerite alteration, near mineralized veins. TEM testing averaged 0.01 s/ng or 0.000% PCM asbestos by weight.

Two samples were taken from the historic tailings at the Centennial Industrial Site. No asbestos was detected by PLM in the historic tailings samples. TEM testing averaged 0.01 s/ng or 0.000% PCM asbestos by weight.

6.0 MINE PLANNING

Prior to underground gold mining, intensive planning efforts will be required to meet state and federal regulations and achieve safety, environmental, and economic goals. Underground mine planning includes exploratory drilling, geologic mapping, material logging, and testing. These same processes also ensure future mining operations avoid and manage rock types that may contain naturally occurring asbestos.

To ensure that asbestos content is minimized in engineered fill and dust from mining or handling of rock entering the mine ventilation system and exhausting to surface, the following practices will be required during mine planning:

- 1) Exploration core drilling and core logging shall be supervised by a California Licensed Geologist and include identification and logging of lithological units.
- 2) Core drilling information will be used, in conjunction with geological mapping of existing tunnels, for modelling of lithological units.
- 3) Lithological units and gold mineralization will be adequately sampled and tested for naturally occurring asbestos under the supervision of a California Licensed Geologist. Analytical determination of asbestos content would be done using Polarized Light Microscopy (PLM) in accordance with ARB Method 435 pursuant to 17 CCR 93106(h)(2) and Transmission Electron Microscope (TEM) method in accordance with the EPA/600/R-93/116. Asbestos content by TEM structures will be converted into equivalent Phase Contrast Microscopy (PCM) units in accordance with the California Office of Environmental Health Hazard Assessment (OEHHA) 2015 Air Toxic Hot Spot Guidance Manual.
- 4) An Asbestos Inventory of all mined materials will be maintained and include a current 3-month rolling average of asbestos content in equivalent PCM units.
- 5) An Engineered Fill Placement Plan will be maintained to ensure that adequate non-Asbestos Containing Material, as determined by PLM testing, is available for Surfacing applications
- 6) Prior to mining, a mine plan documenting the asbestos content by PLM and TEM testing, as known at that time, shall be reviewed and approved by a California Licensed Geologist. The mine plan will estimate the projected impact of mined materials on the Asbestos Inventory and the Engineered Fill Placement Plan.
- 7) If planned mining is projected to result in insufficient material available for Surfacing in Engineered Fill Placement Plan:
 - i. An operational plan will be prepared and approved to ensure that all sand tailings derived from processing of gold mineralization which is projected to be Asbestos Containing Material will be used for underground cemented paste backfill and not for Engineered Fill.
 - ii. If planned barren rock tunneling is projected to be Asbestos Containing Material, a location for the underground disposal of this material will be specified and the requirement and location for underground disposal will be annotated on mine development plans. Barren rock will be co-disposed with cemented paste backfill or placed (uncemented) in abandoned tunnels.

- 8) If planned mining is projected to result in the Asbestos Inventory 3-month rolling average to exceed 0.01% by mass of equivalent PCM units (1.07 TEM structures per nanogram):
- i. Gold mineralization (intended for processing) will not be mined.
 - ii. Barren rock from tunneling will either not be mined or mined using an auxiliary ventilation and dust collection system, as described in Section 6.1, designed to capture dust generated during the mining of these materials and prevent this dust from entering the main ventilation system and exhausting from the underground mine and a location for the underground disposal of this material will be specified and annotated on mine development plans.

6.1 Auxiliary Ventilation and Dust Collection

If planned tunnelling in Barren Rock is projected to result in the Asbestos Inventory 3-month rolling average to exceed 0.01% by mass of equivalent PCM units the following procedures will be followed.

Tunnelling in rock containing significant asbestos content, such as unaltered serpentinite, would be a rare situation and may require the use of dust containment and capturing to ensure that dust generated during mining and handling of rock does not enter the main ventilation system and exhaust from the underground mine. Conventional techniques and equipment exist to collect dust with fabric collectors/filters at very high efficiencies.

Standard practices in underground mining, including wet drilling and water sprays, greatly limit the amount of dust generated during mining activities.

All ventilation air from the tunnelling and dumping areas will be routed through the dust collection equipment. Typical airflows in a tunnel heading would range from 10,000 to 20,000 CFM resulting in velocities of 100 – 200 feet per minute in the tunnel. Barren rock from tunneling would not be crushed, placed in the shaft skip for hoisting, or transferred with the ore pass system of the mine. Rock loads would be wetted for transit between the tunnelling and dumping area and equipment would be washed to prevent dust from being tracked out into other areas of the mine.

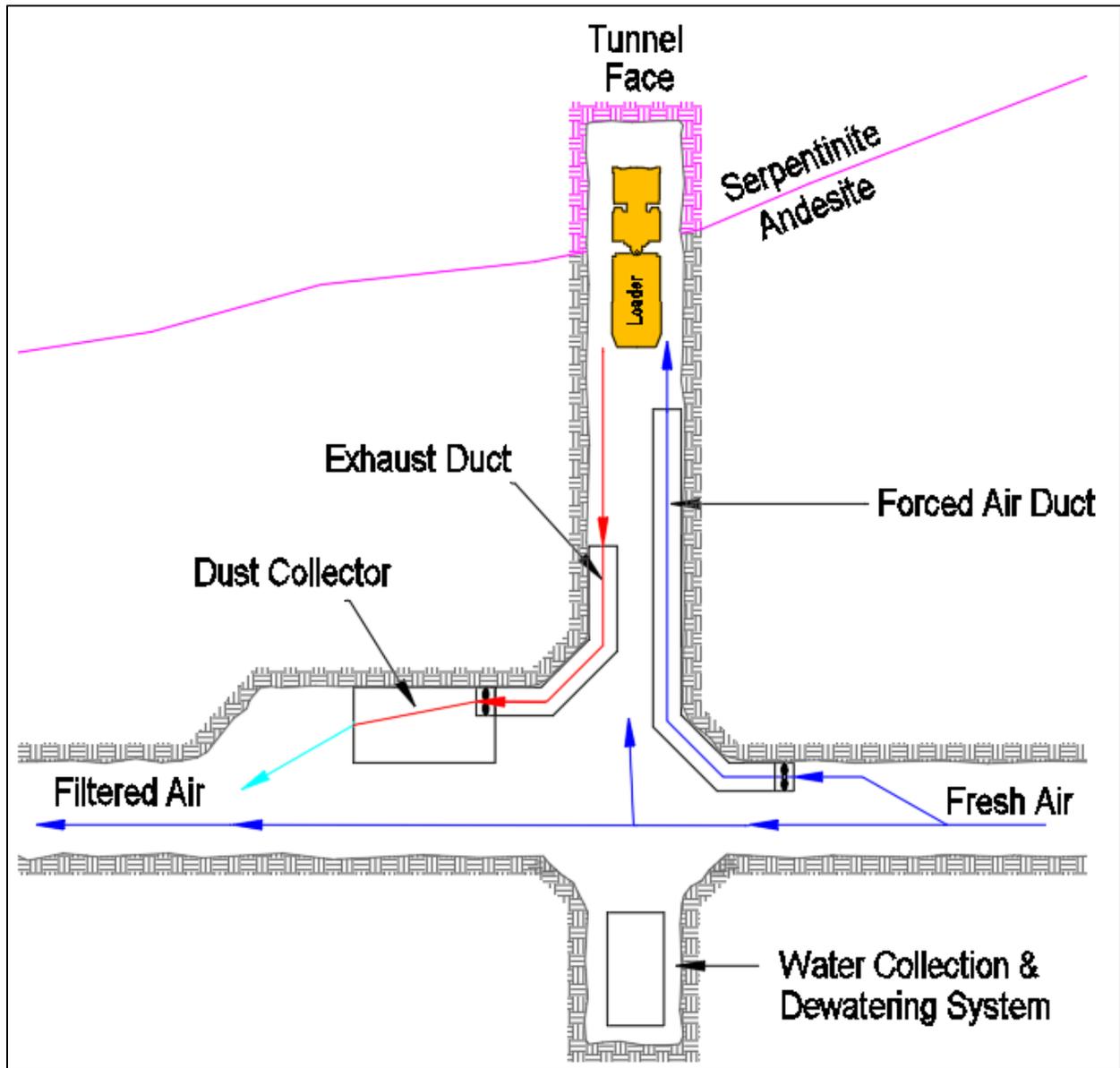
The dust collection equipment will be selected by an experienced professional to suit the conditions and air flow in the planned heading. It is anticipated that a baghouse or cartridge collector system would be utilized. Dust collection equipment will be designed for a dust removal efficiency of ASHRAE Standard 52 MERV rating 16 or better (greater than 95% removal of +0.3-micron particles). Recent studies on filters to protect equipment operators in mines have highlighted MERV-16 filters as an optimal choice due to being less airflow restrictive than HEPA filters. In one study at an underground crusher, over a 15-month period, a MERV-16 filter was five times more effective, on particles greater than 0.3 micron, than a HEPA filter (NIOSH, 2019). In the majority of mining and construction applications, it is believed that MERV-16 filters, having greater or equal to 95% filtering efficiency on all respirable sized particles, would be the optimal choice over HEPA filters (NIOSH, 2019). The dust collection equipment will be designed to allow removal of collected dust and filter cartridges without exposing workers or releasing dust into the air.

The auxiliary ventilation system flows must be balanced to ensure that the exhaust fan pulls all the air from the tunnel heading. The fan placement in the exhaust ducting will be placed downstream to create negative pressure and eliminate possible air leakage before filtration. The design will incorporate sufficient distance from the exhaust duct to the working tunnel face so that blasting does not damage ducting or interfere with the collection of all dust generated by blasting.

The walls and roof of tunnels composed of rock containing significant asbestos will be covered with shotcrete and the floor will be either covered with either concrete or 3 inches of non-Asbestos Containing Material. Shotcreting would be done as part of the tunneling cycle or after completion of tunnelling. Floor covering would be done after completion of tunneling.

An example of the arrangement of the auxiliary ventilation and dust collection system is provided in Figure 1.

Figure 1 – Example of Auxiliary Ventilation and Dust Collection Design



7.0 MINE OPERATIONS

Underground gold mining requires operational practices to achieve safety, environmental, and economic goals. Rise will comply with state and federal safety regulations to protect workers from underground hazards.

To ensure that asbestos content is minimized in engineered fill and dust exhausting to surface, the following practices will be required during mine operations:

1. Wet core drilling shall be used to prevent dust generation during mineral exploration. Wet core drilling uses water to flush the drill cuttings from the hole. Wet drilling has been found to be the best method of dust control, with dust reductions from 86 to 97 percent (NIOSH, 2019).
2. Drill cuttings derived from exploration core drilling of Asbestos-Containing Material are not suitable for Surfacing and shall be collected and disposed of in an appropriate manner.
3. All mined tunnels will be mapped, under the supervision of a California Licensed Geologist, with lithology annotated on geology drawings and notation of asbestos content by PLM and TEM methods.
4. Tunnel faces will be inspected by a geologist to ensure that lithology is consistent with mine plan projections and mine material is disposed of in compliance with the ASUR plan.
5. Water generated from drilling and dust suppression during tunneling in Asbestos Containing Material shall be collected in sumps or tanks and shall not be used for Surfacing.
6. Rock loads will be wetted for transit between the tunnelling and dumping area and equipment will be washed regularly to prevent dust from being tracked out into other areas of the mine.
7. If asbestos containing material is placed in an abandoned tunnel rather than co-disposed with cemented paste backfill, the tunnel entrance will be bulkheaded after completion to ensure the material is not inadvertently disturbed by future activities. The storage located will be annotated onto mine maps.
8. Rise will comply with all required state and federal laws regulating underground mining.

8.0 ENGINEERED FILL

The Mine Planning and Operations practices of the ASUR Plan provide measures to ensure that the asbestos content of Engineered Fill (barren rock and sand tailings) placed and compacted on surface is minimized.

8.1 Engineered Fill Sampling

The ASUR Management Plan is designed so that all aboveground materials are sampled and analyzed for asbestos before they are loaded for transportation and used as Engineered Fill. The sampling practices outlined below have been developed to determine if Engineered Fill produced is Asbestos-Containing Material and complies with the requirements of the CARB ATCM for Surfacing Applications set forth at 17 CCR 93106.

Broken rock will be hoisted by skips from the underground mine at the Brunswick shaft and transferred to the concrete silo via a chute at the headframe. The concrete silo at the Brunswick shaft has three compartments for rock storage. The large compartment will be used for mineralized material and has approximately 1,000 tons of capacity. The two small compartments have a combined capacity of approximately 400 tons and would be used for storage of barren rock. This system, as illustrated in Figure 2, allows for the testing of materials for asbestos before it is utilized as Engineered Fill.

The barren rock will be transported from the concrete silo using a series of chutes and conveyors to a fully enclosed truck loading building. Mineralized material will be transported from the concrete silo using chutes and conveyors to a fully enclosed process plant by a covered conveyor system. Water will be added and the mineralized rock is ground in grinding mills to size before the gold is recovered. The sand tailings remaining from processing would be used for either cemented paste backfill to fill voids underground or as Engineered Fill.

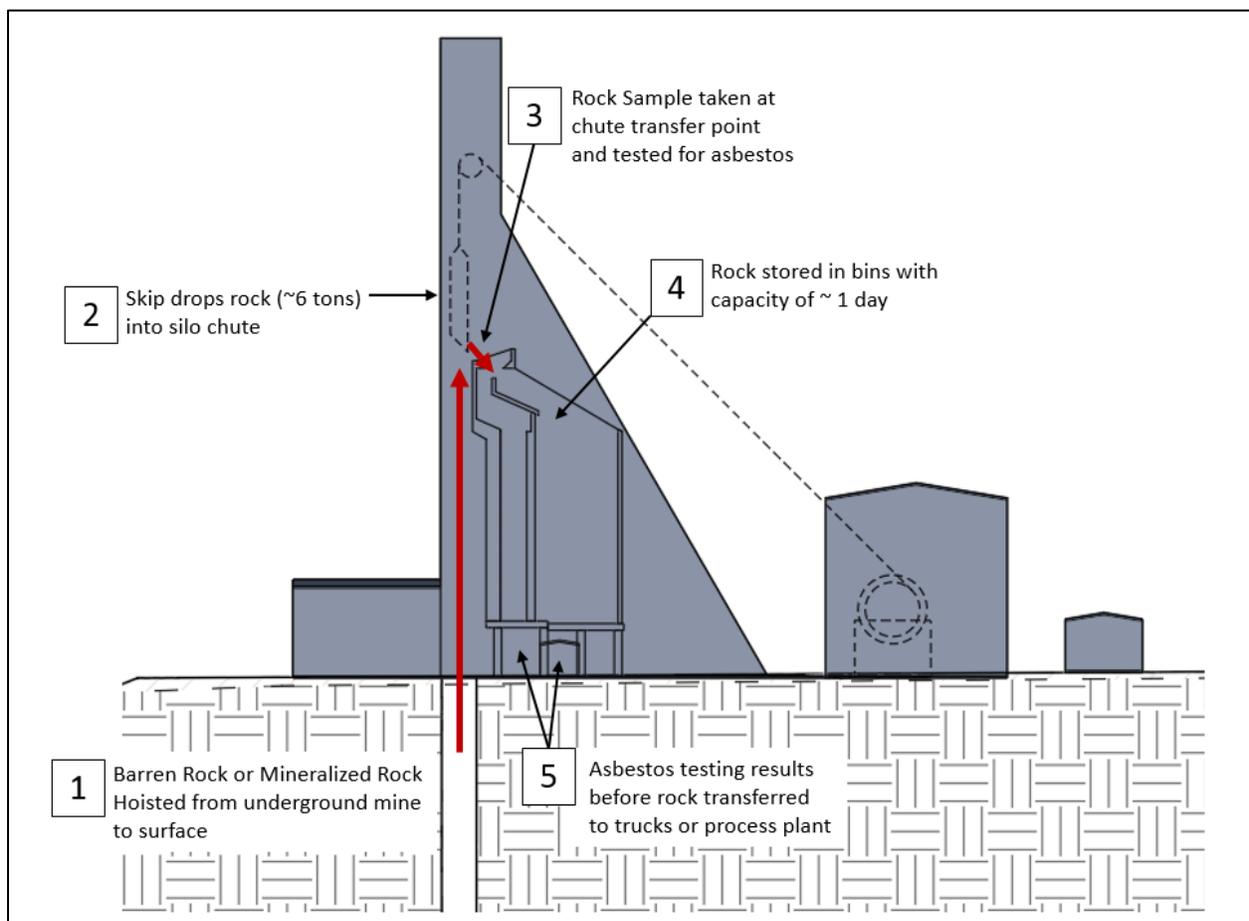
The following practices will be implemented for sampling of materials use as Engineered Fill:

1. Sampling shall be done to the requirements of *Air Resources Board Method 435, Determination of Asbestos Content of Serpentinite Aggregate* (1991) which is an approved asbestos bulk test method pursuant to 17 CCR 93106(h)(2).
2. Sampling at the Idaho-Maryland Mine would be done by compositing at least 3 random grab samples from the barren rock or mineralized material (from which sand tailings is derived) for every 1,000 tons of material.
3. Samples will be taken from the transfer point between the skip and silo and may be taken either manually or with an automated sampler.
4. Analytical determination of a materials status as Asbestos Containing Material would be done using Polarized Light Microscopy (PLM) in accordance with ARB Method 435 pursuant to 17 CCR 93106(h)(2) with a detection limit of 0.25% asbestos.
5. Analytical determination of asbestos content, for the purposes of maintaining an Asbestos Inventory, would be done using Transmission Electron Microscope (TEM) method in accordance

with the EPA/600/R-93/116 method. Sampling for the Asbestos Inventory would be done by compositing at least 3 random grab samples from the barren rock or sand tailings for every 1,000 tons of material.

6. Sampling and analytical testing will be done on or off-site by trained and qualified persons under the direction of a State Licensed Geologist.
7. Records of all analytical testwork conducted will be retained for the life of the operation or a minimum of 7 years.

Figure 2 – Brunswick Shaft Silo



8.3 Asbestos Inventory

The geology department will maintain an Asbestos Inventory based on analytical determination of asbestos content, using Transmission Electron Microscope (TEM) method in accordance with the EPA/600/R-93/116. Sampling for the Asbestos Inventory would be done by compositing at least 3 random grab samples for every 1,000 tons of material. Arrangements will be made to ensure that analytical data is received and entered into the inventory within 2 weeks of sampling.

A rolling three-month weighted average of asbestos content of mined materials brought to surface and materials used as Engineered Fill will be maintained in the Asbestos Inventory. Asbestos content by TEM structures will be converted into equivalent Phase Contrast Microscopy (PCM) units in accordance with the California Office of Environmental Health Hazard Assessment (OEHHA) 2015 Air Toxic Hot Spot Guidance Manual.

8.4 Supply or Use of Engineered Fill

If a composite sample determines that aggregate is not Asbestos-Containing Material, a written receipt must be provided to the recipient of the Engineered Fill (as it is considered a restricted material under the ATCM for Surfacing Applications under 17 CCR 93106(d)(1)) that contains the following information:

- A. The amount of restricted material that was sold or supplied;
- B. The date that the restricted material was sold or supplied;
- C. The dates that the restricted material was sampled and tested; and
- D. A statement that the asbestos content of the restricted material is less than 0.25 percent.

Any person who transports Engineered Fill (considered a restricted material) must maintain a copy of all receipts with the material at all times during transit and application.

In the case that a composite sample determines that barren rock or gold mineralization is Asbestos-Containing Material then the material shall not be used for surfacing applications pursuant to 17 CCR 93106 and:

If the rolling three-month average asbestos content of engineered fill in the Asbestos Inventory is less than 0.01% asbestos by mass of PCM equivalent units, then:

- 1) Barren Rock or Sand Tailings which are Asbestos-Containing Material will not be used for Surfacing and the geology and operations departments will be notified and ensure that such material is handled in a manner to minimize fugitive dust generated by such material.
- 2) a written receipt must be provided to the recipient of the Engineered Fill that contains the following statement:

WARNING!

This material may contain asbestos.

It is unlawful to use this material for surfacing or any application in which it would remain exposed and subject to possible disturbances.

Extreme care should be taken when handling this material to minimize the generation of dust.

Any person who transports Engineered Fill (considered a restricted material) must maintain a copy of all receipts with the material at all times during transit and application.

If the rolling three-month average asbestos content of engineered fill in the Asbestos Inventory is equal to or greater than 0.01% asbestos by mass of PCM equivalent units, then:

- 1) All barren rock, represented by the composite sample, will be transferred to the process plant, via the covered conveyor, for milling and disposal underground as cemented paste backfill rather than loaded into trucks for use as Engineered Fill.
-

- 2) All sand tailings derived from the processing of Asbestos-Containing Material will be used for underground cemented paste backfill and not for Engineered Fill.

Mineral processing and milling are wet processes which do not generate dust. Potential dust sources from transfer of material from the silo to the mineral process plant will be controlled as per the Asbestos Dust Mitigation Plan (Described in Section 8.3).

- 3) An investigation and reporting of the non-compliance event shall occur by the geology department (refer to Section 9 Reporting of the ASUR Plan).

Any person who transports Engineered Fill (considered a restricted material) must maintain a copy of all receipts with the material at all times during transit and application.

The Company will keep written receipts or other records for a minimum of seven years from the date of use.

8.5 Engineered Fill Placement Plan

The engineering department will maintain an Engineered Fill Placement (EFP) Plan, based on approved grading and reclamation plans, which will include schedules and planned material placement locations and haul roads. The EFP Plan will be designed to ensure that Asbestos Containing Material is not used for Surfacing. The EFP Plan will designate areas which are suitable for the placement of Asbestos Containing Material and maintain an estimate of the capacity of these areas.

9.0 REGULATORY COMPLIANCE

Rise will comply with all applicable federal, state, and local standards and regulations.

9.1 Mine Safety and Health Administration

Underground mining operations are obligated to comply with MSHA (Mine Safety and Health Administration) Federal Regulations.

Exposure limits for airborne contaminants, including asbestos, are described in section Subpart D – Air Quality and Physical Agents (pg. 300) as well as other sections of the Title 30 – Mineral Resources (MSHA Code): <https://www.msha.gov/regulations/standards-regulations>. MSHA regulation limit exposure to airborne asbestos fibers to an 8-hour time weighted average of 0.1 fibers per cubic centimeter of air and a maximum concentration of 1 fiber per cubic centimeter of air averaged over a period of 30 minutes. Potential asbestos fiber concentrations shall be determined by phase contrast microscopy (PCM).

9.2 CARB Asbestos ATCM for Surfacing Applications

A portion of the sub-surface property of the Idaho-Maryland Mine Project is mapped as Ultramafic Rock in the Geologic Atlas of California (Chico), therefore the ATCM for Surfacing Applications will apply to the Project.

All aggregate extracted from the Idaho-Maryland underground mine, including barren rock and mineralized material sent for processing, is considered Restricted Material under the ATCM for Surfacing Applications.

In order to use, apply, supply, or offer for sale or supply any Restricted Material for Surfacing, testing must be done by an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25 percent.

9.3 CARB Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mine Operations

The Idaho-Maryland underground mine may be considered a “Quarry” under the ATCM because a portion of the sub-surface property is mapped as Ultramafic Rock in the Geologic Atlas of California (Chico). Accordingly, operations at the mine shall comply with all applicable requirements under 17 CCR 93105.

This ATCM requires the approval of an Asbestos Dust Management (ADM) Plan by the Northern Sierra Air Quality District (NSAQMD) before the start of construction, grading activities, quarrying, or surface mining operations. Fugitive dust mitigation measures specified in the ADM Plan must be implemented before activities commence and maintained throughout the duration of the operation.

The ADM Plan must specify dust mitigation practices which are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line.

In general, the ADM Plan requires the following in relation to the planned operation:

1. Track out prevention and control measures where vehicles exit the work site to public paved roads.
2. Keeping storage piles adequately wetted or covered with tarps.
3. Dust control (surface wetting) for disturbed surface areas and storage piles.
4. Vehicle speed limits of 15 miles per hour on unpaved areas.
5. Watering on unpaved areas every 2 hours of active operations or sufficiently to keep the area adequately wetted.
6. Suspension of grading operations when wind speeds result in dust emission crossing the property line despite the application of dust mitigation measures.
7. Trucks are maintained such that no spillage can occur from holes or openings in cargo compartments.
8. Truck loads are adequately wetted and either covered with tarps or loaded such that material does not extend above the top of the cargo compartment or 6 inches below the sides of the compartment.
9. Dust control measures on grinding mills, crushers, conveyors, conveyor transfer points, and drop points to prevent visible dust emissions.
10. If required by the NSAQMD, the plan must include an air-monitoring component.

Rise will submit an ADM Plan to the NSAQMD prior to operations on the mine site, consistent with 17 CCR 93105, and will obtain approval of the ADM Plan prior to disturbance on the mine site.

10.0 REPORTING

The mine planning components and sampling of the ASUR Plan are designed to ensure that the average asbestos content of engineered fill and materials hoisted to surface in the Asbestos Inventory is minimized. The geology department will maintain the Asbestos Inventory. Engineered Fill will be ensured to contain less than an average of 0.01% asbestos by mass of PCM equivalent units (1.07 TEM structures per nanogram) based on the measures outlined in the ASUR Plan. If the three-month rolling Asbestos Inventory for materials hoisted to surface exceeds 0.01% asbestos by mass of PCM equivalent units the geology department will immediately investigate the source of the asbestos containing material and halt mining in the area of concern until a revised mine plan is prepared in compliance with the ASUR Plan.

A report shall be prepared to summarize the investigation and actions taken for any non-compliance event.

A geological report will be prepared annually with a summary of all materials mined. The report will include a summary of quantities of rock mined by lithology. The report will include analytical asbestos sampling data and all receipts issued for Engineered Fill. The report will include any dust sampling taken during operations. The report will include the results of any air monitoring or asbestos bulk sampling conducted at the request of the NSAQMD.

11.0 REFERENCES

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APPENDIX A

CARB ASBESTOS ATCM FOR CONSTRUCTION, GRADING, QUARRYING, AND SURFACE MINING

2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations

This page last review June 3, 2015

Final Regulation Order

ASBESTOS AIRBORNE TOXIC CONTROL MEASURE FOR CONSTRUCTION, GRADING, QUARRYING, AND SURFACE MINING OPERATIONS

Section 93105. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

(a) Effective Date.

- (1) No later than 120 days after the approval of this section by the Office of Administrative Law, each air pollution control and air quality management district must:
 - (A) Implement and enforce the requirements of this section; or
 - (B) Propose their own asbestos airborne toxic control measure as provided in Health and Safety Code section 39666(d).
- (2) **Pre-Existing Operations:** The owner / operator of any project in which the construction, grading, quarrying, or surface mining operation started before the effective date of this section shall comply with this section by:
 - (A) The date the district begins implementing and enforcing this section as required in subsection (a)(1)(A);
 - (B) The compliance date specified in the airborne toxic control measure adopted by the district as required in subsection (a)(1)(B).

(b) Applicability. Unless one of the specific exemptions specified in subsection (c) applies, this section shall apply to any construction, grading, quarrying, or surface mining operation on any property that meets any of the following criteria:

- (1) Any portion of the area to be disturbed is located in a geographic ultramafic rock unit; or
- (2) Any portion of the area to be disturbed has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner / operator, or the Air Pollution Control Officer (APCO); or
- (3) Naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the owner / operator, a registered geologist, or the APCO in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation.

(c) General Exemptions.

- (1) **Geologic Evaluation:** The APCO may provide an exemption from this section for any property that meets the criterion in subsection (b)(1) if a registered geologist has conducted a geologic evaluation of the property and determined that no serpentine or ultramafic rock is likely to be found in the area to be disturbed. Before an exemption can be granted, the owner/operator must provide a copy of a report detailing the geologic evaluation to the APCO for his or her consideration.
 - (A) At a minimum, the geologic evaluation must include:
 1. A general description of the property and the proposed use;
 2. A detailed site characterization which may include:

- i. A physical site inspection;
 - ii. Offsite geologic evaluation of adjacent property;
 - iii. Evaluation of existing geological maps and studies of the site and surrounding area;
 - iv. Development of geologic maps of the site and vicinity;
 - v. Identification and description of geologic units, rock and soil types, and features that could be related to the presence of ultramafic rocks, serpentine, or asbestos mineralization; and
 - vi. A subsurface investigation to evaluate the nature and extent of geologic materials in the subsurface where vertical excavation is planned; methods of subsurface investigation may include, but are not limited to borings, test pits, trenching, and geophysical surveys;
3. A classification of rock types found must conform to the nomenclature based on the International Union of Geological Science system;
 4. A description of the sampling procedures used;
 5. A description of the analytical procedures used, which may include mineralogical analyses, petrographic analyses, chemical analyses, or analyses for asbestos content;
 6. An archive of collected rock samples for third party examination; and
 7. A geologic evaluation report documenting observations, methods, data, and findings; the format and content of the report should follow the Guidelines for Engineering Geologic Reports issued by the State Board of Registration for Geologists and Geophysicists.
- (B) The district may request any additional tests or other information needed to evaluate an application for exemption.
- (C) The district shall grant or deny a request for an exemption within 90 days of the receipt of a complete application.
- (D) If the request for an exemption is denied, the APCO shall provide written reasons for the denial.
- (E) **Expiration of the Geologic Exemption:** If the owner / operator discovers any naturally-occurring asbestos, serpentine, or ultramafic rock in the area to be disturbed after the exemption is granted, then:
1. The owner / operator must comply with the requirements of this section;
 2. The owner / operator must report the discovery of the naturally-occurring asbestos, serpentine, or ultramafic rock to the APCO no later than the next business day; and
 3. The exemption under subsection (c)(1) shall expire and cease to be effective.
- (2) If a method is developed to accurately demonstrate that property located in a geographic ultramafic rock unit has no detectable asbestos in the area to be disturbed, then the ARB Executive Officer shall propose to the Board for adoption a regulatory amendment allowing the method to be utilized, as appropriate, to obtain an exemption from the requirements specified in this section.
- (3) **Agriculture and Timber Harvesting:** This section shall not apply to agricultural operations or timber harvesting except for construction of roads and buildings. Construction of roads is subject to the requirements of subsection (e) if the road is part of a construction or grading operation, quarry, or surface mine, and is subject to the requirements of subsection (d) if the road is not part of a construction or grading operation, quarry, or surface mine.

- (4) **Homeowners and Tenants:** Individuals engaged in covered activities on residential property they own or occupy are exempt from subsections (e)(1) and (e)(3)(A).
- (5) **Sand and Gravel Operations:** The APCO may provide an exemption for crushing, screening and conveying equipment, stockpiles, and off-site material transport at a sand and gravel operation if the operation processes only materials from an alluvial deposit.
- (A) The district shall grant or deny a request for an exemption within ninety (90) days of the receipt of a complete application.
- (B) If the request for an exemption is denied, the APCO shall provide written reasons for the denial.
- (d) **Requirements for Road Construction and Maintenance.** These requirements shall apply to roads that are not part of a construction or grading project, quarry, or surface mine.
- (1) No person shall conduct any road construction or maintenance activities that disturb any area that meets any criterion listed in subsections (b)(1) or (b)(2) unless all of the following conditions are met.
- (A) The APCO is notified in writing at least fourteen (14) days before the beginning of the activity or in accordance with a procedure approved by the district.
- (B) All the following dust control measures are implemented during any road construction or maintenance activity:
1. Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;
 2. The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;
 3. Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos; and
 4. Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.
- (C) Equipment and operations must not cause the emission of any dust that is visible crossing the project boundaries.
- (2) No person shall conduct any road construction or maintenance activity that disturbs the ground surface in an area that meets the criteria in subsection (b)(3) unless:
- (A) The APCO is notified no later than the next business day of the discovery that the area meets the criteria in subsection (b)(3); and
- (B) The requirements of subsections (d)(1)(B) through (d)(1)(C), are implemented within twenty-four (24) hours of the discovery.
- (3) **Exemptions from the Requirements for Road Construction and Maintenance.** The following exemptions may apply in addition to the applicable general exemptions specified in subsection (c).
- (A) **Emergency Road Repairs:** Subsection (d)(1)(A) shall not apply when construction of a road or firebreak, or a road repair is necessary due to a landslide, flood, or other emergency or to mitigate a condition that constitutes an imminent hazard to the public. The owner / operator shall notify the APCO no later than the next business day of the action taken and the condition establishing the applicability of this subsection.
- (B) **Remote Locations:** The APCO may provide an exemption from the requirements of subsection (d) for any activity which will occur at a remote location.

1. The district shall grant or deny a request for an exemption within ninety (90) days of the receipt of a complete application.
2. If the request for an exemption is denied, the APCO shall provide written reasons for the denial.

(e) Requirements for Construction and Grading Operations.

- (1) **Areas of One Acre or Less Meeting the Criteria in Subsections (b)(1) or (b)(2):** No person shall engage in any construction or grading operation on property where the area to be disturbed is **one (1.0) acre or less** unless all of the following dust mitigation measures are initiated at the start and maintained throughout the duration of the construction or grading activity:
 - (A) Construction vehicle speed at the work site must be limited to fifteen (15) miles per hour or less;
 - (B) Prior to any ground disturbance, sufficient water must be applied to the area to be disturbed to prevent visible emissions from crossing the property line;
 - (C) Areas to be graded or excavated must be kept adequately wetted to prevent visible emissions from crossing the property line;
 - (D) Storage piles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile;
 - (E) Equipment must be washed down before moving from the property onto a paved public road; and
 - (F) Visible track-out on the paved public road must be cleaned using wet sweeping or a HEPA filter equipped vacuum device within twenty-four (24) hours.
- (2) **Areas Greater Than One Acre Meeting the Criteria in Subsections (b)(1) or (b)(2):** No person shall engage in any construction or grading operation on property where the area to be disturbed is **greater than one (1.0) acre** unless:
 - (A) An Asbestos Dust Mitigation Plan for the operation has been:
 1. Submitted to and approved by the district before the start of any construction or grading activity; and
 2. The provisions of that dust mitigation plan are implemented at the beginning and maintained throughout the duration of the construction or grading activity; and
 - (B) For a project started before the effective date of this section for which an asbestos dust mitigation plan was submitted at least sixty (60) days before the effective date, and for which the district has not yet approved the asbestos dust mitigation plan:
 1. The measures in subsection (e)(1) must be implemented and maintained until the district-approved asbestos dust mitigation plan is implemented; and
 2. The provisions of the district-approved asbestos dust mitigation plan must be implemented within fourteen (14) days of district approval of the plan and maintained throughout the remainder of the construction or grading activity.
- (3) **Property That Meets the Criteria in Subsection (b)(3):** No person shall engage in any construction or grading operation unless the following requirements are met:
 - (A) The owner / operator notifies the district of the discovery of naturally-occurring asbestos, serpentine, or ultramafic rock no later than the next business day;
 - (B) The dust mitigation measures in subsection (e)(1) are implemented within twenty-four (24) hours after determining that the property meets the criteria in subsection (b)(3); and
 - (C) For operations in which the area to be disturbed is **one (1.0) acre or less**, the dust mitigation measures in subsection (e)(1) are maintained throughout the duration of the construction or

grading activity; or

- (D) For operations in which the area to be disturbed is **greater than one (1.0) acre**, the owner / operator must:
1. Submit an asbestos dust mitigation plan to the district within fourteen (14) days of the discovery of naturally-occurring asbestos, serpentine, or ultramafic rock;
 2. Maintain the dust mitigation measures in subsection (e)(1) until the provisions of the district-approved asbestos dust mitigation plan are implemented;
 3. Implement the provisions of the district-approved asbestos dust mitigation plan within fourteen (14) days of district approval of the plan; and
 4. Maintain the provisions of the district-approved asbestos dust mitigation plan throughout the remainder of the construction or grading activity.
- (4) **Asbestos Dust Mitigation Plans:** An Asbestos Dust Mitigation Plan must specify dust mitigation practices which are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line, and must include one or more provisions addressing **each** of the following topics.
- (A) Track-out prevention and control measures which shall include:
1. Removal of any visible track-out from a paved public road at any location where vehicles exit the work site; this shall be accomplished using wet sweeping or a HEPA filter equipped vacuum device at the end of the work day or at least one time per day; and
 2. Installation of one or more of the following track-out prevention measures:
 - i. A gravel pad designed using good engineering practices to clean the tires of exiting vehicles;
 - ii. A tire shaker;
 - iii. A wheel wash system;
 - iv. Pavement extending for not less than fifty (50) consecutive feet from the intersection with the paved public road; or
 - v. Any other measure as effective as the measures listed above.
- (B) Keeping active storage piles adequately wetted or covered with tarps.
- (C) Control for disturbed surface areas and storage piles that will remain inactive for more than seven (7) days, which shall include one or more of the following:
1. Keep the surface adequately wetted;
 2. Establishment and maintenance of surface crusting sufficient to satisfy the test in subsection (h)(6);
 3. Application of chemical dust suppressants or chemical stabilizers according to the manufacturers' recommendations;
 4. Covering with tarp(s) or vegetative cover;
 5. Installation of wind barriers of fifty (50) percent porosity around three (3) sides of a storage pile;
 6. Installation of wind barriers across open areas; or
 7. Any other measure as effective as the measures listed above.

- (D) Control for traffic on on-site unpaved roads, parking lots, and staging areas which shall include:
1. A maximum vehicle speed limit of fifteen (15) miles per hour or less; and
 2. One or more of the following:
 - i. Watering every two hours of active operations or sufficiently often to keep the area adequately wetted;
 - ii. Applying chemical dust suppressants consistent with manufacturer's directions;
 - iii. Maintaining a gravel cover with a silt content that is less than five (5) percent and asbestos content that is less than 0.25 percent, as determined using an approved asbestos bulk test method, to a depth of three (3) inches on the surface being used for travel; or
 - iv. Any other measure as effective as the measures listed above.
- (E) Control for earthmoving activities which shall include one or more of the following:
1. Pre-wetting the ground to the depth of anticipated cuts;
 2. Suspending grading operations when wind speeds are high enough to result in dust emissions crossing the property line, despite the application of dust mitigation measures;
 3. Application of water prior to any land clearing; or
 4. Any other measure as effective as the measures listed above.
- (F) **Control for Off-Site Transport.** The owner / operator shall ensure that no trucks are allowed to transport excavated material off-site unless:
1. Trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments; and
 2. Loads are adequately wetted and either:
 - i. Covered with tarps; or
 - ii. Loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.
- (G) **Post Construction Stabilization of Disturbed Areas.** Upon completion of the project, disturbed surfaces shall be stabilized using one or more of the following methods:
1. Establishment of a vegetative cover;
 2. Placement of at least three (3.0) inches of non-asbestos-containing material;
 3. Paving;
 4. Any other measure deemed sufficient to prevent wind speeds of ten (10) miles per hour or greater from causing visible dust emissions.
- (H) **Air Monitoring for Asbestos (If Required by the APCO).**
1. If required by the district APCO, the plan must include an air-monitoring component.
 2. The air monitoring component shall specify the following:
 - i. Type of air sampling device(s);

- ii. Siting of air sampling device(s);
- iii. Sampling duration and frequency; and
- iv. Analytical method.

(l) **Frequency of Reporting:** The plan shall state how often the items specified in subsection (e)(5)(B), and any other items identified in the plan, will be reported to the district.

(5) **Recordkeeping and Reporting Requirements.**

(A) **Recordkeeping Requirements:** The owner / operator shall maintain all of the following records for at least seven (7) years following the completion of the construction project:

1. The results of any air monitoring conducted at the request of the APCO;
2. The documentation for any geologic evaluation conducted on the property for the purposes of obtaining an exemption, except the archive of collected samples which may be discarded at the expiration of the exemption or one (1) year after the exemption is granted whichever is less; and
3. The results of any asbestos bulk sampling that meets any of the following conditions:
 - i. The asbestos bulk sampling was conducted by the owner / operator to document the applicability of or compliance with this section, or
 - ii. The asbestos bulk sampling was done at the request of the district APCO.

(B) **Reporting Requirements:** The owner / operator of any grading or construction operation subject to this section shall submit the following to the District:

1. The results of any air monitoring conducted at the request of the APCO; and
2. The results of any asbestos bulk sampling that meets any of the following conditions:
 - i. Asbestos bulk sampling conducted by the owner / operator to document applicability of or compliance with this section; or
 - ii. Asbestos bulk sampling done at the request of the APCO.

(f) **Requirements for Quarrying and Surface Mining Operations.**

(1) No person shall engage in any quarrying or surface mining operation that meets the criteria of subsections (b)(1) or (b)(2) unless an Asbestos Dust Mitigation Plan for the operation has been submitted to and approved by the District and the fugitive dust mitigation measures specified in the Plan are implemented and maintained throughout the duration of any quarrying or surface mining operation except,

(A) **Pre-Existing Operations:** The owner or operator of any quarrying or surface mining operation that was in operation before the date this section is implemented as determined pursuant to subsection (a) that has not obtained district approval of the asbestos dust mitigation plan may continue operating if all the following conditions are met:

1. The owner / operator has submitted an asbestos dust mitigation plan to the district at least sixty (60) days prior to the date specified in subsection (a);
2. The owner / operator implements all of the dust mitigation measures specified in subsections (f)(2)(B) and (f)(2)(C) by the effective date specified in subsection (a) and maintains them until the provisions of an approved asbestos dust mitigation plan are implemented; and

3. The owner / operator implements the provisions of the asbestos dust mitigation plan within fourteen (14) days following district approval of the plan.
- (B) **Mineral Exploration Activities:** Mineral exploration activities as defined in the California Public Resources Code section 2714(d) in an area meeting any of the conditions of subsection (b) are not required to submit an asbestos dust mitigation plan but shall instead implement and maintain the following measures throughout the duration of the activity:
1. Limit vehicle speeds on the site to fifteen (15) miles per hour or less;
 2. Apply sufficient water during any ground disturbance to prevent visible dust from crossing the property line;
 3. Keep disturbed areas and storage piles adequately wetted until they are permanently stabilized;
 4. Install a track-out prevention device designed to prevent track-out onto any paved public road;
 5. Clean up any visible track-out at the end of the workday or at a minimum within twenty-four (24) hours; and
 6. Cover, treat with a chemical dust suppressant, or otherwise stabilize any disturbed areas when operations cease for more than seven (7) days.
- (2) The owner / operator of any quarry or surface mine that meets any of the criteria in subsection (b)(3) shall:
- (A) Notify the APCO no later than the next business day of the discovery.
- (B) Implement all the following measures within twenty-four (24) hours following the discovery:
1. Keep stock and working piles adequately wetted during the addition and removal of material;
 2. Keep on-site unpaved roads, parking lots, and staging areas stabilized using one of the following measures:
 - i. Adequately Wetted; or
 - ii. Controlled Using Dust Palliatives or Suppressants; or
 - iii. Paving; or
 - iv. Covered to a depth of three (3) inches with gravel that contains less than 0.25 percent asbestos as determined using an approved asbestos bulk test method;
 3. Keep exposed areas and inactive stockpiles that are prone to mechanical or wind disturbances:
 - i. Adequately Wetted; or
 - ii. Controlled Using Dust Palliatives or Suppressants, Paving, Wind Berms or Breaks; or
 - iii. Covered with tarps or material that contains less than 0.25 percent asbestos as determined using an approved asbestos bulk test method;
 4. Ensure that materials to be quarried, excavated, or graded are adequately wetted;
 5. Ensure that all loads are adequately wetted before and during truck loading operations;

6. Ensure that all trucks transporting materials off-site meet the conditions of either paragraph i or paragraph ii at the time the truck leaves the site:
 - i. Loads are adequately wetted and covered with tarps; or
 - ii. Loads are adequately wetted and the material does not touch the front back or sides of the cargo compartment at any point less than six (6) inches from the top and no point of the load extends above the top of the cargo compartment; and
 7. Limit vehicle speeds within the quarry or surface mining operation to fifteen (15) miles per hour or less.
- (C) Implement all of the following measures within fourteen (14) days of the determination that the operation meets any of the criteria in subsection (b)(3).
1. Measures to ensure that material being excavated, crushed, screened, loaded, transferred or conveyed does not result in any dust that is visible crossing the property line.
 2. Measures to ensure that no grinding mill, screening operation, or transfer point on a belt conveyor discharges into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which are:
 - i. Fifty percent as dark or darker in shade as that designated as number one on the Ringlemann Chart, as published by the United States Bureau of Mines; or
 - ii. Of such opacity as to obscure an observers view to a degree equal to or greater than smoke as described in subsection (f)(2)(C)2.i. or ten (10) percent opacity.
 3. Measures to ensure that no crusher discharges into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which are:
 - i. Seventy-five percent as dark or darker in shade as that designated as number one on the Ringlemann Chart, as published by the United States Bureau of Mines; or
 - ii. Of such opacity as to obscure an observers view to a degree equal to or greater than smoke as described in subsection (f)(3)(C)3.i. or fifteen (15) percent opacity.
 4. Measures for material handling sufficient to meet the requirements of subsections (f)(2)(C)1. through (f)(2)(C)3. Such measures may include the following:
 - i. Installation and operation of spraybars on all conveyors; and
 - ii. Installation of shrouds at all drop points.
 5. Track-out control and prevention measures which shall include:
 - i. Installation of a gravel pad, grizzly, tire washing system, or paving at least fifty (50) feet of the access road, and
 - ii. Cleaning any visible track-out off the paved public road using wet sweeping or a HEPA filter equipped vacuum device at the end of each workday.

6. Stabilization of all on-site roads, parking lots, and staging areas open to the public by one of the following methods:
 - i. Pave with asphalt or concrete, or
 - ii. Treat with a chemical dust suppressant applied according to manufacturers directions, or
 - iii. Maintain a gravel cover that has a depth of at least three (3) inches and contains less than 0.25 percent asbestos as determined using an approved asbestos bulk test method.
 - (D) Submit an Asbestos Dust Mitigation Plan to the District within fourteen (14) days and maintain the measures specified in subsections (f)(2)(B) and (f)(2)(C) until the asbestos dust mitigation measures in the district-approved Asbestos Dust Mitigation Plan are implemented.
- (3) An Asbestos Dust Mitigation Plan required by subsections (f)(1) and (f)(2)(D) must include sections which address each of the following topics.
- (A) A Fugitive Dust Mitigation Component which shall, at a minimum, include the measures specified in subsections (f)(2)(B) and (f)(2)(C), unless the APCO determines that it is appropriate to add, omit, or modify these measures depending on site-specific parameters. The plan shall also require that:
1. Equipment and operations do not emit dust that is visible crossing the property line;
 2. Crushers do not discharge into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour, which is:
 - i. Seventy-five percent as dark or darker in shade as that designated as number one on the Ringlemann Chart, as published by the United States Bureau of Mines; or
 - ii. Of such opacity as to obscure an observers view to a degree equal to or greater than smoke as described in subsection (f)(3)(A)2.i. or fifteen (15) percent opacity; and
 3. Grinding mills, screening operations, and transfer points on belt conveyors do not discharge into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour, which is:
 - i. Fifty percent as dark or darker in shade as that designated as number one on the Ringlemann Chart, as published by the United States Bureau of Mines; or
 - ii. Of such opacity as to obscure an observers view to a degree equal to or greater than smoke as described in subsection (f)(3)(A)3.i. or ten (10) percent opacity.
- (B) ***Air Monitoring for Asbestos (If Required by the APCO).***
1. If required by the district APCO, the plan must include an air monitoring component.
 2. The air monitoring component shall specify the following:
 - i. Type of air sampling device(s);
 - ii. Siting of air sampling device(s);
 - iii. Sampling duration and frequency; and
 - iv. Analytical method.

- (C) **Frequency of Reporting.** The plan shall state how often the items specified in subsection (f)(5) (B), and any other items identified in the plan, will be reported to the district.
- (4) Upon petition by the owner / operator the APCO may approve the use of requirements or restrictions established under other regulatory programs to meet the requirements of subsection (f) under the following conditions:
- (A) The requirements or restrictions are equivalent to or more stringent than the requirements of subsection (f); and
- (B) The requirements or restrictions are enforceable by the APCO.
- (5) **Recordkeeping and Reporting Requirements:** The owner / operator of a surface mining or quarrying operation subject to this section must comply with the following recordkeeping and reporting requirements.
- (A) **Recordkeeping Requirements:** The owner / operator shall maintain all of the following records for at least seven (7) years:
1. The results of any air monitoring conducted at the request of the APCO;
 2. The documentation for any geologic evaluation conducted on the property for the purpose of obtaining an exemption except, the archive of collected rock samples which may be discarded at the expiration of the exemption or one (1) year after the district granted or denied the exemption, whichever comes first; and
 3. The results of any asbestos bulk sampling that meets any of the following conditions:
 - i. The asbestos bulk sampling was conducted by the owner / operator to document the applicability of, or compliance with this section; or
 - ii. The asbestos bulk sampling was done at the request of the district APCO.
- (B) **Reporting Requirements:** The owner / operator shall submit the following to the District:
1. The results of any air monitoring conducted at the request of the APCO;
 2. The documentation of any geologic evaluation conducted on the property in question; and
 3. The results of any asbestos bulk sampling that meets any of the following conditions:
 - i. Asbestos bulk sampling conducted by the owner / operator to document applicability of or compliance with this section; or
 - ii. Asbestos bulk sampling done at the request of the district APCO.
- (g) **Air Monitoring for Asbestos.** Pursuant to the requirements of Health and Safety Code section 41511:
- (1) Air monitoring may be required by the district APCO.
 - (2) The APCO may revise the asbestos dust mitigation plan on the basis of the results of the air monitoring.
- (h) **Test Methods.**
- (1) **Ultramafic Rock:** The ultramafic rock composition of any material shall be determined using standard analysis techniques including, but not limited to, color index assessment, microscopic examination, petrographic analysis or rock thin sections, or chemical analysis techniques, such as X-ray fluorescence spectrometry or inductively coupled plasma analysis.

- (2) **Bulk Sampling Methods:** ARB Test Method 435, or an alternative asbestos bulk test method approved in writing by the Executive Officer of the California Air Resources Board, shall be used to determine the asbestos content of a bulk sample. For the purposes of determining compliance with this section, references in ARB Test Method 435 to "serpentine aggregate" shall mean "gravel" or other "bulk materials" to be tested for asbestos content.
 - (3) **Analysis of Air Samples:** Analysis of all air samples shall follow the analytical method specified by the United States Environmental Protection Agency, Asbestos Hazard Emergency Response Act (AHERA) criteria for asbestos (40 CFR, Part 763 Subpart E, Appendix A, adopted October 30, 1987), with the following exceptions:
 - (A) The analytical sensitivity shall be 0.001 structures per cubic centimeter (0.001 s/cc); and
 - (B) All asbestos structures with an aspect ratio greater than three to one (3 to1) shall be counted irrespective of length.
 - (4) The results of the analysis of air samples shall be reported as transmission electron microscopy (TEM) asbestos structures per cubic centimeter (s/cc).
 - (5) **Adequately Wetted:** Field determination of "adequately wetted" shall be as follows:
 - (A) If the district-approved asbestos dust mitigation plan has specified a percent moisture content for specific materials the determination shall be as specified in the district-approved asbestos dust mitigation plan; or
 - (B) If no moisture threshold is specified in a district-approved asbestos dust mitigation plan, a sample of at least one (1) quart in volume shall be taken from the top three (3) inches of a road, or bare area or from the surface of a stockpile. The sample shall be poured out from a height of four (4) feet onto a clean hard surface. The material shall be considered to be adequately wetted if there is no observable dust emitted when the material is dropped.
 - (6) **Surface Crusting:** "Measurement of the stability of surface crusting on horizontal surfaces" shall be as follows:
 - (A) Where a visible crust exists, drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16 to 17 grams from a distance of 30 centimeters (one foot) directly above (at a 90 degree angle perpendicular to) the ground surface. If blowsand (thin deposits of loose grains covering less than 50 percent of the surface that have not originated from the surface being tested) is present, clear the blowsand from the surfaces to be tested before dropping the steel ball.
 - (B) A sufficient crust is determined to exist if, when the ball is dropped according to subsection (h)(6)(A), the ball does not sink into the surface so that it is partially or fully surrounded by loose grains and, upon removing the ball, the surface on which it was dropped has not been pulverized so that loose grains are visible.
 - (C) Drop the ball three times each in three representative test areas within a survey area measuring 1 foot by 1 foot that represents a random portion of the surface being evaluated. The test area shall be deemed to have passed if at least two of the three times the ball was dropped, the results met the criteria in subsection (h)(6)(B). If all three test areas pass, the area shall be deemed to be "sufficiently crusted".
- (i) **Definitions.** For the purposes of this section, the following definitions shall apply:
- (1) **"Access Road"** means any road extending from a public thoroughfare onto the property of a construction project, quarry, or surface mining operation.
 - (2) **"Adequately Wetted"** means sufficiently moistened with water to minimize the release of particulate matter into the ambient air as determined by the test method(s) in subsection (h)(5).

- (3) **"Agricultural Operation"** means activities necessary for the growing and harvesting of crops or raising of fowl or animals.
- (4) **"APCO"** means the executive officer, air pollution control officer, or the designee of the executive officer or air pollution control officer of any air pollution control or air quality management district created or continued in existence pursuant to Part 3 (commencing with section 40000), Division 26, Health and Safety Code.
- (5) **"Approved Asbestos Bulk Test Method"** means ARB Test Method 435 or an alternative asbestos bulk test method approved in writing by the Executive Officer of the California Air Resources Board.
- (6) **"ARB"** means the California Air Resources Board.
- (7) **"ARB Test Method 435"** means the test method specified in title 17, California Code of Regulations, section 94147.
- (8) **"Asbestos"** means asbestiforms of the following minerals: chrysotile (fibrous serpentine), crocidolite (fibrous riebeckite), amosite (fibrous cummingtonite--grunerite), fibrous tremolite, fibrous actinolite, and fibrous anthophyllite.
- (9) **"Asbestos-Containing Material"** means any material that has an asbestos content of 0.25 percent or greater.
- (10) **"Asbestos Dust Mitigation Plan"** means a detailed written document specifying measures that would be implemented to minimize the emissions of asbestos-laden dust.
- (11) **"Carry-Out" or "Track-Out"** means any bulk material that adheres to and agglomerates on the exterior surfaces of motor vehicles, haul trucks, and/or equipment, including tires, and that has fallen or been deposited onto a paved public roadway.
- (12) **"Construction," "Grading," "Construction or Grading Operation" and "Construction or Grading Activity"** mean any surface disturbance conducted with powered equipment or any related activity, including, but not limited to, all surface and subsurface cuts and fills, excavation, trenching, stockpiling, bulldozing, and landfills.
- (13) **"District"** means any air pollution control or air quality management district created or continued in existence pursuant to Part 3 (commencing with section 40000), Division 26, Health and Safety Code.
- (14) **"Geographic Ultramafic Rock Unit"** means a geographic area that is designated as an ultramafic rock unit or ultrabasic rock unit, including the unit boundary line, on any of the maps referenced in Appendix A.
- (15) **"Geologic Evaluation"** means an evaluation of a property to determine the presence of various types of rocks, including ultramafic rock, serpentinite, or other metamorphic derivatives of ultramafic rock.
- (16) **"Gravel Pad"** means a layer of gravel, rock, or crushed rock which is at least one inch or larger in diameter and less than five (5) percent silt content, maintained at the point of intersection of a paved public roadway and a work site entrance to dislodge mud, dirt, and debris from tires of motor vehicles and haul trucks prior to leaving a worksite.
- (17) **"Grizzly"** means a device used to dislodge mud, dirt, and debris from the tires and undercarriage of motor vehicles and haul trucks prior to leaving the work site.
- (18) **"HEPA Filter"** means a High Efficiency Particulate Air filter used to remove particles less than one (1) micron in aerodynamic diameter and operates at removal efficiencies of 99.9 percent or greater.
- (19) **"Naturally-Occurring Asbestos"** means asbestos that has not been processed in an asbestos mill.
- (20) **"Owner / Operator" or "Person"** includes, but is not limited to:
 - (A) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including, but not limited, to a government corporation;

- (B) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law; or
- (C) A project proponent and any of its contractors or subcontractors.
- (21) **"Paving"** means creating a cover consisting of portland cement, asphalt concrete, or chip seal.
- (22) **"Project Boundaries"** means the right-of-way and any construction easements adjacent to and necessary for the purposes of a specific road construction project or maintenance activity.
- (23) **"Property"** means any real property including, but not limited to, any contiguous parcel or parcels of land and anything attached to, or erected on it.
- (24) **"Quarrying"** means the act of obtaining stone from the earth by means of cutting, digging, excavating, or blasting and includes processes used to convert the excavated material into commercial products.
- (25) **"Registered Geologist"** means an individual that is currently licensed as a geologist with the State of California, Department of Consumer Affairs, Board of Geology and Geophysicists.
- (26) **"Remote Location"** means any location that is at least one (1.0) mile from the location of a receptor. **"Receptor"** includes, but is not limited to, any hospital, school, day care center, work site, business, residence, and permanent campground. The distance to the nearest receptor is to be measured from the outermost limit of the area to be disturbed or road surface, whichever is closer.
- (27) **"Road Construction and Maintenance"** means the activities undertaken to build roads, highways, railroads, bridges, culverts, drains and other works incidental to road or highway construction, and maintenance activities that involve grading or excavation. Road Construction and Maintenance does not include the construction of rest stops, maintenance buildings, or parking lots. These excluded activities are subject to the requirements of subsection (e).
- (28) **"Road Surface"** means the traveled way of a road and any shoulder which may extend up ten (10) feet from the edge of the traveled way.
- (29) **"Sand and Gravel Operation"** means any facility operating in alluvial deposits.
- (30) **"Serpentine"** means any form of the following hydrous magnesium silicate minerals: antigorite, lizardite, and chrysotile.
- (31) **"Serpentinite"** means a rock consisting almost entirely of serpentine, although small amounts of other minerals such as magnetite, chromite, talc, brucite, and tremolite-actinolite may also be present. **"Serpentinite"** is also a metamorphic derivative of the ultramafic rocks, peridotite, pyroxenite, or dunite.
- (32) **"Surface Mining"** means all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposit, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. "Surface mining" includes, but is not limited to, in place distillation or retorting or leaching, the production and disposal of mining waste, prospecting and exploratory activities or any activity subject to regulation under the Surface Mining and Reclamation Act of 1975, Public Resources Code section 2700 et seq.
- (33) **"Ultrabasic Rock"** means ultramafic rock.
- (34) **"Ultramafic Rock"** means an igneous rock composed of 90 percent or greater of one or a combination of the following iron / magnesium-rich, dark-colored silicate minerals: olivine, pyroxene, or more rarely amphibole. For the purposes of this section, "ultramafic rock" includes the following rock types: dunite, pyroxenite, and peridotite; and their metamorphic derivatives.
- (35) **"Visible Emissions"** means any particulate matter that is visually detectable without the aid of instruments other than corrective lenses.

NOTE: Authority Cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, and 41511,
Health and Safety Code

Reference: Sections 39650, 39658, 39659, 39666, and 41511, Health and Safety Code

APPENDIX A

**Division of Mines and Geology
California Department of Conservation**

AVAILABLE GEOLOGIC MAPS FOR CALIFORNIA

GEOLOGIC ATLASES OF CALIFORNIA - Scale: 1:250,000

- GEOLOGIC ATLAS OF CALIFORNIA: ALTURAS** Compiled by Gay, T.E. and Others, 1958
- GEOLOGIC ATLAS OF CALIFORNIA: BAKERSFIELD** Compiled by Smith, A.R., 1964 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: DEATH VALLEY** Compiled by Streitz, R.L. and Stinson, M.C., 1974 (Reprinted 1991)
- GEOLOGIC ATLAS OF CALIFORNIA: FRESNO** Compiled by Matthews, R.A. and Burnett, J.L., 1965 (Reprinted 1991)
- GEOLOGIC ATLAS OF CALIFORNIA: KINGMAN** Compiled by Jennings, C.W., 1961
- GEOLOGIC ATLAS OF CALIFORNIA: LONG BEACH** Compiled by Jennings, C.W., 1962 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: LOS ANGELES** Compiled by Jennings, C.W. and Strand, R.G., 1969 (Reprinted 1991)
- GEOLOGIC ATLAS OF CALIFORNIA: MARIPOSA** Compiled by Strand, R.G., 1967 (Reprinted 1991)
- GEOLOGIC ATLAS OF CALIFORNIA: NEEDLES** Compiled by Bishop, C.C., 1963 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: REDDING** Compiled by Strand, R.G., 1962
- GEOLOGIC ATLAS OF CALIFORNIA: SALTON SEA** Compiled by Jennings, C.W., 1967 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: SAN LUIS OBISPO** Compiled by Jennings, C.W., 1958 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: SAN DIEGO - EL CENTRO** Compiled by Strand, R.G., 1962 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: SANTA ANA** Compiled by Rogers, T.H., (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: SANTA CRUZ** Compiled by Jennings, C.W. and Strand, R.G., 1958 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: SANTA MARIA** Compiled by Jennings, C.W., 1959 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: TRONA** Compiled by Jennings, C.W., 1962
- GEOLOGIC ATLAS OF CALIFORNIA: UKIAH** Compiled by Jennings, C.W. and Strand, R.G., 1960 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: WALKER LAKE** Compiled by Koenig, J.B., 1963 (Reprinted 1992)
- GEOLOGIC ATLAS OF CALIFORNIA: WESTWOOD** Compiled by Lyndon, P.A. and Others, 1960

REGIONAL GEOLOGIC MAP SERIES**Scale 1:250,000**

GEOLOGIC MAP OF THE CHICO QUADRANGLE (set of five sheets) By Saucedo, G.J. and Wagner, D.L., 1992

GEOLOGIC MAP OF THE SACRAMENTO QUADRANGLE (set of four sheets) Compiled by Wagner, D.L. and Others, 1981

GEOLOGIC MAP OF THE SANTA ROSA QUADRANGLE (set of five sheets) Compiled by Wagner, D.L. and Bortugno, E.J. (Reprinted 1999)

GEOLOGIC MAP OF THE SAN BERNARDINO QUADRANGLE (set of five sheets) Compiled by Bortugno, E.J. and Spittler, T.E. (Reprinted 1998)

GEOLOGIC MAP OF THE WEED QUADRANGLE (set of four sheets) By Wagner, D.L. and Saucedo, G.J., 1987

GEOLOGIC MAP OF THE SAN FRANCISCO-SAN JOSE QUADRANGLE (set of five sheets) By Wagner, D.L., Bortugno, E.J. and McJunkin, R.D., 1990 Color-Coded Faults

LOCAL GEOLOGIC MAPS

AREAS MORE LIKELY TO CONTAIN NATURALLY-OCCURRING ASBESTOS IN WESTERN EL DORADO COUNTY, CALIFORNIA By Ron Churchill, March 2000, **Scale:** 1:100,000

SERPENTINITE SURVEY OF LAKE COUNTY, CALIFORNIA - MAP A, ULTRAMAFIC, ULTRABASIC, AND SERPENTINE ROCK AND SOILS OF LAKE COUNTY, Adopted: March 2, 1992, **Scale:** 1:100,000

[ATCMs](#)

APPENDIX B

CARB ASBESTOS ATCM FOR SURFACING APPLICATIONS

Asbestos ATCM for Surfacing Applications

This page last review June 3, 2015

Final Regulation Order

ASBESTOS AIRBORNE TOXIC CONTROL MEASURE (ATCM) FOR SURFACING APPLICATIONS

Section 93106. Asbestos Airborne Toxic Control Measure for Surfacing Applications

- (a) **Effective Date** - No later than November 13, 2001, each air pollution control and air quality management district must:
- (1) Implement and enforce the requirements of this section, or
 - (2) Propose their own asbestos airborne toxic control measure as provided in Health and Safety Code section 39666(d).

(b) **Applicability.**

This section shall apply to any person who produces, sells, supplies, offers for sale or supply, uses, applies, or transports any of the following materials:

- (1) Aggregate material extracted from property where any portion of the property is located in a geographic ultramafic rock unit (as defined in subsection (i)(9)); or
- (2) Aggregate material extracted from property that is **NOT** located in a geographic ultramafic rock unit (as defined in subsection (i)(9)) if the material has been:
 - (A) Evaluated at the request of the Air Pollution Control Officer (APCO) and determined to be ultramafic rock or serpentine;
 - (B) Tested at the request of the APCO and determined to have an asbestos content of 0.25 percent or greater, as determined using an approved asbestos bulk test method; or
 - (C) Determined by the owner / operator of a facility to be ultramafic rock, or serpentine, or material that has an asbestos content of 0.25 percent or greater.
- (3) Any mixture of aggregate material that contains ten percent (10 percent) or more of any of the materials listed above in subsection (b)(1) or (b)(2).

(c) **Prohibition On the Use, Sale, and Supply of Restricted Aggregate Material**

Unless one of the exemptions in subsection (f) applies, no person shall use, apply, sell, supply, or offer for sale or supply any restricted material (as defined in subdivision (i)(20)) for surfacing, unless it has been tested using an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25 percent.

(d) **Requirements to Provide Notice with Restricted Material**

- (1) Requirements for Producers of Restricted Material for Surfacing Applications: Any producer who sells,

supplies, or offers for sale or supply restricted material for surfacing that has been tested using an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25 percent must provide to the recipient of the restricted material a written receipt that contains the following information:

- (A) The amount of restricted material that was sold or supplied;
 - (B) The date that the restricted material was sold or supplied;
 - (C) The dates that the restricted material was sampled and tested, or verification that the material is exempt under subsection (f)(7); and
 - (D) A statement that the asbestos content of the restricted material is less than 0.25 percent.
- (2) Requirements for Persons  Other than Producers  Who Sell or Supply Restricted Material for Surfacing Applications: Any person, other than a producer, who sells, supplies, or offers for sale or supply restricted material for surfacing must provide to the recipient of the material a written receipt which specifies the following information:
- (A) The amount of restricted material that was sold or supplied;
 - (B) The date that the restricted material was sold or supplied; and
 - (C) A statement that the asbestos content of the restricted material is less than 0.25 percent.
- (3) Requirements for the Sale or Supply of Restricted Materials for Non-Surfacing Applications: Any person who sells, supplies, or offers for sale or supply restricted material for non-surfacing applications must provide with each sale or supply a written receipt containing the following statement:

WARNING!

This material may contain asbestos.

It is unlawful to use this material for surfacing or any application in which it would remain exposed and subject to possible disturbances.

Extreme care should be taken when handling this material to minimize the generation of dust. 

(e) Recordkeeping and Reporting Requirements

- (1) Recordkeeping Requirements for Persons Who Use Restricted Material for Surfacing: Any person who uses or applies restricted material for surfacing must retain any written receipt or other record verifying that the material has an asbestos content of less than 0.25 percent for a minimum period of seven years from the date of use or application.
- (2) Recordkeeping Requirements for Persons Who Transport Restricted Material: Any person who transports restricted material must maintain a copy of all receipts or records required by subsection (d) with the material at all times during transit and application.
- (3) Recordkeeping Requirements for Persons Who Sell or Supply Restricted Material: Any person who sells, supplies, or offers restricted material for sale or supply must retain copies of all receipts or records required by subsection (d) for a minimum period of seven years from the date of sale or supply.
- (4) Reporting Requirements for Persons Who Use, Sell, or Supply Restricted Material: Any person who

uses restricted material for surfacing, sells, supplies, or offers restricted material for sale or supply must provide receipts and test results to the APCO for review upon request.

(f) Exemptions

- (1) *Sand and Gravel Operations:*** The requirements of subsections (c), (d), and (e) shall not apply to aggregate material extracted from a sand and gravel operation. A "sand and gravel operation" means any aggregate-producing facility operating in alluvial deposits.
- (2) *Roads Located at Quarries or Mines:*** The requirements of subsection (c) shall not apply to roads at quarries or mines that are located in a geographic ultramafic rock unit, an ultramafic rock deposit, or a serpentine deposit, provided that the aggregate material was obtained on site from the quarry or mine property.
- (3) *Maintenance Operations on Existing Roads:*** The requirements of subsections (c), (d), and (e) shall not apply to maintenance operations on any existing road surface if no additional restricted material is applied to the road surface.
- (4) *Emergency Road Repairs:*** The APCO may issue a temporary exemption from the requirements of subsections (c), (d), and (e) to an applicant who demonstrates that a road repair is necessary due to a landslide, flood, or other emergency, and that the use of aggregate material other than restricted material is not feasible for this repair. The APCO shall specify the time during which such exemption shall be effective; however, no exemption shall remain in effect longer than 90 days.
- (5) *Asphalt and Concrete Materials:*** The requirements of subsections (c), (d), and (e) shall not apply to restricted material that is an integral part of the production of asphalt concrete, portland cement concrete or other similarly cemented materials; or construction of an asphalt or a portland cement concrete surface as long as all of the restricted material is incorporated into or completely covered by the asphalt or portland cement concrete.
- (6) *Landfill Operations:*** The use and application requirements of subsection (c) shall not apply to landfill operations, except for the surfacing of public-access roads used by vehicular traffic.
- (7) *Geologic Evaluation:*** The APCO may provide an exemption from subsections (c), (d), and (e) for aggregate material extracted from within a geographic ultramafic rock unit if a registered geologist has conducted a geologic evaluation of the property from which the aggregate material is obtained and determined that serpentine or ultramafic rock is not likely to be found on the property. Before an exemption can be granted, the owner / operator must provide a copy of a report detailing the geologic evaluation to the APCO for his or her consideration.
 - (A)** At a minimum, the geologic evaluation must include:
 1. A general description of the property and the proposed use;
 2. A detailed site characterization, which may include:
 - i. A physical site inspection;
 - ii. Offsite geologic evaluation of adjacent property;
 - iii. Evaluation of existing geological maps and studies of the site and surrounding area;
 - iv. Development of geologic maps of the site and vicinity;
 - v. Identification and description of geologic units, rock and soil types, and features that could be related to the presence of ultramafic rocks, serpentine, or asbestos mineralization;

- vi. A subsurface investigation to evaluate the nature and extent of geologic materials in the subsurface where extensive vertical excavation is planned; methods of subsurface investigation may include, but are not limited to borings, test pits, trenching, and geophysical surveys;
 - 3. A classification of rock types found must conform to the nomenclature based on the International Union of Geological Science system;
 - 4. A description of the sampling procedures used;
 - 5. A description of the analytical procedures used, which may include mineralogical analyses, petrographic analyses, chemical analyses, or analyses for asbestos content;
 - 6. An archive of collected rock samples for third party examination; and
 - 7. A geologic evaluation report documenting observations, methods, data, and findings; the format and content of the report should follow the Guidelines for Engineering Geologic Reports issued by the State Board of Registration for Geologists and Geophysicists.
- (B) The APCO shall respond to a request for an exemption within 90 days of the receipt of the application.
- (C) If the request for an exemption is denied, the APCO shall provide written reasons for the denial.
- (D) *Expiration of the Geologic Exemption:* If the owner / operator discovers any ultramafic rock or serpentine on the property after the exemption is granted, then:
- 1. The owner / operator must comply with the requirements of subsections (c), (d), and (e) immediately following the discovery; and
 - 2. The owner / operator must report the discovery of ultramafic rock or serpentine to the APCO within 24 hours; and
 - 3. The exemption under subsection (f)(7) shall expire and cease to be effective.
- (8) **Limited Access Surfaces:** The APCO may provide an exemption from the requirements of subsection (c) for the use of restricted material on limited access surfaces, if the owner / operator can demonstrate that:
- (A) No alternative aggregate materials are reasonably available; and
 - (B) The surface is not located in an area zoned or identified in a land use plan for residential, recreational, or commercial use.
 - (C) The APCO shall respond to a request for an exemption within 90 days of the receipt of the application.
 - (D) If the request for an exemption is denied, the APCO shall provide written reasons for the denial.
- ◆ Limited access surface ◆ means any surface not subject to vehicular travel or pedestrian access that has an incline of twenty (20) percent or greater.
- (9) **Surfacing Applications in Remote Locations:**

- (A) The APCO may provide an exemption from the requirements of subsection (c) if the owner / operator can demonstrate that:
1. The surface is located in a remote location (as defined in subsection (i)(19)); and
 2. No alternative aggregate materials are reasonably available; and
 3. All aggregate material used for surfacing has been tested according to an approved asbestos bulk test method and determined to have an asbestos content of one (1.0) percent or less; except that the APCO may allow the use of restricted material with an asbestos content up to five (5.0) percent if the owner / operator can demonstrate that restricted material with an asbestos content of one (1.0) percent or less is not reasonably available.
- (B) Before providing this exemption, the APCO shall:
1. Consider the following information: county land use plans, the current use of the surrounding land, and the current and anticipated zoning designations;
 2. Provide public notice and solicit comments for a 30-day period;
 3. Require that any surface exempted pursuant to this subsection be posted with a permanent sign alerting the public to potential asbestos exposures; and
 4. Require that any exemption shall be valid for no longer than three years; but if the owner / operator cannot demonstrate that all the criteria listed in subdivision (f)(9)(A) are met at the time of reapplication, the exemption shall not be renewed.
- (C) The APCO may grant an exemption when the distance from the road or other surface to the nearest receptor is less than one mile if **ALL** of the following criteria are met:
1. The criteria listed above in subsections (f)(9)(A)2 and 3 and subsection (f)(9)(B) must be met:
 2. Any receptor located within one mile from the road or other surface must **NOT** be any of the following:
 - i. A permanent resident (i.e., a person that resides at the receptor point for six months or more in a year), or
 - ii. A permanent business (i.e., business that operates at the receptor point for six months or more in a year), or
 - iii. A school or daycare center;
 3. The road or other surface must be located on private property;
 4. The entrance points to the road or other surface from any public thoroughfare must be gated and posted with a sign as required in subsection (f)(9)(B)3.;
 5. The applicant for the exemption must provide to the APCO an estimate of the average traffic volume on the road or other surface and the methodology used to make the estimate; and
 6. Whenever the traffic volume exceeds or is anticipated to exceed 20 vehicle

passes per day, the owner / operator must;

- i. Treat the road or other surface with a dust control method that is at least 70 percent effective; and
- ii. Maintain records of the application and type of the dust control method for a minimum period of seven years; and
- iii. Provide the records of the applications of the dust control method to the APCO upon request.

(D) The APCO shall respond to any application for an exemption within 90 days of the receipt of the application.

(E) If the request for an exemption is denied, the APCO shall provide written reasons for the denial.

(10) **Roads Located at Construction Sites:** The requirements of subsections (c), (d), and (e) shall not apply to restricted material used for the construction of temporary road surfaces located at on-going construction sites where vehicle traffic is limited to construction personnel and equipment. This exemption does not apply to the use of restricted material for temporary roads for public use.

(11) **Riprap:** The requirements of subsection (c) (d), and (e) shall not apply to restricted material used for riprap. **Riprap** means the material used to construct a loose assemblage of stones along a water course or shoreline to prevent erosion or provide stability.

(g) Requirements to Perform a Geologic Evaluation or Asbestos Testing

Pursuant to the requirements of Health and Safety Code section 41511, the APCO or the Executive Officer of the ARB may require an owner / operator to perform:

- (1) A geologic evaluation for the presence of ultramafic rock or serpentine on any property from which aggregate material is extracted; or
- (2) Testing for the asbestos content of any aggregate material sold, supplied, offered for sale or supply, or used for surfacing.

(h) Applicable Test Methods

- (1) **Ultramafic Rock:** The ultramafic rock composition of any material shall be determined using a standard analysis technique including, but not limited to, color index assessment, microscopic examination, petrographic analysis or rock thin sections, or chemical analysis techniques, such as X-ray fluorescence spectrometry or inductively coupled plasma analysis.
- (2) **Asbestos Testing:** ARB Test Method 435 or an alternative asbestos bulk test method approved in writing by the Executive Officer of the Air Resources Board shall be used to determine compliance with this section. For the purposes of determining compliance with this section, references in ARB Test Method 435 to **serpentine aggregate** shall mean **aggregate material**.
- (3) **Averaging of Test Results:** If ARB Test Method 435 or an alternative approved asbestos bulk test method has been used to perform two or more tests on any one volume of aggregate material, whether by the same or a different person, the arithmetic average of these test results shall be used to determine the asbestos content of the aggregate material.
- (4) **Sampling Frequency:** For the purposes of this section, the sampling frequency required for determining the asbestos content of any aggregate material shall be no less than one composite sample per 1,000 tons of aggregate material processed, as specified in ARB Test Method 435, unless the APCO approves an alternative sampling frequency as follows:

- (A) The APCO may approve an alternative sampling frequency after reviewing and verifying the authenticity of the following information, which shall be provided by the owner / operator of the quarry:
1. An established history of analytical test results demonstrating that no aggregate material sampled and tested in accordance with an approved asbestos bulk test method had an asbestos content that was 0.25 percent or greater;
 2. The established history of analytical test results must include:
 - i. Test results from ten percent of the expected total yield over the life of the quarry, as stated in any permit issued pursuant to the California Surface Mining and Reclamation Act, Public Resources Code, Division 2, Chapter 9, Section 2710 et seq.; or
 - ii. Test results that cover at least two years of production of surfacing material; this production amount must be verified with sales receipts and testing results as required in subsection (e)(3);
 3. A geologic evaluation of the quarry that has been conducted in accordance with the provisions in subsection (f)(7);
 4. Any permits issued pursuant to the California Surface Mining and Reclamation Act, Public Resources Code, Division 2, Chapter 9, Section 2710 et seq.;
 5. Sales receipts retained by the quarry pursuant to subsections (d) and (e)(3).
- (B) The APCO shall not approve any alternate sampling frequency that requires less than one test per 100,000 tons of aggregate material processed for surfacing.
- (C) If any of the aggregate material tested is determined to have an asbestos content of 0.25 percent or greater using an alternative sampling frequency approved by the APCO, the owner / operator must:
1. Resume the sampling frequency specified in ARB Test Method 435 immediately after receiving the test results; and
 2. Report the detection of asbestos and provide a copy of the analytical test results to the APCO within 48 hours after receiving the test results.

(i) **Definitions** - For the purposes of this section, the following definitions shall apply:

- (1) **Aggregate** means a mixture of mineral fragments, sand, gravel, cobbles, rocks, stones, or similar minerals that may or may not be crushed or screened. **Aggregate** does not include elemental metals, gemstones, petroleum products, organic materials, or mineral ore to be processed offsite of the property from which it was extracted.
- (2) **"Alluvial Deposit"** means any deposit of sediments laid down by running water including, but not limited to, streams and rivers.
- (3) **APCO** means the executive officer, air pollution control officer; or the designee of the executive officer or air pollution control officer of any air pollution control or air quality management district created or continued in existence pursuant to Part 3 (commencing with section 40000), Division 26, Health and Safety Code;

- (4) **Approved Asbestos Bulk Test Method** means ARB Test Method 435 or an alternative asbestos bulk test method approved in writing by the Executive Officer of the Air Resources Board.
- (5) **ARB** means the California Air Resources Board.
- (6) **"ARB Test Method 435"** means the test method specified in Title 17, California Code of Regulations, Section 94147.
- (7) **"Asbestos"** means asbestiforms of the following minerals: chrysotile (fibrous serpentine), crocidolite (fibrous riebeckite), amosite (fibrous cummingtonite-grunerite), fibrous tremolite, fibrous actinolite, and fibrous anthophyllite.
- (8) **Decoration / Landscaping** means the application or use of aggregate materials for aesthetic purposes.
- (9) **Geographic Ultramafic Rock Unit** means a geographic area that is designated as an ultramafic rock unit or ultrabasic rock unit, including the unit boundary line, on any of the maps referenced in Appendix A.
- (10) **Geologic Evaluation** means an evaluation of a property, as specified in subsection (f)(7), to determine the presence of various rock types, including ultramafic rock, serpentinite, or other metamorphic derivatives of ultramafic rock.
- (11) **Limited Access Surface** means any surface not subject to vehicular travel or pedestrian access that has an incline greater than twenty (20) percent.
- (12) **Non-Surfacing Applications** means any application of aggregate material that will not remain a part of the uppermost layer, such as fill, base rock, or drain rock.
- (13) **Owner / Operator** or **Person** includes, but is not limited to:
- (A) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including, but not limited to, a government corporation;
 - (B) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law; or
 - (C) A project proponent and any of its contractors or subcontractors.
- (14) **Producer** means any person that extracts and processes aggregate material from the ground.
- (15) **Property** means any real property including, but not limited to, any contiguous parcel or parcels of land and anything attached to, or erected on it.
- (16) **Quarry** means a facility or operation that obtains stone from the earth by means of cutting, digging, excavating, or blasting.
- (17) **"Receipt"** means any written acknowledgement that a specified amount of restricted material was received, delivered, or purchased. Receipts include, but are not limited to, bills of sale, bills of lading, and notices of transfer.
- (18) **Registered Geologist** means an individual that is currently licensed as a geologist with the State of California, Department of Consumer Affairs, Board of Geology and Geophysicists.
- (19) **Remote Location** means any location that is at least one (1.0) mile from the location

of a receptor. ♦Receptor♦ includes, but is not limited to, any hospital, school, day care center, work site, business, residence, and permanent campground. The distance to the nearest receptor is to be measured from the outermost limit of the area to be disturbed or road surface, whichever is closer.

(20) ♦Restricted Material♦ means any of the following:

- (A) Aggregate material extracted from property where any portion of the property is located in a geographic ultramafic rock unit (as defined in subsection (i)(9)); and
- (B) Aggregate material extracted from property that is NOT located in a geographic ultramafic rock unit (as defined in subsection (i)(9)) if the material has been:
 1. Evaluated at the request of the Air Pollution Control Officer (APCO) and determined to be ultramafic rock or serpentine;
 2. Tested at the request of the APCO and determined to have an asbestos content of 0.25 percent or greater; or
 3. Determined by the owner / operator of a facility to be ultramafic rock, serpentine, or aggregate material that has an asbestos content of 0.25 percent or greater.
- (C) Any mixture of aggregate material that contains ten percent (10 percent) or more of any of the materials listed above in subsections (i)(20)(A) or (i)(20)(B), or any combination thereof, shall also be considered ♦restricted material♦.

(21) ♦Riprap♦ means material used to construct a loose assemblage of stones along a water course or shoreline to prevent erosion or provide stability.

(22) "Road Surface" means the traveled way of a road and any shoulder which extends up to ten (10) feet from the edge of the traveled way.

(23) "Sand and Gravel Operation" means any aggregate-producing facility operating in alluvial deposits.

(24) "Serpentine" means any form of the following hydrous magnesium silicate minerals: antigorite, lizardite, and chrysotile.

(25) ♦Serpentinite♦ means a rock consisting almost entirely of serpentine, although small amounts of other minerals such as magnetite, chromite, talc, brucite, and tremolite-actinolite may also be present. ♦Serpentinite♦ is a metamorphic derivative of the ultramafic rocks, peridotite, pyroxenite, or dunite.

(26) "Surfacing" means the act of providing or creating a temporary or permanent covering for a surface used for pedestrians, motor vehicles, non-motor vehicles, decoration, landscaping, soil stabilization, or erosion control. Examples of surfaces include, but are not limited to, roads, road shoulders, streets, access roads, alleys, lanes, driveways, parking lots, playgrounds, trails, squares, plazas, and fairgrounds. For the purposes of this section, ♦surfacing♦ does not include creating a covering composed of asphalt concrete or portland cement concrete.

(27) ♦Ultrabasic Rock♦ means ultramafic rock.

(28) ♦Ultramafic Rock♦ means an igneous rock composed of 90 percent or greater of one or a combination of the following iron / magnesium-rich, dark-colored silicate minerals: olivine, pyroxene, or more rarely amphibole. For the purposes of this section, ♦ultramafic rock♦ includes the following rock types: dunite, pyroxenite, and peridotite; and their metamorphic derivatives.

NOTE: Authority Cited: Sections 39600, 39601, 39650, 39658, 39659, 39666 and 41511 Health and Safety Code

Reference: Sections 39650, 39658, 39659, 39666 and 41511 Health and Safety Code

APPENDIX A

**Division of Mines and Geology
California Department of Conservation**

AVAILABLE GEOLOGIC MAPS FOR CALIFORNIA

GEOLOGIC ATLASES OF CALIFORNIA Scale: 1:250,000

GEOLOGIC ATLAS OF CALIFORNIA: ALTURAS Compiled by Gay, T.E. and Others, 1958

GEOLOGIC ATLAS OF CALIFORNIA: BAKERSFIELD Compiled by Smith, A.R., 1964
(Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: DEATH VALLEY Compiled by Streitz, R.L. and Stinson, M.C., 1974
(Reprinted 1991)

GEOLOGIC ATLAS OF CALIFORNIA: FRESNO Compiled by Matthews, R.A. and Burnett, J.L., 1965
(Reprinted 1991)

GEOLOGIC ATLAS OF CALIFORNIA: LONG BEACH Compiled by Jennings, C.W., 1962 (Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: LOS ANGELES Compiled by Jennings, C.W. and Strand, R.G.,
1969 (Reprinted 1991)

GEOLOGIC ATLAS OF CALIFORNIA: MARIPOSA Compiled by Strand, R.G., 1967 (Reprinted 1991)

GEOLOGIC ATLAS OF CALIFORNIA: NEEDLES Compiled by Bishop, C.C., 1963 (Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: REDDING Compiled by Strand, R.G., 1962

GEOLOGIC ATLAS OF CALIFORNIA: SALTON SEA Compiled by Jennings, C.W., 1967 (Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: SAN LUIS OBISPO Compiled by Jennings, C.W., 1958
(Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: SAN DIEGO - EL CENTRO Compiled by Strand, R.G., 1962
(Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: SANTA ANA Compiled by Rogers, T.H., (Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: SANTA CRUZ Compiled by Jennings, C.W. and Strand, R.G., 1958
(Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: SANTA MARIA Compiled by Jennings, C.W., 1959 (Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: UKIAH Compiled by Jennings, C.W. and Strand, R.G., 1960
(Reprinted 1992)

GEOLOGIC ATLAS OF CALIFORNIA: WALKER LAKE Compiled by Koenig, J.B., 1963
(Reprinted 1992)

REGIONAL GEOLOGIC MAP SERIES

Scale: 1:250,000

GEOLOGIC MAP OF THE SACRAMENTO QUADRANGLE (set of four sheets) Compiled by Wagner, D.L. and Others, 1981

GEOLOGIC MAP OF THE SANTA ROSA QUADRANGLE (set of five sheets) Compiled by Wagner, D.L., and Bortugno, E.J. (Reprinted 1999)

GEOLOGIC MAP OF THE SAN BERNARDINO QUADRANGLE (set of five sheets) Compiled by Bortugno, E.J., and Spittler, T.E. (Reprinted 1998)

GEOLOGIC MAP OF THE WEED QUADRANGLE (set of four sheets) By Wagner, D.L. and Saucedo, G.J., 1987

GEOLOGIC MAP OF THE SAN FRANCISCO-SAN JOSE QUADRANGLE (set of five sheets) By Wagner, D.L., Bortugno, E.J. and McJunkin, R.D., 1990 Color-Coded Faults

LOCAL GEOLOGIC MAPS

AREAS MORE LIKELY TO CONTAIN NATURALLY-OCCURRING ASBESTOS IN WESTERN EL DORADO COUNTY, CALIFORNIA By Ron Churchill, March 2000 **Scale: 1:100,000**

SERPENTINITE SURVEY OF LAKE COUNTY, CALIFORNIA ♦ **MAP A, ULTRAMAFIC, ULTRABASIC, AND SERPENTINE ROCK AND SOILS OF LAKE COUNTY, Adopted: March 2, 1992 Scale: 1:100,000**

[ATCMs](#)

APPENDIX C

IDAHO-MARYLAND EXPLORATION ASBESTOS SAMPLING

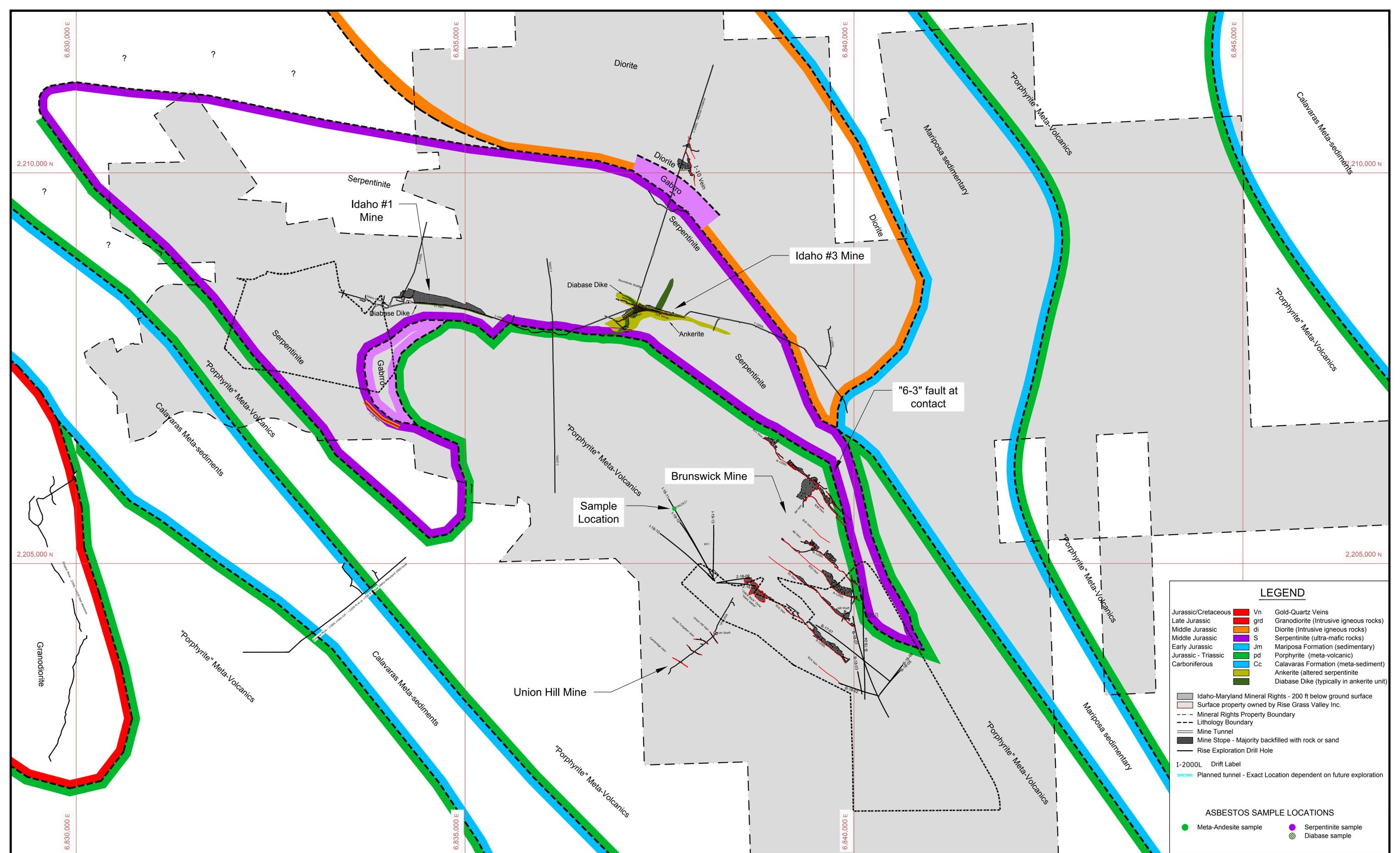
Asbestos Test Results Summary by Rock Type				
Rock Type	Total # Samples	Samples with Detectable Asbestos by PLM	Asbestos TEM structures /nanogram	PCM Asbestos Weight %
Porphyrite (meta-andesite) 1 sample pt/sp	18	None	0.26	0.002
Diabase (3 samples db/sp)	12	None	0.38	0.004
Ankeritized Serpentinite	3	None	0.01	0.000
Serpentinite - No or Weak Alteration (1 duplicate sample)	4	2 of 3	4.53	0.043
Tailings	2	None	0.01	0.000

1 PCM Fiber = 320 TEM Structures, 0.003 ug = 100 asbestos PCM Fibers

Exploration Sample							Asbestos Test Results			
Drill Hole	Sample	From (ft)	To (ft)	Length (ft)	Description	Rock Type	PLM %	TEM%	Total TEM (Structures/ nanogram)	PCM Weight %
I-18-11	Y962837	1802.60	1803.00	0.40	Porphyrite	pt	<0.25%	1.270%	1.88	0.018%
I-18-11	Y962987	4284.70	4285.10	0.40	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-18-11	Y962988	4641.80	4642.20	0.40	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-18-12	Y962838	2712.4	2713	0.60	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-13	Y962839	1843.10	1843.40	0.30	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-13	Y962841	3259.90	3260.30	0.40	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-13	Y962982	4526.60	4527.00	0.40	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-13	Y962985	4666.40	4666.90	0.50	Porphyrite for asbestos testing	pt	<0.25%	0.000%	0.00	0.000%
I-19-13A	Y962995	4502.90	4503.20	0.30	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-13A	Y962998	4542.40	4542.80	0.40	mixture porphyrite and serpentinite	pt/sp	<0.25%	0.000%	0.00	0.000%
I-19-13A	Y962993	4645.7	4646.1	0.40	Porphyrite for asbestos testing	pt	<0.25%	0.001%	0.35	0.003%
I-19-14	Y962840	2442.60	2443.00	0.40	Porpyrite	pt	<0.25%	0.150%	0.14	0.001%
I-19-14	Y962827	3280.00	3280.40	0.40	Porphyrite	pt	<0.25%	1.400%	2.19	0.021%
I-19-14	Y962828	3343.20	3343.50	0.30	Porphyrite	pt	<0.25%	0.062%	0.03	0.000%
I-19-14	Y962830	3347.00	3347.30	0.30	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-14	Y962832	3385.60	3386.10	0.50	Porphyrite	pt	<0.25%	0.000%	0.00	0.000%
I-19-14A	Y962833	3309.90	3310.20	0.30	Porphyrite	pt	<0.25%	0.092%	0.03	0.000%
I-19-14A	Y962836	3320.00	3320.30	0.30	Porphyrite	pt	<0.25%	0.290%	0.03	0.000%

Exploration Sample							Asbestos Test Results		
Drill Hole	Sample	From (ft)	To (ft)	Length (ft)	Description	Rock Type	PLM %	Total TEM (Structures/ nanogram)	PCM Weight %
Blank	Y962845				Carbonate landscape rock	blank	<0.25%	0.0	0.000%
Blank	Y962846				Carbonate landscape rock	blank	<0.25%	0.0	0.000%
I-18-11	Y962990	4016.30	4016.70	0.40	Diabase + porphyrite	db/pt	<0.25%	0.03	0.000%
I-18-11	Y962991	4026.20	4026.70	0.50	Diabase	db	<0.25%	4.47	0.042%
I-18-11	Y962986	4264.30	4264.80	0.50	Diabase	db	<0.25%	0.00	0.000%
I-18-11	Y962989	4661.70	4662.20	0.50	Ankeritized diabase/serpentinite	db/sp	<0.25%	0.00	0.000%
I-19-13	Y962842	3269.60	3270.00	0.40	Ankeritized diabase	db	<0.25%	0.00	0.000%
I-19-13	Y962983	4536.90	4537.30	0.40	Ankeritized diabase/serpentinite	db/sp	<0.25%	0.00	0.000%
I-19-13	Y962984	4652.90	4653.30	0.40	Ankeritized diabase/serpentinite	db/sp	<0.25%	0.00	0.000%
I-19-14	Y963000	3275.50	3275.90	0.40	Diabase	db	<0.25%	0.00	0.000%
I-19-14	Y962829	3344.30	3344.70	0.40	Diabase	db	<0.25%	0.00	0.000%
I-19-14	Y962831	3360.00	3360.40	0.40	Diabase	db	<0.25%	0.00	0.000%
I-19-14A	Y962834	3312.90	3313.20	0.30	Diabase	db	<0.25%	0.00	0.000%
I-19-14A	Y962835	3326.70	3327.00	0.30	Diabase	db	<0.25%	0.03	0.000%

Exploration Sample							Asbestos Test Results		
Drill Hole	Sample	From (ft)	To (ft)	Length (ft)	Description	Rock Type	PLM %	Total TEM (Structures/ nanogram)	PCM Weight %
I-18-11	Y962992	4683.10	4683.40	0.30	Weakly ankeritized diabase/serpentine	sp/db	0.75%	7.3	0.069%
I-18-11	Y962980	4725.60	4726.50	0.90	Serpentine unmineralized	sp		3.8	0.035%
I-19-13	Y962847	5090.50	5091.60	1.10	Serpentine, unmineralized. (Duplicate)	sp	<0.25%	3.0	0.028%
I-19-13	Y962981	5090.50	5091.60	1.10	Serpentine, unmineralized	sp		3.0	0.028%
I-19-13A	Y962999	4786.60	4787.00	0.40	Weakly ankeritized serpentine	sp	2.50%	4.0	0.038%
I-19-13A	Y962996	4530.20	4530.60	0.40	Serpentine?	sp-a	<0.25%	0.0	0.000%
I-19-13A	Y962994	4658.40	4658.80	0.40	Ankeritized serpentine?	sp-a	<0.25%	0.0	0.000%
I-19-13A	Y962997	4724.30	4724.70	0.40	Ankeritized serpentine	sp-a	<0.25%	0.0	0.000%
Tailings	Y962843	668927E	4343310N	Grab	"Old" brown tailings in bank	tails	<0.25%	0.0	0.000%
Tailings	Y962844	668816E	4343369N	Grab	"New" grey tailings on flat	tails	<0.25%	0.0	0.000%



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	Calaveras 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

Planned tunnel - Exact Location dependent on future exploration

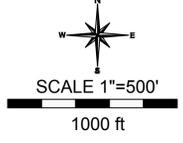
ASBESTOS SAMPLE LOCATIONS

Meta-Andesite sample	Serpentinite sample
	Diabase sample

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

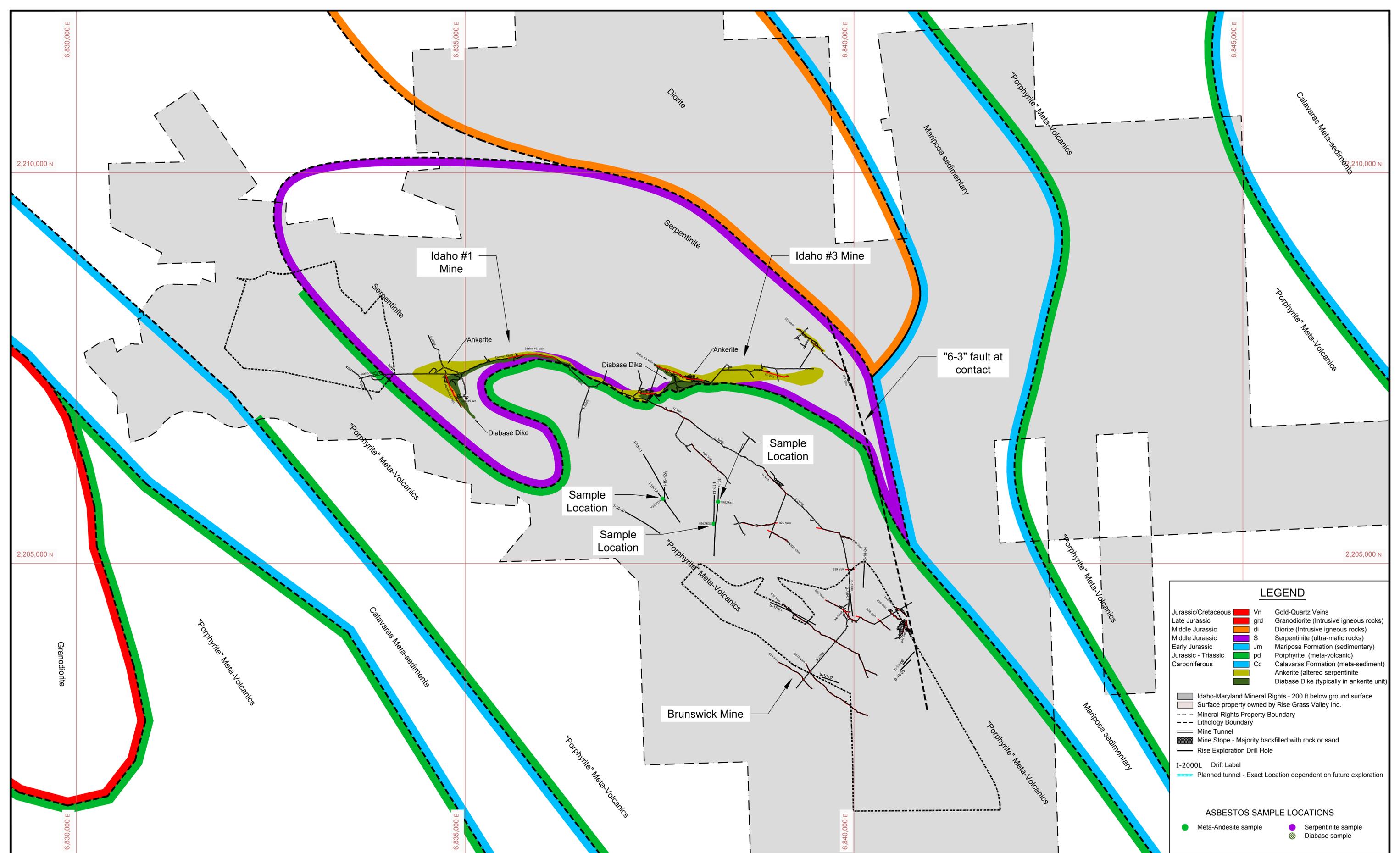
Generalized Geological Mapping Compilation
 Based on USGS mapping - 1940, Johnston
 and internal maps from Idaho-Maryland Mine

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



Sheet 1
 Mine Geology & Asbestos Samples 1000L
 Overview showing mine workings and geology at 1000 level
 elevation ~1570 feet

Drawnby : Rise Grass Valley - Feb 1 / 20



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	Calaveras 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
 Planned tunnel - Exact Location dependent on future exploration

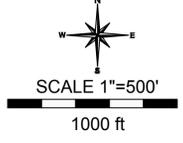
ASBESTOS SAMPLE LOCATIONS

● Meta-Andesite sample	● Serpentinite sample
● Diabase sample	


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

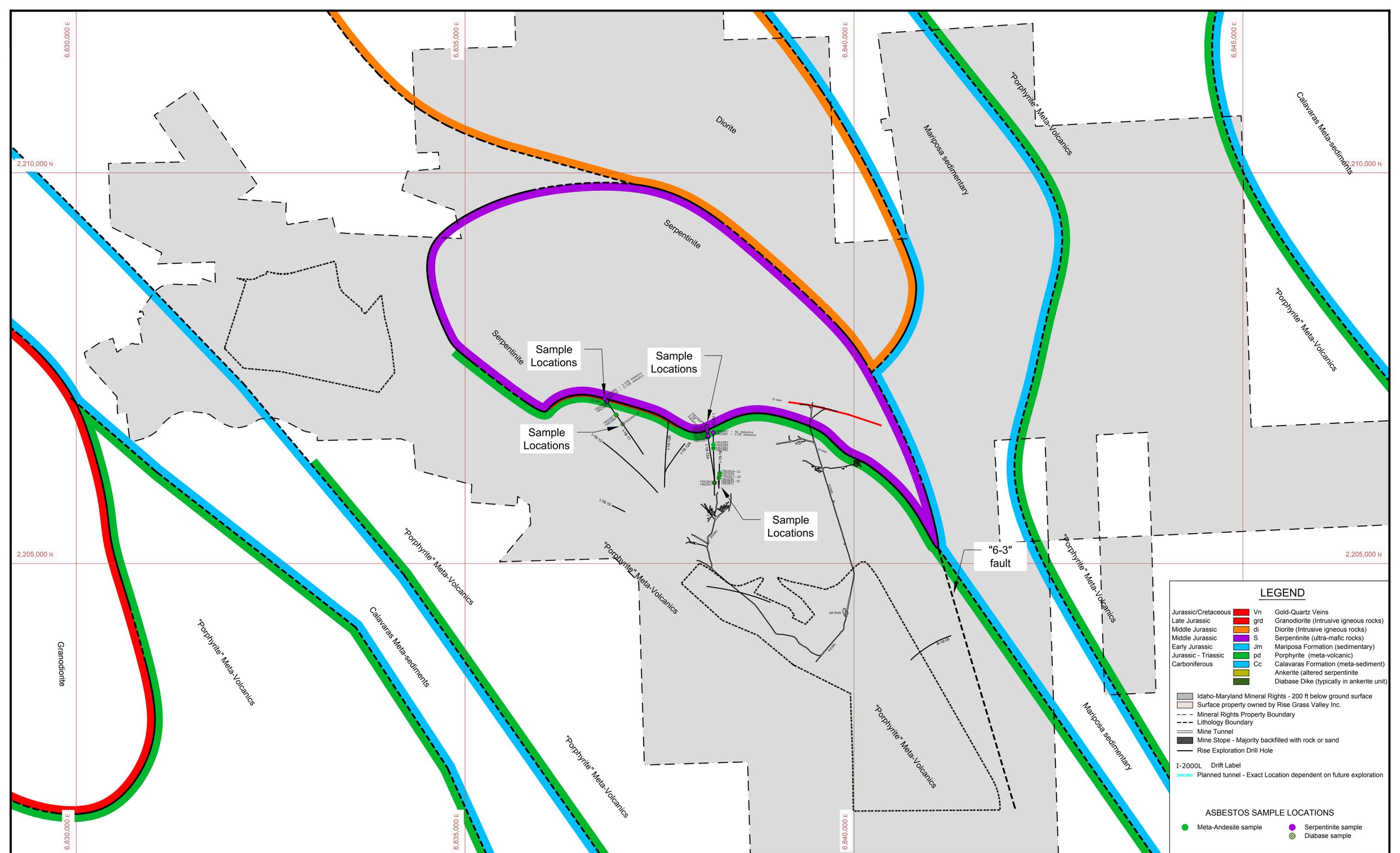
Generalized Geological Mapping Compilation
 Based on USGS mapping - 1940, Johnston
 and internal maps from Idaho-Maryland Mine

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



Sheet 2
Mine Geology & Asbestos Samples 2000L
 Overview showing mine workings and geology at 2000 level
 elevation ~ 420 feet

Drawnby : Rise Grass Valley - Feb 1 / 20



LEGEND

Jurassic/Cretaceous	Vn	Gold-Quartz Veins
Late Jurassic	grd	Granodiorite (Intrusive igneous rocks)
Middle Jurassic	di	Diorite (Intrusive igneous rocks)
Middle Jurassic	S	Serpentine (ultra-mafic rocks)
Early Jurassic	Jm	Mariposa Formation (sedimentary)
Jurassic - Triassic	pd	Porphyrite (meta-volcanic)
Carboniferous	Cc	Calaveras 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
 Planned tunnel - Exact Location dependent on future exploration

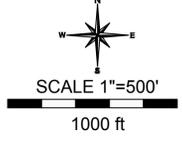
ASBESTOS SAMPLE LOCATIONS

	Meta-Andesite sample		Serpentinite sample
	Diabase sample		

R 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



Sheet 3
 Mine Geology & Asbestos Samples - 3300L
 Overview showing mine workings and geology at 3300 level
 elevation ~ -520 feet

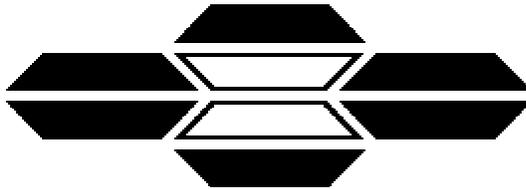
Drawnby : Rise Grass Valley - Feb 1 / 20

Appendix B

Asbestos TEM Laboratories, Inc.

Laboratory Report #1573-00001

Laboratory Report #365408



ASBESTOS TEM LABORATORIES, INC.

**CARB/EPA Quantitative Bulk Test Method
Transmission Electron Microscopy
Analytical Report**

Laboratory Report # 365408

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429
www.asbestostemplabs.com



ASBESTOS TEM LABORATORIES, INC

Aug/15/2019

Tessa Brinkman
Rise Grass Valley Inc
333 Crown Point Circle, Ste 215
Grass Valley, CA, 94945

RE: LABORATORY REPORT #365408

Transmission electron microscopy analytical results for 2 bulk material sample(s).
Job Site: Rise Core Sample
Job No.:

Please find below the results for the TEM analysis of one or more bulk material samples. The analytical procedures were performed according to the EPA Test Method For the Determination of Asbestos in Bulk Building Materials - TEM method (EPA 600/R-93/116) modified for quantitative bulk soil sample analysis. Prior to analysis, each sample was logged-in and all pertinent data was recorded. Each sample was checked for damage and disruption of any chain-of-custody seals. A unique laboratory number was assigned to each sample. A hard copy Log-In sheet was generated. This, and all other relevant paper work was kept with the sample throughout the analytical procedures to assure proper analysis.

Sample preparation followed a standard CARB 435 prep method. The entire sample was dried at 135-150 C and then crushed to ~3/8" gravel size. If the submitted sample was >~1 quart, the sample may have been split using a 1/2" riffle splitter following ASTM Method C-702-98 to reduce the sample volume for pulverization. The remaining aliquot, or entire original sample, was then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. A representative ~60 mg aliquot of material was weighed out, and then placed into solution in a 500 ml beaker filled with distilled water. A known volume of the liquid suspension was filtered onto a 0.2 micron pore size Millipore mixed cellulose ester filter. The filter was then dried in HEPA filtered, Class 100 air on a clean bench. The filter was placed onto a glass microscope slide, sectioned, and collapsed in acetone. The collapsed filter was plasma-etched to remove 10% of the filter surface and then carbon coated. The carbon coated filter was sectioned and the sections placed onto 200-mesh copper TEM sample grids in dimethyl sulfoxide and acetone wick washers. After sufficient time to dissolve the filter material, the TEM sample grids were removed from the baths and placed into labeled sample containers.

TEM analysis was performed on a Philips CM-12 or JEOL 1200 transmission electron microscope operating at 80 or 100 kV. The sample was placed into the microscope where it was first scanned at low magnification to confirm that the distribution of material was reasonably homogeneous. High magnification analysis was performed using a two tier approach: 1) A relatively large area of several TEM grid openings for large asbestos fibers or fiber bundles, and 2) a relatively small area of a number of fields of view for individual asbestos fibers (fibrous particles exhibiting an aspect ratio greater than or equal to 3 to 1, and a length greater than or equal to .5 um). Detected asbestiform structures were subjected to detailed morphological and/or selected area diffraction analysis. If necessary, energy dispersive X-ray analysis was also performed. The length and width of each asbestos fiber was measured. From this data, a total volume and mass of asbestos observed in the scanned area is calculated, and extrapolated to a total weight percent asbestos for each sample.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "R. M. Brinkman", written in a cursive style.

Laboratory Manager

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Tessa Brinkman	REPORT NO. 365408
Address: Rise Grass Valley Inc 333 Crown Point Circle, Ste 215 Grass Valley, CA, 94945	Date: <u>Aug-15-19</u>
Job Site / No. Rise Core Sample	Date Received: <u>Aug-08-19</u>
	Total Samples Analyzed: 2

SAMPLE DESCRIPTION	
Client Sample # Y962980	Serpentinite Core Sample
Laboratory Sample # 96-02947-001	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.8</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
30	4	NSD	NSD	3.1	<0.001	3.1

COMMENTS	
Chrysotile Asbestos Detected	Filter Loading: Moderate SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS					
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0097</u>	Bundle Scan Area (sq.mm) <u>0.194</u>			
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0097</u>	Fiber Scan Area (sq.mm) <u>0.0485</u>			
Magnification: <u>15,000X</u>					

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

ASBESTOS TEM LABORATORIES, INC. www.asbestostemplabs.com	600 BANCROFT WAY, STE. A, BERKELEY, CA 947(500) 704-8930 With Offices in Reno, NV (775) 359-3377	<div style="text-align: center;"> Analyst Signature </div> <div style="text-align: center;"> Lab QC Reviewer Signature </div>
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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Tessa Brinkman	REPORT NO. 365408
Address: Rise Grass Valley Inc 333 Crown Point Circle, Ste 215 Grass Valley, CA, 94945	Date: <u>Aug-15-19</u>
Job Site / No. Rise Core Sample	Date Received: <u>Aug-08-19</u>
	Total Samples Analyzed: 2

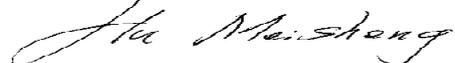
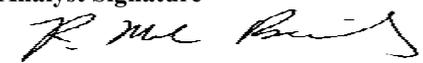
SAMPLE DESCRIPTION	
Client Sample # Y962981	Serpentine Core Sample
Laboratory Sample # 96-02947-002	

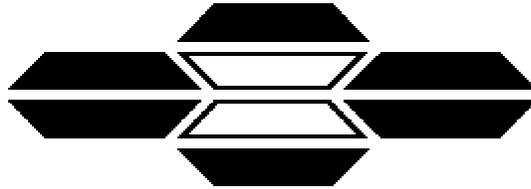
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>62.5</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
22	17	NSD	NSD	2.0	<0.001	2.0
COMMENTS						
Chrysotile Asbestos Detected				Filter Loading: Moderate SAED Photo ID Nos.		

TEM / ANALYTICAL PARAMETERS					
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0097</u>	Bundle Scan Area (sq.mm) <u>0.194</u>			
Grid Op. # Scanned For Small Fibers & Bundles <u>1</u>	Grid Area (sq.mm) <u>0.0097</u>	Fiber Scan Area (sq.mm) <u>0.0097</u>			
Magnification: <u>15,000X</u>					

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature



ASBESTOS TEM LABORATORIES, INC.

**CARB Method 435
Polarized Light Microscopy
Analytical Report**

Laboratory Job # 1573-00001

630 Bancroft Way
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429



ASBESTOS TEM LABORATORIES, INC

CA DPH ELAP
Lab No. 1866



NVLAP Lab Code: 101891-0
Berkeley, CA

Sep/17/2019

Tessa Brinkman
Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

RE: LABORATORY JOB # 1573-00001
Polarized light microscopy analytical results for 40 bulk sample(s).
Job Site:
Job No.: Rise Core Sample

Enclosed please find the bulk material analytical results for one or more samples submitted for asbestos analysis. The analyses were performed in accordance with the California Air Resources Board (ARB) Method 435 for the determination of asbestos in serpentine aggregate samples.

Prior to analysis, samples are logged-in and all data pertinent to the sample recorded. The samples are checked for damage or disruption of any chain-of-custody seals. A unique laboratory ID number is assigned to each sample. A hard copy log-in sheet containing all pertinent information concerning the sample is generated. This and all other relevant paper work are kept with the sample throughout the analytical procedures to assure proper analysis.

Sample preparation follows a standard CARB 435 prep method. The entire sample is dried at 135-150 C and then crushed to ~3/8" gravel size using a Bico Chipmunk crusher. If the submitted sample is >1 pint, the sample was split using a 1/2" riffle splitter following ASTM Method C-702-98 to obtain a 1 pint aliquot. The entire 1 pint aliquot, or entire original sample, is then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. If necessary, additional homogenization steps are undertaken using a 3/8" riffle splitter. Small aliquots are collected from throughout the pulverized material to create three separate microscope slide mounts containing the appropriate refractive index oil. The prepared slides are placed under a polarizing light microscope where standard mineralogical techniques are used to analyze the various materials present, including asbestos. If asbestos is identified and of less than 10% concentration by visual area estimate then an additional five sample mounts are prepared. Quantification of asbestos concentration is obtained using the standard CAL ARB Method 435 point count protocol. For samples observed to contain visible asbestos of less than 10% concentration, a point counting technique is used with 50 points counted on each of eight sample mounts for a total of 400 points. The data is then compiled into standard report format and subjected to a thorough quality assurance check before the information is released to the client.

While the CARB 435 method has much to commend it, there are a number of situations where it fails to provide sufficient accuracy to make a definitive determination of the presence/absence of asbestos and/or an accurate count of the asbestos concentration present in a given sample. These problems include, but are not limited to, 1) statistical uncertainty with samples containing <1% asbestos when too few particles are counted, 2) definitive identification and discrimination between various fibrous amphibole minerals such as tremolite/actinolite/hornblende and the "Libby amphiboles" such as tremolite/winchite/richterite/arfvedsonite, and C) small asbestiform fibers which are near or below the resolution limit of the PLM microscope such as those found in various California coast range serpentine bodies. In these cases, further analysis by transmission electron microscopy is recommended to obtain a more accurate result.

Sincerely Yours,

Lab Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, without the approval of the laboratory. ---

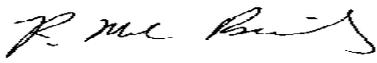
630 BANCROFT WAY • BERKELEY, CA 94710 • PH. (510) 704-8930 • FAX (510) 704-8429

With Branch Offices Located At: 1350 FREEPORT BLVD. UNIT 104, SPARKS, NV 89431

POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962827		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-001	400 - Total Points			
Y962828		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-002	400 - Total Points			
Y962829		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-003	400 - Total Points			
Y962830		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-004	400 - Total Points			
Y962831		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-005	400 - Total Points			
Y962832		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-006	400 - Total Points			
Y962833		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-007	400 - Total Points			
Y962834		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-008	400 - Total Points			
Y962835		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-009	400 - Total Points			
Y962836		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-010	400 - Total Points			

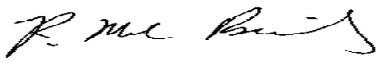
QC Reviewer 

Analys 

POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962837		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-011	400 - Total Points			
Y962838		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-012	400 - Total Points			
Y962839		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-013	400 - Total Points			
Y962840		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-014	400 - Total Points			
Y962841		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-015	400 - Total Points			
Y962842		<0.25%	None Detected	Ankeritized diabase No Asbestos Detected
Lab ID # 1573-00001-016	400 - Total Points			
Y962843		<0.25%	None Detected	Sand No Asbestos Detected
Lab ID # 1573-00001-017	400 - Total Points			
Y962844		<0.25%	None Detected	Sand No Asbestos Detected
Lab ID # 1573-00001-018	400 - Total Points			
Y962845		<0.25%	None Detected	Carbonate landscape rock No Asbestos Detected
Lab ID # 1573-00001-019	400 - Total Points			
Y962846		<0.25%	None Detected	Carbonate landscape rock No Asbestos Detected
Lab ID # 1573-00001-020	400 - Total Points			

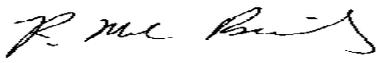
QC Reviewer 

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POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962847		<0.25%	None Detected	Duplicate
Lab ID # 1573-00001-021	400 - Total Points			No Asbestos Detected
Y962982		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-022	400 - Total Points			No Asbestos Detected
Y962983		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-023	400 - Total Points			No Asbestos Detected
Y962984		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-024	400 - Total Points			No Asbestos Detected
Y962985		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-025	400 - Total Points			No Asbestos Detected
Y962986		<0.25%	None Detected	Diabase
Lab ID # 1573-00001-026	400 - Total Points			No Asbestos Detected
Y962987		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-027	400 - Total Points			No Asbestos Detected
Y962988		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-028	400 - Total Points			No Asbestos Detected
Y962989		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-029	400 - Total Points			No Asbestos Detected
Y962990		<0.25%	None Detected	Diabase + Porphyrite
Lab ID # 1573-00001-030	400 - Total Points			No Asbestos Detected

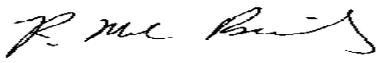
QC Reviewer 

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POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40 Job Site / No. Rise Core Sample	Date Submitted: Sep-03-19 Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS %	TYPE	LOCATION / DESCRIPTION
Y962991		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-031	400 - Total Points			
Y962992	3	0.75%	Chrysotile	Weakly ankeritized diabase/serpentinite Chrysotile fibers observed.
Lab ID # 1573-00001-032	400 - Total Points			
Y962993		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-033	400 - Total Points			
Y962994		<0.25%	Chrysotile	Ankeritized Serpentinite? Trace Chrysotile fibers observed.
Lab ID # 1573-00001-034	400 - Total Points			
Y962995		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-035	400 - Total Points			
Y962996		<0.25%	None Detected	Serpentinite? No Asbestos Detected
Lab ID # 1573-00001-036	400 - Total Points			
Y962997		<0.25%	None Detected	Ankeritized Serpentinite No Asbestos Detected
Lab ID # 1573-00001-037	400 - Total Points			
Y962998		<0.25%	None Detected	Mixture porphyrite and serpentinite No Asbestos Detected
Lab ID # 1573-00001-038	400 - Total Points			
Y962999	10	2.5 %	Chrysotile	Weakly ankeritized serpentinite Chrysotile fibers observed.
Lab ID # 1573-00001-039	400 - Total Points			
Y963000		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-040	400 - Total Points			

QC Reviewer 

Analys 



ASBESTOS TEM LABORATORIES CHAIN OF CUSTODY

Client 1573

CALIFORNIA: 600 Bancroft Way, Suite A, Berkeley, CA 94710 Phone (510) 704-8930 Fax (510) 704-8429
NEVADA: 1350 Freeport Blvd. #104, Sparks, NV 89431 Phone (775) 359-3377 Fax (775) 359-2798
You may also email this chain of custody to coc@asbestostemlabs.com * denotes required field

202070

Company: Rise Grass Valley Inc.	Contact: * Tessa Brinkman	Phone: * 250-617-6757	Email: * tbrinkman.peng@gmail.com
Address: * 333 Crown Point Circle, Ste 215	City: * Grass Valley	State: * CA Zip: 95945	Email:
Job Site: * Rise Core Sample	Job #:	PO #:	Email:

Reporting *	<input type="checkbox"/> Email	<input type="checkbox"/> Phone	<input type="checkbox"/> Fax	<input type="checkbox"/> Mail	<input type="checkbox"/> FTP	<input type="checkbox"/> Pickup	Billing	<input type="checkbox"/> Fax	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Pre-Paid	<input type="checkbox"/> On Receipt:	<input type="checkbox"/> 3 rd Party	
Results Due: *	<input type="checkbox"/> 2 HR	<input type="checkbox"/> 4 HR	<input type="checkbox"/> 6 HR	<input type="checkbox"/> 8 HR	<input type="checkbox"/> 24 HR	<input type="checkbox"/> 48 HR	<input type="checkbox"/> 3 DAY	<input type="checkbox"/> 4 DAY	<input type="checkbox"/> 5 DAY	<input type="checkbox"/> 10 DAY	<input type="checkbox"/> Hold Samples	<input type="checkbox"/> After Hours: ** <i>see below</i>		
Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400A)		<input type="checkbox"/> TEM AHERA		<input type="checkbox"/> TEM CARB Mod. AHERA		<input type="checkbox"/> TEM EPA Yamate Level II		<input type="checkbox"/> TEM NIOSH 7402		<input type="checkbox"/> ISO 10312	<input type="checkbox"/> ISO 13794		
Asbestos Bulk	<input type="checkbox"/> PLM Standard (EPA 600/R-93-1)		<input type="checkbox"/> PLM 400 PC		<input type="checkbox"/> PLM 1000 PC		<input type="checkbox"/> PLM 400 PC Grav. Red.		<input type="checkbox"/> PLM 1000 PC Grav. Red.		<input type="checkbox"/> TEM EPA Qualitative		<input type="checkbox"/> TEM EPA Quantitative	
	<input type="checkbox"/> TEM Chatfield (Semi-Quant)		<input type="checkbox"/> PREP ONLY		<input type="checkbox"/> Custom Analysis: **									
Asbestos Soils	<input type="checkbox"/> CARB 435 Prep Only		<input checked="" type="checkbox"/> CARB 435 PLM 400 PC		<input type="checkbox"/> CARB 435 PLM 1000 PC		<input type="checkbox"/> EPA Soil Screening Qualitative		<input type="checkbox"/> TEM EPA/CARB Quantitative					
Asbestos Dust	<input type="checkbox"/> ASTM D-5755 Fiber Count		<input type="checkbox"/> ASTM D-5756 Wt. %		<input type="checkbox"/> ASTM D-5756 Mass		<input type="checkbox"/> ASTM D-6480-99 Dust Wipe		<input type="checkbox"/> Total Particulates (Grav.)					
Asbestos Water	<input type="checkbox"/> 100.2 Potable Drinking Water		<input type="checkbox"/> 100.1 Non Potable Water		<input type="checkbox"/> REPORT TO STATE: EDT # _____									
Lead/Silica	<input type="checkbox"/> Lead Paint Chips		<input type="checkbox"/> Lead Dust Wipe		<input type="checkbox"/> Lead Air Cassette		<input type="checkbox"/> Lead Soil		<input type="checkbox"/> Silica Dust Airborne by NIOSH 7500		<input type="checkbox"/> Crystalline Silica (Single Species)		<input type="checkbox"/> Silica Dust Bulk by NIOSH 7500	<input type="checkbox"/> Crystalline Silica in Bulk (Single Species)
Sample Storage	<input type="checkbox"/> No Test, Hold Until: _____		<input checked="" type="checkbox"/> Test AND Hold Until: _____ <i>All samples will be held for 3 months from the date of receipt at ATEM. Additional sample storage time may be obtained through ATEM Customer Service.</i>											
Custom Order	<input type="checkbox"/> Sensitivity: _____		<input type="checkbox"/> Composite		<input type="checkbox"/> 8 Hour TWA		<input type="checkbox"/> Special Instructions:							
REANALYSIS	Original Login/Lot # _____ / _____		New Analysis Type: _____		TAT: _____		Special Instructions: _____							

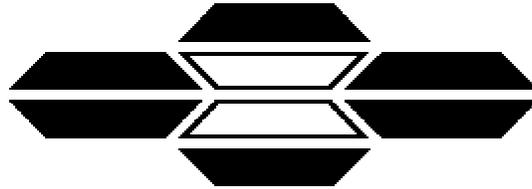
Sample # *	Sample Type	Date Collected	Time On	Time Off	Total Time (min)	Flow Rate (lpm)			Volume or Area Sampled	Hold Sample	Description *
						On	Off	Average			
See attached spreadsheet										<input type="checkbox"/>	
40 samples										<input type="checkbox"/>	
										<input type="checkbox"/>	
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Submitted By * Tessa Brinkman <i>Tessa Brinkman</i>	Received By <i>KTZ</i>
Date/Time Submitted * Sent by Courier (UPS) on Aug 30th 2019	Date/Time Received
Submitted By	Received By
Date/Time Submitted	Date/Time Received

** Any special instructions, RUSH results or Custom Analysis, you must clarify these specifications AND, of more importance, contact us here at ATEM ahead of time to manage scheduling to meet your requests. Drop off and processing of samples after hours cannot be accommodated without proper notification from you, and confirmation by ATEM staff.

365870

Sample #	Sample Type	Hold Sample	Description
Y962827	Rock Sample	X	Porphyrite
Y962828	Rock Sample	X	Porphyrite
Y962829	Rock Sample	X	Diabase
Y962830	Rock Sample	X	Porphyrite
Y962831	Rock Sample	X	Diabase
Y962832	Rock Sample	X	Porphyrite
Y962833	Rock Sample	X	Porphyrite
Y962834	Rock Sample	X	Diabase
Y962835	Rock Sample	X	Diabase
Y962836	Rock Sample	X	Porphyrite
Y962837	Rock Sample	X	Porphyrite
Y962838	Rock Sample	X	Porphyrite
Y962839	Rock Sample	X	Porphyrite
Y962840	Rock Sample	X	Porpyrite
Y962841	Rock Sample	X	Porphyrite
Y962842	Rock Sample	X	Ankeritized diabase
Y962843	Sand Sample	X	Sand
Y962844	Sand Sample	X	Sand
Y962845	Rock Sample	X	Carbonate landscape rock
Y962846	Rock Sample	X	Carbonate landscape rock
Y962847	Pulps Sample	X	Duplicate
Y962982	Rock Sample	X	Porphyrite
Y962983	Rock Sample	X	Ankeritized diabase/serpentine
Y962984	Rock Sample	X	Ankeritized diabase/serpentine
Y962985	Rock Sample	X	Porphyrite
Y962986	Rock Sample	X	Diabase
Y962987	Rock Sample	X	Porphyrite
Y962988	Rock Sample	X	Porphyrite
Y962989	Rock Sample	X	Ankeritized diabase/serpentine
Y962990	Rock Sample	X	Diabase + porphyrite
Y962991	Rock Sample	X	Diabase
Y962992	Rock Sample	X	Weakly ankeritized diabase/serpentine
Y962993	Rock Sample	X	Porphyrite
Y962994	Rock Sample	X	Ankeritized serpentine?
Y962995	Rock Sample	X	Porphyrite
Y962996	Rock Sample	X	Serpentine?
Y962997	Rock Sample	X	Ankeritized serpentine
Y962998	Rock Sample	X	Mixture porphyrite and serpentine
Y962999	Rock Sample	X	Weakly ankeritized serpentine
Y963000	Rock Sample	X	Diabase



ASBESTOS TEM LABORATORIES, INC.

**CARB Method 435
Polarized Light Microscopy
Analytical Report**

Laboratory Job # 1573-00001

630 Bancroft Way
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429



ASBESTOS TEM LABORATORIES, INC

CA DPH ELAP
Lab No. 1866



NVLAP Lab Code: 101891-0
Berkeley, CA

Sep/17/2019

Tessa Brinkman
Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

RE: LABORATORY JOB # 1573-00001
Polarized light microscopy analytical results for 40 bulk sample(s).
Job Site:
Job No.: Rise Core Sample

Enclosed please find the bulk material analytical results for one or more samples submitted for asbestos analysis. The analyses were performed in accordance with the California Air Resources Board (ARB) Method 435 for the determination of asbestos in serpentine aggregate samples.

Prior to analysis, samples are logged-in and all data pertinent to the sample recorded. The samples are checked for damage or disruption of any chain-of-custody seals. A unique laboratory ID number is assigned to each sample. A hard copy log-in sheet containing all pertinent information concerning the sample is generated. This and all other relevant paper work are kept with the sample throughout the analytical procedures to assure proper analysis.

Sample preparation follows a standard CARB 435 prep method. The entire sample is dried at 135-150 C and then crushed to ~3/8" gravel size using a Bico Chipmunk crusher. If the submitted sample is >1 pint, the sample was split using a 1/2" riffle splitter following ASTM Method C-702-98 to obtain a 1 pint aliquot. The entire 1 pint aliquot, or entire original sample, is then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. If necessary, additional homogenization steps are undertaken using a 3/8" riffle splitter. Small aliquots are collected from throughout the pulverized material to create three separate microscope slide mounts containing the appropriate refractive index oil. The prepared slides are placed under a polarizing light microscope where standard mineralogical techniques are used to analyze the various materials present, including asbestos. If asbestos is identified and of less than 10% concentration by visual area estimate then an additional five sample mounts are prepared. Quantification of asbestos concentration is obtained using the standard CAL ARB Method 435 point count protocol. For samples observed to contain visible asbestos of less than 10% concentration, a point counting technique is used with 50 points counted on each of eight sample mounts for a total of 400 points. The data is then compiled into standard report format and subjected to a thorough quality assurance check before the information is released to the client.

While the CARB 435 method has much to commend it, there are a number of situations where it fails to provide sufficient accuracy to make a definitive determination of the presence/absence of asbestos and/or an accurate count of the asbestos concentration present in a given sample. These problems include, but are not limited to, 1) statistical uncertainty with samples containing <1% asbestos when too few particles are counted, 2) definitive identification and discrimination between various fibrous amphibole minerals such as tremolite/actinolite/hornblende and the "Libby amphiboles" such as tremolite/winchite/richterite/arfvedsonite, and C) small asbestiform fibers which are near or below the resolution limit of the PLM microscope such as those found in various California coast range serpentine bodies. In these cases, further analysis by transmission electron microscopy is recommended to obtain a more accurate result.

Sincerely Yours,

Lab Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, without the approval of the laboratory. ---

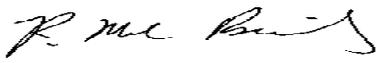
630 BANCROFT WAY • BERKELEY, CA 94710 • PH. (510) 704-8930 • FAX (510) 704-8429

With Branch Offices Located At: 1350 FREEPORT BLVD. UNIT 104, SPARKS, NV 89431

POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962827		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-001	400 - Total Points			
Y962828		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-002	400 - Total Points			
Y962829		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-003	400 - Total Points			
Y962830		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-004	400 - Total Points			
Y962831		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-005	400 - Total Points			
Y962832		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-006	400 - Total Points			
Y962833		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-007	400 - Total Points			
Y962834		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-008	400 - Total Points			
Y962835		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-009	400 - Total Points			
Y962836		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-010	400 - Total Points			

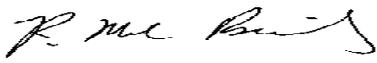
QC Reviewer 

Analys 

POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962837		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-011	400 - Total Points			
Y962838		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-012	400 - Total Points			
Y962839		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-013	400 - Total Points			
Y962840		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-014	400 - Total Points			
Y962841		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-015	400 - Total Points			
Y962842		<0.25%	None Detected	Ankeritized diabase No Asbestos Detected
Lab ID # 1573-00001-016	400 - Total Points			
Y962843		<0.25%	None Detected	Sand No Asbestos Detected
Lab ID # 1573-00001-017	400 - Total Points			
Y962844		<0.25%	None Detected	Sand No Asbestos Detected
Lab ID # 1573-00001-018	400 - Total Points			
Y962845		<0.25%	None Detected	Carbonate landscape rock No Asbestos Detected
Lab ID # 1573-00001-019	400 - Total Points			
Y962846		<0.25%	None Detected	Carbonate landscape rock No Asbestos Detected
Lab ID # 1573-00001-020	400 - Total Points			

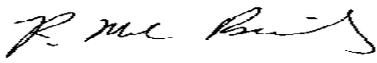
QC Reviewer 

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POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40	Date Submitted: Sep-03-19
	Job Site / No. Rise Core Sample	Date Reported: Sep-17-19

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
Y962847		<0.25%	None Detected	Duplicate
Lab ID # 1573-00001-021	400 - Total Points			No Asbestos Detected
Y962982		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-022	400 - Total Points			No Asbestos Detected
Y962983		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-023	400 - Total Points			No Asbestos Detected
Y962984		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-024	400 - Total Points			No Asbestos Detected
Y962985		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-025	400 - Total Points			No Asbestos Detected
Y962986		<0.25%	None Detected	Diabase
Lab ID # 1573-00001-026	400 - Total Points			No Asbestos Detected
Y962987		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-027	400 - Total Points			No Asbestos Detected
Y962988		<0.25%	None Detected	Porphyrite
Lab ID # 1573-00001-028	400 - Total Points			No Asbestos Detected
Y962989		<0.25%	None Detected	Ankeritized diabase/serpentinite
Lab ID # 1573-00001-029	400 - Total Points			No Asbestos Detected
Y962990		<0.25%	None Detected	Diabase + Porphyrite
Lab ID # 1573-00001-030	400 - Total Points			No Asbestos Detected

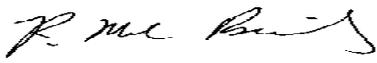
QC Reviewer 

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POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Tessa Brinkman	Samples Submitted: 40	Report No. 365840
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite Grass Valley, CA	Samples Analyzed: 40 Job Site / No. Rise Core Sample	Date Submitted: Sep-03-19 Date Reported: Sep-17-19

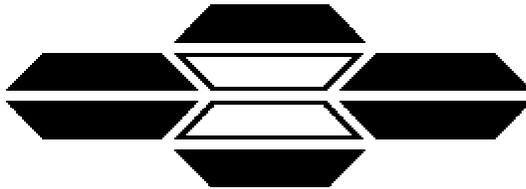
SAMPLE ID	POINTS COUNTED	ASBESTOS %	TYPE	LOCATION / DESCRIPTION
Y962991		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-031	400 - Total Points			
Y962992	3	0.75%	Chrysotile	Weakly ankeritized diabase/serpentinite Chrysotile fibers observed.
Lab ID # 1573-00001-032	400 - Total Points			
Y962993		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-033	400 - Total Points			
Y962994		<0.25%	Chrysotile	Ankeritized Serpentinite? Trace Chrysotile fibers observed.
Lab ID # 1573-00001-034	400 - Total Points			
Y962995		<0.25%	None Detected	Porphyrite No Asbestos Detected
Lab ID # 1573-00001-035	400 - Total Points			
Y962996		<0.25%	None Detected	Serpentinite? No Asbestos Detected
Lab ID # 1573-00001-036	400 - Total Points			
Y962997		<0.25%	None Detected	Ankeritized Serpentinite No Asbestos Detected
Lab ID # 1573-00001-037	400 - Total Points			
Y962998		<0.25%	None Detected	Mixture porphyrite and serpentinite No Asbestos Detected
Lab ID # 1573-00001-038	400 - Total Points			
Y962999	10	2.5 %	Chrysotile	Weakly ankeritized serpentinite Chrysotile fibers observed.
Lab ID # 1573-00001-039	400 - Total Points			
Y963000		<0.25%	None Detected	Diabase No Asbestos Detected
Lab ID # 1573-00001-040	400 - Total Points			

QC Reviewer 

Analys 

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Sample #	Sample Type	Hold Sample	Description
Y962827	Rock Sample	X	Porphyrite
Y962828	Rock Sample	X	Porphyrite
Y962829	Rock Sample	X	Diabase
Y962830	Rock Sample	X	Porphyrite
Y962831	Rock Sample	X	Diabase
Y962832	Rock Sample	X	Porphyrite
Y962833	Rock Sample	X	Porphyrite
Y962834	Rock Sample	X	Diabase
Y962835	Rock Sample	X	Diabase
Y962836	Rock Sample	X	Porphyrite
Y962837	Rock Sample	X	Porphyrite
Y962838	Rock Sample	X	Porphyrite
Y962839	Rock Sample	X	Porphyrite
Y962840	Rock Sample	X	Porpyrite
Y962841	Rock Sample	X	Porphyrite
Y962842	Rock Sample	X	Ankeritized diabase
Y962843	Sand Sample	X	Sand
Y962844	Sand Sample	X	Sand
Y962845	Rock Sample	X	Carbonate landscape rock
Y962846	Rock Sample	X	Carbonate landscape rock
Y962847	Pulps Sample	X	Duplicate
Y962982	Rock Sample	X	Porphyrite
Y962983	Rock Sample	X	Ankeritized diabase/serpentine
Y962984	Rock Sample	X	Ankeritized diabase/serpentine
Y962985	Rock Sample	X	Porphyrite
Y962986	Rock Sample	X	Diabase
Y962987	Rock Sample	X	Porphyrite
Y962988	Rock Sample	X	Porphyrite
Y962989	Rock Sample	X	Ankeritized diabase/serpentine
Y962990	Rock Sample	X	Diabase + porphyrite
Y962991	Rock Sample	X	Diabase
Y962992	Rock Sample	X	Weakly ankeritized diabase/serpentine
Y962993	Rock Sample	X	Porphyrite
Y962994	Rock Sample	X	Ankeritized serpentine?
Y962995	Rock Sample	X	Porphyrite
Y962996	Rock Sample	X	Serpentine?
Y962997	Rock Sample	X	Ankeritized serpentine
Y962998	Rock Sample	X	Mixture porphyrite and serpentine
Y962999	Rock Sample	X	Weakly ankeritized serpentine
Y963000	Rock Sample	X	Diabase



ASBESTOS TEM LABORATORIES, INC.

**CARB/EPA Quantitative Bulk Test Method
Transmission Electron Microscopy
Analytical Report**

Laboratory Report # 365408

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429
www.asbestostemplabs.com



ASBESTOS TEM LABORATORIES, INC

Aug/15/2019

Tessa Brinkman
Rise Grass Valley Inc
333 Crown Point Circle, Ste 215
Grass Valley, CA, 94945

RE: LABORATORY REPORT #365408

Transmission electron microscopy analytical results for 2 bulk material sample(s).

Job Site: Rise Core Sample

Job No.:

Please find below the results for the TEM analysis of one or more bulk material samples. The analytical procedures were performed according to the EPA Test Method For the Determination of Asbestos in Bulk Building Materials - TEM method (EPA 600/R-93/116) modified for quantitative bulk soil sample analysis. Prior to analysis, each sample was logged-in and all pertinent data was recorded. Each sample was checked for damage and disruption of any chain-of-custody seals. A unique laboratory number was assigned to each sample. A hard copy Log-In sheet was generated. This, and all other relevant paper work was kept with the sample throughout the analytical procedures to assure proper analysis.

Sample preparation followed a standard CARB 435 prep method. The entire sample was dried at 135-150 C and then crushed to ~3/8" gravel size. If the submitted sample was >~1 quart, the sample may have been split using a 1/2" riffle splitter following ASTM Method C-702-98 to reduce the sample volume for pulverization. The remaining aliquot, or entire original sample, was then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. A representative ~60 mg aliquot of material was weighed out, and then placed into solution in a 500 ml beaker filled with distilled water. A known volume of the liquid suspension was filtered onto a 0.2 micron pore size Millipore mixed cellulose ester filter. The filter was then dried in HEPA filtered, Class 100 air on a clean bench. The filter was placed onto a glass microscope slide, sectioned, and collapsed in acetone. The collapsed filter was plasma-etched to remove 10% of the filter surface and then carbon coated. The carbon coated filter was sectioned and the sections placed onto 200-mesh copper TEM sample grids in dimethyl sulfoxide and acetone wick washers. After sufficient time to dissolve the filter material, the TEM sample grids were removed from the baths and placed into labeled sample containers.

TEM analysis was performed on a Philips CM-12 or JEOL 1200 transmission electron microscope operating at 80 or 100 kV. The sample was placed into the microscope where it was first scanned at low magnification to confirm that the distribution of material was reasonably homogeneous. High magnification analysis was performed using a two tier approach: 1) A relatively large area of several TEM grid openings for large asbestos fibers or fiber bundles, and 2) a relatively small area of a number of fields of view for individual asbestos fibers (fibrous particles exhibiting an aspect ratio greater than or equal to 3 to 1, and a length greater than or equal to .5 um). Detected asbestiform structures were subjected to detailed morphological and/or selected area diffraction analysis. If necessary, energy dispersive X-ray analysis was also performed. The length and width of each asbestos fiber was measured. From this data, a total volume and mass of asbestos observed in the scanned area is calculated, and extrapolated to a total weight percent asbestos for each sample.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "R. Mc. Burt", written in a cursive style.

Laboratory Manager

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Tessa Brinkman	REPORT NO. 365408
Address: Rise Grass Valley Inc 333 Crown Point Circle, Ste 215 Grass Valley, CA, 94945	Date: <u>Aug-15-19</u>
Job Site / No. Rise Core Sample	Date Received: <u>Aug-08-19</u>
	Total Samples Analyzed: 2

SAMPLE DESCRIPTION	
Client Sample # Y962980	Serpentinite Core Sample
Laboratory Sample # 96-02947-001	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.8</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYBOTILE		AMPHIBOLE		CHRYBOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
30	4	NSD	NSD	3.1	<0.001	3.1

COMMENTS	
Chrysotile Asbestos Detected	Filter Loading: Moderate SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS					
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0097</u>	Bundle Scan Area (sq.mm) <u>0.194</u>			
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0097</u>	Fiber Scan Area (sq.mm) <u>0.0485</u>			
Magnification: <u>15,000X</u>					

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

Hei Mei-sheng

Analyst Signature

R. Mc...

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Tessa Brinkman	REPORT NO. 365408
Address: Rise Grass Valley Inc 333 Crown Point Circle, Ste 215 Grass Valley, CA, 94945	Date: <u>Aug-15-19</u>
Job Site / No. Rise Core Sample	Date Received: <u>Aug-08-19</u>
	Total Samples Analyzed: 2

SAMPLE DESCRIPTION	
Client Sample # Y962981	Serpentinite Core Sample
Laboratory Sample # 96-02947-002	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>62.5</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
22	17	NSD	NSD	2.0	<0.001	2.0

COMMENTS	
Chrysotile Asbestos Detected	Filter Loading: Moderate SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS					
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0097</u>	Bundle Scan Area (sq.mm) <u>0.194</u>			
Grid Op. # Scanned For Small Fibers & Bundles <u>1</u>	Grid Area (sq.mm) <u>0.0097</u>	Fiber Scan Area (sq.mm) <u>0.0097</u>			
Magnification: <u>15,000X</u>					

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

ASBESTOS TEM LABORATORIES, INC. www.asbestostemplabs.com	Analyst Signature Lab QC Reviewer Signature	600 BANCROFT WAY, STE. A, BERKELEY, CA 947(500) 704-8930 With Offices in Reno, NV (775) 359-3377
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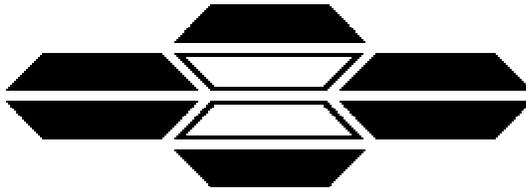
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365408

CALIFORNIA: 600 Bancroft Way, Suite A, Berkeley, CA 94710 Phone (510) 704-8930 Fax (510) 704-8429
 NEVADA: 1350 Freeport Blvd. #104, Sparks, NV 89431 Phone (775) 359-3377 Fax (775) 359-2798
 You may also email this chain of custody to coc@asbestostemplabs.com * denotes required field

Company: Rise Grass Valley Inc.			Contact: * Tessa Brinkman			Phone: * 250-617-6757			Email: * tbrinkman.peng@gmail.com				
Address: * 333 Crown Point Circle, Ste 215			City: * Grass Valley			State: * CA Zip: 95945			Email:				
Job Site: * Rise Core Sample			Job #:			PC #:			Email:				
Reporting *	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> Phone	<input type="checkbox"/> Fax	<input type="checkbox"/> Mail	<input type="checkbox"/> FTP	<input type="checkbox"/> Pickup	Billing	<input type="checkbox"/> Fax	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input checked="" type="checkbox"/> Pre-Paid	<input type="checkbox"/> On Receipt:	<input type="checkbox"/> 3 rd Party
Results Due: *	<input type="checkbox"/> 2 HR <input type="checkbox"/> 4 HR <input type="checkbox"/> 6 HR <input type="checkbox"/> 8 HR <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 3 DAY <input type="checkbox"/> 4 DAY <input checked="" type="checkbox"/> 5 DAY <input type="checkbox"/> 10 DAY <input type="checkbox"/> Hold Samples <input type="checkbox"/> After Hours: ** see below												
Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400A)		<input type="checkbox"/> TEM AHERA		<input type="checkbox"/> TEM CARB Mod. AHERA		<input type="checkbox"/> TEM EPA Yamate Level II		<input type="checkbox"/> TEM NIOSH 7402		<input type="checkbox"/> ISO 10312		<input type="checkbox"/> ISO 13794
Asbestos Bulk	<input type="checkbox"/> PLM Standard (EPA 600/R-93-1)			<input type="checkbox"/> PLM 400 PC		<input type="checkbox"/> PLM 1000 PC		<input type="checkbox"/> PLM 400 PC Grav. Red.		<input type="checkbox"/> PLM 1000 PC Grav. Red.		<input type="checkbox"/> TEM EPA Qualitative	<input checked="" type="checkbox"/> TEM EPA Quantitative
	<input type="checkbox"/> TEM Chatfield (Semi-Quant)			<input type="checkbox"/> PREP ONLY		<input type="checkbox"/> Custom Analysis: **							
Asbestos Soils	<input type="checkbox"/> CARB 435 Prep Only			<input type="checkbox"/> CARB 435 PLM 400 PC			<input type="checkbox"/> CARB 435 PLM 1000 PC			<input type="checkbox"/> EPA Soil Screening Qualitative		<input type="checkbox"/> TEM EPA/CARB Quantitative	
Asbestos Dust	<input type="checkbox"/> ASTM D-5755 Fiber Count		<input type="checkbox"/> ASTM D-5756 Wt. %		<input type="checkbox"/> ASTM D-5756 Mass		<input type="checkbox"/> ASTM D-6480-99 Dust Wipe			<input type="checkbox"/> Total Particulates (Grav.)			
Asbestos Water	<input type="checkbox"/> 100.2 Potable Drinking Water <input type="checkbox"/> 100.1 Non Potable Water <input type="checkbox"/> REPORT TO STATE: EDT # _____												
Lead/Silica	<input type="checkbox"/> Lead Paint Chips	<input type="checkbox"/> Lead Dust Wipe	<input type="checkbox"/> Lead Air Cassette	<input type="checkbox"/> Lead Soil	<input type="checkbox"/> Silica Dust Airborne by NIOSH 7500			<input type="checkbox"/> Crystalline Silica (Single Species)		<input type="checkbox"/> Silica Dust Bulk by NIOSH 7500		<input type="checkbox"/> Crystalline Silica in Bulk (Single Species)	
Sample Storage	<input type="checkbox"/> No Test, Hold Until: _____			<input checked="" type="checkbox"/> Test AND Hold Until: _____ <small>All samples will be held for 3 months from the date of receipt at ATEM. Additional sample storage time may be obtained through ATEM Customer Service.</small>									
Custom Order	<input type="checkbox"/> Sensitivity: _____	<input type="checkbox"/> Composite	<input type="checkbox"/> 8 Hour TWA	<input type="checkbox"/> Special Instructions: Return Samples to Rise Grass Valley after Hold Period									
REANALYSIS	Original Login/Lot # _____ / _____ New Analysis Type: _____ TAT: _____ Special Instructions: _____												
Sample # *	Sample Type	Date Collected	Time On	Time Off	Total Time (min)	Flow Rate (lpm)			Volume or Area Sampled	Hold Sample	Description *		
						On	Off	Average					
Y962980	Rock Core									<input checked="" type="checkbox"/>	Serpentinite Core Sample		
Y962981	Rock Core									<input checked="" type="checkbox"/>	Serpentinite Core Sample		
										<input type="checkbox"/>			
										<input type="checkbox"/>			
										<input type="checkbox"/>			
										<input type="checkbox"/>			
										<input type="checkbox"/>			
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										<input type="checkbox"/>			
										<input type="checkbox"/>			
										<input type="checkbox"/>			
Submitted By * Tessa Brinkman		Received By			ATEM / RY								
Date/Time Submitted * Sent by Courier (JPS) on Aug 7th 2019		Date/Time Received			8/8/19 10:36AM								
Submitted By		Received By											
Date/Time Submitted		Date/Time Received											

** Any special instructions, RUSH results or Custom Analysis, you must clarify these specifications AND, of more importance, contact us here at ATEM ahead of time to manage scheduling to meet your requests. Drop off and processing of samples after hours cannot be accommodated without proper notification from you, and confirmation by ATEM staff.



ASBESTOS TEM LABORATORIES, INC.

**CARB/EPA Quantitative Bulk Test Method
Transmission Electron Microscopy
Analytical Report**

Laboratory Report #375516 rev. 1

3431 Ettie St.
Oakland, CA 94608
(510) 704-8930
FAX (510) 704-8429
www.asbestostemplabs.com



ASBESTOS TEM LABORATORIES, INC

Nov/10/2021

Ben Mossman

Rise Grass Valley Inc.
333 Crown Point Circle, Suite 215
Grass Valley, CA 95945

RE: LABORATORY REPORT #375516 rev. 1

Transmission electron microscopy analytical results for 40 bulk material sample(s).
Job Site: Idaho Maryland
Job No.:

Please find below the results for the TEM analysis of one or more bulk material samples. The analytical procedures were performed according to the EPA Test Method For the Determination of Asbestos in Bulk Building Materials - TEM method (EPA 600/R-93/116) modified for quantitative bulk soil sample analysis. Prior to analysis, each sample was logged-in and all pertinent data was recorded. Each sample was checked for damage and disruption of any chain-of-custody seals. A unique laboratory number was assigned to each sample. A hard copy Log-In sheet was generated. This, and all other relevant paper work was kept with the sample throughout the analytical procedures to assure proper analysis.

Sample preparation followed a standard CARB 435 prep method. The entire sample was dried at 135-150 C and then crushed to ~3/8" gravel size. If the submitted sample was >~1 quart, the sample may have been split using a 1/2" riffle splitter following ASTM Method C-702-98 to reduce the sample volume for pulverization. The remaining aliquot, or entire original sample, was then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. A representative ~60 mg aliquot of material was weighed out, and then placed into solution in a 500 ml beaker filled with distilled water. A known volume of the liquid suspension was filtered onto a 0.2 micron pore size Millipore mixed cellulose ester filter. The filter was then dried in HEPA filtered, Class 100 air on a clean bench. The filter was placed onto a glass microscope slide, sectioned, and collapsed in acetone. The collapsed filter was plasma-etched to remove 10% of the filter surface and then carbon coated. The carbon coated filter was sectioned and the sections placed onto 200-mesh copper TEM sample grids in dimethyl sulfoxide and acetone wick washers. After sufficient time to dissolve the filter material, the TEM sample grids were removed from the baths and placed into labeled sample containers.

TEM analysis was performed on a Philips CM-12 or JEOL 1200 transmission electron microscope operating at 80 or 100 kV. The sample was placed into the microscope where it was first scanned at low magnification to confirm that the distribution of material was reasonably homogeneous. High magnification analysis was performed using a two tier approach: 1) A relatively large area of several TEM grid openings for large asbestos fibers or fiber bundles, and 2) a relatively small area of a number of fields of view for individual asbestos fibers (fibrous particles exhibiting an aspect ratio greater than or equal to 3 to 1, and a length greater than or equal to .5 um). Detected asbestiform structures were subjected to detailed morphological and/or selected area diffraction analysis. If necessary, energy dispersive X-ray analysis was also performed. The length and width of each asbestos fiber was measured. From this data, a total volume and mass of asbestos observed in the scanned area is calculated, and extrapolated to a total weight percent asbestos for each sample.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "R. Mc. Burt", is written over a light blue horizontal line.

Laboratory Manager

Disclaimer - These results relate only to the samples tested as received and must not be reproduced, except in full, with the approval of the laboratory. Incorrect or illegible information supplied by the customer may adversely affect the validity of test results.

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962827

Porphyrite

Laboratory Sample # 1573-00002-001

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.6

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	16	10

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	1.40	1.40

COMMENTS

Actinolite Asbestos Detected, Non-Regulated Amphibole (5 Hornblende) Observed. Concentration in Millions of Fibers per gram: 1900 for actinolite fibers <5um to 0.5um in length & 300 for actinolite fibers >5um in length.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Grid Op. # Scanned For Large Fibers & Bundles 20 Grid Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196

Grid Op. # Scanned For Small Fibers & Bundles 5 Grid Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049

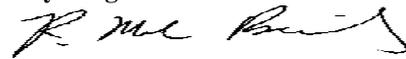
Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter



Analyst Signature



Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962828

Porphyrite

Laboratory Sample # 1573-00002-002

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 60.2

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	1

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	0.062	0.062

COMMENTS

Actinolite Asbestos Detected, Non-Regulated Amphibole (5 Hornblende) Observed. Concentration in Millions of Fibers per gram: 29 actinolite fibers >5um in length. Possible contamination.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Grid Op. # Scanned For Large Fibers & Bundles 20 Grid Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196

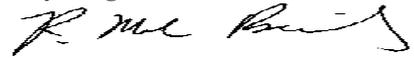
Grid Op. # Scanned For Small Fibers & Bundles 5 Grid Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter


 Analyst Signature


 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962829	Diabase
Laboratory Sample # 1573-00002-003	

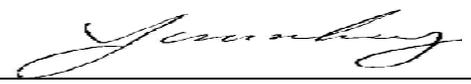
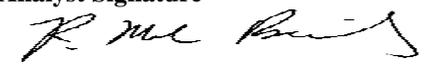
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>61.3</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Bundle Scan Area (sq.mm)			<u>0.196</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
Fiber Scan Area (sq.mm)			<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


Analyst Signature

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962830	Porphyrite
Laboratory Sample # 1573-00002-004	

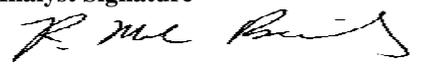
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.1</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962831	Diabase
Laboratory Sample # 1573-00002-005	

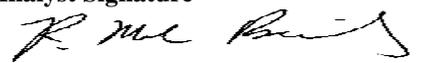
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>58.9</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Bundle Scan Area (sq.mm)			<u>0.196</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
Fiber Scan Area (sq.mm)			<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962832	Porphyrite
Laboratory Sample # 1573-00002-006	

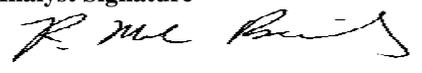
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>61.7</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u> Date Received: <u>Sep-14-21</u>
Job Site / No. Idaho Maryland	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962833	Porphyrite
Laboratory Sample # 1573-00002-007	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>60.8</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	1	<0.001	0.092	0.092

COMMENTS	
Actinolite Asbestos Detected. Concentration in Millions of Fibers per gram: 29 for actinolite fibers <5um to 0.5um in length. Possible contamination.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

ASBESTOS TEM LABORATORIES, INC. www.asbestostemplabs.com	3431 Ettie St., Oakland, CA 94608 With Offices in Reno, NV (775) 359-3377	(510) 704-8930 Analyst Signature Lab QC Reviewer Signature
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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962834

Diabase

Laboratory Sample # 1573-00002-008

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 61.4

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

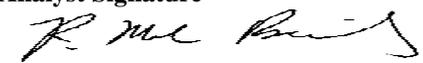
No Asbestos Detected	Filter Loading: Moderate
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TEM / ANALYTICAL PARAMETERS

Grid Op. # Scanned For Large Fibers & Bundles 20 Grid Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196
 Grid Op. # Scanned For Small Fibers & Bundles 5 Grid Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049
 Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 µm = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter


 Analyst Signature


Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962835	Diabase
Laboratory Sample # 1573-00002-009	

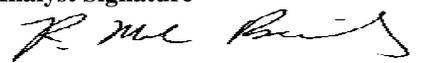
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>60.4</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	1	<0.001	0.071	0.071

COMMENTS	
Actinolite Asbestos Detected. Concentration in Millions of Fibers per gram: 29 for actinolite fibers <5um to 0.5um in length. Possible contamination.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962836	Porphyrite
Laboratory Sample # 1573-00002-010	

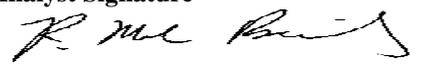
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>59.3</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	1	<0.001	0.29	0.29

COMMENTS	
Actinolite Asbestos Detected. Non-Regulated Amphibole (1 Hornblende) Observed. Concentration in Millions of Fibers per gram: 30 for actinolite fibers <5um to 0.5um in length. Possible contamination.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962837	Porphyrite
Laboratory Sample # 1573-00002-011	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>60.1</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	15	4	<0.001	1.27	1.27

COMMENTS	
Actinolite Asbestos Detected, Non-Regulated Amphibole (5 Hornblende) Observed. Concentration in Millions of Fibers per gram: 1800 for actinolite fibers <5um to 0.5um in length & 120 for actinolite fibers >5um in length.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Bundle Scan Area (sq.mm)			<u>0.196</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
Fiber Scan Area (sq.mm)			<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962838	Porphyrite
Laboratory Sample # 1573-00002-012	

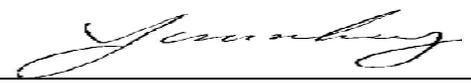
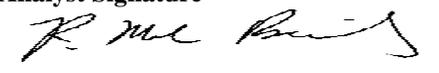
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>58</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Bundle Scan Area (sq.mm)			<u>0.196</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
Fiber Scan Area (sq.mm)			<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

ASBESTOS TEM LABORATORIES, INC. www.asbestostemplabs.com	3431 Ettie St., Oakland, CA 94608 With Offices in Reno, NV (775) 359-3377	(510) 704-8930  Analyst Signature  Lab QC Reviewer Signature
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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962839	Porphyrite
Laboratory Sample # 1573-00002-013	

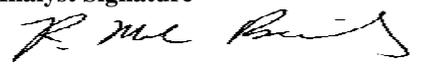
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>59.2</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962840	Porphyrite
Laboratory Sample # 1573-00002-014	

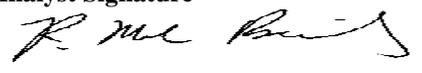
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>62.9</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	1	1	<0.001	0.15	0.15

COMMENTS	
Actinolite Asbestos Detected, Non-Regulated Amphibole (5 Hornblende) Observed. Concentration in Millions of Fibers per gram: 110 for actinolite fibers <5um to 0.5um in length & 28 for actinolite fibers >5um in length.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962841	Porphyrite
Laboratory Sample # 1573-00002-015	

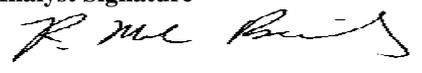
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>60.4</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962842

Ankeritized diabase

Laboratory Sample # 1573-00002-016

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.1

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

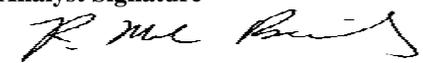
No Asbestos Detected	Filter Loading: Moderate
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TEM / ANALYTICAL PARAMETERS

Grid Op. # Scanned For Large Fibers & Bundles 20 Grid Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196
 Grid Op. # Scanned For Small Fibers & Bundles 5 Grid Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049
 Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter


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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962843	Sand
Laboratory Sample # 1573-00002-017	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>59.2</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	1	NSD	NSD	0.004	<0.001	0.004

COMMENTS	
Chrysotile Asbestos Detected. Concentration in Millions of Fibers per gram: 30 for chrysotile fibers >5um in length. Possible contamination.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
		Magnification:	<u>15,000X</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962844

Sand

Laboratory Sample # 1573-00002-018

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.4

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

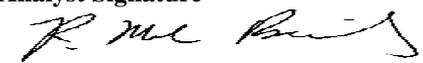
No Asbestos Detected	Filter Loading: Moderate
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TEM / ANALYTICAL PARAMETERS

Grid Op. # Scanned For Large Fibers & Bundles 20 Grid Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196
 Grid Op. # Scanned For Small Fibers & Bundles 5 Grid Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049
 Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter


 Analyst Signature


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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962845	Carbonate landscape rock
Laboratory Sample # 1573-00002-019	

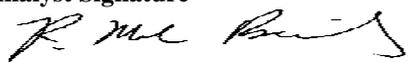
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>60.8</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962846	Carbonate landscape rock
Laboratory Sample # 1573-00002-020	

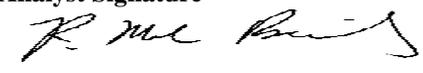
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>61.2</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles	<u>20</u>	Grid Area (sq.mm)	<u>0.0098</u>
Bundle Scan Area (sq.mm)			<u>0.196</u>
Grid Op. # Scanned For Small Fibers & Bundles	<u>5</u>	Grid Area (sq.mm)	<u>0.0098</u>
Fiber Scan Area (sq.mm)			<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

ASBESTOS TEM LABORATORIES, INC. www.asbestostemplabs.com	3431 Ettie St., Oakland, CA 94608 With Offices in Reno, NV (775) 359-3377	(510) 704-8930 <div style="text-align: center;"> <u>EM</u> Analyst Signature  <hr/> Lab QC Reviewer Signature </div>
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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962847	Duplicate
Laboratory Sample # 1573-00002-021	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>58.9</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
233	10	NSD	NSD	0.44	<0.001	0.44

COMMENTS	
Chrysotile Asbestos Detected. Concentration in Millions of Fibers per gram: 2800 for chrysotile fibers <5um to 0.5um in length & 210 for chrysotile fibers >5um in length.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>
		Magnification:	<u>15,000X</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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R. M. [Signature]

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962982	Porphyrite
Laboratory Sample # 1573-00002-022	

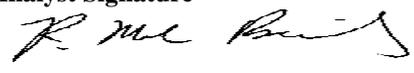
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>62.5</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYBOTILE		AMPHIBOLE		CHRYBOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
Grid Op. # Scanned For Large Fibers & Bundles <u>20</u>	Grid Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
Grid Op. # Scanned For Small Fibers & Bundles <u>5</u>	Grid Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
	Magnification: <u>15,000X</u>		

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962983

Ankeritized diabase/serpentinite

Laboratory Sample # 1573-00002-023

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 61.4

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No Asbestos Detected

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20 Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5 Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962984	Ankeritized diabase/serpentinite
Laboratory Sample # 1573-00002-024	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>60.1</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected. Some grid openings damaged.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>
		Magnification:	<u>15,000X</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
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 Grass Valley, CA 95945
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REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962985

Porphyrite

Laboratory Sample # 1573-00002-025

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 61.7

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No Asbestos Detected.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>	Bundle Scan Area (sq.mm)	<u>0.196</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>	Fiber Scan Area (sq.mm)	<u>0.049</u>
		Magnification:	<u>15,000X</u>		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 µm = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

EM

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R. M. [Signature]

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
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 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962986

Diabase

Laboratory Sample # 1573-00002-026

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 62

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No Asbestos Detected.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>	Bundle Scan Area (sq.mm)	<u>0.196</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>	Fiber Scan Area (sq.mm)	<u>0.049</u>
		Magnification:	<u>15,000X</u>		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962987	Porphyrite
Laboratory Sample # 1573-00002-027	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>59.1</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>
		Magnification:	<u>15,000X</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

EM

Analyst Signature

R. M. [Signature]

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. <u>375516 rev. 1</u>
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962988	Porphyrite
Laboratory Sample # 1573-00002-028	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.1</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No Asbestos Detected. Some grid openings damaged.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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R. M. [Signature]

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962989

Ankeritized diabase/serpentinite

Laboratory Sample # 1573-00002-029

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.8

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No Asbestos Detected.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20 Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5 Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
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REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962990

Diabase+Porphyrite

Laboratory Sample # 1573-00002-030

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 60

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	1	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
0.075	<0.001	<0.001

COMMENTS

Actinolite Fibers Detected. Concentration in Millions of Fibers per gram: 29 for actinolite fibers >5um in length. Possible contamination.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20

Area (sq.mm) 0.0098

Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5

Area (sq.mm) 0.0098

Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

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R. M. [Signature]

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962991	Diabase
Laboratory Sample # 1573-00002-031	

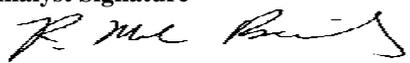
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.4</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
36	4	1	NSD	0.041	0.00087	0.042

COMMENTS	
Chrysotile & Actinolite Fibers Detected. Concentration in Millions of Fibers per gram: 4400 for chrysotile fibers <5um to 0.5um in length & 120 for chrysotile fibers >5um in length, and 120 for actinolite fibers <5um to 0.5um in length	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
	Magnification: <u>15,000X</u>		

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
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 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962992

Weakly ankeritized diabase/serpentinite

Laboratory Sample # 1573-00002-032

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.1

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
56	21	NA	NA

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
0.608	0.185	0.79

COMMENTS

Chrysotile Fibers Detected. Concentration in Millions of Fibers per gram:
 6700 for chrysotile fibers <5um to 0.5um in length & 630 for chrysotile fibers
 >5um in length.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 2

Area (sq.mm) 0.0098

Bundle Scan Area (sq.mm) 0.0196

Scanned For Small Fibers & Bundles 1

Area (sq.mm) 0.0098

Fiber Scan Area (sq.mm) 0.0098

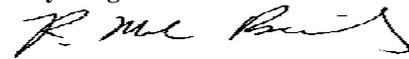
Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter



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TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
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REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962993

Porphyrite

Laboratory Sample # 1573-00002-033

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.7

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
3	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
0.0009	<0.001	0.0009

COMMENTS

Chrysotile asbestos detected. Concentration in Millions of Fibers per gram: 355 for fibers <5um to 0.5um in length. Possible contamination.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20

Area (sq.mm) 0.0098

Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5

Area (sq.mm) 0.0098

Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

EM

Analyst Signature

R. M. B...

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962994

Ankeritized Serpentine?

Laboratory Sample # 1573-00002-034

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 60.8

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	1

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	0.13	0.13

COMMENTS

Actinolite asbestos detected. Concentration in Millions of Fibers per gram: 29 for fibers >5um in length. Possible contamination.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20

Area (sq.mm) 0.0098

Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5

Area (sq.mm) 0.0098

Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

EM

Analyst Signature

R. M. B...

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962995

Porphyrite

Laboratory Sample # 1573-00002-035

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 59.4

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No asbestos detected.

Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS

Scanned For Large Fibers & Bundles 20 Area (sq.mm) 0.0098 Bundle Scan Area (sq.mm) 0.196

Scanned For Small Fibers & Bundles 5 Area (sq.mm) 0.0098 Fiber Scan Area (sq.mm) 0.049

Magnification: 15,000X

NOTATION KEY

Chrys. - Chrysotile Asbestos 1 um = 1 micron = 0.001 mm
 Amph. - Amphibole Asbestos 1 mm = 1 millimeter
 NSD - No Structures Detected 1 sq.mm = 1 square millimeter
 Non-Asb. - Non-Asbestos 1 cc = 1 cubic centimeter

EM

Analyst Signature

[Handwritten Signature]

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman
 Address: Rise Grass Valley Inc.
 333 Crown Point Circle, Suite 215
 Grass Valley, CA 95945
 Job Site / No. Idaho Maryland

REPORT NO. **375516 rev. 1**

Date: Nov-10-21

Date Received: Sep-14-21

Total Samples Analyzed: 40

SAMPLE DESCRIPTION

Client Sample # Y962996

Serpentinite?

Laboratory Sample # 1573-00002-036

SAMPLE PREPARATION PARAMETERS

Weight of Material Suspended (mg): 58.4

Filter Type & Pore Size MCE0.22um

Volume of Suspension Water (ml): 500

Effective Filter Area (sq.mm) 346

Volume of Suspension Filtered (ml): 0.5

ASBESTOS STRUCTURES DETECTED IN SCAN AREA

CHRYSOTILE		AMPHIBOLE	
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)

CHRYSOTILE	AMPHIBOLE	TOTAL
<0.001	<0.001	<0.001

COMMENTS

No asbestos detected.	Filter Loading: Moderate
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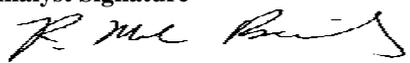
TEM / ANALYTICAL PARAMETERS

# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>
Magnification: <u>15,000X</u>		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

EM

 Analyst Signature


 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962997	Ankeritized Serpentine
Laboratory Sample # 1573-00002-037	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg):	<u>60.7</u>	Filter Type & Pore Size	<u>MCE0.22um</u>
Volume of Suspension Water (ml):	<u>500</u>	Effective Filter Area (sq.mm)	<u>346</u>
Volume of Suspension Filtered (ml):	<u>0.5</u>		

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
<u>< 5 µm</u>	<u>≥ 5 µm</u>	<u>< 5 µm</u>	<u>≥ 5 µm</u>			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No asbestos detected.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles	<u>20</u>	Area (sq.mm)	<u>0.0098</u>
# Scanned For Small Fibers & Bundles	<u>5</u>	Area (sq.mm)	<u>0.0098</u>
		Magnification:	<u>15,000X</u>
		Bundle Scan Area (sq.mm)	<u>0.196</u>
		Fiber Scan Area (sq.mm)	<u>0.049</u>

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

EM

Analyst Signature

R. M. [Signature]

Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962998	Mixture porphyrite and serpentinite
Laboratory Sample # 1573-00002-038	

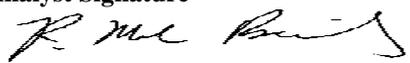
SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>59.8</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYBOTILE		AMPHIBOLE		CHRYBOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No asbestos detected.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter

EM
 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y962999	Weakly ankeritized serpentinite
Laboratory Sample # 1573-00002-039	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>60.8</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
34	3	NSD	NSD	0.01	<0.001	0.01

COMMENTS	
Chrysotile asbestos detected. Concentration in Millions of Fibers per gram: 3900 for fibers <5um to 0.5um in length & 87 for fibers >5um in length.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: Ben Mossman	REPORT NO. 375516 rev. 1
Address: Rise Grass Valley Inc. 333 Crown Point Circle, Suite 215 Grass Valley, CA 95945	Date: <u>Nov-10-21</u>
Job Site / No. Idaho Maryland	Date Received: <u>Sep-14-21</u>
	Total Samples Analyzed: 40

SAMPLE DESCRIPTION	
Client Sample # Y963000	Diabase
Laboratory Sample # 1573-00002-040	

SAMPLE PREPARATION PARAMETERS			
Weight of Material Suspended (mg): <u>58.3</u>	Filter Type & Pore Size <u>MCE0.22um</u>		
Volume of Suspension Water (ml): <u>500</u>	Effective Filter Area (sq.mm) <u>346</u>		
Volume of Suspension Filtered (ml): <u>0.5</u>			

ASBESTOS STRUCTURES DETECTED IN SCAN AREA				CALCULATED ASBESTOS CONCENTRATION (WEIGHT %)		
CHRYSOTILE		AMPHIBOLE		CHRYSOTILE	AMPHIBOLE	TOTAL
< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm			
NSD	NSD	NSD	NSD	<0.001	<0.001	<0.001

COMMENTS	
No asbestos detected.	Filter Loading: Moderate

TEM / ANALYTICAL PARAMETERS			
# Scanned For Large Fibers & Bundles <u>20</u>	Area (sq.mm) <u>0.0098</u>	Bundle Scan Area (sq.mm) <u>0.196</u>	
# Scanned For Small Fibers & Bundles <u>5</u>	Area (sq.mm) <u>0.0098</u>	Fiber Scan Area (sq.mm) <u>0.049</u>	
Magnification: <u>15,000X</u>			

NOTATION KEY	
Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	1 mm = 1 millimeter
NSD - No Structures Detected	1 sq.mm = 1 square millimeter
Non-Asb. - Non-Asbestos	1 cc = 1 cubic centimeter


 Analyst Signature

 Lab QC Reviewer Signature

375516



ATEM LABORATORIES CHAIN OF CUSTODY

CALIFORNIA: 3431 Ettie Street Oakland, CA 94608

Phone (510) 704-8930 Fax (510) 704-8429

NEVADA: 1350 Freeport Blvd. #104, Sparks, NV 89431

Phone (775) 359-3377 Fax (775) 359-2798

You may also email this chain of custody to asbestostemplabs.ca@gmail.com

* denotes required field

Company: Rise Grass Valley Inc.			Contact: *Ben Mossman			Phone: *530-557-9524			Email: *ceo@risegoldcorp.com				
Address: *333 Crown Point Circle, Suite 215			City: *Grass Valley			State: * CA Zip: 95945			Email:				
Job Site: *Idaho Maryland				Job #:				PO #:		Email:			
Reporting *	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> Phone	<input type="checkbox"/> Fax	<input type="checkbox"/> Mail	<input type="checkbox"/> Pickup	Billing	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> Fax	<input type="checkbox"/> Mail	<input type="checkbox"/> Pre-Paid	Billing Email:		
Results Due:*	<input type="checkbox"/> 2 HR	<input type="checkbox"/> 4 HR	<input type="checkbox"/> 6 HR	<input type="checkbox"/> 8 HR	<input type="checkbox"/> 24 HR	<input type="checkbox"/> 48 HR	<input type="checkbox"/> 3 DAY	<input checked="" type="checkbox"/> 5 DAY	<input type="checkbox"/> 10 DAY	<input type="checkbox"/> Hold Samples (Until _____)	<input type="checkbox"/> After Hours: **		
Asbestos Air	<input type="checkbox"/> PCM NIOSH 7400	<input type="checkbox"/> A or B	<input type="checkbox"/> TEM AHERA	<input type="checkbox"/> TEM CARB Mod. AHERA	<input type="checkbox"/> TEM EPA Yamate Level II	<input type="checkbox"/> TEM NIOSH 7402	<input type="checkbox"/> ISO 10312	<input type="checkbox"/> ISO 13794	<input type="checkbox"/> Sensitivity _____				
Asbestos Bulk	<input type="checkbox"/> PLM Standard (EPA 600/R-93-1)	<input type="checkbox"/> PLM 400 Point Count	<input type="checkbox"/> PLM 1000 PC	<input type="checkbox"/> PLM 400 PC Gravimetric Reduction	<input type="checkbox"/> PLM 1000 PC Grav. Red.	<input type="checkbox"/> TEM EPA Qualitative	<input type="checkbox"/> TEM EPA Quantitative						
Asbestos Soils	<input type="checkbox"/> CARB 435 Prep Only	<input type="checkbox"/> CARB 435 PLM	<input type="checkbox"/> 400 PC	<input type="checkbox"/> 800 PC	<input type="checkbox"/> 1000 PC	<input type="checkbox"/> 1200 PC	<input type="checkbox"/> EPA Soil Screening Qualitative	<input checked="" type="checkbox"/> TEM-NOA EPA/CARB Quantitative	<input type="checkbox"/> Erionite				
Asbestos Dust	<input type="checkbox"/> ASTM D-5755 Fiber Count	<input type="checkbox"/> ASTM D-5756 Wt. %	<input type="checkbox"/> ASTM D-5756 Mass	<input type="checkbox"/> ASTM D-6480 Dust Wipe	<input type="checkbox"/> Total Particulates (Gravimetric)								
Asbestos Water	<input type="checkbox"/> 100.2 Potable Drinking Water	<input type="checkbox"/> 100.1 Non Potable Water	<i>note that 100.2 will be used for all water samples unless otherwise requested</i>										
Lead/Silica	<input type="checkbox"/> Lead Paint Chips EPA-SW-846 7000B	<input type="checkbox"/> Lead Dust Wipe EPA-SW-846 7000B	<input type="checkbox"/> Lead Air NIOSH 7082	<input type="checkbox"/> Lead Soil EPA-SW-846 7000B	<input type="checkbox"/> Crystalline Silica Air (NIOSH 7500)	<input type="checkbox"/> Single Species	<input type="checkbox"/> All Species	<input type="checkbox"/> Crystalline Silica in Bulk (NIOSH 7500)	<input type="checkbox"/> Single Species	<input type="checkbox"/> All Species	<input type="checkbox"/> Respirable Crystalline Silica in Bulk (NIOSH 7500)	<input type="checkbox"/> Single Species	<input type="checkbox"/> All Species
Custom/Other	<input type="checkbox"/> Custom Analysis **				<input type="checkbox"/> TEM Chatfield (Semi-Quant)		<input type="checkbox"/> NIOSH 0500	<input type="checkbox"/> NIOSH 0600	<input type="checkbox"/> TTLC	<input type="checkbox"/> STLC	<input type="checkbox"/> TCLP		
Special Instruct.	<input type="checkbox"/> Composite	<input type="checkbox"/> Prep Only	<input type="checkbox"/> 8 Hour TWA	Other **									
Sample # *	Sample Type	Date Collected	Time On	Time Off	Total Time (min)	Flow Rate (lpm)			Volume or Area Sampled	Hold Sample	Description *		
						On	Off	Average					
1-40	Pulverized Rock									<input type="checkbox"/>	Retesting of samples Report#365840 by TEM method		
										<input type="checkbox"/>			
										<input type="checkbox"/>			
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										<input type="checkbox"/>			
Submitted By * <i>Tessa Binkman</i>		<i>Tessa Binkman</i>		Received By <i>MTZ</i>		SEP14 21 11:33AM							
Date/Time Submitted * <i>Sept 13, 2021</i>		<i>by UPS</i>		Date/Time Received									
Submitted By				Received By									
Date/Time Submitted				Date/Time Received									

** For any special instructions, RUSH results or Custom Analysis, you must clarify these specifications AND, of more importance, contact us here at ATEM ahead of time to manage scheduling to meet your requests. This includes dropping off samples for rush, same day analysis. Drop off and processing of samples after hours cannot be accommodated without proper notification from you, and confirmation by ATEM staff. All samples will be held for 3 months from the date of receipt at ATEM. Additional sample storage time may be obtained through ATEM Customer Service.

365840 375516

Sample #	Sample Type	Hold Sample	Description
Y962827	Rock Sample	X	Porphyrite
Y962828	Rock Sample	X	Porphyrite
Y962829	Rock Sample	X	Diabase
Y962830	Rock Sample	X	Porphyrite
Y962831	Rock Sample	X	Diabase
Y962832	Rock Sample	X	Porphyrite
Y962833	Rock Sample	X	Porphyrite
Y962834	Rock Sample	X	Diabase
Y962835	Rock Sample	X	Diabase
Y962876	Rock Sample	X	Porphyrite
Y962837	Rock Sample	X	Porphyrite
Y962838	Rock Sample	X	Porphyrite
Y962839	Rock Sample	X	Porphyrite
Y962840	Rock Sample	X	Porphyrite
Y962841	Rock Sample	X	Porphyrite
Y962842	Rock Sample	X	Ankeritized diabase
Y962843	Sand Sample	X	Sand
Y962844	Sand Sample	X	Sand
Y962845	Rock Sample	X	Carbonate landscape rock
Y962846	Rock Sample	X	Carbonate landscape rock
Y962847	Pulps Sample	X	Duplicate
Y962982	Rock Sample	X	Porphyrite
Y962983	Rock Sample	X	Ankeritized diabase/serpentine
Y962984	Rock Sample	X	Ankeritized diabase/serpentine
Y962985	Rock Sample	X	Porphyrite
Y962986	Rock Sample	X	Diabase
Y962987	Rock Sample	X	Porphyrite
Y962988	Rock Sample	X	Porphyrite
Y962989	Rock Sample	X	Ankeritized diabase/serpentine
Y962990	Rock Sample	X	Diabase + porphyrite
Y962991	Rock Sample	X	Diabase
Y962992	Rock Sample	X	Weakly ankeritized diabase/serpentine
Y962993	Rock Sample	X	Porphyrite
Y962994	Rock Sample	X	Ankeritized serpentine?
Y962995	Rock Sample	X	Porphyrite
Y962996	Rock Sample	X	Serpentine?
Y962997	Rock Sample	X	Ankeritized serpentine
Y962998	Rock Sample	X	Mixture porphyrite and serpentine
Y962999	Rock Sample	X	Weakly ankeritized serpentine
Y963000	Rock Sample	X	Diabase