



## MINERAL RIDGE PROJECT

### QUALITY ASSURANCE AND QUALITY CONTROL – QAQC

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All technical information for the Mineral Ridge project is obtained and reported under a formal quality assurance and quality control (QAQC) program. The procedure for sample collection, processing and analyzing is as follows:

#### **Sample Collection**

##### Reverse Circulation (RC) Drilling

The RC chips travel up the drill string to a cyclone, producing 20-30 lbs of sample which is then split at the rig to produce two separate 10-15 lb samples. Samples are collected on 5 ft intervals from a rotating wet splitter assembly attached to the drill rig. The rotary splitter discharges through two ports, one of which empties into the primary sample bag (“A” sample, which is sent for analysis) and the other discharges into the reject sample bag (“B” sample, which is kept on site). Chip tray samples are collected from the reject B material. Each A sample bag has a sample identification tag stapled to it along with a duplicate sample tag placed inside the bag. The sample ID is also written on the outside of each bag. The samples are then placed in separate lockable containers to be submitted for analysis. A minimum of one duplicate sample per 20-25 samples is coded and submitted for assay along with the rest of the submission as a blind check of the laboratory. These duplicate samples are collected from the reject B sample and checked against the original A sample when the assays are received. For quality assurance, one standard and one blank is inserted for every 20-25 samples and checked upon receipt of assay data. Scorpio Gold uses standards representing typical waste, low-grade, mid-grade and high-grade ore, which are all prepared from certified reference material by RockLabs laboratories of Australia.

##### Core Diamond Drilling

Sample intervals are determined by the site geologist and are typically 5 ft in length within homogeneous zones or less as dictated by lithology. Sample intervals are marked and the core is sawn into symmetrical halves. One half is sampled and the other half retained in the core box for future reference. A minimum of one duplicate sample per 20-25 samples is coded and submitted for assay along with the rest of the submission as a blind check of the laboratory. The duplicate samples are collected from the reject sample interval and checked against the original sample when the assays are received. For quality assurance, one standard and one blank are inserted for every 20-25 samples and checked upon receipt of assay data. In practice, Scorpio Gold uses standards representing typical waste, low-grade, mid-grade and high-grade ore, which are all prepared from certified reference material by RockLabs laboratories of Australia.

## Mine Blast Hole Drilling (Conventional Rotary with down hole hammer)

Blast holes are drilled to a depth of 11 ft (1 ft sub-drill) within the area where mineralization could occur. Mining occurs on 10 ft benches in order to minimize dilution. Typically, one sample is collected from the cone of drill cutting surrounding the collar of each blast hole. Representative samples weighing approximately 5 lbs are collected manually by the Geotech or Ore Control Geologist and placed into a labelled sample bag. Each sample bag has a sample identification tag stapled to it along with a duplicate sample tag placed inside the bag. The sample ID is also written on the outside of each bag. The samples are loaded onto a flatbed truck and taken to MRG's onsite assay laboratory. With only a 1 ft sub-drill depth, no attempt is made to remove this material from the sampling process. Standard reference material is inserted into the sample stream every 100 samples to monitor the MRG lab's accuracy. Blast hole assaying is for internal grade control only and is not reported publicly.

### **Sample Preparation and Security**

Collection and packaging of samples for shipping is undertaken by employees of Scorpio Gold under the supervision of the site geologist. Sample preparation and analytical work is conducted by ALS Minerals (ALS) in Reno, Nevada or Bureau Veritas (BV) in Sparks, Nevada. The collection, packaging, transport and receipt of samples are conducted under a strict and traceable chain of custody.

Samples to be sent to ALS or BV for analysis are placed in sealed cloth sample bags and stored in lockable transportation bins located next to the Mineral Ridge security office. Both ALS and BV utilize dedicated trucks to collect and transport the bins to their respective laboratories. Upon arrival of the collection truck, both lab and Scorpio Gold site personnel inventory and supervise the loading of the bins.

Upon receipt by ALS or BV, the samples are logged in and checked against MRG's sample submittal form for any discrepancies. The computer generated sample list includes the QAQC in sequential order for each batch submitted by Scorpio Gold. Both ALS and BV include their own QAQC testing materials in their final sample report.

### **Sample Analysis**

ALS and BV perform fire assays on one assay ton (29.166 gram) aliquots of sample pulps. The sample is mixed with flux (the assayer determines the flux composition). The fused sample is poured while an assayer makes notes on the quality of each fusion. The lead button is separated and an assayer reports any low weights or slag composition problems. The button is cupelled and an assayer records any cupellation problems. For gravimetric finish analysis (performed on any sample over 0.08 opt Au), the bead is weighed and parted and the analyst reports any parting problems. For instrument finish analysis (ICP default finish), the bead is dissolved and the solution is examined for any undissolved prill. The solution is read by AAS/ICP. Third-party lab results are recorded to enable fire assay personnel to discard any crucible that had a sample >2 ppm.

MRG re-assays the surrounding range of drill samples for any QAQC assay that fails quality control. For quality control, the inserted standards results must assay within 3 standard deviations

for the batch to be valid. The blank results must be less 0.003 OPT Au to be valid. MRG uses recognized certified controls.

External check assays to verify lab accuracy are routinely completed

## **Laboratory Status**

ALS Minerals Reno is an ISO/IEC 17025:2005 (CAN-P-4E, CAN-P-1579) accredited testing laboratory.

Bureau Veritas Reno is an ISO 9001 certified testing laboratory and operates in compliance with ISO/IEC 17025:2005 standards.

MRG does not have ISO/IEC 17025 accreditation but implements a quality management system compatible with the ISO/IEC 17025 standards and maintains a paperwork and LIMS trail suitable for future ISO/IEC 17025 accreditation. The participation by MRG in round robin exercises is similar in many small laboratories in North America which do not have ISO certification.

- Society of Mineral Analysts (USA and Canada) – round robin testing.
- One in 20 (5%) of all samples are randomly pulled by mining department for external check assays.
  - The MRG laboratory is not informed which samples are pulled until after analysis is returned by the external laboratory.
  - External check assays are sent to either AAL or ALS for cross validation.

## **Tonnage and Grade Estimation**

### Mined Tonnage and Grade

Mined tonnage is measured with truck weightometers to derive wet tons. Moisture content, as determined by the average for the month from the crusher, is subtracted from the wet tons to derive dry tons.

Mined grade is determined using MicroMine mine planning software to create a bench grid map of 5 ft by 5 ft grids and incorporate the blast hole assays. The inverse distance method is used for interpolating into the grid to derive an in-situ grade of the outlined ore shapes. The final mined grade is determined from the tonnage actually mined compared to the in-situ tonnage, with a dilution factor applied if necessary.

### Crushed Tonnage and Grade

The tonnage of material processed through the crusher is measured by a Ramsey belt scale located on the feed belt to the agglomerator. The scale weightometer totalizer is recorded at midnight and noon every day. Calibration of this scale occurs twice monthly at mid and month end. This calibration requires loaded haul trucks to have their loaded and empty weights recorded over the onsite truck scale which is calibrated quarterly utilizing certified weights. These weights are

compared to the trucks onboard scale as well as the Ramsey weightometer so ensure correct scale accuracy is maintained.

Samples to determine grade of the material processed through the crusher are taken from the same belt feeding the agglomerator, via an automated sampling system that cuts the entire width of the feed stream. The sampler is currently set to cut a sample every 12 seconds, producing a composite sample representing a 12 hour period (midnight to noon and noon to midnight daily). The samples are processed onsite at MRG, and are run in triplicate to attain an average feed grade for the composite, which is associated with the weightometer for the tons processed during that period.