



Idaho-Maryland Mining Corporation

SECTION 10

Exploration





IDAHO-MARYLAND MINING CORPORATION

PRELIMINARY ASSESSMENT TECHNICAL REPORT
IDAHO-MARYLAND MINE, GRASS VALLEY, CALIFORNIA

10.0 EXPLORATION

Exploration at the Idaho-Maryland project consisted of various components: an extensive geologic evaluation program during 1994 through to 2002, surface diamond drilling during 2003 and 2004, and surface mapping and sampling in 2004.

The evaluation was possible because of the excellent and comprehensive preservation of the Idaho-Maryland mine and mill records. These records are exhaustive and essentially complete, and were used to generate a consistent, property-wide structural geology model and vein set stratigraphy. Unmined mineralization was identified along underground workings and in historical diamond drill holes. Interpretation of the updated geologic model defined new vein sets and extensions of known vein sets. These were categorized for mineral resource estimates and future exploration.

Surface diamond drill programs were executed in 2003 and 2004 to test the structural geologic model and near surface gold mineralization targets, and in 2004 for access ramp geotechnical information and ceramics feedstock confirmation. The drill programs and results are discussed in Section 11.

The surface mapping and sampling work consisted of a traverse over the meta-volcanic and intrusive units that comprise the Brunswick slab. Seven surface exposures were found, located by a Trimble GeoTX GPS instrument, and mapped and sampled. This work was done in support of the ceramics feedstock resource estimate.

10.1 Evaluation Data

The available key historic data consisted of:

- 3,200 mine maps and drawings, including 1,257 linen maps (1" = 50 ft assay plans, geology plans and stope plans, 1" = 100 ft geologic cross sections), including exploration drill hole geology and assays plotted on maps.
- 1,100 photographs (surface and underground)
- monthly development reports for 1921 to 1956
- monthly geological summary reports for 1936 to 1942
- eight ledgers of development and stope sampling assays
- assay reports of diamond drilling, channel samples and muck car samples
- general manager's and mine superintendent's reports for 1947 to 1953
- mill production reports and cost summaries for 1934 to 1956.
- petrographic studies on 70 wallrock and gold mineralized samples.



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The main underground levels and winzes were measured and input into a 3-D wireframe computer model using Vulcan® and MineSight®.

10.2 Gold Mineralization

10.2.1 Data Review Results

The review of the historic data yielded a revised, comprehensive geological model for the Idaho-Maryland project. Details are described in Sections 7, 8, and 9. Results from the review directed the 2003 and 2004 diamond drill programs. Key results are:

- Barren blooms of intense carbonate-sericite-chlorite alteration leakage extend for several hundred feet upward from all of the known, large, high-grade oreshoots developed at the Idaho-Maryland mine.
- The concept of tectonic fragments or slabs within the Spring Hill Tectonic Mélange (e.g., Brunswick slab, Fulton slab) to explain location, arrangement, and variability in strike and dip of veins.
- Consistent structural interpretation, on both a property and local (stope) scale. Key in this interpretation is the Idaho Deformation Corridor and its make-up of a braided network of high-strain zones, and definition of the Morehouse Fault as an arcuate, structure along the Brunswick tectonic slab contact.
- Definition of the L Fault as the north boundary of the Idaho-Deformation Corridor, generator of numerous, blind high-grade oreshoots which branch downward into the hanging wall, and the possible connection at depth of the L Fault and projected north contact of the deep Fulton Slab.
- Development of productive, high-grade gold-quartz vein sets in bowtie arrays at and adjacent to bench dislocations in the Brunswick Slab contact.
- Development of a deposit type definition for the Idaho-Maryland that forms the basis for the positive exploration potential of new mineralized veins or structures. Four structural features are defined as potential hosts to mineralized vein sets (Figures 7-3 and 8-1):
 1. Boudinage neck features in the serpentinite matrix of the mélange unit
 2. Tectonic slabs in the serpentinite matrix of the mélange unit
 3. Flexures and irregularities in the plane of key fault zones that create shattered, quartz stockwork zones which can host large, more homogeneous, lower grade blocks



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4. High-grade vein arrays localized in association with bench-like dislocations along the meta-volcanic Brunswick Slab-serpentinite mélange matrix contact.

The revised interpretation is consistent with the observation of variable to arcuate vein strike orientations and steep to very shallow dips and plunges within these same features.

10.2.2 Discussion

The revised Idaho-Maryland geologic model (see Section 8.0) allows Emgold to evaluate areas among the known structures and veins for new vein set targets. Carefully designed multiple drill hole programs will be necessary to effectively test these targets in light of the complex geology and variable geometry of the mineralized veins. A schematic of the types of targets available are represented in Figures 7-3 and 8-1.

Exploration targets and the potential for new discoveries at the Idaho-Maryland project can be divided into seven large groups according to the dominant structure controlling mineralization. The structural features listed in order of decreasing importance are (1) the Idaho Deformation Corridor, (2) large individual mélange slabs, (3) Weimar Fault, (4) Morehouse Fault, (5) Clipper Creek Thrust, (6) Golden Gate Antiform, and (7) the Grass Valley Fault. Each structural feature has specific targets in known veins and further conceptual geological targets.

However, additional testing from surface can still be done, most of the exploration and delineation effort towards identifying additional gold mineralization will have to be executed from underground stations. Best areas for relatively shallow, higher-grade mineralization occur around the Idaho and Eureka shafts, south of the Round Hole shaft, and Loma Rica Ranch, based on the reinterpreted geology and occurrence of inferred resource blocks. Access for the initial underground drilling would be from the proposed exploration/production decline. The proposed underground work is discussed in more detail in Section 19.