



# EMGOLD MINING CORPORATION

## IDAHO - MARYLAND TECHNICAL REPORT

### 11.0 DRILLING

#### 11.1 Historic Drilling

During mining of the Idaho-Maryland deposits, exploratory and delineation diamond drilling regularly took place. Eleven hundred holes totalling 230,000 ft were diamond drilled, commonly to a 0° dip (horizontal). Core diameter was 7/8" (E-size). Hole traces were put onto the assay, stope, and various geology plans, as was all other information. No drill logs were observed.

Down hole surveys were not conducted, and deviation of the drill holes was common. Recorded in the geology monthly reports were experiences such as driving an underground heading on a drill hole only to find that the hole soon curved significantly from the planned orientation. The deviation was not consistent, and so could not be predicted. This observation was one of the main reasons AMEC recommended that mineral resources defined by historic drilling alone should be classified as inferred mineral resources (see Section 17).

No core was preserved from past mining operations at the Idaho-Maryland Mine.

#### 11.2 2003 / 2004 Drilling

Diamond drill holes have become the principal source of geological and grade data for the Idaho-Maryland project. Drilling from surface sites commenced in three phases: summer 2003 (gold targets), spring 2004 (gold targets) and summer 2004 (geotechnical data). Drilling totalled 21,335 ft in 31 drill holes for gold exploration and 3,537 ft in seven drill holes for the geotechnical and ceramics feedstock work. A list of the project drill holes, together with their coordinates and lengths, is provided in Table 11-1 from Juras (in the 2004 AMEC report).

Drilling was done by wireline method with H-size (HQ, 2.5 in nominal core diameter) equipment using a single drill rig. Collar locations of the core holes were surveyed by Idaho-Maryland staff with a Trimble GeoXT GPS unit. Downhole surveys of all core holes were conducted at 100 ft intervals with a Reflex E-Z Shot digital instrument. Additionally, the geotechnical drill holes were drilled using oriented core (EZ Mark oriented core device). Upon completion, the collar and anchor rods were removed and the hole was abandoned to California regulation standards, and the site rehabilitated.

Standard logging and sampling conventions were used to capture information from the drill core. The core is logged in detail onto electronic MS Access logging "sheets", and



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the data was then transferred into the project database. The core was digitally photographed before being sampled.

**Table 11-1: Idaho-Maryland Project 2003 and 2004 Drill Holes**

Drill Hole No.	Easting (ft)	Northing (ft)	Collar Elevation (ft)	Total (ft)	Depth (m)	Azimuth	Dip	Target
IDH001	3770.7	9657.5	12495	592.5	180.6	50	-59	Au
IDH002	3770.7	9657.5	12495	319.0	97.2	88	-45	Au
IDH003	3770.7	9657.5	12495	668.0	203.6	90	-26	Au
IDH004	3770.7	9657.5	12495	940.0	286.5	71	-26	Au
IDH005	5332.1	9256.8	12522	757.0	230.7	2	-76	Au
IDH006	5367.5	9275.0	12522	1706.0	520.0	226	-45	Au
IDH007	5403.5	9283.0	12522	139.0	42.4	38	-69	Au
IDH008	5405.0	9284.5	12522	678.0	206.7	39	-56	Au
IDH009	5408.0	9294.0	12522	603.0	183.8	358	-60	Au
IDH010	5418.0	9293.0	12522	747.0	227.7	326	-59	Au
IDH011	5419.0	9291.0	12522	1248.0	380.4	334	-74	Au
IDH012	5458.0	9312.0	12522	302.0	92.0	64	-53	Au
IDH013	5459.0	9313.0	12522	293.0	89.3	64	-70	Au
IDH014	5349.0	9273.0	12522	406.0	123.7	353	-79	Au
IDH015	5349.0	9272.0	12522	483.0	147.2	316	-61	Au
IDH016	3682.0	9674.0	12495	1087.0	331.3	64	-65	Au
IDH017	3683.8	9674.8	12495	1038.0	316.4	63	-49	Au
IDH018	3684.7	9675.3	12495	887.0	270.4	67	-41	Au
IDH019	3683.5	9675.3	12495	807.0	246.0	57	-55	Au
IDH020	3684.5	9676.8	12495	596.0	181.7	58	-40	Au
IDH021	3682.4	9674.4	12495	799.0	243.5	60	-70	Au
IDH022	3682.4	9675.8	12495	767.5	233.9	17	-55	Au
IDH023	3682.7	9676.8	12495	607.0	185.0	12	-41	Au
IDH024	3681.9	9674.4	12495	758.0	231.0	13	-70	Au
IDH025	3680.8	9676.6	12495	466.0	142.0	329	-44	Au
IDH026	3681.2	9675.7	12495	530.0	161.5	342	-65	Au
IDH027	3681.7	9674.2	12495	428.0	130.5	339	-77	Au
IDH028	3681.5	9675.5	12495	434.1	132.3	350	-45	Au
IDH029	3681.6	9674.3	12495	576.1	175.6	349	-59	Au
IDH030	3681.6	9674.3	12495	817.0	249.0	117	-60	Au
IDH031	3681.6	9674.3	12495	857.0	261.2	117	-55	Au



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IDH032	6166.5	8050.5	12587	707.0	215.5	39	-44	Geotech
IDH033	6128.9	7628.8	12580	708.0	215.8	129	-45	Geotech
IDH034	5729.3	8031.0	12574	706.0	215.2	256	-40	Geotech
IDH035	5735.5	8018.0	12572	519.3	158.3	256	-40	Geotech
IDH036	6092.3	8011.9	12585	387.4	118.1	271	-44	Geotech
IDH037	4480.3	8257.6	12531	307.0	93.6	111	-40	Geotech
IDH038	4479.8	8256.8	12527	203.0	61.9	297	-44	Geotech

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Juras reviewed the core logging procedures at site and the drill core was found to be well handled and maintained. Material was stored under cover (in a secure warehouse facility) in core racks. Data collection was competently done. Idaho-Maryland maintained consistency of observations from hole to hole and between different loggers by conducting regular internal checks. Core recovery in the mineralized units was excellent, usually between 95% and 100%. Very good to excellent recovery was observed in the mineralized intrusive sections checked by Juras and AMEC. Juras stated that overall, the Idaho-Maryland drill program and data capture were performed in a competent manner.

### 11.2.1 Findings from Surface Drilling

Key observations and findings from the surface drilling programs, as summarized by Juras (2004) were:

- Confirmation of the serpentinite – matrix tectonic melange zone geologic model for the Idaho-Maryland Mine. The localization of gold-quartz veining along melange slab contacts and in association with bench dislocations along the Brunswick Slab contact was also corroborated.
- Nearly all gold is coarse particulate in nature and confined directly to vein quartz and phyllonites of the vein shears. Values were tightly confined to structures with little or no dispersion of gold into the wall rock. Coarse particulate gold was also identified within micro-fractured diabase and serpentinite adjacent to very strong mineralized faults. Chloritization, the associated destruction of the crystalline igneous textures, and development of porphyroblastic pyrite overgrowths were diagnostic for the auriferous diabase.
- In 2003, the drilling intersected high-grade mineralization at depth in the Idaho 120 Vein, several hundred feet beneath an outcropping barren carbonate alteration bloom (see Figure 11-1). Drillhole IDH001 cut 10.1 ft @ 0.93 oz/t Au in a complex vein structure. In 2004, follow up drilling tested westward and at higher elevations



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from the high-grade intercept. Evidence of old mining was seen at higher elevations whereas the mineralization quickly pinched off to the west. The drill position would not allow testing to depth and eastward thus the target remained open along strike and down rake to the east.

- Drilling revealed that the keel of the Brunswick Slab is shaped different than anticipated. Drillhole IDH006 did not intersect the Idaho 1 Vein at the keel of the Brunswick Slab, where it was projected to occur at 1,000 ft depth. This implies a steeper plunge for the keel from surface to 1,100 ft depth and a considerable flattening of the plunge below 1,100 ft depth, and extending eastward toward the Idaho 1500 Level.

Significant intervals intersected in the 2003 and 2004 drill campaigns testing gold mineralization potential are shown in Table 11-2.

**Table 11-2: Significant Gold Mineralized Intersections, 2003 – 2004 Drill Campaigns**

Hole	From (ft)	To (ft)	Interval (ft)	Au oz/ton	From (m)	To (m)	Interval (m)	Au (g/t)	Comments
IDH001	528.2	538.3	10.1	0.93	161.0	164.1	3.1	31.9	free gold
IDH003	482.5	483.4	0.9	0.21	147.1	147.4	0.3	7.2	free gold
IDH009	130.8	133.8	3.0	0.17	39.9	40.8	0.9	5.8	-
	187.0	193.0	6.0	0.17	57.0	58.8	1.8	5.8	free gold
IDH011	213.0	216.0	3.0	0.17	65.8	66.7	0.9	5.8	-
IDH017	862.5	866.0	3.5	0.26	263.0	264.1	1.1	8.9	-
IDH019	556.3	562.3	6.0	0.05	169.6	171.4	1.8	1.7	free gold
IDH022	369.0	375.0	6.0	0.05	112.5	114.3	1.8	1.7	free gold
IDH024	395.0	398.0	3.0	0.31	120.4	121.3	0.9	10.6	free gold

### 11.2.2 Geotechnical Drilling

Geotechnical drilling was conducted to obtain ground stability data for a proposed mine access ramp. Holes were angled downward at 40° to 45° from the horizontal to maximize the areas examined in the directions of the decline route. All drilling was contained in the Brunswick Slab.

The dominant rock types intersected were andesite volcanic flows, flow breccia, and hypabyssal feeder units intruded by diabase intrusive units. Gabbro was intersected around the proposed portal area but otherwise only constitutes a minor component of the drilled region. In all the drill holes (outside the surface weathered zone) is the general absence of any broken core and/or gouge intervals, foliated or sheared zones,



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and fractured or veined areas. The core area of the Brunswick Slab is shown to be a massive, undeformed, essentially monolithic unit of mafic composition.

AMEC's assessment of the geotechnical drilling program in 2004 indicated that a decline could be situated in rock with RQD values in excess of 85 percent and that ground conditions in the Brunswick Slab appeared to be very good.



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Figure 11-1: Drill Hole Cross Section – Looking S40E

