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MINNOVA INC.

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TO: Ian Pirie

COPIES TO: Gary Wells

FROM: John Bradford

SUBJECT: Fen Property Submittal

Introduction

The Fen property contains a 4 km X 1 km Zn-Pb-Ag soil anomaly within a window of Hazelton Group volcanics. Trenching in the heart of this anomaly led to discovery of a massive sulphide till boulder running 25% Zn+Pb and 30 opt Ag. Extensive exploration subsequent to this located a 350 m long, 20+ m thick zone of low-grade, disseminated and fracture filling mineralization which is open to the east. The soil anomaly is apparently sourced in an upper till blanket which overlies a thinner, lower overburden layer with no anomalous geochemistry. The anomaly is therefore considered to be transported, but its strength and coherence suggests that the bedrock source is not far away.

Claims - Fen 1-4; to be expanded to the east.

Access

The property is about 30 km southwest of Houston, B.C., with excellent access via three logging roads connecting with the Morice River road. Recent logging has opened up the area.

Work History

1965 - 20-claim block staked by Julian Mining Co. following discovery of a Ag-Pb-Zn geochem anomaly in Code Creek, soil survey (650 samples); AR 799.
1966-1971 - Anaconda: IP (AR 1229, 2898), mag, soil surveys (AR 2734), Shootback EM (AR 3257), mapping, diamond drilling (14 holes? - undocumented).
1972 - Helicon Explorations: IP (AR 3646), Afmag, soils, diamond drilling (25 DDH, 3350 m).
1976 - Vital Mines (Glen White): VLF-EM, IP, diamond drilling (2 holes, 309 feet; AR 6320).
1977 - Vital Mines (Phoenix): VLF-EM.
1977 - Churchill Energy: percussion drilling (12 holes, 546 m) on Fenton claims.
1978 - Vital Mines: Shootback EM, diamond drilling (2 holes).
1979 - Noranda: overburden drilling, Shootback EM, test pulse EM

(Glen White); AR 7821.
1979 - Mattagami Lake Explorations: VLF-EM, Shootback EM, mag, soils.
1980 - Mattagami Lake Explorations: Aerodat EM/mag (AR 8247), IP (AR 9647), mise-a-la-masse, diamond drilling (9 holes, 745 m); AR 9605.
1981 - Mattagami Lake Explorations: diamond drilling (8 holes, 946 m); AR 10003, 10156.
1982 - Churchill Energy: soil sampling on adjacent Fenton claims, 453 samples; AR 10725.
1983 - Noranda: HLEM, mag; AR 11286.
1984 - Cominco: IP, VLF-EM, percussion drilling (22 vertical holes, 1411 m); AR 13096.
1985 - Vital Pacific (J. Dawson): diamond drilling (6 holes, 824 m); AR 14029.
1989 - Zasavnikovich - heavy mineral stream sediment and rock survey.

Diamond Drilling

1966-71 - Anaconda; no information available except DDH A-9 intersected 5 feet of Sp-Gn mineralization; no grade figures.

1972 - Helicon; no information available.

1976 - Vital Mines

FC-1: 154 m, Hazelton tuffs and breccias, no mineralization.
FC-2: 154 m, fresh rhyolite tuffs and chocolate brown andesite flows (Tertiary ?).

1978 - Vital Mines; no information available.

1980-1 - Mattagami

80-1: 103 m, geological target.
80-2: 106 m, geological target.
80-3: 75 m, CEM anomaly B.
80-4: 103 m, CEM anomaly D.
80-5: 91 m, geological target (continuation of mineralization in A-9). Intersected 0.68% Zn, 0.49% Pb, 26.7 g/t Ag/17 m, including 1.03% Zn, 0.70% Pb, 33.6 g/t Ag/6.3 m (56.8-63.1 m).
80-6: 136 m, geological target. Intersected 0.43% Zn, 0.34% Pb, 21.0 g/t Ag/20 m, including 0.79% Zn, 1.24% Pb, 80 g/t Ag/3.2 m (38.6-41.8 m); also 1.46% Zn, 1.60% Pb, 76 g/t Ag, 0.2 ppm Au/3.1 m (84.4-87.5 m).
80-7: 12 m CEM anomaly.
80-7A: 10 m, CEM anomaly.
80-8: 110 m, geological target. Intersected 0.22% Zn, 0.17% Pb, 18.8 g/t Ag/27 m, including 0.36% Zn, 0.33% Pb, 31 g/t Ag/3.7 m (38.7-42.4 m).

81-9: 126 m, mise-a-la-masse anomaly; Py disseminated throughout.
81-10: 142 m, mise-a-la-masse anomaly. Intersected low grade Zn-Pb-Ag from 23-53 m and 96-123 m (up to 3.7% Zn, 0.53% Pb, 39 g/t Ag).
81-11: 100 m, CEM anomaly.
81-12: 105 m, AEM, CEM anomaly.
81-13: 100 m, CEM, VLF anomaly.
81-14: 132 m, IP anomaly.
81-15: 138 m, IP anomaly. Intersected disseminated Sp from 105 m to EOH; best at 130.5-135.6 (1900-3124 ppm Zn).
81-16: 101 m, VLF/geochem anomaly. Intersected 0.50% Zn, 0.21% Pb, 12.2 g/t Ag/4.5 m (35.6-40.1)

1985 - Vital Pacific; logs, but no analyses available; no significant intersections.

Geology

Property geology is poorly understood; the compilation shows contacts from regional mapping, and there is room for significant error. Most of the property is underlain by Hazelton Group, which is exposed in a 5 km wide window between Code and Fenton Creeks. Hazelton lithologies include andesitic to dacitic pyroclastics, mainly lapilli tuffs and tuff breccias. Accretionary lapilli horizons indicate a subaerial origin for the sequence. Alteration is extensive, ranging from chlorite-epidote to silica-clay-sericite on Mineral Hill. Bedded tuffs at one location in Code Creek dip about 65° to the east (Church, 1973); it is not clear whether this is representative.

About 0.5-1.0 km west of Code Creek, the Hazelton is overlain by Eocene and/or Late Cretaceous volcanics. Late Cretaceous Tip Top Hill equivalents (Kasalka Group ?) include dacitic flows and pyroclastics, while Eocene rocks include fresh brown aphanitic andesite to basalt ("Buck Creek volcanics"), and rhyolite and trachyte tuffs and breccias ("Fenton Creek volcanics"). The contact between Hazelton and younger rocks is clearly delineated on the aeromag map. Several subcircular mag highs west of Code Creek may be small Tertiary plugs or volcanic centres. Hazelton is again exposed to the west of the Late Cretaceous rocks.

The Hazelton window extends about 1 km east of Fenton Creek, where it is again covered by Late Cretaceous or Eocene volcanics. Another narrow window of Hazelton is exposed just west of Owen Hill, a Tertiary granite plug. Eocene rocks overlying Hazelton to the south are mainly rhyolites of the "Fenton Creek volcanics".

A small gabbro plug lies just on the west side of the compilation map (Church, 1973); this is noteworthy for its similarity to the Goosely intrusives at Equity Silver.

Structurally, the area is dissected by north and northeast

trending high angle faults. These may bound a horst in which the window of Hazelton Group is exposed.

Mineralization

Disseminated and fracture-controlled sphalerite-galena-pyrite is intersected over 10-30 m widths in six drill holes, defining an east to southeast trending zone just east of Mineral Hill. Combined Zn+Pb ranges up to 2% over 1-6 m widths. This mineralization is clearly of a different tenor from the Eocene sytems at Silver Queen and Equity Silver, which have a strong Cu-As-Sb association. The mineralized zone is cross-cutting and does not appear to reflect any lithological controls. It is accompanied by clay-sericite-chlorite-pyrite alteration, with local quartz flooding.

West of this zone, a 22-hole percussion drilling program in 1984 tested the western part of the soil anomaly and a weak chargeability high. This extended the known area of clay-sericite alteration to the west (see compilation map), but rock chip samples had only a few weakly anomalous values.

Interpretation of the system is complicated by a possible Tertiary overprint. This is recognized in the 1985 drill holes west of Mineral Hill, where Hazelton or younger volcanics contain chalcedonic quartz veins and numerous pockets of bitumen. These holes are just east of a strong aeromag high and EM conductor, which I interpret as a Tertiary plug. Bitumen and liquid oil is also found in definite Hazelton in DDH 81-12, associated with chalcedony-clay alteration.

The volcanics intersected in DDH 85-2 and 3 include thicknesses of carbonaceous mudstone in volcanic breccias and aquagene tuffs. DDH FC-2, to the north of these, intersected unaltered ash tuff, welded(?) rhyolite tuff,and chocolate brown andesite (possible Eocene volcanics). If the 85 holes are in Hazelton, this represents either a stratigraphic or facies transition from a subaerial environment near Mineral Hill (a possible felsic centre) to a submarine one to the west. This is significant from an exploration point of view, suggesting that VMS potential lies west of Mineral Hill.

Outside the property, Tertiary mineralization occurs near the summit of Tsalit Mountain, where trenches expose 0.9% Cu, 6.8 opt Ag over 10 feet in sericitized rhyolite. The Hagas showing is in Hazelton near the west edge of the compilation, almost due west of the Fen showing. Here, "quartz stringers and fractures within propylitically and argillically altered maroon tuffs... contain chalcopyrite, sphalerite and minor native coppper" in east trending "shear zones" (Desjardin et al., 1991). This is spatially associated with the gabbro plug.

Geochemistry and Glacial Interpretation

The large, elongate soil anomaly is the most intriguing feature of the property. Soils are anomalous in Zn, Pb, Ag and Mn; Cu and Mo are low over the entire property. A satellite anomaly lies southeast of the main anomaly, in the headwaters of Fenton Creek. This is open at the edge of the Fenton grid.

Overburden drilling by Cominco established an anomalous upper till layer overlying a 10-30 foot thick lower layer having background values. The upper till layer was postulated to have been derived from east of 1980-1981 drilling.

Silts are anomalous in Ag, Pb, Zn and Ba in both arms of Code Creek. It is not clear whether they are reflecting bedrock or till sources. No comparable anomalies have been found in Fenton Creek; however, anomalous Au and V in heavies might be reflecting Tertiary mineralization in the Fenton Creek volcanics.

Glacial transport is in an east-west direction, with a mean striation trend at 094 degrees, and is probably responsible for the trend of the soil anomaly. The last pulse of Pleistocene glaciation was supposed to have moved easterly (Church, 1973). However, granite boulders are strewn westward from their sources on Owen Hill and Nadina Mountain, representing a period of valley glaciation postdating the last regional pulse. In addition, dispersion of soil anomalies at Equity Silver suggests at least one period of westerly glacial movement. It is at least possible, then, that the source of the soil anomaly lies east of drilling done to date.

Geophysics

1. Airborne - EM conductors are shown on the compilation map. The two conductors on the west side of Mineral Hill are weak, and partially correlate with a large swamp. A long, weak double conductor lies just east of the property boundary. It is probably formational or structural, but also may occur in the easterly Hazelton window. If so, on the westerly glacial transport theory it represents a target. The property is being extended to the west for this reason.

The only strong conductor in the area is just north of the property, west of Code Creek. Although only a single reading, it represents a conductance of 89 mhos at 900 Hz; it might be worth establishing if this is a cultural feature.

2. IP - Numerous IP surveys have had success in locating the known mineralized zone. Both the 1968 and 1972 surveys delineated a long, narrow zone of weakly anomalous response extending from Mineral Hill east to Fenton Creek. The 1968 survey also showed an 800 m

long core zone of stronger response just west of Fenton Creek. The magnitude of the anomaly is compatible with known disseminated mineralization.

The 1981 Mattagami survey delineated several smaller zones within this large area of disseminated sulphide. Zone E, the second strongest anomaly (15 m.f. units above background), corresponds well with the known mineralized zone. The mineralization intersected in DDH 80-6 (86-87 m) was traced by mise-a-la-masse, and extends slightly east of the surface trace of the IP anomaly.

The strongest IP anomaly, zone F, was supposedly tested by DDH A-3, which may have missed its southern edge. Otherwise it is untested. Zone F-1, a well-defined high, was tested by DDH 81-15.

West of these surveys, a 1976 Huntec IP survey delineated a weak zone of enhanced chargeability, partly correlative with the AEM conductor. A sharp resistivity contact lies along the west side of this zone, with a low resistivity area being underlain by the subaqueous sequence intersected in the 85 drill holes.

3. EM - A multitude of surveys have failed to establish any strong, convincing anomalies. The most significant are shown on the compilation map. A 1984 VLF survey delineated two weak conductors corresponding to the AEM anomalies. These are untested, although their poor quality suggests an overburden source. A 1980 Shootback EM survey picked up a 4 line conductor at 5010 Hz, confirmed on 2 lines at 390 Hz; the northern part of this lies within IP anomaly F. The conductor lies within a resistivity low on the southernmost line, and was supposedly tested by DDH 80-3, with negative results. A 1979 VLF survey picked up a weak conductor on Mineral Hill, partly correlating with a resistivity change (Huntec IP survey).

Summary and Recommendations

Disseminated mineralization probably extends east of the known zone, as indicated by IP, which suggests a strike length of 2 km of disseminated mineralization. This may account for the soil anomaly. The evidence for a lower till layer with backgound geochem is from the 84 percussion holes, and may not apply to the overburden directly over the IP anomaly.

Only a small part of the IP anomaly is drill tested. However, there is no geophysical evidence that quality massive sulphide conductors exist within this zone, and the IP is consistent with low - grade, subeconomic mineralization. Also significant is the geological evidence that this is a subaerial sequence, although it is possible that the drilled area around Mineral Hill is an emergent centre within a submarine volcanic package.

Two possibilities are open if the disseminated zone is not considered the source of the soil anomaly. A westerly source has

been tested in part by the 84 percussion holes and 85 drill holes. Intersection of a subaqueous sequence in the 85 holes is interesting; unfortunately no mineralization was encountered. The 84 holes apparently have delimited the western extent of the alteration. The best chance for an easterly source is the low, swampy area east of Fenton Creek where the double AEM conductor occurs. This is virgin territory, and represents a potential target.

There are certainly untested, low quality geophysical targets on the property, which might be enhanced by a PEM survey. The property could also use: (1) mapping, to accurately delineate the extent of the Hazelton windows; (2) overburden drilling and sampling over the zone of disseminated mineralization; and (3) lithogeochem data - unfortunately, the pre - 1985 core is apparently lost, and outcrop is sparse. I would recommend a property visit at the earliest possible date; this should include a visit to the Hagas showing.