Voiseys Bay South

28+5+12+12+11= 68 claims or 4200 acres

**Regional Geology**

The property is underlain mostly by the Pants Lake Intrusions (PLI), the youngest member of the Nain Plutonic Suite (NPS), a classic undeformed Mesoproterozoic anorogenic plutonic terrane.

**Local Geology**

The main subdivisions of the PLI are termed the South intrusion, the Mineral Hill intrusion(s), the Worm intrusion and the North intrusion. The two most abundant rock types are layered, fine-grained olivinegabbro and massive coarse-grained leucogabbro. Melagabbro and peridotite forms a minor (but important) unit. In addition to the above, several distinctive and unusual rock types occur within a thin sequence of rocks at, or just above, basal contact zones, particularly in the North intrusion. These rocks are invariably associated with sulphide mineralization, andare informally termed, the mineralized sequence. A mineralized sequence is also present in the South intrusion, where it is associated with melagabbro and peridotite.

**Mineralization and Previous Work**

The Pants Lake Property includes the “GG” and Major General Cu-Ni-Co prospects (Maps 2 and 3). Magmatic sulphide mineralization associated with gabbroic rocks in the Pants Lake area was initially recognized by Thomas and Morrison (1991), but received no exploration attention until 1995, when Donner Minerals and Major General Resources conducted reconnaissance work. Much of the following description comes from Kerr (2012). The area was targeted initially for exploration because it showed broad geological similarities to the Voisey’s Bay

district, i.e., it lies close to the Nain–Churchill boundary zone and includes mafic rocks noted to contain sulphides. The lake sediment geochemical data for the area are weakly anomalous, showing Ni concentrations similar to those in the area around the Voisey’s Bay deposit.

Initial geological work in 1996 confirmed that all the main surface showings were associated with the basal contact(s) of sheet-like mafic units, and in particular were situated below fine-grained olivine gabbro. Surface mineralization is exposed mostly along the southern boundary of the North intrusion, and includes the NDT, Happy Face, GG Zone and Major General surface showings, as well as several smaller zones. Sulphide textures within the gabbro include a distinctive leopard texture (Plates A and B; from Kerr, 2012) composed of disseminated to

semi-massive sulphides surrounding clinopyroxene oikocrysts up to 1.5 cm in diameter (e.g. “GG” Prospect: See Plate B; from Kerr, 2012). Drilling has intersected local narrow zones of massive sulphide mineralization at the base of the black gabbro near the exposed northern limit of the PLI. These sulphides have locally returned Ni and Cu grades comparable to the Voisey’s Bay deposit. Sulphide intersections encountered during the 1997 drilling program (See Kerr, 2012 for location of drill holes) include **0.65 m assaying 1.93% Ni, 1.07% Cu and 0.26% Co in hole 97-67, 15.7 m averaging 1.13% Ni, 0.78% Cu, 0.20% Co in hole 97-96, and 1.1 m of 11.9% Ni, 9.6% Cu, and 0.43% Co in hole 97-75.** Other intersections included an upper zone of massive sulphides located at the gabbro’s basal contact assaying **4.5% Ni, 2.6% Cu and 0.28% Co over 0.20 m** and a second zone of massive sulphides occurring approximately 10 m below the gabbro/gneiss contact assaying **3.4 % Ni, 0.5% Cu and 0.46% Co** (Donner Minerals/Teck, 1999). The disseminated sulphide mineralization in the South intrusion (Mineral Hill Prospect - see Plate C; Kerr, 2012) returned assays (hole SVB-97-79, recalculated metal contents at 100% sulphide) ranging from **0.7% to 4.0 % Ni, and 0.4% to 1.5% Cu.** In the upper section of hole SVB-97-79, where sulphides are less abundant, the sulphide metal contents are highest, typically **2.0 to 4.0% Ni and 0.7 to 1.4% Cu** (Fitzpatrick et al, 1998).

**Economic Potential**

The North intrusion mineralized sequence includes rock types that are strikingly similar to those associated with economically important high-grade sulphide mineralization at Voisey’s Bay. A key point of similarity is the evidence for interaction with, and assimilation of, pelitic to psammitic country rock gneisses, which contain sulphides and graphite.From the perspective of metallogenesis, data from the PLI support several key concepts proposed in models for the formation of the Voisey’s Bay deposit. Critical factors at Pants Lake include the presence of sulphide-bearing country rocks, and suitable parental magmas, both of which provide general exploration guides for further work in Labrador. The PLI represent an enormous target area compared to Voisey’s Bay, and considerable ‘room’ remains for exploration in future years (Kerr, 2012). Surface exposures of the mineralized sequence are present at all of the main surface showings along the southern boundary of the North intrusion (Figure 9). It is difficult to document geological relationships or obtain fresh samples in these areas, as the extensive gossan development obscures most details. Most of the information on mineralization comes from drill hole data. Massive sulphide (i.e., >80% sulphide minerals) horizons, where present, are located very close to the footwall gneiss contact.Very high-grade sulphide zones,

such as the material with **11.7% Ni and 9.7% Cu** from hole SVB-97-75 (Plate 32B) are presently known only from the footwall region; small zones of this type are

particularly common in the Northern Abitibi drilling area. The highest grades reported from massive sulphides clearly associated with the gabbroic rocks above the

contact region itself are **4.8% Ni and 2.6% Cu from a 20 cm zone** in hole SVB-98-131.