



MINFILE Detail Report  
BC Geological Survey  
Ministry of Energy, Mines and Petroleum Resources

### Location/Identification

**MINFILE Number:** 104B 013 **National Mineral Inventory Number:** 104B7 Fe1

**Name(s):** MAX  
MAXWELL SMART, GRANDUC IRON

**Status:** Developed Prospect **Mining Division:** Skeena

**Regions:** **Electoral District:** Stikine  
**Resource District:** Skeena Stikine Natural Resource District

**BCGS Map:** 104B048 **UTM Zone:** 09 (NAD 83)

**NTS Map:** 104B07E **Northings:** 6255285

**Latitude:** 56 25 56 N **Easting:** 403491

**Longitude:** 130 33 54 W

**Elevation:** 543 metres

**Location Accuracy:** Within 500M

**Comments:** Trenches on geology map (Assessment Report 6690); located on the north side of Cebuck Creek, south of the Unuk River.

### Mineral Occurrence

**Commodities:** Iron, Copper, Magnetite, Cobalt

**Minerals** **Significant:** Magnetite, Chalcopyrite, Pyrite, Pyrrhotite, Molybdenite

**Significant Comments:** Minor molybdenite is found within nearby gossanous diorite.

**Associated:** Carbonate, Molybdenite

**Alteration:** Epidote, Garnet, Diopside, Actinolite, Magnetite

**Alteration Type:** Skarn

**Mineralization Age:** Unknown

**Deposit** **Character:** Massive, Disseminated

**Classification:** Igneous-contact, Skarn, Industrial Min.

**Type:** K03: Fe skarn

### Host Rock

**Dominant Host Rock:** Metasedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Triassic	Stuhini	Undefined Formation	-----
Triassic	-----	-----	Unnamed/Unknown Informal

Isotopic Age	Dating Method	Material Dated
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**Lithology:** Magnetite Skarn, Actinolite Diopside Garnet Skarn, Epidote Garnet Skarn, Limestone, Graphitic Limestone, Argillaceous Limestone, Sandstone, Argillite, Quartz Diorite, Diorite

**Comments:** Triassic or younger quartz diorite intrudes Stuhini Group rocks.

### Geological Setting

**Tectonic Belt:** Intermontane **Physiographic Area:** Boundary Ranges

**Terrane:** Stikine

**Metamorphic Type:** Contact **Relationship:** Syn-mineralization

**Grade:** Greenschist, Hornfels

## Inventory

**Ore Zone:** MAX  
**Category:** Indicated  
**Quantity:** 11,176,550 tonnes

**Year:** 1962  
**Report On:** Y  
**NI 43-101:** N

Commodity	Grade
Iron	45.0000 per cent

**Comments:** Indicated reserve of medium-grade magnetite reported in Granduc Mines Limited, Annual Report, 1962. Sample type is drill core.

**Reference:** Energy, Mines and Resources CORPFILE - Granduc Mines Ltd., 1962.

## Capsule Geology

Four styles of significant mineralization are present in the Max Area: iron±copper±cobalt skarn, porphyry copper, quartz-chalcopyrite veins and quartz-galena-pyrite veins. Skarn is the most significant and widespread style and includes the Max Deposit which hosts an historic, indicated resource of 11.2 Mt grading 45.0 per cent Fe (not NI 43-101 compliant).

A Triassic or younger diorite to quartz diorite stock intrudes the Upper Triassic Stuhini Group volcanics and sediments. Magnetite has replaced argillaceous or silicified limestone and ranges from 3 to 15 metres thick in outcrop exposure. Associated with the massive magnetite are zones of actinolite-epidote-garnet-diopside-quartz-albite (?) skarn with pyrrhotite, pyrite and chalcopyrite. The zones of calc-silicate skarn appear to have replaced andesitic volcaniclastic rocks peripheral to the limestone-magnetite skarn and commonly host chalcopyrite, pyrrhotite and pyrite.

The Stuhini Group sedimentary rocks consist of limestone, sandstone and argillite. The limestone near the magnetite skarn zones is grey to black in colour, elsewhere, it is bluish grey, white to ivory. The composition varies from pure to graphitic and argillaceous limestone. West of Cebuck Creek, the limestone is tightly folded and is more than 30 metres thick in contrast to magnetite-rich areas where it ranges from 3 to 15 metres in thickness. The sandstone is fine to medium-grained, grey to brown in colour and massive. The fine-grained black sediments classed as argillite range from soft mudstone to chert. Alteration consists of recrystallization and chloritization (regional metamorphism).

In 1962, a 22.7-tonne bulk sample was taken for metallurgical test work. Drilling between 1960 and 1962 indicated a body of medium-grade magnetite estimated to contain 11,176,550 tonnes averaging 45 per cent iron (Energy, Mines and Resources CORPFILE - Granduc Mines Limited, Annual Report, 1962).

Immediately east of the Max deposit, medium-grained diorite is in fault contact with the sedimentary rocks. Minor disseminated chalc-pyrite occurs within the diorite. Also, a gossanous zone within the dioritic intrusive is mineralized with chalcopyrite and molybdenite (Property File - Newmont Map, 1960's).

### Work History

An airborne survey in 1960 is credited with the discovery of the Max deposit, which was subsequently explored by 5457 metres of diamond drilling, from 1960 to 1962 (as reported in Assessment Report 18931). In 1965, Granduc Mines Ltd. carried out an airborne electromagnetic and magnetic survey over a 130 square kilometre area around the claim.

A 22.7 tonne bulk sample for metallurgical test work was obtained by stripping two sections of the mineralized zone. By 1969 the property had been reduced to 44 claims. The Dan 1-22 claims, southwest of the Max deposit, were staked in 1969 following an airborne geophysical survey that indicated a broad area of high magnetic susceptibilities. Detailed work revealed that the anomalies were related to a series of diorite dykes containing minor amounts of disseminated magnetite. The follow-up work on the Dan group in 1970 included a detailed ground magnetometer survey and

In 1975 the property comprised some 53 claims and fractions in the Max, Har, and other groups. Work during the year included geological mapping, and a magnetometer survey over 11.25 line km. In 1977 The Max iron-copper property of Granduc Mines Limited completed 7.3 km of base lines and grid lines to facilitate geological mapping and magnetic surveys.

During 1987, regional stream sediment sampling was done in the area. In 1989, Goodgold Resources Limited optioned the property from Teuton Resources Corp. In 1989 Goodgold Resources Limited commissioned an airborne geophysical survey, consisting of magnetic, electromagnetic and VLF-EM elements, flown on the Maxwell Smart Claim which covered the Max deposit (Assessment Report 18931). The previous diamond drilling indicated 10,800,000 tons of 45 per cent iron and 0.7 per cent copper (Goodgold Resources Limited, Prospectus, August, 1990 (as reported in National Mineral Inventory 104B/7 Fe1)).

In 1991, Teuton carried out a program of property wide rock, silt and soil geochemical sampling resulting in the discovery of several sites anomalous in copper and, to a much lesser extent gold. Altogether 31 rock geochem, 141 soil geochem and 74 stream sediment samples were collected on the Maxwell Smart claim (Assessment Report 23974). Small sampling grids were set up in the northwest corner of the claim as the Pad Grid (following up auriferous vein occurrences in the Ceebuck Creek showing area (104B 222)) and near the mid-point of the eastern claim boundary as the GS grid (following up on the GS showing - copper in mineralized fractures in diorite).

During 1994, Teuton conducted geochemical rock and silt on the southern part of the Maxwell Smart claim along parts of Ceebuck Creek, in order to follow up on 1991 results. Sampling indicated anomalous copper and gold values in float rocks along Ceebuck Creek and some of its tributaries. A total of 32 rocks were collected.

In 1995, Teuton conducted geochemical rock sampling on the Chief and Agent 99 claims just south of the Maxwell Smart claim. This survey indicated a variety of mineralization types as well as gold values up to 0.1 opt in brecciated argillite. A total of 39 rock samples collected (Assessment Report 24395). During the 1995 survey, work at the headwaters of Ceebuck Creek indicated the presence of a large medium grained -granodiorite stock located at the extreme south western part of the property. The intrusive is light grey, with fractures containing epidote and chlorite. Along the eastern contacts of the intrusive, numerous gossaned zones were noted. In the eastern portion of the survey, andesites and argillites have been brecciated, locally hordelsed and mineralized with pyrrhotite, pyrite and locally chalcopyrite. The andesites appear to be lapilli tuffs and are locally intruded by a medium grained, generally flat lying, brick red granite. The granite contains fractures that may have up to 1 % flaky specularite.

In 1996, Teuton conducted an exploration program on the Maxwell Smart claim consisting of reconnaissance geochemical rock sampling in conjunction with prospecting. A total of 27 rock samples were collected on the property (Assessment Report 24995). Sampling was conducted in the northwest portion of the claim area to follow up on gold-cobalt anomalies in shear zones discovered in 1991 surveys. Results of the 1996 geochemical program indicated a few samples anomalous in gold, copper and arsenic with one weakly anomalous in silver.

In 2006 and 2007, Hathor Exploration Ltd. completed a 7228.7 line-kilometre airborne geophysical survey on the area as the Pearly claims of the Iskut project. In 2008, Max Minerals Ltd. examined the property.

In 2009, (owner) Hathor Exploration and (operator) Max Minerals Ltd conducted wide ranging exploration program on their Pac (104B 310) , Delta, Griz and New claim blocks. Work was done on the Max deposit, Rock and Roll prospect, Fairweatherh (104B 168), Delta Northeast (104B 289), Gracey Creek area (104B 117), Collagh (104B 352) and the Divelbliss Creek area. In total, 287 rocks, 28 silt and 997 soil samples were collected (Assessment Report 31162). Contour soil samples were collected in on the Max deposit area in order to supplement contour and focused grid soil sampling carried out by a number of previous workers.

In 2010 soil sampling in the Max deposit area by Max Minerals Ltd (later known as Standard Exploration) area was focused on further delineating mineralization on the Max, Har (104B009) and Chris (104B 125) grids and to allow for correlation with any anomalies found on the magnetometer surveys (Assessment Report 31747). In 2010 it was reported that previous work around the Max deposit highlighted a 500 by 400 m copper-cobalt±gold±antimony anomaly that remained open to the east with copper and cobalt particularly well correlated.

Three 2010 magnetometer surveys were carried out on the Max group of claims and targeted magnetic highs from the airborne magnetic survey completed in 2008. A total of 21.26 line km at 12.5 metres stations were performed on three grids, the Max, Har, and Chris

The overall geochemical 2010 outlook on the area indicated there was a limited extent of precious metal distribution surrounding the Max deposit. Rock geochemistry does not indicate significant gold associated with the Max deposit but mapping indicates copper associated with the Max deposit is focused along the periphery of and within the iron skarn, much like the geochemistry indicates.

### ***Bibliography***

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<b>Date Coded:</b>	1985/07/24	<b>Coded By:</b>	BC Geological Survey (BCGS)	<b>Field Check:</b>	N
<b>Date Revised:</b>	2020/07/11	<b>Revised By:</b>	Karl A. Flower (KAF)	<b>Field Check:</b>	N