

# GEOLOGIC REPORT GE18-1

## TECHNICAL REPORT FOR THE GENESIS NI-CU-PGE PROJECT, NELCHINA MINING DISTRICT, ALASKA



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## 1.0 SUMMARY

The Genesis project is a Ni-Cu-PGE property located in the northeastern Chugach Mountains, 75 road miles north of the city of Valdez, Alaska. The project is within 3 km of the all-season paved Richardson Highway and a high capacity electric power line. The project is covered by 4,144 hectares of State of Alaska mining claims owned 100% by New Age Metals. Past exploration has revealed the presence of chromite-associated platinum and palladium mineralization and stratabound Ni-Cu-PGE mineralization within steeply dipping magmatic layers of the Sheep Hill portion of the Tonsina Ultramafic Complex. Pyrrhotite, pentlandite, and chalcopyrite occur in disseminations and net textured segregations associated with disseminated to banded chromite within a 150 meter thick steeply north dipping layer of dunite and ilmenite just north of the Border Ranges Fault zone. The mineralized horizon has been identified in outcrop sampling for 850 m along strike and a 40 m true thickness.

PGE values at Genesis are strongly correlated with the chromite rich portions of the mineralized horizon, while Ni and Cu are strongly correlated with sulfide rich portions of the mineralized horizon. Metal grades are regular over multiple meter intervals, including 6 meters grading 804 ppb platinum and 1,018 ppb palladium, and 12 meters grading 5,938 ppm nickel. There has been no drilling on this district-scale project and the strike and depth extent of Ni-Cu-PGE mineralization remains untested. Additionally, two areas of banded chromite hosted in dunite and harzburgite on the Bernard Mountain portion of the Tonsina Ultramafic Complex host multiple ppm PGE and a sample of chromite hosted in the olivine websterite unit contains the high values for both Pt and Pd for a combined 5,340 ppb PGE. Outcrop sampling has returned values of 16-9,660 ppm Ni, 0.5-5,800 ppm Cu, 0-2,800 ppb Pt, 0-2,540 ppb Pd. Limited geochemical sampling and geologic mapping has been conducted over these two mafic-ultramafic massifs.

The identification of two different styles of PGE mineralization at Sheep Hill suggests that multiple mineralizing events have occurred. The parental magma for the Tonsina Ultramafic Complex contained highly anomalous concentrations of PGE and Ni. More exploration is required to define if a reef event has formed the stratabound magmatic sulfide mineralization and if the geochemical patterns caused by reef formation hosts economically significant Ni-Cu-PGE mineralization in the Tonsina Ultramafic Complex.

The different Cr/Fe ratios for chromite ores studied by the USBM during the 1980's (Foley et al, 1985, Foley and others, 1987) fits with observations from layered intrusions with multiple chromite horizons (Maier and Barnes, 2005) where the Cr/Fe ratio decreases in successive chromite layer formation. The decrease in Cr/Fe ratios between Bernard Mountain, thought to be a basal sequence, and Sheep Hill, interpreted to be a stratigraphically higher portion of the intrusive complex (Foley and others, 1987), could indicate that multiple chromite formation events have occurred in the ultramafic magma chamber, and that other PGE-enriched horizons remain undiscovered. PGE profiles of Genesis project outcrop samples show a Ru trough, which is postulated to have formed during partial melting of the mantle in a subduction environment, and are more similar to PGE profiles from Ni-Cu-PGE ores from layered intrusions

such as Stillwater, the Great Dyke, and Penikat, than PGE profiles from ophiolite associated ores.

Based on the data currently available, the following recommendations for future work on the Genesis project are warranted:

Year 1: Initial efforts at Genesis should focus on detailed geologic mapping (1:1,000 or better), grid-based lithogeochemical sampling, 2D and 3D reinterpretation of previously completed airborne and ground geophysical surveys, and acquisition, interpretation and ground-truthing of hyperspectral imagery over the Tonsina Ultramafic complex and vicinity. This effort will require some pre-season desk-top work (geophysical reinterpretation and hyperspectral analysis) followed by field work centered on 6 to 8 person tent camps that are emplaced by helicopter but which do not have daily helicopter support. The focus of field efforts will be detailed geologic mapping and lithogeochemical sampling designed to locate and define both bedded and chromite-related Cu-Ni-PGE mineralization to a degree sufficient to target drilling in year 2. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$500,000.

Year 2: exploration recommended for year 2 will be focused on initial scout drilling of one or more targets as refined by year one efforts. Approximately 2,500m of drilling is included in this program. Hole coordinates, inclinations and azimuths will be refined using results from year 1 field efforts. Drilling will be helicopter supported using an LF70 or CS1000 or equivalent drilling rig supplied with water derived from local streams or ponds. Drill support will be from a contract tent camp capable of supporting 10-12 persons. All drill core will be logged, photographed, and sawed with one-half of the core remaining in archive, the other half being shipped for geochemical analysis. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$1,000,000.

Year 3: exploration recommended for year 3 will be focused on definition drilling of the most promising target drilled in year 2. The goal of year 3 efforts will be to advance at least one target to the inferred resource stage. Approximately 5,000m of drilling is included in this program. Hole coordinates, inclinations and azimuths will be refined using results from year 2 drilling efforts. Drilling will be helicopter supported using an LF70 or CS1000 or equivalent drilling rig supplied with water derived from local streams or ponds. Drill support will be from a contract tent camp capable of supporting 10-12 persons. All drill core will be logged, photographed, and sawed with one-half of the core remaining in archive, the other half being shipped for geochemical analysis. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$1,500,000.

## 2.0 INTRODUCTION AND TERMS OF REFERENCE

The following report was commissioned by Harry Barr, CEO of New Age Metals, Inc. (NAM), to review all relevant data and prepare a technical report conforming to the standards set out in Canadian National Instrument 43-101 on the Genesis Ni-Cu-PGE property located in the Nelchina Mining District of the northeastern Chugach Mountains, Alaska. NAM owns 100% interest in the property. Avalon Development Corporation (Avalon) provided geologic consulting, including field sampling, mapping and data compilation on this project in 2000, 2008-2012 and in 2018 and was retained to compile this report. The author conducted a one-day site visit at the Genesis project on June 12, 2018 during which time the location of previous samples was reviewed, outcrops were visited where mineralization was mapped and claim posts were inspected.

The author is responsible for preparations of all sections of this report. This report has been prepared by using public documents acquired by the author and reports and data provided by New Age Metals Inc. Such reports and data are cited as appropriate in the text of this report and a complete bibliography of these sources is listed in Section 27.0 "References".

All dollar figures provided herein for work programs and claim management are in USD (USD1.00 = CAD1.25). For purposes of this report, "gpt" will refer to grams per metric tonne, "ppb" will refer to parts per billion and "ppm" will refer to parts per million. "Tons" will refer to short tons and "tonnes" will refer to metric tonnes. Linear units are in "mm" (millimeters), "cm" (centimeters), "m" (meters), "km" (kilometers), "ft" (feet), or "mi" (miles).

The conversion used to convert troy ounces per short ton to grams per metric tonne is 1 troy ounce per short ton is equal to 34.2857 grams per metric tonne. For purposes of this report the term "lode gold" shall mean gold still contained in the bedrock host rocks in which it originally formed while the term "alluvial gold" shall mean gold which has been liberated from its original host rock by weathering processes and which subsequently becomes mixed with gravel in an active stream system. For purposes of this report the terms "placer gold" and "alluvial gold" shall have the same meaning. The term "VABM" refers to a Vertical Angle Bench Mark established in feet above sea level as shown on a standard U.S. Geological Survey topographic map. For purposes of this report, the abbreviation "TCA" means angle to core axis, the abbreviation "TD" means termination depth, the abbreviation "AZ" means azimuth, the abbreviation "Ma" means millions of years before present, the abbreviation "Moz" means millions of ounces and meters/footages quoted in the text when referring to drill holes refer to the distance down the drill hole from the collar.

Older reports on the Genesis project sometimes use volcanic rock names for clearly plutonic rocks, particularly those of hypabyssal nature. This report follows intrusive and volcanic rock nomenclature used in Le Bas and Streckeisen, 1991. For purposes of this report, the term "massive sulfide" is used for any rock containing in excess of 35% sulfides by volume and the term "semi-massive sulfide" will be used to denote any rock with greater than 15% sulfides by volume but less than or equal to 35% sulfides by volume. The terms "massive sulfide" and

“semi-massive sulfide” are used in this report as descriptive terms without any genetic implication.

For the purposes of this report, the acronym “PGE” (platinum group element) will be used when referring to a specific group of elements, namely platinum (Pt), palladium (Pd), iridium (Ir), osmium (Os), rhodium (Rh) and ruthenium (Ru). The acronym “PGM” (platinum group minerals) will be used to refer to identified mineralogical species containing one or more of the platinum group elements. Other abbreviations used in this report which are not exemplified in the text are: aluminum (Al), calcium (Ca), chromium (Cr), copper (Cu), iron (Fe), magnesium (Mg), nickel (Ni), sulfur (S), vanadium (V). Petrological nomenclature used in this report to describe ultramafic rock types follows that of Streckheisen (1973) and Wylie (1979). The term “chromite” is used for any type of chromian spinel containing a sufficient quantity of chromium suitable for industrial uses. The metallic elements Fe, Mg, Al and Cr substitute for each other in minerals of the spinel group. The term “chromitite” is used to describe any rock composed primarily of chromite, which may also contain minor amounts of other oxide or sulfide minerals, including magnetite, hematite, pyrrhotite, chalcopyrite, and pyrite.

### 3.0 RELIANCE ON OTHER EXPERTS

The author relied on State of Alaska Division of Mining, Land and Water on-line records for the legal description of the mining claims that are listed in Appendix 1 and which comprise the subject property of this Technical Report. The author has not researched property title or mineral rights for the subject property. Effort was made to review the information provided for obvious errors and omissions; however, the author is not responsible for any errors or omissions relating to the legal status of claims described within this report.

### 4.0 PROPERTY DESCRIPTION AND LOCATION

The Genesis property is located in south central Alaska, approximately 82 km northeast of the port city of Valdez, Alaska, and approximately 8 km east of the Richardson Highway (Figure 4.1). The project is located between the Copper River and the Tonsina River, at approximately 61.575 deg. North Latitude, 145.035 West Longitude.

The Genesis project consists of the “TON” mining claims having names of TON1 through TON64 (ADL Nos. 623587 – 623650) comprising a contiguous group of 64 State of Alaska one-quarter section claims covering 10,240 acres (4,144 hectares). The claims are located in Township 3 South, Ranges 1 and 2 East, Copper River Meridian, Valdez C-3 and C-4 Quadrangles, Alaska, in the Valdez and Chitina recording districts (Figure 4.2).





Figure 4.1: Location of the Genesis project, Nelchina Mining District, Alaska. Location data from Avalon Development Corp., 2018

AVALON DEVELOPMENT CORPORATION  
 P.O. Box 80268, Fairbanks AK 99708  
 907-457-5159 Fax: 907-455-8069 [avalon@avalonalaska.com](mailto:avalon@avalonalaska.com)

# TON Claims: 1 - 64

## Copper River Meridian

T. 03 S, R. 01 E  
Section: 24-26, 35 and 36

T. 03 S, R. 02 E  
Sections: 13 and 19-34

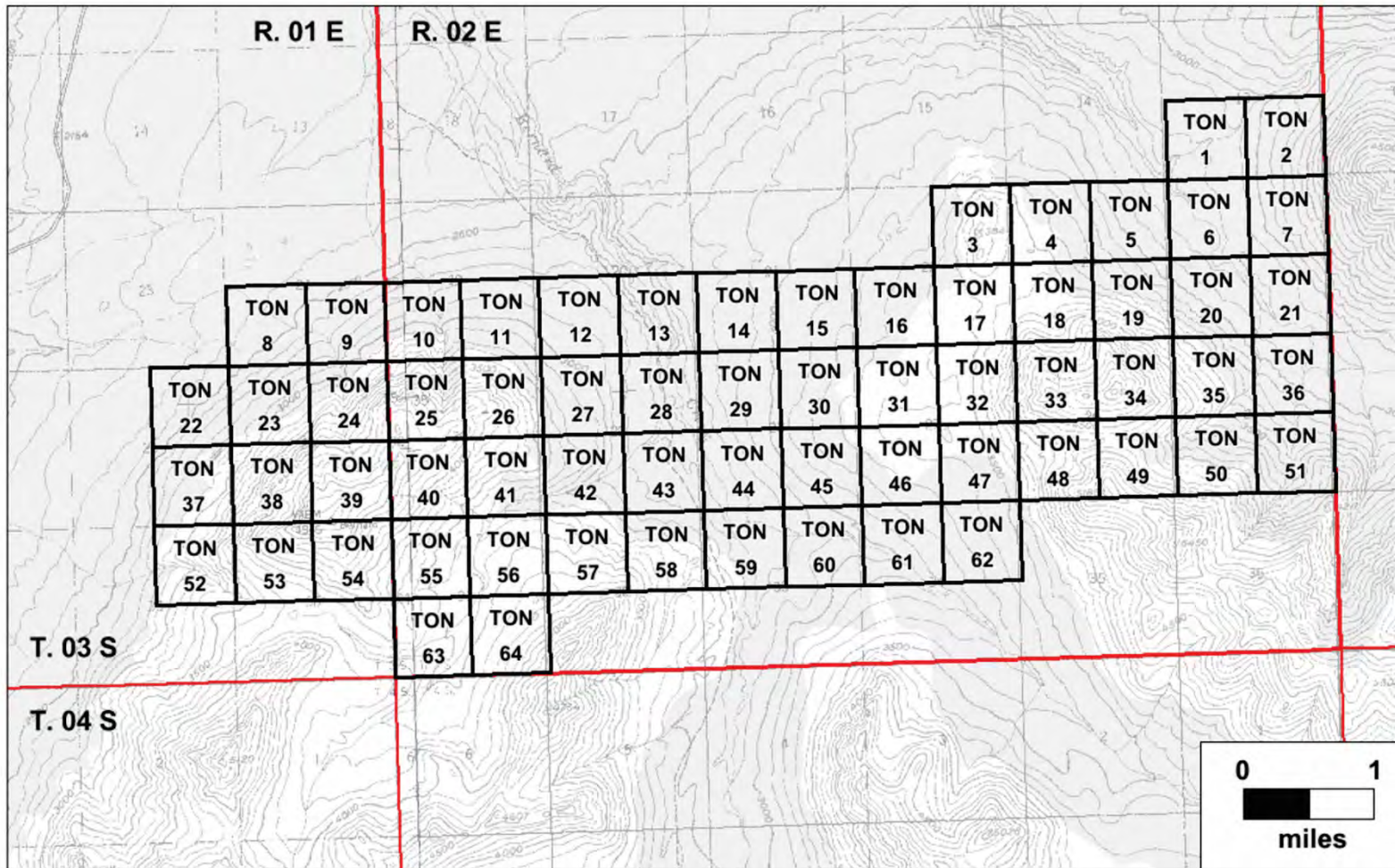


Figure 4.2: Claim location map for the Genesis project, Nelchina Mining District, Alaska. Data from Avalon Development Corp., 2018



Mineral rights in this part of Alaska are administered by the State of Alaska. Annual mining claim rents vary according to claim size and age and are due and payable on September 1st of each year, and must be paid no later than November 30th. To the best of the author's knowledge, the Genesis claims are in good standing as the effective date of this report. The total 2018 annual rent that will become due on September 1, 2018, will be \$8,960 (i.e., \$140 per 160 acre claim). Total annual work commitment is \$25,600 (i.e., \$400 per 160 acre claim). Annual amounts spent in excess of this commitment may be banked forward for up to four years into the future as per current regulations regarding Alaska State mining claims. According to Alaska State mining regulations, no annual labor work is required between the initial staking of a mining claim and the first September 1 of a mining claim's life. As a consequence, no annual labor is required on the TON claims during the Annual Labor Year ending September 1, 2018. The first annual labor required on the TON claims, amounting to at least \$25,600, must be completed before September 1, 2019.

All State of Alaska mining claims are subject to a production royalty of 3% of net income from a mining operation beginning 3.5 years following commencement of commercial production. There currently are no unusual social, political or environmental encumbrances to mining on the project. No known mineral closures exist within or adjacent to the property. None of the claims covering the Genesis project has been surveyed by a registered land or mineral surveyor and there are no state or federal laws or regulations requiring such surveying. The land on the eastern boundary of the Genesis project is owned in fee-simple form by Ahtna, Inc., one of 12 Alaska Regional Native Corporations established by the Alaska Native Claims Settlement Act (ANCSA) of 1971.

## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Genesis property is dissected by northwest-flowing Bernard Creek and Dust Creek, both major tributaries of the northeast-flowing Tonsina River. The Tonsina River drains into the south-flowing Copper River which eventually drains into the Gulf of Alaska. The project is located approximately 7.5 miles southeast of the village of Tonsina (population 78) and 135 kilometers (82mi) by road northeast of the all-season port city of Valdez, Alaska (population 3,900, Figure 4.1). The center of the property lies approximately 12 kilometers east of the paved Richardson Highway and the Trans-Alaska Pipeline System (TAPS). Access to the Genesis project is by helicopter or via an unmaintained ATV trail (Bernard Creek Trail) which originates near the village of Tonsina. A second ATV trail extends from a gravel pit on the Richardson Highway to the western flank of Bernard Mountain. The closest airstrip is a semi-maintained grass airstrip at the Tonsina River Lodge near the village of Tonsina (Figure 4.2).

The Genesis project lies in the foothills of the Chugach Mountains, a prominent, glaciated mountain range between the Gulf of Alaska coast and the Copper River basin. The terrain consists of gentle to moderately steep slopes, with elevations ranging from 5,140 ft (Sheep Hill summit) to approximately 2,600 ft (Bernard Creek). Elevation of tree line is approximately 3,000 ft, above which there is little or no vegetation other than typical alpine tundra. Above tree line, slopes are typically covered with loose rubble, with bedrock exposures being largely limited to discontinuous outcrops on ridgelines and in some steeper gullies. The best exposures of bedrock are on the east and

west faces of Sheep Hill and the north face of Bernard Mountain. Between tree line and approximately 3,700 ft elevation slopes are densely vegetated with low-growing willows and alders. Glacial moraines are present at the 3500 ft elevation level on Bernard Mountain and there are glacio-lacustrine sediments covering the majority of the Copper River Valley Basin directly north of the project. Alluvial fans occur at the mouths of the larger gullies.

Average temperatures in the Tonsina project area range from a high and low of 3.6 F (-16 C) and -14.1 F (-25 C) in January to a high and low of 69.5 F (21 C) and 42.9 F (6 C) in July. Annual average precipitation is 12.73 in (32 cm) with 63.6 in (162 cm) of snow. The higher elevations can be covered with snow from late September until early June. The working season for most prospecting activities is between middle of May and early October.

The nearest major population center is Valdez, Alaska (population approximately 3,900), which lies approximately 135 kilometers (82mi) by road to the southwest, at the southern terminus of the Richardson Highway. Valdez is the northernmost ice-free port in Alaska and is accessible on a year-round basis. Valdez is serviced by regional airlines on a daily basis, and by a regional ferry system operated by the State of Alaska. It is also the southern terminus of the Trans-Alaskan Pipeline System (TAPS), which runs along the west side of the Richardson Highway near the property (Figure 2), a potential source for mining equipment fuel. A 138KV electrical transmission line operated by Copper Valley Electric Association runs adjacent to the TAPS right of way (Figure 4.2). The transmission line ties four separate power plants into the Copper Valley grid for a 35 megawatt generation capacity. One of the generation plants located in Valdez is a hydroelectric plant with expansion potential.

## 6.0 HISTORY

The first topographic and geologic mapping of the Genesis project area was by the U.S. Army in 1898. Moffit (1908; 1935) conducted a limited geological reconnaissance of the Genesis area just after the turn of the twentieth century; however, he did not mention the Genesis chromite occurrences. Most of Bernard Mountain was staked for chromite from 1932 until the early 1960's, then referred to as the Tonsina chromite prospect (Hoffman, 1974). Howard McWilliams and Henry Lund are usually credited with first discovery of the Tonsina chromite occurrences in 1954, however, it is clear that chromite was known in the area at least 20 years prior to McWilliams and Lund's discoveries.

In 1957, the U.S. Bureau of Mines (USBM) began studies of the Tonsina chromite ores (Pittman, 1957; Wells, 1957). The USBM collected channel and grab samples from Bernard Mountain, Sheep Hill and Dust Mountain, on which they conducted mineral dressing tests. They concluded that high-chromium chromite ore concentrates, meeting metallurgical- and chemical-grade specifications, were present at Bernard Mountain and Sheep Hill. Lower-quality, high-iron chromite ore concentrates from Dust Mountain were determined unsuitable for industrial use.

From 1981 through 1987 the USBM evaluated chromite deposits along the Border Ranges Fault in southern Alaska as part of the Alaskan strategic minerals program (Foley and Barker, 1985; Foley and others, 1985; Dahlin and others, 1985). During 1986 the USBM drilled 3 A-size (1.062 inches) core holes on Dust Mountain, totaling 79.7 feet (Avalon, 2000). During the mid-1980's,

geophysical and geological investigations along the Trans-Alaska oil pipeline corridor were completed by the United States Geological Survey (USGS) and the Alaska State Division of Geological and Geophysical Surveys (ADGGS) as part of the Trans-Alaska Crustal Transect (TACT) program. Newberry (1986) completed a mineral resource evaluation of the north-central Chugach Mountains which includes information on chromite mineralization at Bernard Mountain and Dust Mountain. A detailed petrological study of the Tonsina ultramafic rocks was also completed (DeBari and Coleman, 1989).

Hoffman (1974) completed a geologic investigation of the Bernard Mountain area for a Master's thesis through the University of Alaska, Fairbanks. Other academic studies in the area include extensive petrographic and elemental dispersion studies as part of a Doctoral thesis completed in 1995 (Keiser, 1995).

Following a compilation of PGE-bearing prospects in Alaska completed by Avalon, Pacific North West Capital Corp. (PFN) acquired mining claims over the Tonsina ultramafic complex. In 2000, PFN obtained split core from the 3 USBM drill holes on Dust Mountain and analyzed this core for PGE's and other elements. Following this effort, PFN conducted reconnaissance exploration on portions of Dust Mountain, located just east of the current property, on lands leased from, and controlled by, Ahtna Inc. This work was conducted on behalf of Freegold Recovery Incorporated, which had leased the Dust Mountain area from Ahtna Inc. to explore specifically for PGE's. Several zones of PGE mineralization were discovered on Dust Mountain, however, the land was returned to Ahtna in December 2000.

Also during 2000, Latitude Minerals staked mineral claims covering most of the Bernard Mountain and Sheep Hill areas. The same year, Latitude's claim holdings were transferred to WGM Inc., which abandoned the claims in 2005. In 2006 PFN contracted Avalon to stake 46 one-quarter section claims (Marc 1-46) covering Sheep Hill and the eastern portion of Bernard Mountain. WGM maintained 10 prospecting sites on the portion of Bernard Mountain located in T3S R1E. In 2008 the land status of this portion of Bernard Mountain changed from State Selected lands, which are unavailable for mineral development, to State Tentatively Approved lands. WGM eventually allowed its prospecting sites to lapse and in 2011 PFN contracted Avalon to stake 18 one-quarter section claims (Marc 47-64) covering the western portion of Bernard Mountain.

In 2002, Avalon conducted a one day site visit and evaluation of the current Genesis project area with PFN personnel. During the autumn of 2006 a four person crew conducted an eight day reconnaissance field project on the Genesis project from a base camp located approximately 0.5 mi north of Sheep Hill. In August 2007 Avalon personnel, with a trespass agreement from Ahtna Incorporated, and accompanied by two representatives of Stillwater Mining Company, toured the entire Tonsina Ultramafic Complex by helicopter with stops on VABM Scarp, Dust Mountain, Sheep Hill, and Bernard Mountain. Later that year a four person Avalon field crew conducted a four day follow up program on Sheep Hill.

In July, August, and September of 2008 Avalon conducted four short field programs. A four person Avalon field crew spent five days sampling the exposed bedrock on Bernard Mountain from a base camp on its eastern flank. An eight person crew conducted a ten day Induced Polarization survey covering the central and western portions of Sheep Hill. A two person crew spent three days mapping and outcrop sampling the western portion of Sheep Hill following up on the IP survey

results. A three person crew spent four days conducting a ground based magnetometer survey along the same lines as the IP survey and continued outcrop sampling. Two employees of PFN visited the property on the last day of the magnetometer program. In August 2010 an assessment was conducted of existing ATV trails on the western part of the project and prospecting was conducted on the Bernard Mountain portion of the project.

In March, 2012, PFN commissioned a 43-101 complaint report on the project (Van Treeck and Freeman, 2012) however, this report was not published and Pacific North West Capital allowed their Marc claims to lapse in 2014.

The State of Alaska Division of Geological and Geophysical Surveys (DGGS) flew helicopter-borne airborne magnetics and frequency-domain electromagnetics over the greater Genesis project area in 2014 (Emond and others, 2015). Survey lines were oriented along a 345° azimuth on 400m centers with nominal bird height of 30m above ground. In addition, DGGS also collected 114 rock samples from the Tonsina ultramafic complex as part of the agency's state-wide Strategic and Critical Minerals initiative (Werdon, 2015).

The project area remained open to location from late 2014 until staked by Anglo Alaska Gold Corp. in April, 2018. New Age Metals, Inc. acquired a purchase option on the project later that same month and commissioned Avalon to complete this report.

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

**Regional Geology:** The Genesis project lies within the Tonsina Ultramafic Complex (TUC) of the Peninsular Terrane, which consists of Jurassic ultramafic and mafic rocks ranging from dunite to gabbro (Figure 7.1). The TUC forms a small portion of a much larger geological feature known as the Border Ranges Ultramafic and Mafic Complex (BRUMC, Burns, 1985). The BRUMC is a discontinuous trend of tectonized and dismembered, ultramafic, cumulate, and gabbroic rocks associated with the Border Ranges fault zone in southern Alaska. The BRUMC forms a narrow zone (2 – 10 km wide) which can be traced for more than 1,000 kilometers, from Kodiak Island to the Alaska-Canada border. Field and petrological studies indicate the BRUMC represents the basal portion of an intra-oceanic island arc (Burns, 1985; DeBari and Coleman, 1989). In the Genesis project area, the Border Ranges Fault zone (BRF) contains both high and low angle faults, although steep, north-dipping faults predominate. The BRF was the focus of major northward underthrusting of the Chugach terrane beneath the composite Wrangellia-Peninsular terrane during the late Cretaceous (Burns, 1985; DeBari and Coleman, 1989).

**Project Geology:** Major exposures of the TUC are located on five massifs, including (from west to east) Hill 4300, Bernard Mountain, Sheep Hill, Dust Mountain, and Scarp (Figure 7.2). Magmatic layering dips north, similar to the inferred dip of the Border Ranges Fault in this area. A generalized magmatic stratigraphy of the idealized ultramafic complex follows, starting with the base of the TUC: depleted mantle harzburgite grading upward to banded harzburgite and dunite of the mantle-crust transition, grading upward to layers of cumulate lherzolite, dunite, and websterite which grades to olivine pyroxenite and clinopyroxenite, which grades to gabbro and gabbro-norite as the upper-most exposed zone. This sequence is orientated with the basal unit on the south grading upward to the north, although high angle faulting is inferred to have displaced the massifs relative to

each other. Major drainages in the area (Little Tonsina River, Bernard Creek, Dust Creek) appear to follow the surface traces of these inferred faults.

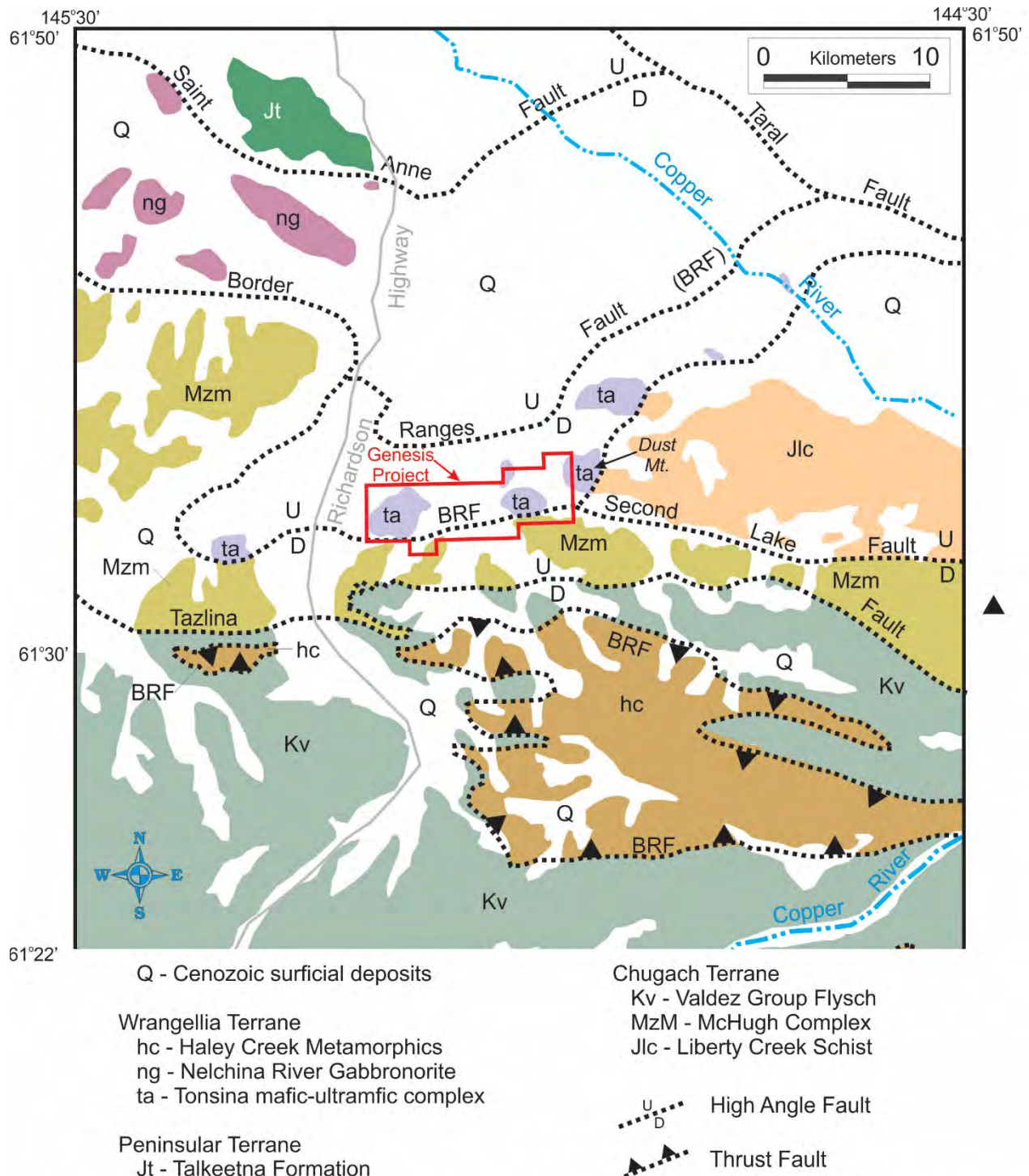


FIGURE 7.1: Regional geology of the Tonsina and Nelchina River mafic - ultramafic belt in the Valdez quadrangle, Alaska. Modified by Avalon Development, 2018 from Nokleberg and others, 1994, Winkler and others, 1981 and Plafker and others, 1989.



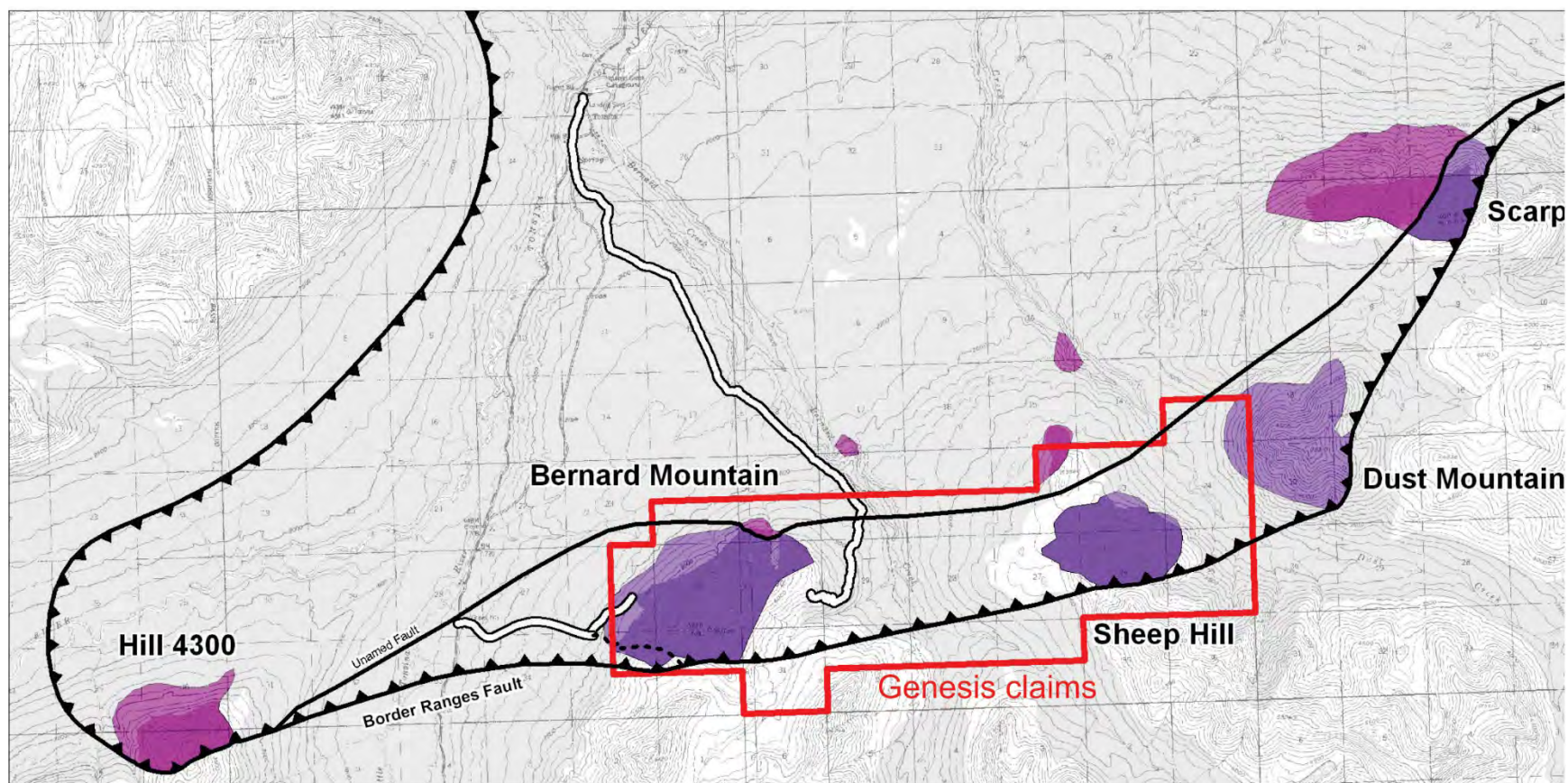


Figure 7.2: General geology of the Tonsina mafic-ultramafic complex, Nelchina Mining District, Alaska. Purple colors denote ultramafic rocks, magenta colors denote mafic rocks. Geology from Winkler and other, 1995, modified by Avalon Development Corp., 2018



The southwest portion of Bernard Mountain is comprised of harzburgite that grades into dunite and clinopyroxenite toward the northeast and then gabbro to the far northeast. Sheep Hill is composed of north dipping layers of harzburgite, lherzolite, dunite, olivine websterite, and clinopyroxenite with gabbro mapped to the north, sulfide and chromite mineralization is associated with a lherzolite layer exposed on the southwest slopes. The majority of Dust Mountain is composed of olivine rich lithologies, banded dunite-harzburgite, lherzolite and dunite. The northwest corner of the exposed ultramafic rock on Dust Mountain is comprised of a northwest dipping fault bounded section of mainly pyroxenite with dunite segregations. This part of the complex hosts substantial chromite mineralization (Foley and others, 1987) and PGM mineralization (Avalon, 2000). Scarp is an exposure of pyroxenite to the east and gabbro to the west. Winkler and others (1995) suggests that the gabbro is in fault contact with the ultramafic lithologies. The remainder of the geologic discussion will be limited to observations made by the author during programs conducted in 2007-2008.

The Genesis project has been divided into the Sheep Hill prospect and the Bernard Mountain prospect based on their differing geology and location both on the property and within the magmatic stratigraphy of the TUC. Bernard Mountain is predominantly comprised of harzburgite that grades into dunite and clinopyroxenite toward the northeast with a small exposure of gabbro to the far northeast (Figure 7.3). Based on this suite of lithologies Bernard Mountain represents a basal level of an idealized ophiolite sequence similar to those exposed on the Shetland Islands (Prichard and others 1994). Sheep Hill is composed of north dipping layers of more clinopyroxene rich ultramafic rock (Figure 7.4). The layers dip north-northeast at 80 degrees on the southern flanks with the dip of layering decreasing to the north defining a listric fold style most likely caused by compressional stresses along the BRF during terrane accretion. The sequence of layering observed on the west half of Sheep Hill from south to north is olivine websterite, dunite-lherzolite, olivine websterite, lherzolite-harzburgite, clinopyroxenite, olivine websterite, and lherzolite-harzburgite (Figure 7.4); this sequence is proposed to define a higher stratigraphic position in the TUC based on lesser amounts of orthopyroxene and greater amounts of clinopyroxene. Sulfide and chromite mineralization is associated with the dunite-lherzolite layer exposed on the southwest slopes.

Airborne magnetics flown by DGGS in 2015 clearly outline the mafic-ultramafic rocks at Genesis (Emond, 2015, Figure 7.5). The massifs at Bernard Mt., Sheep Hill and Dust Mt. stand out as strong magnetic highs, most likely due to the pervasive serpentinization seen in these rocks. The eastern and western extent of the sinuous but roughly east-west trending Tonsina mafic-ultramafic complex also are visible in the airborne magnetics as are portions of the Nelchina gabbro-norite to the north. The 7200 Hertz resistivity signatures for the Bernard Mt., Sheep Hill and Dust Mt. massifs show strongly resistive values (Emond, 2015, Figure 7.6). This response is curious given the high sulfide content known to exist in some areas, particularly in the bedded sulfides on Sheep Hill. However, when resistivity responses are plotted over topography, it is clear that at all resistivity levels published from the survey, 56,000, 7,200 and 900 Hertz, drainage basins are highly conductive, suggesting wet, conductive at-surface sediments are masking bedrock resistivity responses and skewing the resistivity scale toward higher values that have little or no relationship to bedrock values. Reinterpretation of the magnetic and EM data, in both 2D and 3D formats, is recommended (see Recommendations).

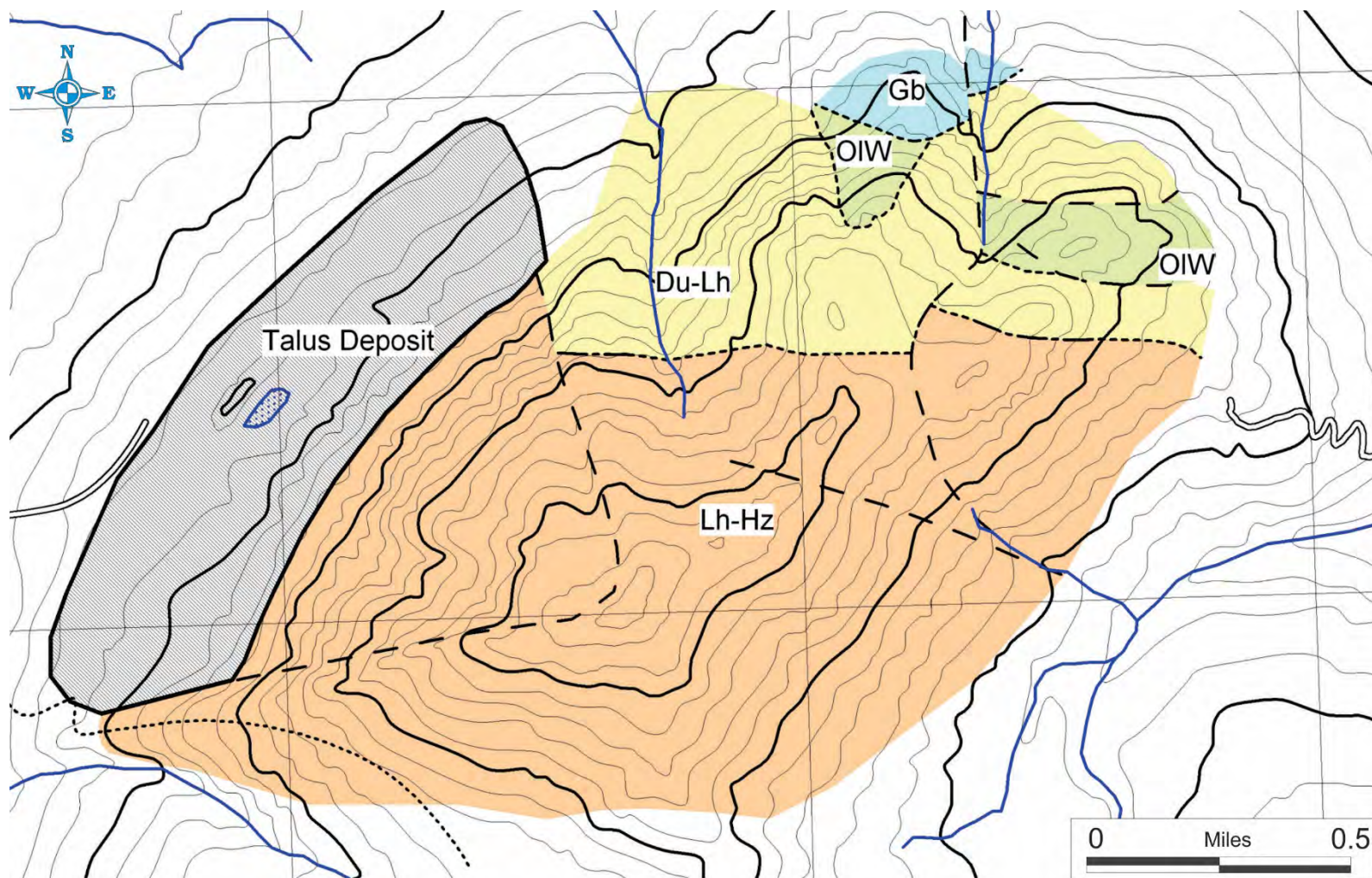


Figure 7.3: General geology of Bernard Mountain, Tonsina mafic-ultramafic complex, Nelchina Mining District, Alaska.. Geologic Legend: Lh-Hz = Lherzolite - Hartzburgite Unit; Du-Lh = Dunite - Lherzolite Unit; OIW = Olivine Websterite Unit; Gb = Gabbro Unit. Talus deposit is derived from a large slump block shed from northwest side of Bernard Mt.



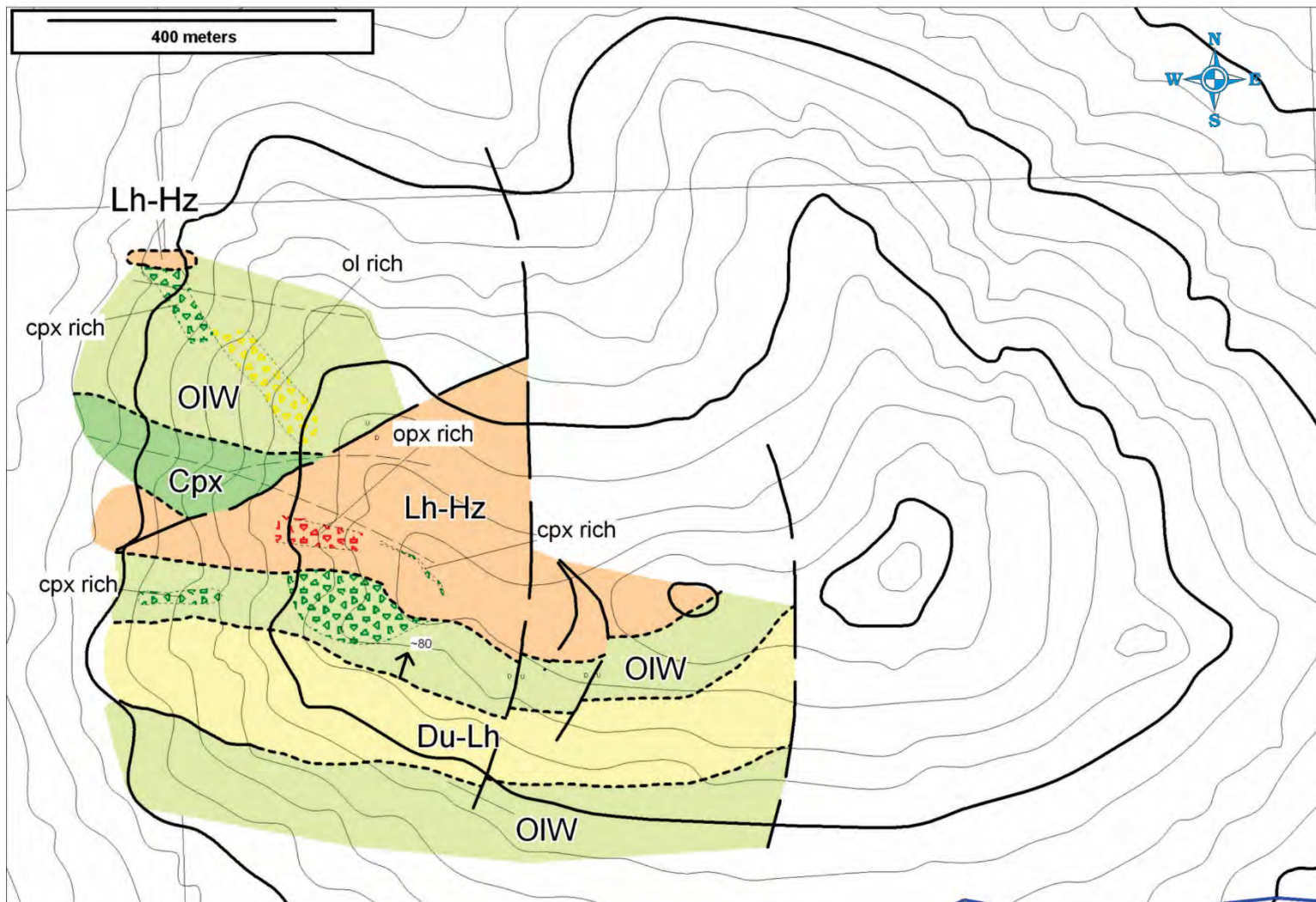


Figure 7.4: General geology of Sheep Hill, Tonsina mafic-ultramafic complex, Nelchina Mining District, Alaska.. Geologic Legend: Lh-Hz = Lherzolite - Hartzburgite Unit; Du-Lh = Dunite - Lherzolite Unit; OIW = Olivine Websterite Unit; Cpx = Clinopyroxenite Unit.

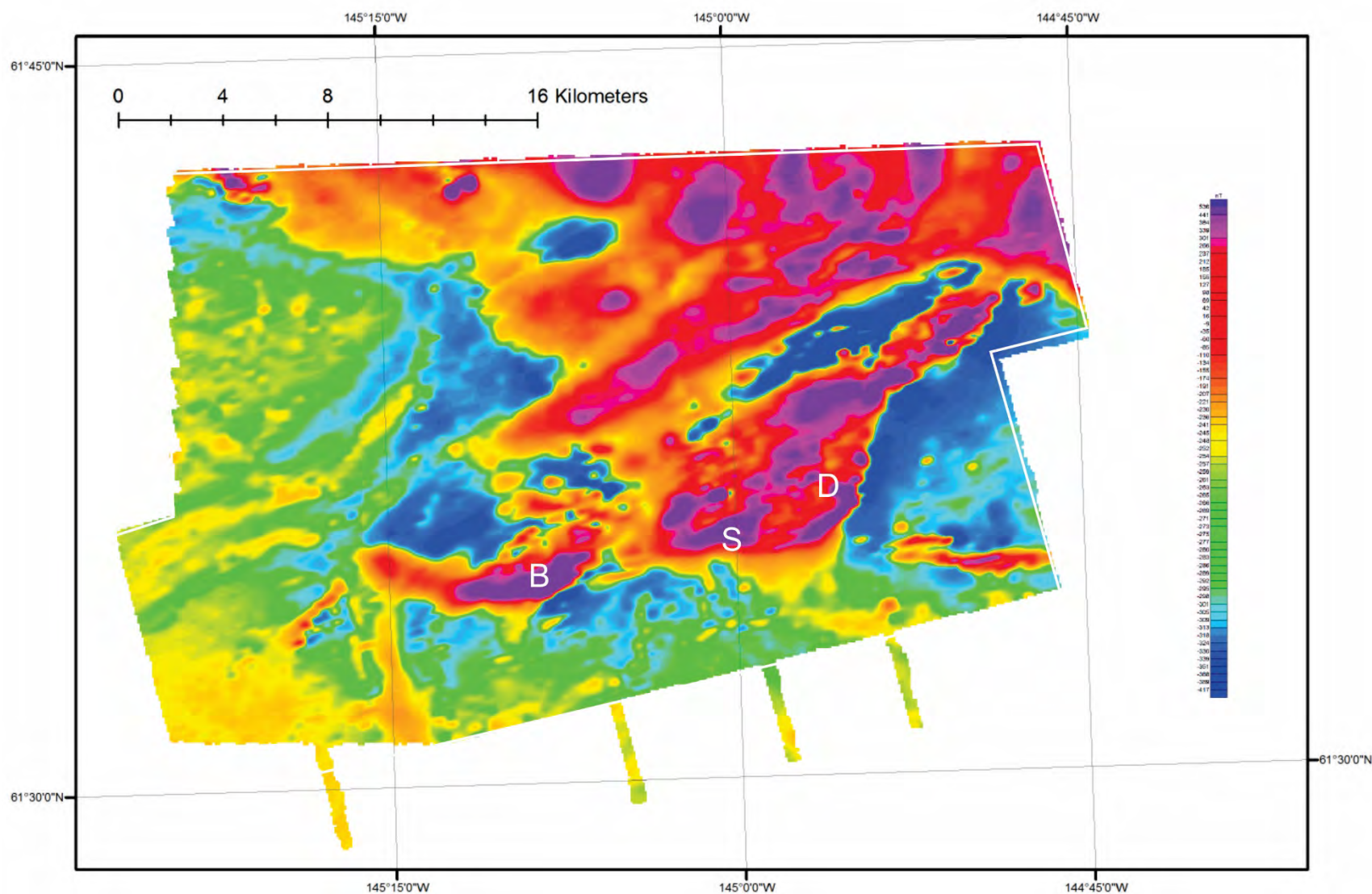


Figure 7.5: Residual magnetic intensity contour map for the Genesis project and vicinity. Data from Emond, 2015. Locations are: B - Bernard Mt., S - Sheep Hill, D - Dust Mt.



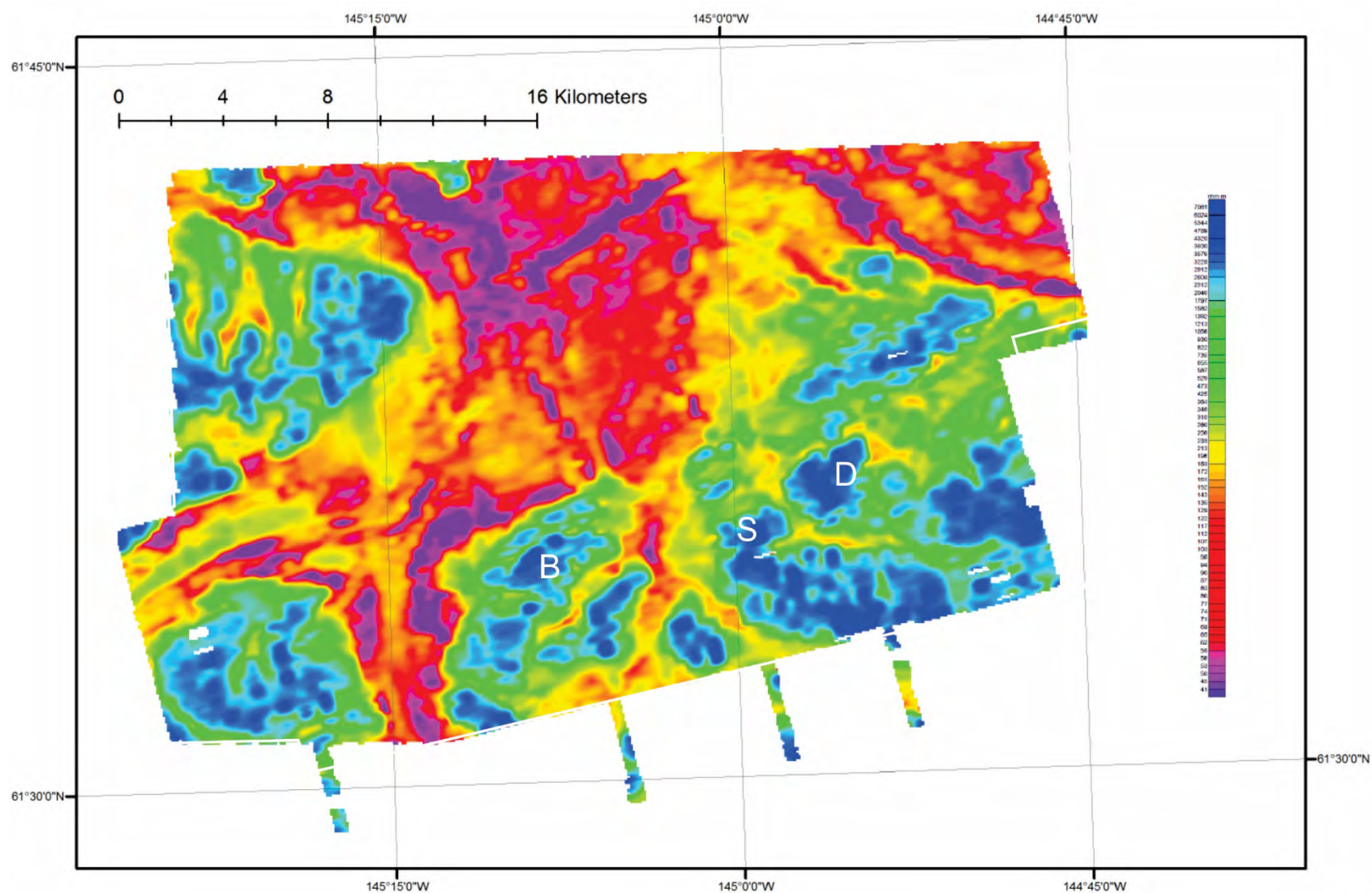


Figure 7.6: 7200 Hertz resistivity contour map for the Genesis project and vicinity. Data from Emond, 2015. Locations are: B - Bernard Mt., S - Sheep Hill, D - Dust Mt.

High angle faults cut both the Bernard Mountain and Sheep Hill massifs. At Bernard Mountain the surface trace of the N-S oriented high angle faults contain streams; E-W oriented high angle faults have a slight surface expression but often form contacts between units. The surface trace of N-S directed high angle faults at Sheep Hill form the central north facing gully that divides the east ridge from the west ridge. These structures off-set the mineralized dunite and lherzolite. The western extent of this mineralized unit is truncated by a N-S oriented fault running down the center of Sheep Hill. There is only one mapped E-W oriented high angle fault at Sheep Hill which truncates the clinopyroxenite unit on the western slope.

Both the Bernard Mountain and Sheep Hill massif's display a complex magmatic stratigraphy, rock types can vary at meter intervals, therefore geologic mapping was based on large scale textural and mineralogical features resulting in the definition of lithologic units which may contain one or more rock type and generally consist of a continuum of lithologies within the named bounds. Additionally, areas that contain an increased portion of a certain silicate mineral have been delineated within lithologic units and are represented on geologic maps with a stippled pattern (Figures 7.3 and 7.4).

The following lithologic unit descriptions have been used on the project:

**Lh-Hz – Lherzolite Harzburgite Unit** – An olivine rich unit encompassing dunite (olivine > 90%), lherzolite (olivine 90%-40%, orthopyroxene 50%-5%, clinopyroxene 50%-5%), and harzburgite (olivine 90%-40%, orthopyroxene 60%-10%, clinopyroxene <5%). This unit contains trace to massive segregations of chromite occurring as disseminations, semi-massive linear accumulations, schlieren, and massive bands. Serpentinization and chloritization are pervasive, patchy, and stockwork in style, and vary in intensity from moderate to complete. This unit is exposed on Bernard Mountain and Sheep Hill.

**Du-Lh – Dunite Lherzolite Unit** – An olivine rich unit encompassing dunite, lherzolite and clinopyroxenite (diopside and augite >90%). This unit contains trace to massive segregations of chromite occurring as disseminations, semi-massive linear accumulations, schlieren, and massive bands. Exposures of this unit on Sheep Hill are the primary host of magmatic sulfide mineralization on the property. The sulfide minerals pyrrhotite, chalcopyrite, pentlandite, millerite, covellite, and bornite have been identified within the Sheep Hill Du-Lh in net textures and disseminated blebs that can total more than 10% of the rock. Malachite after chalcopyrite is observed on fractures associated with magmatic sulfide mineralization. Serpentinization and chloritization are pervasive, patchy, and stockwork in style, and vary in intensity from moderate to complete. This unit is exposed on Bernard Mt. and Sheep Hill.

**OIW – Olivine Websterite Unit** – A pyroxene rich unit encompassing olivine websterite (orthopyroxene 90%-5%, clinopyroxene 90%-5%, and olivine 40%-5%), clinopyroxenite, lherzolite, and harzburgite. This unit contains trace to massive segregations of chromite occurring as disseminations, semi-massive linear accumulations, schlieren, and massive bands. Serpentinization and chloritization are pervasive, patchy, and stockwork in style, and vary in intensity from moderate to complete. This unit is exposed on Bernard Mountain and Sheep Hill.

Cpx – Clinopyroxenite Unit – A clinopyroxene rich unit encompassing clinopyroxenite and olivine websterite. Chromite is rarely observed as disseminated euhedral crystals. Pyrite is the primary sulfide mineral occurring with trace chalcopyrite as disseminated blebs. Chloritization and serpentinization is locally variable and related to fractures and faults. This unit is exposed on Sheep Hill.

Gb – Gabbro Unit – The least studied and observed of all the mapped units. To date only one sample has been collected from the Gb. The gabbro in the sample collected from the extreme northern exposures of Bernard Mountain is composed of calcic plagioclase, pyroxene (orthopyroxene and augite), with trace olivine, 5% pyrite, and trace pyrrhotite. Exposures of gabbro have been mapped by Winkler and others (1995) and Newberry (1986) in the Bernard Creek Drainage and north of Sheep Hill.

Project Mineralization: Two distinct types of precious and base metal mineralization have been observed at the Genesis project. Type 1 is PGE enriched chromite hosted in the Lh-Hz, Du-Lh, and OIW. Type 2 is PGE enriched chromite and associated Ni-Cu rich magmatic sulfide minerals and weathering products of those sulfides hosted in the Du-Lh.

Type 1 Chromite occurs as disseminations, semi-massive linear accumulations, schlieren, and massive bands (Figure 7.7). In outcrop there is no visible difference between PGE enriched and barren chromite, both have a black metallic appearance on weathering surfaces and a steel gray metallic fresh surface with euhedral mineral grains that range in size from a 0.5 mm to 5 mm. Type 1 PGE enriched chromite mineralization is distributed in clusters on both Sheep Hill and Bernard Mountain. Werdon (2015) reported chromium values ranging from <0.002% to 21.6% from Type 1 mineralization. Similar chromium values (See “Exploration”) were reported by Van Treeck and Freeman (2012) and Adams and Freeman (2006).

Type 2 mineralization is confined to the Du-Lh exposed on the south flank of Sheep Hill. First recognized due to chromite banding, sulfide mineralization was observed once field personnel removed the weathering rind to discover multiple percents of disseminated, blebby, and net textured magmatic sulfide minerals (Figure 7.7). Unlike most sulfide mineralization, Type 2 mineralization does not weather to red/orange gossan, which is the most likely reason it went undiscovered during the three documented field investigations of Sheep Hill (Foley and others 1985, Newberry 1986, Foley and others 1987). Sulfide bearing outcrop does weather to a distinct waxy brown surface. A possible explanation for the lack of gossan may be that the pH of weathering sulfides is buffered by the products of serpentinization in the Du-Lh. Sulfide minerals identified in hand specimen are pyrrhotite, chalcopyrite, pyrite, pentlandite, and bornite. Malachite and chrysocolla are present on fracture surfaces and in relic sulfide cavities. Sulfide mineral identified in thin section include millerite, diginite, covellite, chalcocite, and marcasite. Millerite is associated with pyrrhotite and pentlandite, while diginite and covellite are associated with chalcopyrite and bornite. Werdon (2015) reported platinum values ranging from <1 to 816 ppb, palladium values ranging from <1 to 278 ppb, copper values ranging from 3 to 929 ppm, cobalt values ranging from 10 to 178 ppm and nickel values ranging from 17.2 to 3000 ppm. Significantly higher Pt, Pd, Cu, and Ni values (See “Exploration”) were reported by Van Treeck and Freeman (2012) and Adams and Freeman (2006).



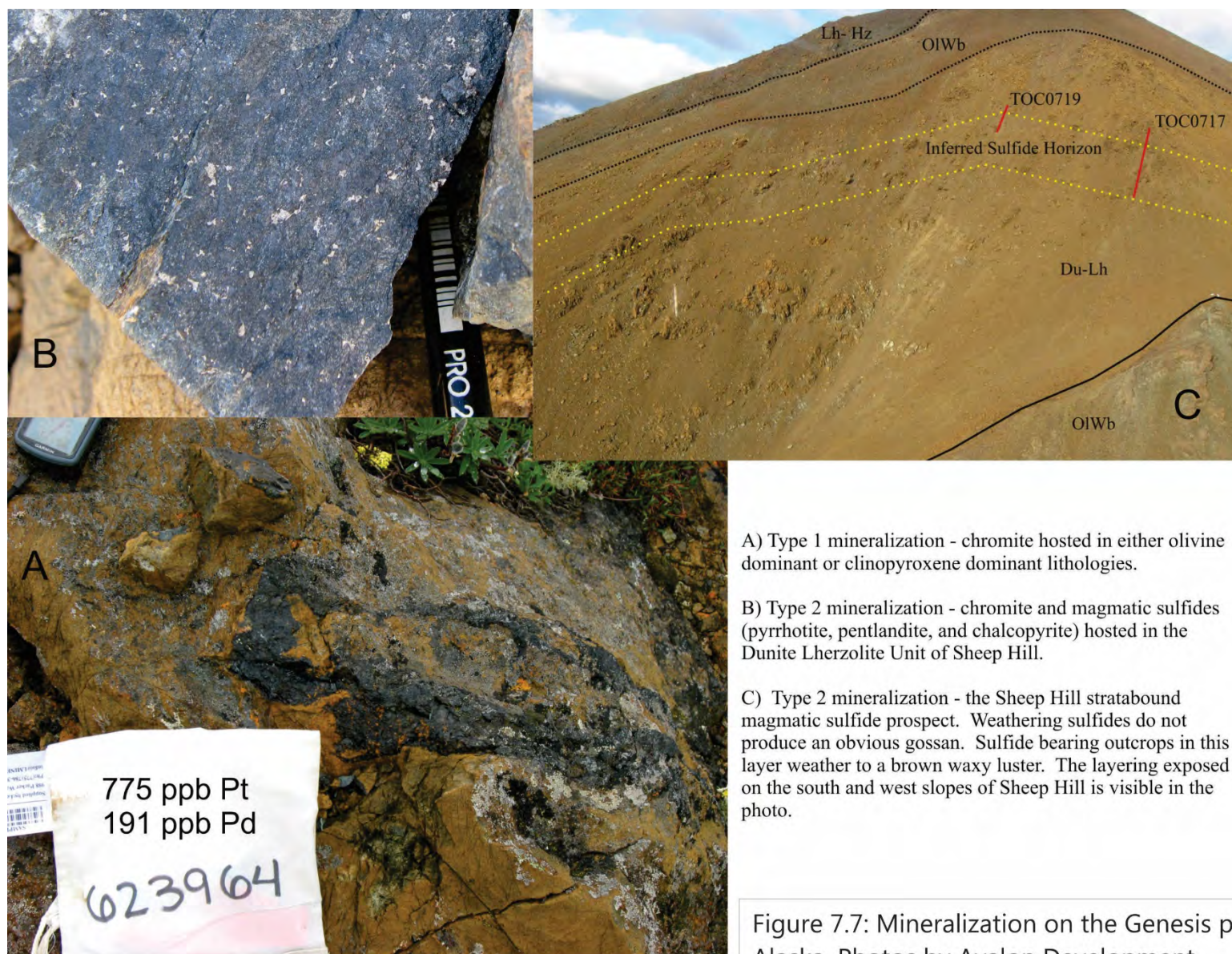


Figure 7.7: Mineralization on the Genesis project, Alaska. Photos by Avalon Development.



## 8.0 DEPOSIT TYPE

The initial deposit model for the Genesis project was ophiolite hosted podiform chromite (Foley and others, 1985). The TUC has long been documented as the lower portions of an obducted island arc terrane related to the Talkeetna volcanics exposed to the north in the Talkeetna Mountains (Burns 1985). Elevated PGE levels were discovered in the TUC chromite during a USBM economic evaluation of chromite deposits (Foley and others 1985). Therefore exploration effort was concentrated on chromite segregations observed on Bernard Mountain, Sheep Hill and Dust Mountain. When magmatic sulfide mineralization was discovered on the south side of Sheep Hill in 2006, and the area was mapped in detail, affinities to a layered ultramafic-mafic complex became obvious (Van Treeck and others, 2012). The alternating magmatic layers and the stratabound nature of magmatic sulfide mineralization fit the “reef” model of mineralization for layered complexes such as Stillwater, Bushveld, Great Dyke, Penikat, and the Skaergaard. PGE profiles from NiS assays of selected PGE rich outcrop samples are displayed in Figure 8.1, the trend displayed by Tonsina samples does not match that from ophiolite samples, but more closely resembles PGE profiles from the J-M reef at Stillwater, the Hartley Mine of the Great Dyke, and the S-J reef at Skaergaard. The Cliff Mine in the Shetland Ophiolite of the U.K. has both chromite and magmatic sulfide mineralization (Prichard and others 1994), and its PGE profile has some similarities to that of Tonsina but is missing the characteristic Ru trough (Figure 8.1). One explanation for a Ru trough in PGE profiles is that during partial melting of the mantle temperatures do not reach the liquidus temperature for laurite, the main Ru mineral, while the rest of the PGE are released and incorporated into the melt. Therefore the TUC is a product of partial melting of the mantle which also fits the base of an island arc model. During petrographic analysis of thin sections in November of 2008, inverted pigeonite was observed in a rock from the OIW. Inverted pigeonite is a common constituent of plutonic rocks of tholeiitic affinities (ie. the Bushveld, Skaergaard, and Stillwater complexes). Therefore the TUC has affinities towards two deposit types, ophiolite hosted mineralization related to podiform and banded chromite and magmatic sulfides, and also to “reef” style mineralization in layered igneous complexes.

## 9.0 EXPLORATION

Although NI43-101 requirements clearly indicate that past exploration be summarized in the History section, the following recent exploration summary has been left in this Exploration section because exploration conducted during the period 2006 through 2008 was directed by senior management of Pacific North West Capital, the same senior management that currently controls the current property owner New Age Metals.

Table 9.1 summarizes the type and duration of work conducted at Genesis for the period 2006 through 2008. Although the work was conducted during three different years, the total time in the field

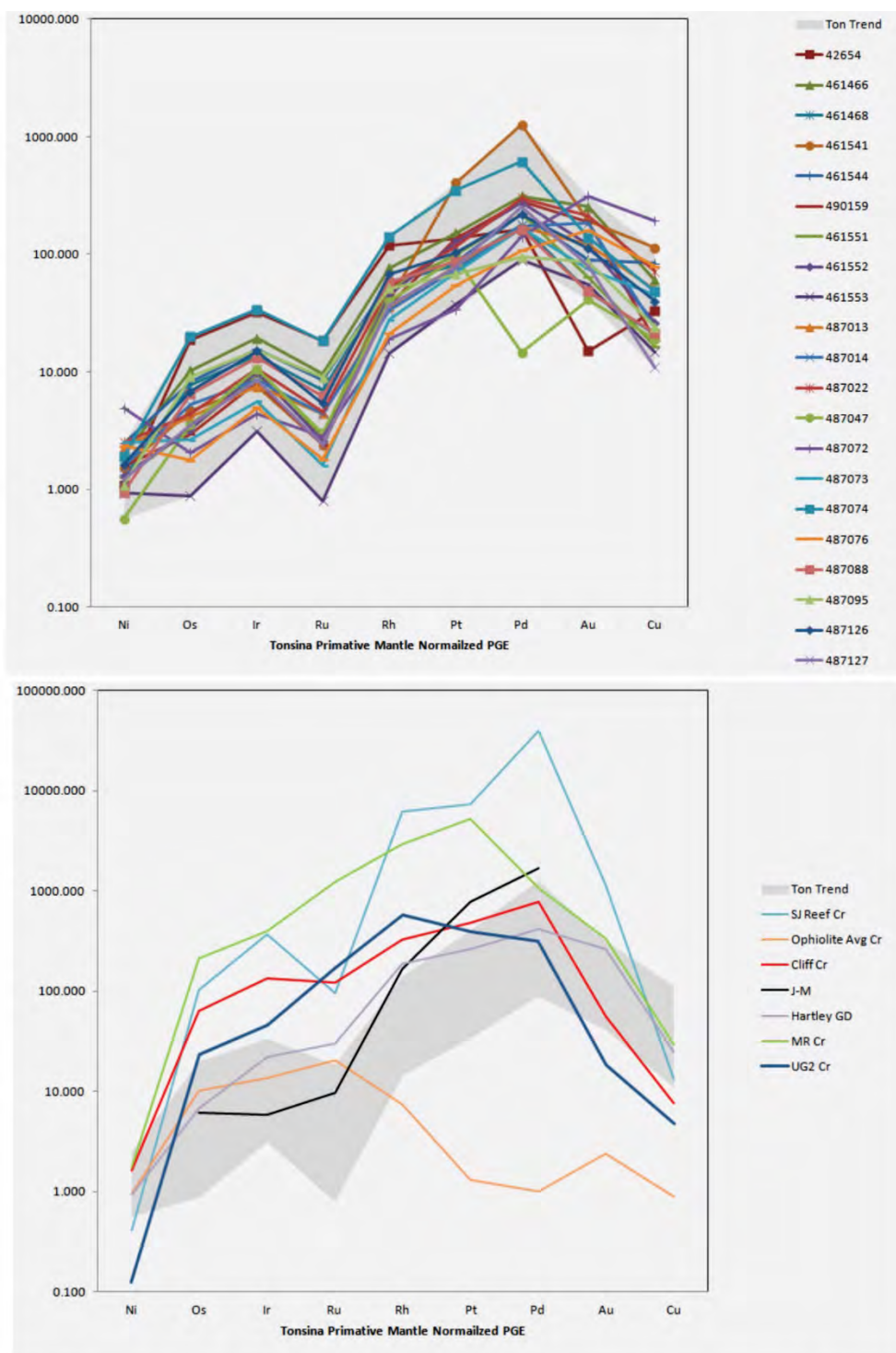


Figure 8.1: Comparison of Genesis project Ni-S collection values normalized to primitive mantle values of McDonough and Sun, 1995. Lower image compares Genesis values (gray shaded area) against other Ni-Cu-PGE deposits. Note that Genesis values do not resemble the average ophiolite trend. See text for deposit data sources.

Table 9.1: Work summary for the Genesis project, Alaska.

Year	Personnel	Duration	Man Days	Purpose	Results	Per M D
2006	4	8	32	Sampling	337	10.53
2007	4	3.5	14	Sampling and mapping	138	9.86
2008	4	5	20	Sampling and mapping	91	4.55
2008	8	10	80	IP Survey (km)	13.5	0.17
2008	2	3	6	Sampling and mapping	25	4.17
2008	3	4	12	Mag survey and sample	22	1.83
	TOTALS:	33.5	164		613	

2006 Exploration: During 2006 Avalon Development Corp. was retained to conduct field operations for the Genesis project. The four person field crew established a base camp approximately one half mile north of Sheep Hill. Supplies and gear were mobilized from a departure point at the Tonsina airstrip to the base camp location by helicopter. A well-established ATV trail (Bernard Creek Trail) extends from near the airstrip to the base camp location and further east to Dust Creek. Four four-wheelers (one with a trailer) were used to move to the camp and transport some supplies. The four wheelers were used on a daily basis to facilitate access to work sites. Project de-mobilization was by helicopter. The 8-day field program was conducted in late September and was terminated when early-season snows covered the project. During the 2006 program a total of 131 rock grab samples and 206 rock chip channel samples were collected (Plates 1 & 2).

The field program focused on grab and chip channel rock sampling, mapping and general prospecting of the Sheep Hill area (6 days) and the northeastern Bernard Mountain area (2 days). Sampling concentrated on chromite segregations based on the PGE mineralization outlined by Foley and others, 1987. Outcrop sample results confirmed that PGE enriched chromite was present at Sheep Hill as disseminations, schlieren, and massive banded layers. Magmatic sulfide mineralization was discovered during a traverse up the south side of Sheep Hill on the last day of the program. Assay results from rock samples containing chromite and/or pyrrhotite and chalcopyrite  $\pm$  malachite returned Pt values from below the detection limit of 5 ppb to 1580 ppb, and Pd values from below the detection limit of 1 ppb to 2120 ppb for a high of 3665 ppb combined Pt and Pd. Eleven of the 225 rock samples collected at Sheep Hill contained over 1000 ppb Pt+Pd, with 20 samples containing over 500 ppb Pt+Pd. Chip channel sample 308938 collected from the northeast ridge of Sheep Hill contained 1535 ppb Pt and 2120 ppb Pd over its 1.5 m length. Mineralization was chromite hosted in dunite and clinopyroxenite (Table 9.2, Plate 1, Figures 9.1 and 9.2). An adjacent chip channel sample contained 1080 Pt+Pd over its 1.5 m length (Table 9.2). Chip channel sample 311132 collected from near the magmatic sulfide discovery outcrop in the Du-Lh contained 1025 ppb Pt and 1330 ppb Pd over its 1.5 m length (Table 9.3, Plate 1, Figures 9.1 and 9.2). The remainder of chip channel TOC0616 assay sample results show that there are multiple meters of material containing greater than 1000 ppb Pt+Pd associated with chromite and sulfide mineralization (Table 9.3).

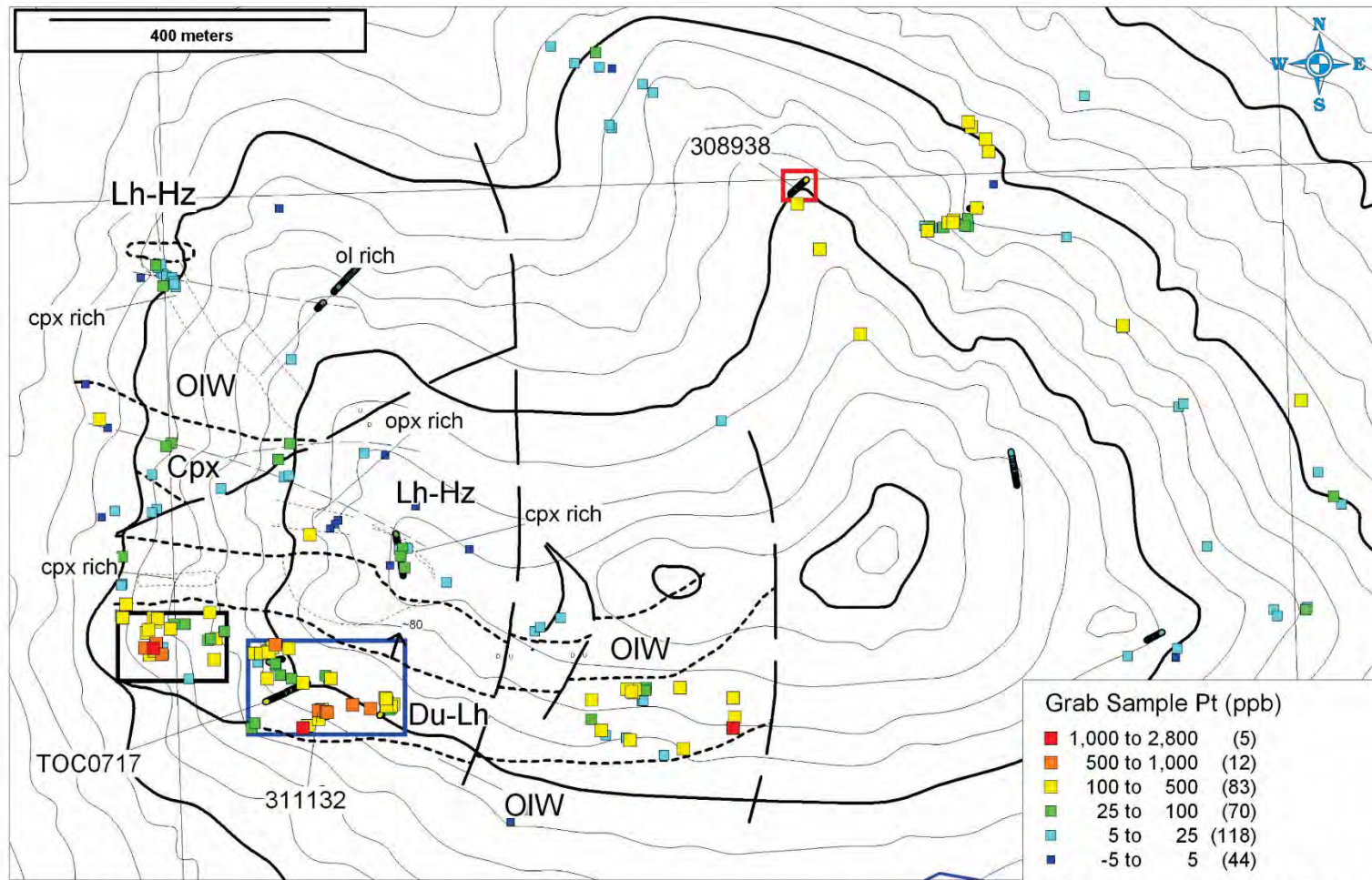


Figure 9.1: Platinum in rock samples from the Sheep Hill area, Genesis project, Alaska. PGE values on northeast part of Sheep Hill area are associated with chromite segregations in clinopyroxenite-rich rocks. PGE values in Du-Lh Unit are associated with chromite and magmatic sulfides in olivine-rich rocks. Black and blue insets are shown in more detail on Figure 9.2.



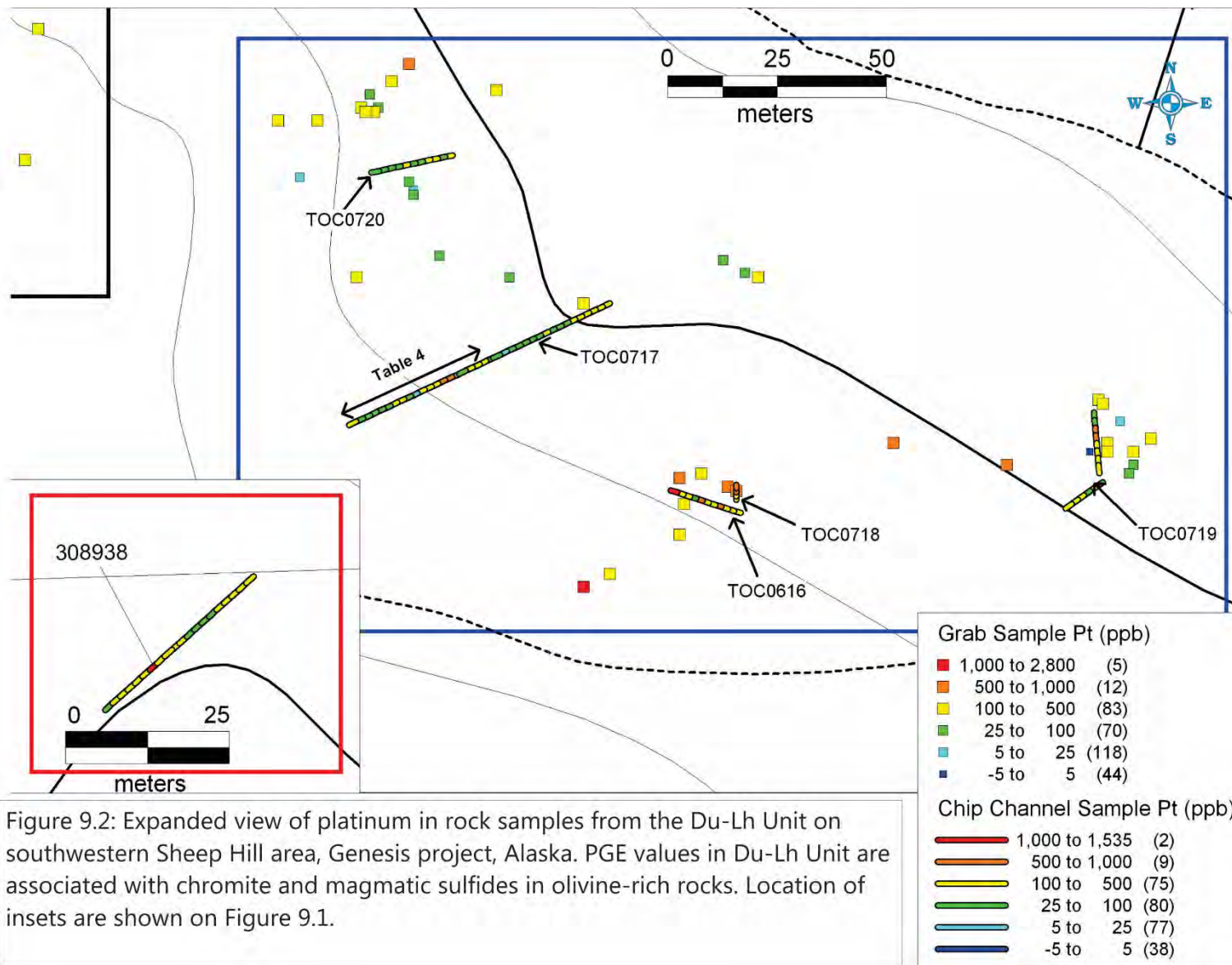


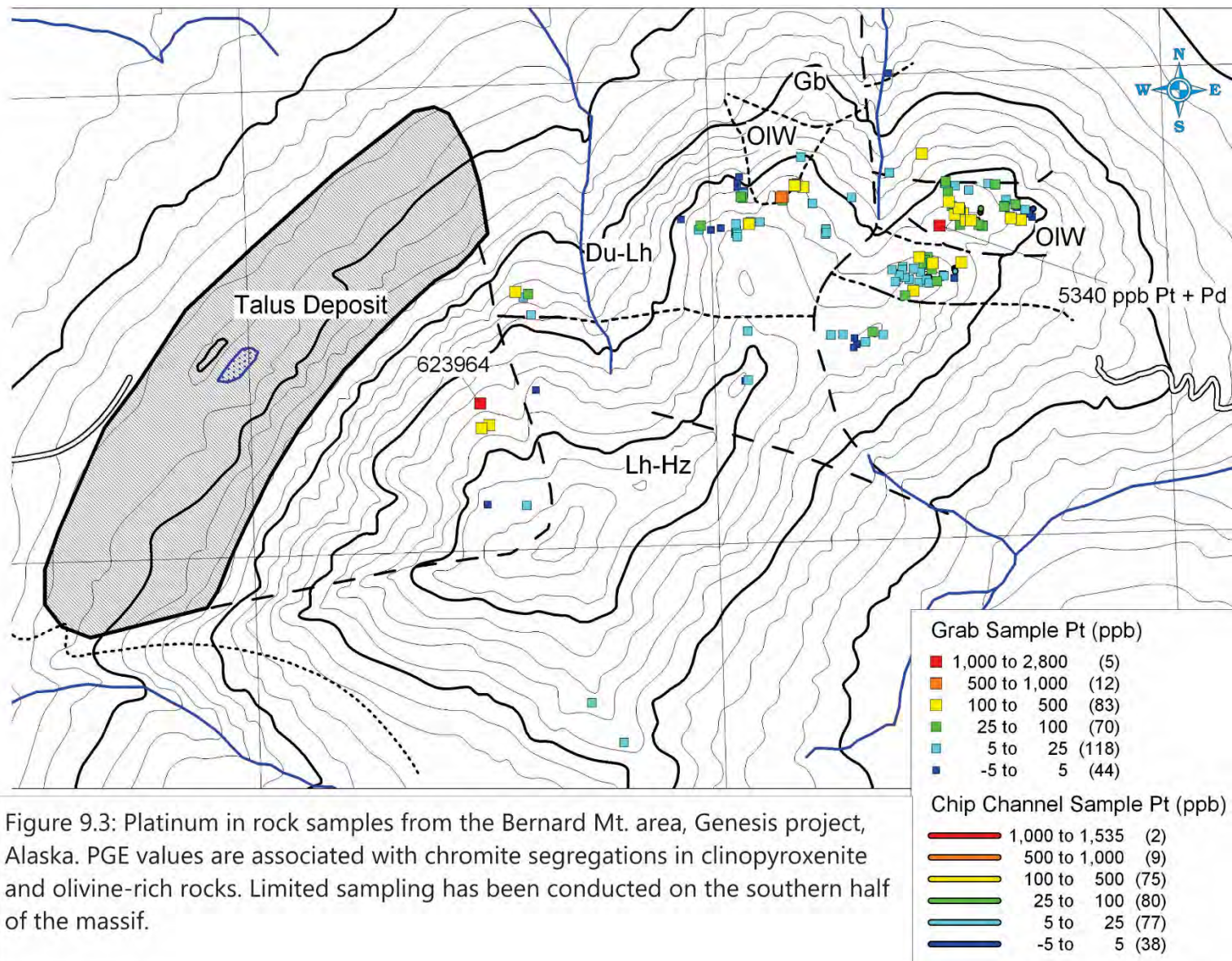
Table 9.2 Select Chip Channel TOC0612 Geochemical Analysis Results.

LabNum	Channel	From m	To m	RockUnit	Minz	Pt ppb	Pd ppb	Cr ppm	Cu ppm	Ni ppm	S pct
308938	TOC0612	9.14	10.67	Cpx, Du	diss cr	1535	2120	4270	525	502	0.04
308939	TOC0612	10.67	12.19	Cpx	diss cr	447	633	3170	202	732	0.06
308940	TOC0612	12.19	13.72	Cpx	diss cr	407	537	3340	369	631	0.06

Outcrop sample results confirmed that PGE enriched chromite was present at Bernard Mountain as disseminations, schlieren, and massive banded layers. Assay results from rock samples containing chromite returned Pt values from below the detection limit of 5 ppb to 997 ppb, and Pd values from below the detection limit of 1 ppb to 492 ppb for a high of 1489 ppb combined Pt and Pd. PGE values in Bernard Mountain outcrop sample results are lower than at Sheep Hill, with only three samples of 112 returning Pt+Pd grades over 500 ppb. Low level PGE enrichment (200-499 ppb) is associated with chromite in the more pyroxene rich units of Bernard Mountain (Figure 9.3).

Table 3 Select Chip Channel TOC0616 Geochemical Analysis Results. This chip channel was oriented along the strike of mineralization prior to the recognition of the stratabound nature of mineralization in the Du-Lh. Snowfall during sampling did not allow the crew to record detailed sample descriptions, but based on the Cr values and the Cu-Ni-S values this chip channel sampled dunite containing chromite and magmatic sulfide minerals.

LabNum	Channel	From m	To m	Pt ppb	Pd ppb	Cr ppm	Cu ppm	Ni ppm	S pct
311121	TOC0616	0	1.52	290	374	10000	796	2990	0.19
311122	TOC0616	1.52	3.05	172	268	10000	880	2930	0.21
311123	TOC0616	3.05	4.57	398	658	10000	749	2610	0.14
311124	TOC0616	4.57	6.1	523	490	3920	965	3070	0.26
311126	TOC0616	6.1	7.62	207	329	6290	818	2740	0.26
311127	TOC0616	7.62	9.14	125	154	3310	493	2400	0.12
311128	TOC0616	9.14	10.67	583	462	10000	885	2680	0.22
311129	TOC0616	10.67	12.19	42	70	10000	157	2080	0.06
311130	TOC0616	12.19	13.72	115	109	7180	125	2040	0.05
311131	TOC0616	13.72	15.24	296	353	10000	778	2380	0.12
311132	TOC0616	15.24	16.76	1025	1330	10000	1300	3540	0.21



2007 Exploration: A four person crew with helicopter support spent four days prospecting in the magmatic sulfide discovery area on the south side of Sheep Hill. Activities included bedrock mapping, collecting 71 grab rock outcrop samples, and collecting 67 continuous chip channel samples (Plate 1). Assay results from rock samples containing chromite and/or pyrrhotite and chalcopyrite  $\pm$  malachite returned Pt values from below the detection limit of 5 ppb to 2300 ppb, and Pd values from the detection limit of 1 ppb to 1610 ppb for a high of 3910 ppb combined Pt + Pd. Five of the 138 rock samples collected at Sheep Hill contained over 1000 ppb Pd, 14 contained over 1000 ppb Pt+Pd, with 32 samples containing over 500 ppb Pt+Pd. Bedrock mapping and sampling confirmed observations from 2006 that sulfide  $\pm$  chromite mineralization is stratabound within the Du-Lh units and can be traced for nearly 900 meter E-W and over 200 meters vertically (Figures 7.4, 9.1 and 9.2). Mapping in the discovery area defined that the Du-Lh is sandwiched between two layers of OIW and that contacts strike E-W and dip N at  $\sim 80^\circ$ . Chip channel TOC0617 crossed the longest exposure of Du-Lh outcrop and based on the slope and orientation of the exposure and the dip of bedding this channel cut a true thickness of 6 meters (44-50m) grading 804 ppb platinum and 1018 ppb palladium, and 12 meters (62-74m) grading 5938 ppm nickel (Table 9.4, Figures 9.1, 9.2, 9.4 and 9.5).

Table 9.4: Select Chip Channel TOC0717 Geochemical Analysis Results. Channel TOC0717 was crossed the mineralized horizon and tested the vertical extent of the exposed mineralization. Metal grades include 6 meters (44-50) grading 804 ppb Pt and 1018 ppb Pd and 12 meters (62-74) grading 5938 ppm Ni.

LabNum	Channel	From m	To m	Pt ppb	Pd ppb	Cr ppm	Cu ppm	Ni ppm	S pct
490155	TOC0717	36	38	171	114	2510	1215	3230	0.20
490156	TOC0717	38	40	192	202	2260	1635	4210	0.46
490157	TOC0717	40	42	250	371	2200	1390	4530	0.47
490158	TOC0717	42	44	93	122	2230	1405	5810	0.53
490159	TOC0717	44	46	798	1120	2760	557	3110	0.22
461551	TOC0717	46	48	750	839	6290	496	2490	0.10
461552	TOC0717	48	50	864	1095	7200	781	2570	0.25
461553	TOC0717	50	52	341	418	2650	442	1830	0.14
461554	TOC0717	52	54	116	164	2090	2620	4570	0.70
461555	TOC0717	54	56	131	151	996	1205	4250	0.66
461556	TOC0717	56	58	17	22	393	1340	3580	0.75
461557	TOC0717	58	60	31	53	831	1175	3650	0.73
461558	TOC0717	60	62	113	133	3860	1195	3690	0.43
461559	TOC0717	62	64	333	481	4760	1935	4230	0.55
461548	TOC0717	64	66	33	42	1360	2930	7540	0.76
487001	TOC0717	66	68	28	35	697	2040	6820	0.75
487002	TOC0717	68	70	36	43	1460	1775	5120	0.66
487003	TOC0717	70	72	28	55	1500	2500	6470	0.69
487004	TOC0717	72	74	50	88	1350	2220	5450	0.72
487005	TOC0717	74	76	108	149	1810	1260	3300	0.37



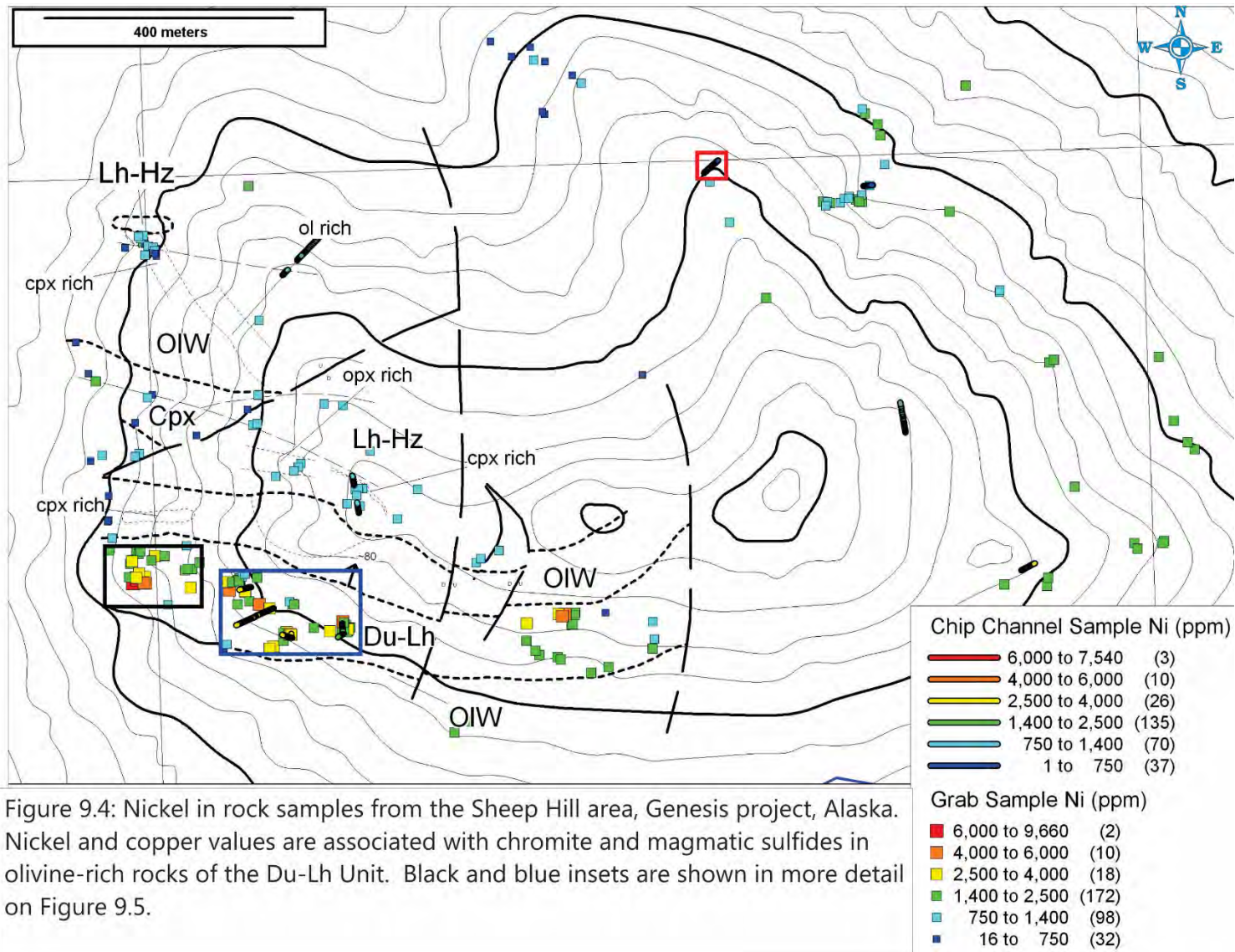


Figure 9.4: Nickel in rock samples from the Sheep Hill area, Genesis project, Alaska. Nickel and copper values are associated with chromite and magmatic sulfides in olivine-rich rocks of the Du-Lh Unit. Black and blue insets are shown in more detail on Figure 9.5.

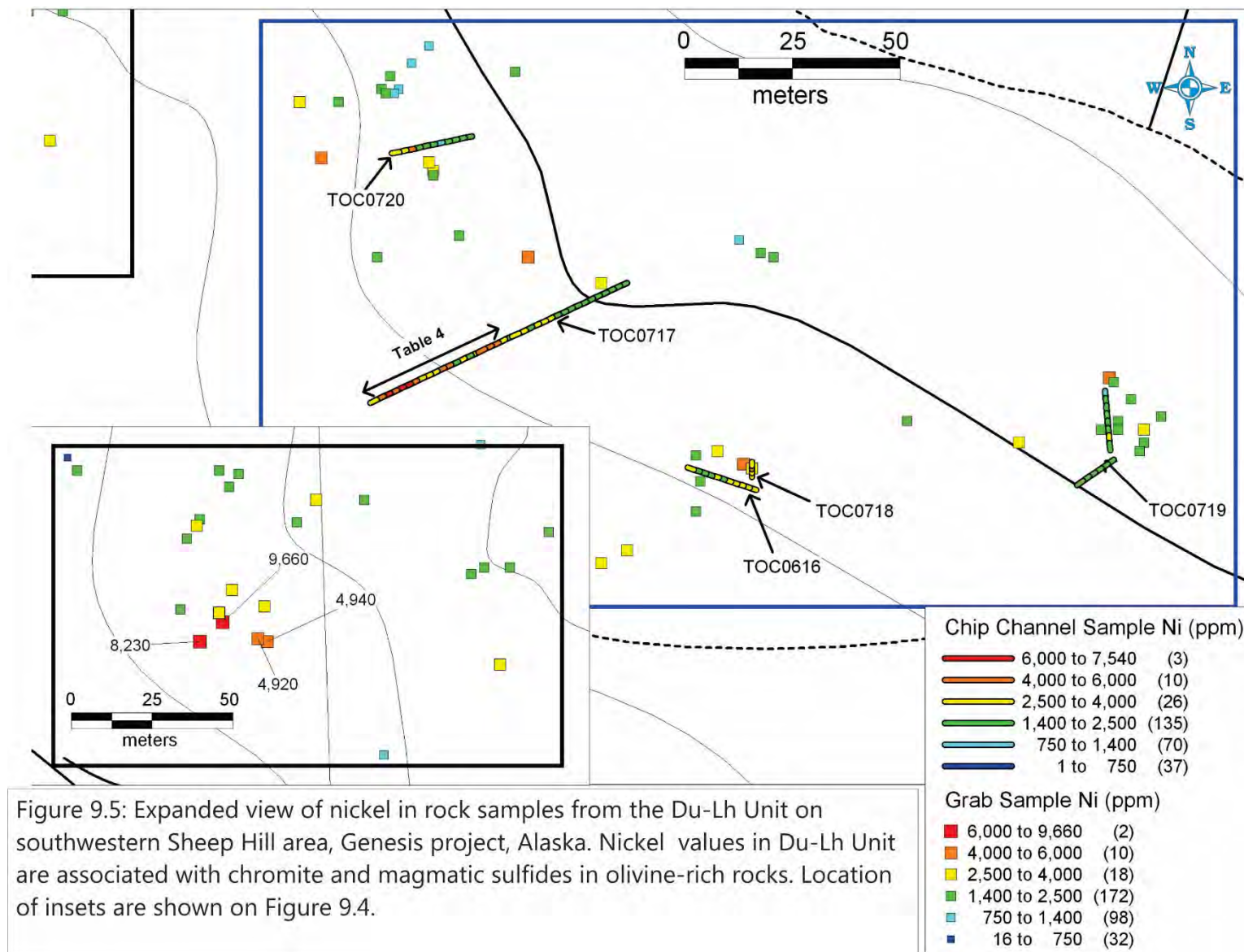


Figure 9.5: Expanded view of nickel in rock samples from the Du-Lh Unit on southwestern Sheep Hill area, Genesis project, Alaska. Nickel values in Du-Lh Unit are associated with chromite and magmatic sulfides in olivine-rich rocks. Location of insets are shown on Figure 9.4.

Magmatic sulfide mineralization is predominately pyrrhotite rich, with lesser chalcopyrite and pentlandite. There are multiple outcrop samples in which pentlandite is observed with pyrrhotite, geochemical results for outcrop sample Ni range from a low of 420 ppm to a high of 9660 ppm (Figures 9.4 and 9.5). Olivine rich lithologies generally contain elevated Ni values, due to Ni substituting for Mg in the olivine crystal lattice, which can approach 3000 ppm. Probability graphs for Ni in outcrop samples show that a value of 2500 ppm Ni seems to be the upper background level in olivine rich lithologies in the TUC (Plate 3). Of the 137 outcrop samples collected in 2007, 55 contain greater than 2500 ppm Ni, with 11 over 5000 ppm Ni for possible sulfide Ni values of 0.25% or greater. The highest Ni values from outcrop samples are located near the western extent of exposed mineralization (Table 9.5, Figure 9.5). The Sheep Hill Du-Lh magmatic sulfide prospect is drill ready.

Table 9.5 Select 2007 Grab Sample Geochemical Analysis Results. Results from grab samples show that copper and nickel are positively correlated with sulfur, and that PGE are positively correlated with chromium.

LabNum	RockUnit	Min	Pt ppb	Pd ppb	Cr ppm	Cu ppm	Ni ppm	S pct
487071	Lh	10-15 % po	173	124	1820	1820	8230	0.97
487072	Lh	5% cr, 10% po	284	569	1830	5800	9660	0.84
487073	Lh, Du	10% po	507	691	3850	1350	4930	0.65
487074	Lh Du	40% cr, 5% po	2300	1610	10000	1450	3720	0.35
487022	Lh	15% cr, 6% po	880	1260	7320	2130	4920	0.56
487024	Lh	5% po	5	14	2150	1520	4940	0.59
487126	Du	30% cr, 2% po	799	835	10000	1190	3200	0.22
487127	Du	20% cr, 3% po	640	1070	1285	328	2370	0.07

Thin sections of sulfide bearing outcrop samples from the Du-Lh contain pyrrhotite and chalcopyrite with pentlandite associated with chromite. Millerite is observed rimming pentlandite grains. A subset of 22 sample pulps from the 2007 field programs were submitted for fire assay by NiS collection to investigate the distribution of PGE in Pt and Pd rich outcrop samples. This assay method provides analytical results for Os, Ir, Ru, Rh, Pt, Pd, and Au. Primitive mantle normalized assay results from this analysis are summarized in Figure 8.1. The Tonsina PGE profiles display a Ru trough and positive slopes. These profiles are very different from ophiolite profiles.

**2008 Exploration:** During July 2008 a four person crew established a base camp on the east slope of Bernard Mountain using ATV's and trailers and the Bernard Creek Trail. The field crew had originally planned to split their time between Sheep Hill and Bernard Mountain, but flooding in November of 2007 had eroded the ford over Bernard Creek and formed steep cut banks at the trail crossing. Focusing on Bernard Mountain, the field crew mapped and sampled the eastern portion of Bernard Mountain with a few reconnaissance traverses onto the western portion of Bernard Mountain. Assay results from rock samples containing chromite returned Pt values from below the detection limit of 5 ppb to 2800 ppb, and Pd values from below the detection limit of 1 ppb to 2540 ppb for a high of 5340 ppb combined Pt and Pd (Figure 9.3). PGE values in Bernard Mountain outcrop sample results are lower than at Sheep Hill, with only three samples of 91 returning Pt+Pd

grades over 500 ppb. Reconnaissance mapping and sampling in the western portion of Bernard Mountain has expanded known PGE mineralization westward beyond the claim block at that time. Sample 623964 was collected from chromite banding in dunite of the Lh-Hz unit within the slumped area on the north face of the massif and contained 2530 ppb Pt and 498 ppb Pd. The high Pt to Pd ratio present in this sample is similar to the Pt to Pd ratios for other outcrop samples from the dunite rich units of Bernard Mountain. The mapping conducted at Bernard Mountain was of a reconnaissance scale and limited of detail, continued mapping of the massif and creek canyons to the north is required to place these samples in a proper geologic framework.

During late July and early August, 2008, an eight person crew conducted a ten day, helicopter supported program that included a 13.5 line kilometers of dipole pole induced polarization (IP) survey over eight lines in the central and western portions of Sheep Hill (Figure 9.6). Two weeks later a two person helicopter supported crew spent three days mapping and outcrop sampling the western portion of Sheep Hill following up on the IP survey results. The product of this detailed mapping is the basis for the geologic model in the above geology section. A three person helicopter supported crew spent four days conducting a ground based magnetometer survey along the same lines as the IP survey and continued outcrop sampling. The two field programs resulted in a total of 42 samples collected at Sheep Hill and five samples collected on Bernard Mountain. Assay results from rock samples containing chromite and/or pyrrhotite, chalcopyrite, and pyrite returned Pt values from below the detection limit of 5 ppb to 302 ppb, and Pd values from below the detection limit of 1 ppb to 412 ppb for a high of 714 ppb combined Pt and Pd. Two of the 42 rock samples, both collected on Sheep Hill, contained over 500 ppb Pt+Pd.

The financial collapse of late 2008 curtailed all Genesis project activities as of October 1, 2008. Therefore the 2008 exploration program was truncated prior to final IP survey and magnetometer survey interpretations by professional geophysicists. Only preliminary inversions of IP lines have been provided, and while these inversions may display the north dipping attitude of magmatic layering, they do not appear to display a typical sulfide mineralization response (chargeability) over areas of known sulfide mineralization (Figure 9.6). Preliminary results from this survey indicate that the Lh-Hz is a more conductive mass of rock and that the magmatic layering pattern mapped at Sheep Hill continues to the west under cover. IP inversions may help define lithologic changes at shallow depths, but the serpentinization present in the majority of ultramafic rocks may be masking any IP response. Alternatively, net-textured or semi-massive sulfides may be so interconnected that the rock mass is not chargeable, and can only be identified as a resistivity low. Additional desk-top geophysical interpretation is warranted.

Results from the magnetometer survey are also preliminary but responses are clearly affected by pervasive serpentinization. The software provided with the instrumentation would only allow each days survey to be plotted separately, therefore there are two survey areas with two different scales). When these survey plots are geo-referenced, magnetic anomalies correspond with mapped lithologic contacts and imply that magmatic layering does dip north and continues to the west under cover. But the results should be merged and interpreted by a geophysicist. The ground based magnetometer survey does suggest that a helicopter based magnetometer survey would be able to trace magmatic layering under cover between Bernard Mountain and Sheep Hill.



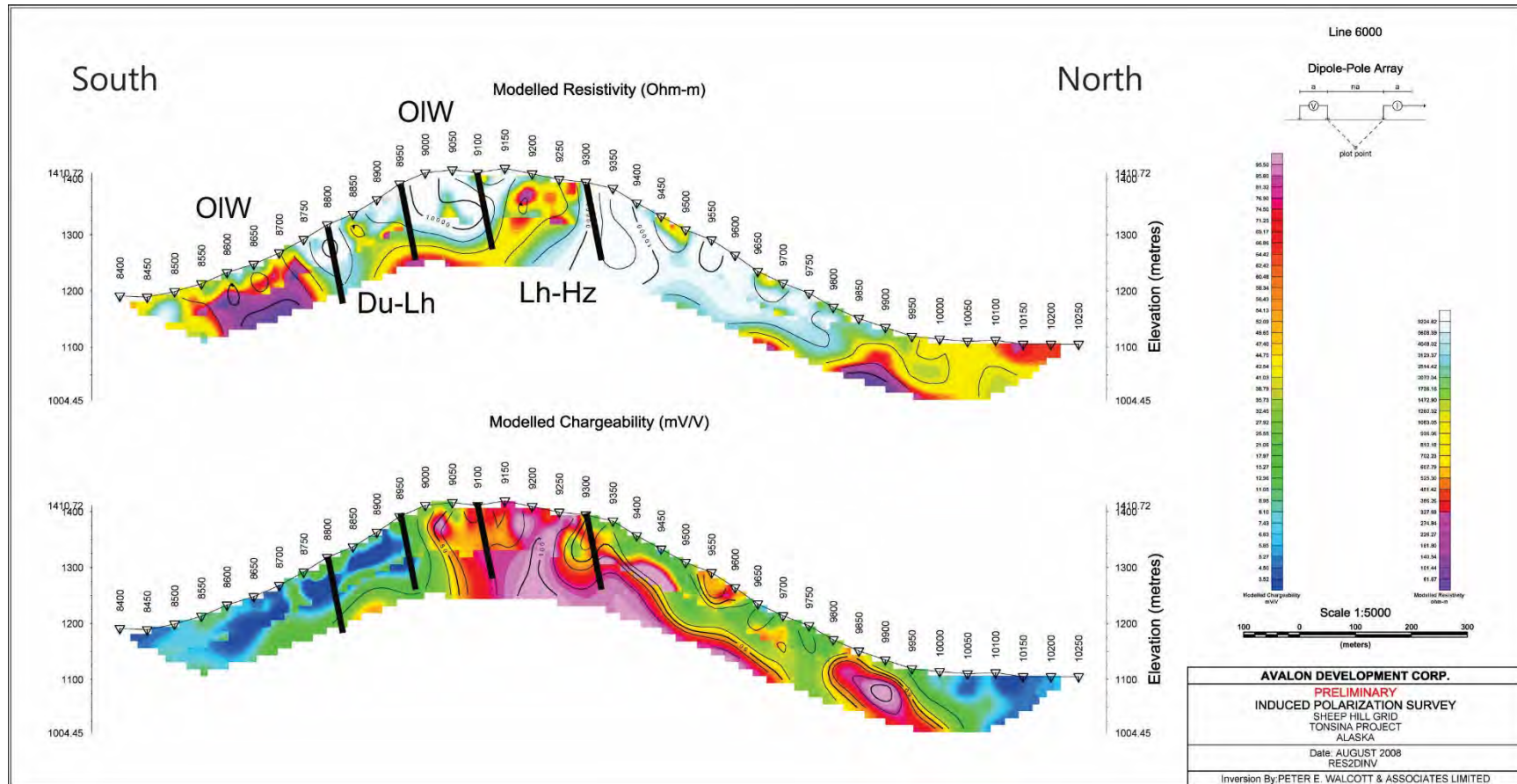


Figure 9.6: Modeled IP chargeability and resistivity sections over Sheep Hill, Genesis project, Alaska. Data from Walcott & Associates, 2008, modified by Avalon Development 2018.

In 2008 a second suite of thin sections were cut from samples different rock types than the Du-Lh samples that were sectioned previously. Thin sections were produced and interpreted by James Deininger a Fairbanks area petrological consultant. Primary minerals identified in thin section include chalcopyrite, bornite, pentlandite and pyrrhotite. Less common sulfide minerals include millerite, diginite, covellite, chalcocite, and marcasite. Millerite is associated with pyrrhotite and pentlandite, while diginite and covellite are associated with chalcopyrite and bornite. Many of these sulfide minerals have been observed on fractures in chromite grains, implying that sulfur saturation occurred after the chromite crystallization, as one would expect based on their respective solidus temperatures. Inverted pigeonite was observed in a rock from the OlW. Inverted pigeonite is a common constituent of plutonic rocks of tholeiitic affinities (ie. the Bushveld, Skaergaard, and Stillwater complexes). It forms in the early accumulative phase indicating temperatures were below the magmatic temperature of the ortho-clinopyroxene inversion curve. Consequently calcium poor pyroxene crystallized as the orthorhombic phase. During fractionation the magma becomes richer in iron compared to calcium and ferroaugite begins to crystallize as lamellae along the (001) crystallographic direction

Analysis of Geochemical Results: Bivariate analysis of outcrop sample geochemical results are displayed in Plate 3. The scatter plot matrix for all rock sample results defines several correlations of note (Plate 3). Pt and Pd share a 0.94 correlation. Above values of 2000 ppm Ni, there is a near 1:1 correlation with Cu indicative of the minerals present in Tonsina magmatic sulfide mineralization (strong Cu:Ni correlation) and the Ni present in barren olivine (no Cu:Ni correlation). The probability plot of Ni shows two populations of Ni values, which diverge at the 2500 ppm value, also indicating the influence of magmatic sulfide mineralization and Ni in olivine. The probability plot of S shows three populations, presumably background, magmatic sulfide, and secondary sulfide (pyrite). Not surprisingly, S and Cu have a 0.89 correlation and S and Ni have a linear relationship above 0.1% S and 2000 ppm Ni. Vanadium and aluminum have a 0.94 correlation, presumably due to the presence of both elements in spinel-group minerals, such as spinel, hercynite, picotite, and substituting into chromite and magnetite in spinel solid solutions. Another interesting correlation is that between Zn and Al – the plot shows that predominantly in websterite and pyroxenite samples and a few dunite outliers these two elements share a negative correlation, but in the majority of dunite and lherzolite samples they have a positive correlation. Zn and V share the same correlation pattern due to the high correlation between Al and V. Perhaps spinel minerals in clinopyroxene rich lithologies are Zn poor having very little franklinite and gahnite components. The Zn component in spinel minerals may indicate a specific magmatic process or condition that could be integrated into the exploration model. Additional data will be required to determine if this idea has merit.

## 10.0 DRILLING

During 1986 the USBM drilled 3 A-size (1.062 inches) core holes on Dust Mountain, totaling 79.7 feet (Avalon, 2000). The drilling was conducted on land currently owned by Ahtna, Inc. These drill holes were drilled to test near-surface chromite seams. Details relating to the type of drill rigs and methods used are not available to the author.

To the best of the author's knowledge, no drilling has been conducted on the claims now constituting the Genesis project.

## 11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

During the 2006-2008 Tonsina field programs 281 chip channel rock samples and 337 grab rock samples were collected and submitted for analysis. Sampling focused on rocks containing significant concentrations of chromite in either banded or disseminated form, and on rocks containing visible sulfides or copper carbonate staining. Chip channel sample lines were oriented orthogonal to any obvious layering, and situated over an outcrop containing visible banded or disseminated chromite mineralization, or sulfide and Cu oxide mineralization. Portions of some lines were poorly exposed and required sampling of rubble crop; portions of some lines were not sampled due to lack of outcrop or rubble. Chip channel sample intervals varied between 0.5-2 linear meters of material. Grab samples were collected with an emphasis on oxide and sulfide mineralization and unless noted samplers collected a representation of mineralization and host rock. These samples of geologic material were placed into cotton sample bags labeled with a unique identification number. Groups of sample bags were placed into woven polypropylene bags for transit to Avalon's facility and then to assay laboratory. A small portion of sample material from most sites was retained in a separate bag for reference and further petrographic and analytic studies.

Sample descriptions were recorded at the sample sites in a standard field notebook, and location data was gathered using Garmin GPS handheld units. Field notes were scanned and GPS location data were downloaded at base camp on a regular basis then plotted in camp using MapInfo GIS software to determine precise map locations and facilitate field mapping. Location data and summarized sample descriptions were incorporated into a master GIS database at the Avalon office in Fairbanks, Alaska.

All sample preparation for the Genesis project in 2006 was conducted by Alaska Assay Laboratories in Fairbanks, Alaska. All sample preparation for the Genesis project in 2007-2008 was conducted by ALS Minerals in Fairbanks. All 2006-2008 geochemical analyses were conducted by ALS Minerals in Vancouver, British Columbia.

During 2006-2008, the entirety of each rock sample was crushed to 70% passing 2 millimeter (10 mesh) and a 250 gram split was taken and pulverized to +85% passing 75 microns (200 mesh). All samples were analyzed for Pt, Pd and Au using 30 gram lead collection fire assay techniques with an inductively coupled plasma (ICP) finish. In addition, each sample was analyzed for a suite of 27 trace elements using a four acid digestion procedure followed by ICP techniques with an atomic emission spectrographic finish. Fire assay and ICP processes were adjusted by ALS Chemex to account for the high concentrations of iron, magnesium, and chromium associated with ultramafic rocks. All rejects and assay pulps are retained at Avalon in Fairbanks. All samples collected in the field and destined for ALS Chemex facilities were delivered by Avalon personnel via truck transport from the Genesis project to Avalon's office in Fairbanks, where chain of custody was transferred to Alaska Assay Labs' courier. While at Avalon, the sample bags and shipping bags were inspected for integrity and found to be in good condition. All completed and certified 2006-2008 geochemical data was posted on a secure server to allow data to be downloaded from the ALS Chemex website.

A subset of 22 sample pulps from the 2007 field programs were submitted for NiS collection fire assay with a neutron activation finish to investigate the distribution of PGE in Pt and Pd rich outcrop samples. This assay method provides analytical results for Os, Ir, Ru, Rh, Pt, Pd, and Au.

Rock blanks composed of unmineralized Browns Hill Quarry, a Quaternary basalt from the Fairbanks Mining District, Alaska, were inserted as the first sample in each assay submittal. In 2006 blanks were inserted in the sample stream on a 1 per 25 basis; in 2007 and 2008 blanks were inserted in the sample stream on a 1 in 50 basis. This type of blank sample material has been analyzed and used extensively by Avalon for many projects in the past and found to be very consistent chemically and abrasive enough to clean crushers. Analyses of the 2006 blanks indicate no unusual or spurious sample results with the exception of one blank sample that returned 23 ppb Pt, 36 ppb Pd and 2,010 ppm Cr. This blank sample was prepared immediately after a highly mineralized sample which returned 1.2 gpt Pt, 1.415 gpt Pd and >10,000 ppm Cr (sample 311173). This discrepancy is clearly a result of contamination of the blank sample from sample 311173 due to improper cleaning of the crusher and/or pulverizer. Analysis of the reported assay and ICP results from the 2007 and 2008 blanks indicate no unusual or spurious results.

In 2006 a total of 15 standards, of four types, were inserted on a 1 per 15 basis into the sample stream to complement the sample blanks. These standards include a 2,500 ppb PGE standard, a 500 ppb PGE standard, a Cu-Ni-PGE standard and a 430 ppb gold standard. The platinum standards were prepared by Avalon, with the assistance of the University of Alaska's Mineral Industry Research Laboratory (MIRL). The platinum standards were obtained from core samples from Pacific Northwest Capital's Union Bay PGE property, southeast Alaska, which has been characterized through extensive geochemical testing. The copper and gold standards were purchased from a commercial laboratory. Scrutiny by Avalon personnel of the geochemical results for the standards inserted in the 2006 Tonsina sample stream indicates no unusual or spurious results with the exception of one Pt standard which returned gold value of 199 ppb compared to the expected gold value of <10 ppb. The cause of this discrepancy is unknown but could simply be a spurious reading, or could have been caused by contamination of the sample from an improperly cleaned crusher or pulverizer in the sample preparation laboratory.

In 2007 a total of 12 standards were inserted into the sample stream to complement the sample blanks and ensure that there was 10% or greater QA/QC material in each assay submittal. Three types of standards were used; a 2500 ppb PGE (oxide hosted) standard and 500 ppb PGE (oxide hosted) standard created by Avalon from material collected from the Union Bay PGE property, and a commercially available Cu-Ni-PGE (sulfide hosted) standard. Scrutiny by Avalon personnel of the geochemical results for the standards inserted in the 2007 Tonsina sample stream indicates no unusual or spurious results outside of intrinsic errors associated with the analytical techniques used and the nature of the material analyzed.

In 2008 a total of 12 standards were inserted into the sample stream to complement the sample blanks and ensure that there was 10% or greater QA/QC material in each assay submittal. Two types of standards were used; a 2500 ppb PGE (oxide hosted) standard and 500 ppb PGE (oxide hosted) standard created by Avalon from material collected from the Union Bay PGE property. Scrutiny by Avalon personnel of the geochemical results for the standards inserted in the 2008



Tonsina sample stream indicates no unusual or spurious results outside of intrinsic errors associated with the analytical techniques used and the nature of the material analyzed.

Comparison of NiS collection results with the lead collection fire assay results reveals the two assay methods produce similar results for Pt, Pd, and Au. One exception is in sample 487087 the reported NiS collection assay results are an order of magnitude lower for Pt and Pd and 50 % lower for Au. Results for this sample should be considered suspect since there is no way to tell which method reported the more accurate and precise values.

## 12.0 DATA VERIFICATION

The author did not attempt to determine the veracity of geochemical data reported by other parties, nor did the author attempt to conduct duplicate sampling for comparison with the geochemical results provided by other parties. In the author's opinion, the data on which the author relied for this report was acquired using adequate quality control and documentation procedures that generally meet industry best management practices for an exploration-stage project.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Mineral processing was conducted on chromite rich geologic materials from Bernard Mountain and Sheep Hill by the U.S Bureau of Mines and is documented in Foley and others, 1985, Dahlin and others, 1985, and Foley and others, 1987.

No other mineral processing or metallurgical testing has been conducted on mineralization from the Genesis project.

## 14.0 MINERAL RESOURCE ESTIMATES

To the best of the author's knowledge, there currently are no mineral resources on the Genesis project that comply with the CIM Standards on Mineral Resources and Reserves Definitions and Guidelines adopted by CIM Council.

## 15.0 MINERAL RESERVE ESTIMATES

To the best of the author's knowledge, there currently are no mineral reserves on the Genesis project that comply with the CIM Standards on Mineral Resources and Reserves Definitions and Guidelines adopted by CIM Council.

## 16.0 MINING METHODS

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 17.0 RECOVERY METHODS

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 18.0 PROJECT INFRASTRUCTURE

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 19.0 MARKET STUDIES AND CONTRACTS

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 21.0 CAPITAL AND OPERATING COSTS

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 22.0 ECONOMIC ANALYSIS

This category of Canadian National Instrument Form 43-101 is not applicable because the Genesis project is not presently a development or production property.

## 23.0 ADJACENT PROPERTIES

Alaska Regional Native corporation Ahtna Incorporated owns fee simple lands that adjoin the eastern boundary of the Genesis project. To the best of the author's knowledge, there are no State of Alaska or Federal mining claims that adjoin the Genesis project.

## 24.0 OTHER RELEVANT DATA AND INFORMATION

To the best of the author's knowledge there is no other relevant data or information related to the Genesis project.

## 25.0 INTERPRETATIONS AND CONCLUSIONS

The Genesis project is a Ni-Cu-PGE property located in the northeastern Chugach Mountains, 75 road miles north of the city of Valdez, Alaska. The project is within 3 km of the all-season paved Richardson Highway and a high capacity electric power line. The project is covered by 4,144 hectares of State of Alaska mining claims owned 100% by New Age Metals. Past exploration has revealed the presence of chromite-associated platinum and palladium mineralization and stratabound Ni-Cu-PGE mineralization within steeply dipping magmatic layers of the Sheep Hill portion of the Tonsina Ultramafic Complex. Pyrrhotite, pentlandite, and chalcopyrite occur in disseminations and net textured segregations associated with disseminated to banded chromite within a 150 meter thick steeply north dipping layer of dunite and ilherzolite just north of the Border Ranges Fault zone. The mineralized horizon has been identified in outcrop sampling for 850 m along strike and a 40 m true thickness.

PGE values at Genesis are strongly correlated with the chromite rich portions of the mineralized horizon, while Ni and Cu are strongly correlated with sulfide rich portions of the mineralized horizon. Metal grades are regular over multiple meter intervals, including 6 meters grading 804 ppb platinum and 1,018 ppb palladium, and 12 meters grading 5,938 ppm nickel. There has been no drilling on this district-scale project and the strike and depth extent of Ni-Cu-PGE mineralization remains untested. Additionally, two areas of banded chromite hosted in dunite and harzburgite on the Bernard Mountain portion of the Tonsina Ultramafic Complex host multiple ppm PGE and a sample of chromite hosted in the olivine websterite unit contains the high values for both Pt and Pd for a combined 5,340 ppb PGE. Outcrop sampling has returned values of 16-9,660 ppm Ni, 0.5-5,800 ppm Cu, 0-2,800 ppb Pt, 0-2,540 ppb Pd. Limited geochemical sampling and geologic mapping has been conducted over these two mafic-ultramafic massifs.

The identification of two different styles of PGE mineralization at Sheep Hill suggests that multiple mineralizing events have occurred. The parental magma for the Tonsina Ultramafic Complex contained highly anomalous concentrations of PGE and Ni. More exploration is required to define if a reef event has formed the stratabound magmatic sulfide mineralization and if the geochemical patterns caused by reef formation hosts economically significant Ni-Cu-PGE mineralization in the Tonsina Ultramafic Complex.

The different Cr/Fe ratios for chromite ores studied by the USBM during the 1980's (Foley et al, 1985, Foley and others, 1987) fits with observations from layered intrusions with multiple chromite horizons (Maier and Barnes, 2005) where the Cr/Fe ratio decreases in successive chromite layer formation. The decrease in Cr/Fe ratios between Bernard Mountain, thought to be a basal sequence, and Sheep Hill, interpreted to be a stratigraphically higher portion of the intrusive complex (Foley and others, 1987), could indicate that multiple chromite formation events have

occurred in the ultramafic magma chamber, and that other PGE-enriched horizons remain undiscovered. PGE profiles of Genesis project outcrop samples show a Ru trough, which is postulated to have formed during partial melting of the mantle in a subduction environment, and are more similar to PGE profiles from Ni-Cu-PGE ores from layered intrusions such as Stillwater, the Great Dyke, and Penikat, than PGE profiles from ophiolite associated ores.

Based on the data currently available, the Genesis project represents a prospective Ni-Cu-PGE exploration target on which additional work is warranted. .

## 26.0 RECOMMENDATIONS

The following recommendations for future work on the Genesis project are warranted:

Year 1: Initial efforts at Genesis should focus on detailed geologic mapping (1:1,000 or better), grid-based lithogeochemical sampling, 2D and 3D reinterpretation of previously completed airborne and ground geophysical surveys, and acquisition, interpretation and ground-truthing of hyperspectral imagery over the Tonsina Ultramafic complex and vicinity. This effort will require some pre-season desk-top work (geophysical reinterpretation and hyperspectral analysis) followed by field work centered on 6 to 8 person tent camps that are emplaced by helicopter but which do not have daily helicopter support. The focus of field efforts will be detailed geologic mapping and lithogeochemical sampling designed to locate and define both bedded and chromite-related Cu-Ni-PGE mineralization to a degree sufficient to target drilling in year 2. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$500,000 (Table 26.1).

Table 26.1: Year 1 estimated budget for the Genesis project, Alaska. All costs in U.S. dollars.

Item	Amount	Percentage
Labor	205,000	41.5%
Field Support	125,000	25.3%
Geochemistry	37,000	7.5%
Geophysics	55,000	11.1%
Drilling	0	0.0%
Contract Rentals	16,000	3.2%
Communications	3,500	0.7%
Permitting-Enviro	0	0.0%
Subtotal	441,500	89.3%
Management G&A	52,980	10.7%
TOTAL:	494,480	

Year 2: exploration recommended for year 2 will be focused on initial scout drilling of one or more targets as refined by year one efforts. Approximately 2,500m of drilling is included in this program. Hole coordinates, inclinations and azimuths will be refined using results from year 1 field efforts. Drilling will be helicopter supported using an LF70 or CS1000 or equivalent drilling rig supplied with water derived from local streams or ponds. Drill support will be from a contract tent camp capable of supporting 10-12 persons. All drill core will be logged, photographed, and sawed

with one-half of the core remaining in archive, the other half being shipped for geochemical analysis. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$1,000,000 (Table 26.2).

Table 26.2: Year 2 estimated budget for the Genesis project, Alaska. All costs in U.S. dollars.

Item	Amount	Percentage
Labor	205,000	19.5%
Field Support	185,000	17.6%
Geochemistry	75,000	7.1%
Geophysics	0	0.0%
Drilling	450,000	42.8%
Contract Rentals	17,500	1.7%
Communications	4,500	0.4%
Permitting-Enviro	2,500	0.2%
Subtotal	939,500	89.3%
Management G&A	112,740	10.7%
TOTAL:	1,052,240	

Year 3: exploration recommended for year 3 will be focused on definition drilling of the most promising target drilled in year 2. The goal of year 3 efforts will be to advance at least one target to the inferred resource stage. Approximately 5,000m of drilling is included in this program. Hole coordinates, inclinations and azimuths will be refined using results from year 2 drilling efforts. Drilling will be helicopter supported using an LF70 or CS1000 or equivalent drilling rig supplied with water derived from local streams or ponds. Drill support will be from a contract tent camp capable of supporting 10-12 persons. All drill core will be logged, photographed, and sawed with one-half of the core remaining in archive, the other half being shipped for geochemical analysis. All analytical work will include Pt+Pd+Au by fire assay and multi-element IPC-AES analysis with 4-acid digestion. Total estimated cost of this program is approximately \$1,500,000 (Table 26.3).

Table 26.3: Year 3 estimated budget for the Genesis project, Alaska. All costs in U.S. dollars.

Item	Amount	Percentage
Labor	275,000	18.4%
Field Support	260,000	17.4%
Geochemistry	95,000	6.3%
Geophysics	0	0.0%
Drilling	650,000	43.4%
Contract Rentals	45,000	3.0%
Communications	7,500	0.5%
Permitting-Enviro	5,000	0.3%
Subtotal	1,337,500	127.1%
Management G&A	160,500	15.3%
TOTAL:	1,498,000	



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## 28.0 CERTIFICATE OF QUALIFICATION

CURTIS J. FREEMAN

Avalon Development Corporation

P.O. Box 80268, Fairbanks, Alaska 99708

Phone 907-457-5159, Fax 907-455-8069, Email Avalon@alaska.net

I, CURTIS J. FREEMAN, Certified Professional Geologist #6901, HEREBY CERTIFY THAT:

I am currently employed as President of Avalon Development Corporation, P.O. Box 80268, Fairbanks, Alaska, 99708, USA.

2. I am a graduate of the College of Wooster, Ohio, with a B.A. degree in Geology (1978). I am also a graduate of the University of Alaska with an M.S. degree in Economic Geology (1980).

3. I am a Licensed Geologist in the State of Alaska (AA#159) and I am a member of the American Institute of Professional Geologists (CPG#6901), the Geological Society of Nevada, the Alaska Miners Assoc., the Association for Mineral Exploration of British Columbia, the Prospectors and Developers Assoc. of Canada and am a Fellow of the Society of Economic Geologists.

4. From 1980 to the present I have been actively employed in various capacities in the mining industry in numerous locations in North America, Central America, South America, New Zealand and Africa.

5. I have read the definition of “Qualified Person” set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional organization (as defined by NI43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI43-101.

6. I am responsible for preparations of all sections of the report entitled “Technical Report for the Genesis Ni-Cu-PGE project, Nelchina Mining District, Alaska”, and dated July 30, 2018 (the “Technical Report”) relating to the Tetlin project.

7. The author has worked on and visited the subject property on numerous occasions in 2000, 2008 through 2012 and 2018. My most recent personal visit to the subject property, consisting of one field day, was June 12, 2018.

8. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in the Technical Report, the omission to disclose which would make the Technical Report misleading. As of the effective date of this Technical Report, to the best of the qualified person’s knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

9. I am not independent of the issuer applying all of the tests in section 1.5 of NI43-101. Anglo Alaska Gold Corporation, an Alaska domiciled private company in which I own 100% of the outstanding shares, owns 200,000 restricted shares of New Age Metals. Should the contract between Anglo Alaska and New age Metals continue, Anglo Alaska will be issued 200,000 additional shares of New Age Metals on the first, second and third anniversaries of agreement. Anglo Alaska also owns a 3% net smelter return production royalty on the project on which New Age Metals owns the first right to acquire half of that royalty for \$1,500,000.

10. I have read NI43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and the publication by them, including publication of the Technical Report in the public company files on their websites accessible to the public.

DATED in Fairbanks, Alaska this 30th day of July, 2018.



Curtis J. Freeman, BA, MS, CPG#6901, AA#159





## APPENDIX 1

### Claim Information for the Genesis project

The “TON” mining claims having names of TON1 through TON64 (ADL Nos. 623587 – 623650) comprise a contiguous group of 64 State of Alaska ¼ section claims 10,240 acres (4,144 hectares). The claims are located in Township 3 South, Ranges 1 and 2 East, Copper River Meridian, Valdez (C-3 and C-4 Quadrangle, Alaska, in the Valdez and Chitina recording districts).

#	Name	Acres	Meridian	Twtnshp	Rng	Sec	QtrSec	Recording District	ADL
1	TON 1	160	Copper River	3S	2E	13	SW	Chitina	623587
2	TON 2	160	Copper River	3S	2E	13	SE	Chitina	623588
3	TON 3	160	Copper River	3S	2E	22	NE	Chitina	623589
4	TON 4	160	Copper River	3S	2E	23	NW	Chitina	623590
5	TON 5	160	Copper River	3S	2E	23	NE	Chitina	623591
6	TON 6	160	Copper River	3S	2E	24	NW	Chitina	623592
7	TON 7	160	Copper River	3S	2E	24	NE	Chitina	623593
8	TON 8	160	Copper River	3S	1E	24	SW	Valdez	623594
9	TON 9	160	Copper River	3S	1E	24	SE	Valdez	623595
10	TON 10	160	Copper River	3S	2E	19	SW	Valdez	623596
11	TON 11	160	Copper River	3S	2E	19	SE	Valdez	623597
12	TON 12	160	Copper River	3S	2E	20	SW	Chitina and Valdez	623598
13	TON 13	160	Copper River	3S	2E	20	SE	Chitina and Valdez	623599
14	TON 14	160	Copper River	3S	2E	21	SW	Chitina	623600
15	TON 15	160	Copper River	3S	2E	21	SE	Chitina	623601
16	TON 16	160	Copper River	3S	2E	22	SW	Chitina	623602
17	TON 17	160	Copper River	3S	2E	22	SE	Chitina	623603
18	TON 18	160	Copper River	3S	2E	23	SW	Chitina	623604
19	TON 19	160	Copper River	3S	2E	23	SE	Chitina	623605
20	TON 20	160	Copper River	3S	2E	24	SW	Chitina	623606
21	TON 21	160	Copper River	3S	2E	24	SE	Chitina	623607
22	TON 22	160	Copper River	3S	1E	26	NE	Valdez	623608
23	TON 23	160	Copper River	3S	1E	25	NW	Valdez	623609
24	TON 24	160	Copper River	3S	1E	25	NE	Valdez	623610
25	TON 25	160	Copper River	3S	2E	30	NW	Valdez	623611
26	TON 26	160	Copper River	3S	2E	30	NE	Valdez	623612
27	TON 27	160	Copper River	3S	2E	29	NW	Valdez	623613
28	TON 28	160	Copper River	3S	2E	29	NE	Chitina and Valdez	623614
29	TON 29	160	Copper River	3S	2E	28	NW	Chitina	623615
30	TON 30	160	Copper River	3S	2E	28	NE	Chitina	623616
31	TON 31	160	Copper River	3S	2E	27	NW	Chitina	623617

#	Name	Acres	Meridian	Twtnshp	Rng	Sec	QtrSec	Recording District	ADL
32	TON 32	160	Copper River	3S	2E	27	NE	Chitina	623618
33	TON 33	160	Copper River	3S	2E	26	NW	Chitina	623619
34	TON 34	160	Copper River	3S	2E	26	NE	Chitina	623620
35	TON 35	160	Copper River	3S	2E	25	NW	Chitina	623621
36	TON 36	160	Copper River	3S	2E	25	NE	Chitina	623622
37	TON 37	160	Copper River	3S	1E	26	SE	Valdez	623623
38	TON 38	160	Copper River	3S	1E	25	SW	Valdez	623624
39	TON 39	160	Copper River	3S	1E	25	SE	Valdez	623625
40	TON 40	160	Copper River	3S	2E	30	SW	Valdez	623626
41	TON 41	160	Copper River	3S	2E	30	SE	Valdez	623627
42	TON 42	160	Copper River	3S	2E	29	SW	Valdez	623628
43	TON 43	160	Copper River	3S	2E	29	SE	Chitina and Valdez	623629
44	TON 44	160	Copper River	3S	2E	28	SW	Chitina	623630
45	TON 45	160	Copper River	3S	2E	28	SE	Chitina	623631
46	TON 46	160	Copper River	3S	2E	27	SW	Chitina	623632
47	TON 47	160	Copper River	3S	2E	27	SE	Chitina	623633
48	TON 48	160	Copper River	3S	2E	26	SW	Chitina	623634
49	TON 49	160	Copper River	3S	2E	26	SE	Chitina	623635
50	TON 50	160	Copper River	3S	2E	25	SW	Chitina	623636
51	TON 51	160	Copper River	3S	2E	25	SE	Chitina	623637
52	TON 52	160	Copper River	3S	1E	35	NE	Valdez	623638
53	TON 53	160	Copper River	3S	1E	36	NW	Valdez	623639
54	TON 54	160	Copper River	3S	1E	36	NE	Valdez	623640
55	TON 55	160	Copper River	3S	2E	31	NW	Valdez	623641
56	TON 56	160	Copper River	3S	2E	31	NE	Valdez	623642
57	TON 57	160	Copper River	3S	2E	32	NW	Valdez	623643
58	TON 58	160	Copper River	3S	2E	32	NE	Chitina and Valdez	623644
59	TON 59	160	Copper River	3S	2E	33	NW	Chitina and Valdez	623645
60	TON 60	160	Copper River	3S	2E	33	NE	Chitina	623646
61	TON 61	160	Copper River	3S	2E	34	NW	Chitina	623647
62	TON 62	160	Copper River	3S	2E	34	NE	Chitina	623648
63	TON 63	160	Copper River	3S	2E	31	SW	Valdez	623649
64	TON 64	160	Copper River	3S	2E	31	SE	Valdez	623650