

BC Geological Survey  
Assessment Report  
32884

**GEOLOGICAL & GEOCHEMICAL REPORT  
ON THE  
KETCHAN PROPERTY  
ASPEN GROVE AREA, BRITISH COLUMBIA**

PREPARED FOR  
**MOAG COPPER - GOLD RESOURCES INC.**

Latitude 49°44' – 49°55' N; Longitude 120°30' – 120°39' W

By

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November 7, 2011

**ASSESSMENT REPORT**

32884

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**GEOLOGICAL & GEOCHEMICAL REPORT  
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FOR MOAG COPPER GOLD RESOURCES INC.**

**INTRODUCTION**

The present report was prepared at the request of Moag Copper-Gold Resources Inc., the owner of the Ketchan Property (“the Property”). It was prepared to satisfy the assessment work requirements on the Property.

The published sources of information consulted for this report are listed under “References”. Details of the drilling programs carried out during 2005-2007 were derived from assessment reports by Thomson (2006, 2007). Most of the data on the geology of the Ketchan Property and its surroundings was derived from field mapping and photo-geological interpretation by the author. The MMI geochemical sampling was done under my supervision.

I have carried out more than 60 days of geological field work within the area covered by the Property during the past 10 years.

**PROPERTY DESCRIPTION**

The Ketchan Property is comprised of 30 unpatented mineral tenures in one block covering an area of 13,980 hectares (139.8 square kilometres, or about 54 square miles). It is located in the Southern Interior of British Columbia, mid-way between the towns of Merritt and Princeton. The approximate centre of the claim group is located at Latitude 49°49', Longitude 120°34'.

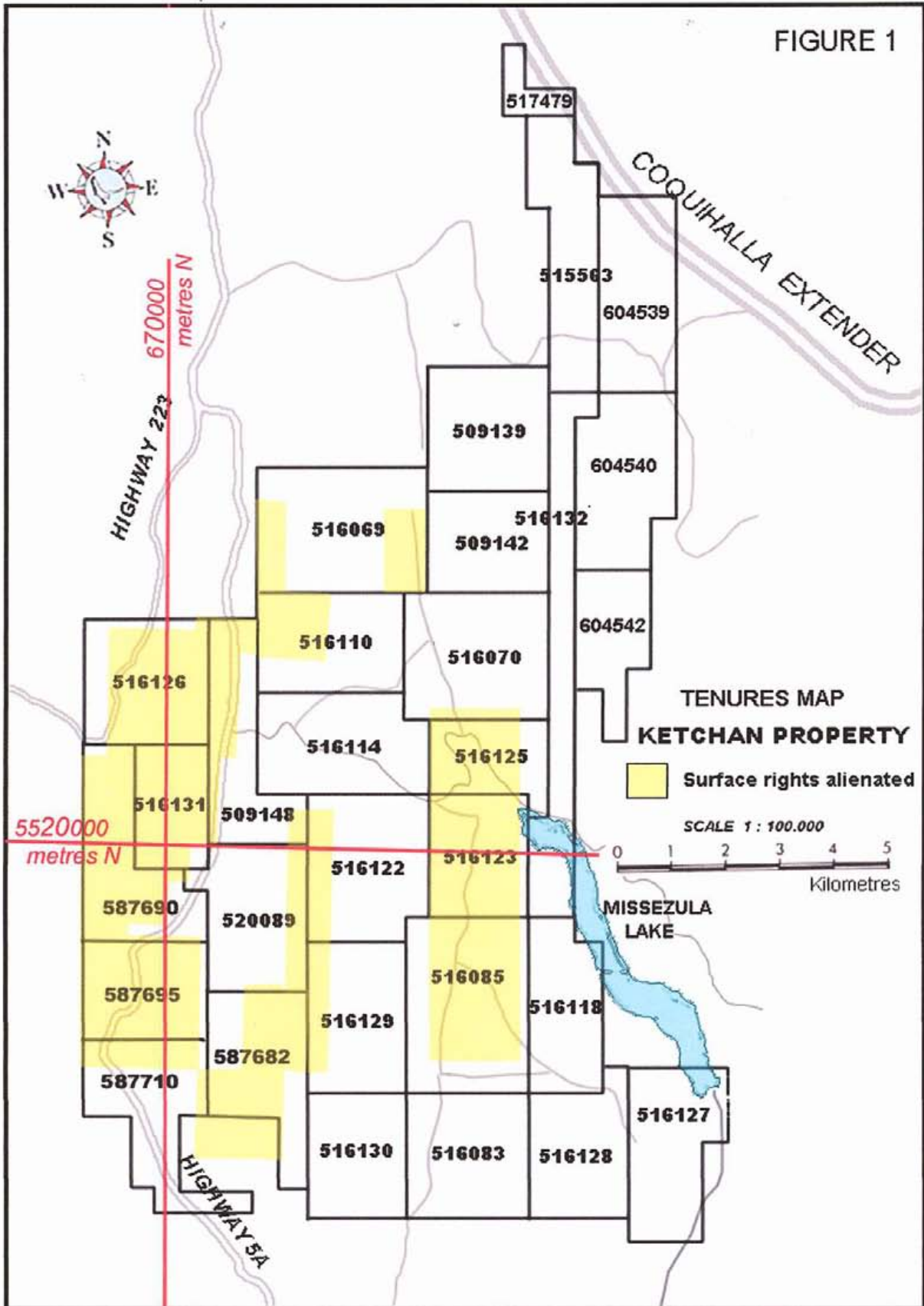


**TABLE 1**

| <b>Tenure Number</b> | <b>Owner</b>                           | <b>Map Number</b> | <b>Issue Date</b>  | <b>Area (ha)</b> |
|----------------------|--|-------------------|--------------------|------------------|
| 509139               |  | 092H              | 2005/mar/17        | 520.534          |
| 509142               |  | 092H              | 2005/mar/17        | 416.588          |
| 509148               |  | 092H              | 2005/mar/17        | 458.576          |
| 515563               | <b>Moag Copper Gold Resources Inc.</b> | 092H              | 2005/jun/29        | 499.391          |
| 516069               |  | 092H              | 2005/jul/05        | 729.005          |
| 516070               |  | 092H              | 2005/jul/05        | 625.125          |
| 516083 *             |  | 092H              | 2005/jul/05        | 521.827          |
| 516085 *             |  | 092H              | 2005/jul/05        | 730.186          |
| 516110               |  | 092H              | 2005/jul/06        | 500.084          |
| 516114               |  | 092H              | 2005/jul/06        | 562.792          |
| 516118 *             |  | 092H              | 2005/jul/06        | 417.254          |
| 516122               |  | 092H              | 2005/jul/06        | 604.729          |
| 516123               |  | 092H              | 2005/jul/06        | 417.036          |
| 516125               |  | 092H              | 2005/jul/06        | 333.518          |
| 516126               |  | 092H              | 2005/jul/06        | 520.991          |
| 516127 *             |  | 092H              | 2005/jul/06        | 500.942          |
| 516128 *             |  | 092H              | 2005/jul/06        | 438.329          |
| 516129 *             |  | 092H              | 2005/jul/06        | 500.724          |
| 516130 *             |  | 092H              | 2005/jul/06        | 417.464          |
| 516131               | 092H                                   | 2005/jul/06       | 312.728            |                  |
| 516132               | 092H                                   | 2005/jul/06       | 520.968            |                  |
| 517479               |  | 092H              | 2005/jul/12        | 103.976          |
| 520089               |  | 092H              | 2005/sep/16        | 521.41           |
| 604539               |  | 092H              | 2009/may/15        | 499.4768         |
| 604540               |  | 092H              | 2009/may/15        | 520.6207         |
| 604542               |  | 092H              | 2009/may/15        | 333.3806         |
| <b>587682</b>        |  | 092H              | <b>2009/jul/08</b> | <b>479.94</b>    |
| <b>587690</b>        |  | 092H              | <b>2009/jul/08</b> | <b>500.47</b>    |
| <b>587695</b>        |  | 092H              | <b>2009/jul/08</b> | <b>417.24</b>    |
| <b>587710</b>        |  | 092H              | <b>2009/jul/08</b> | <b>521.77</b>    |

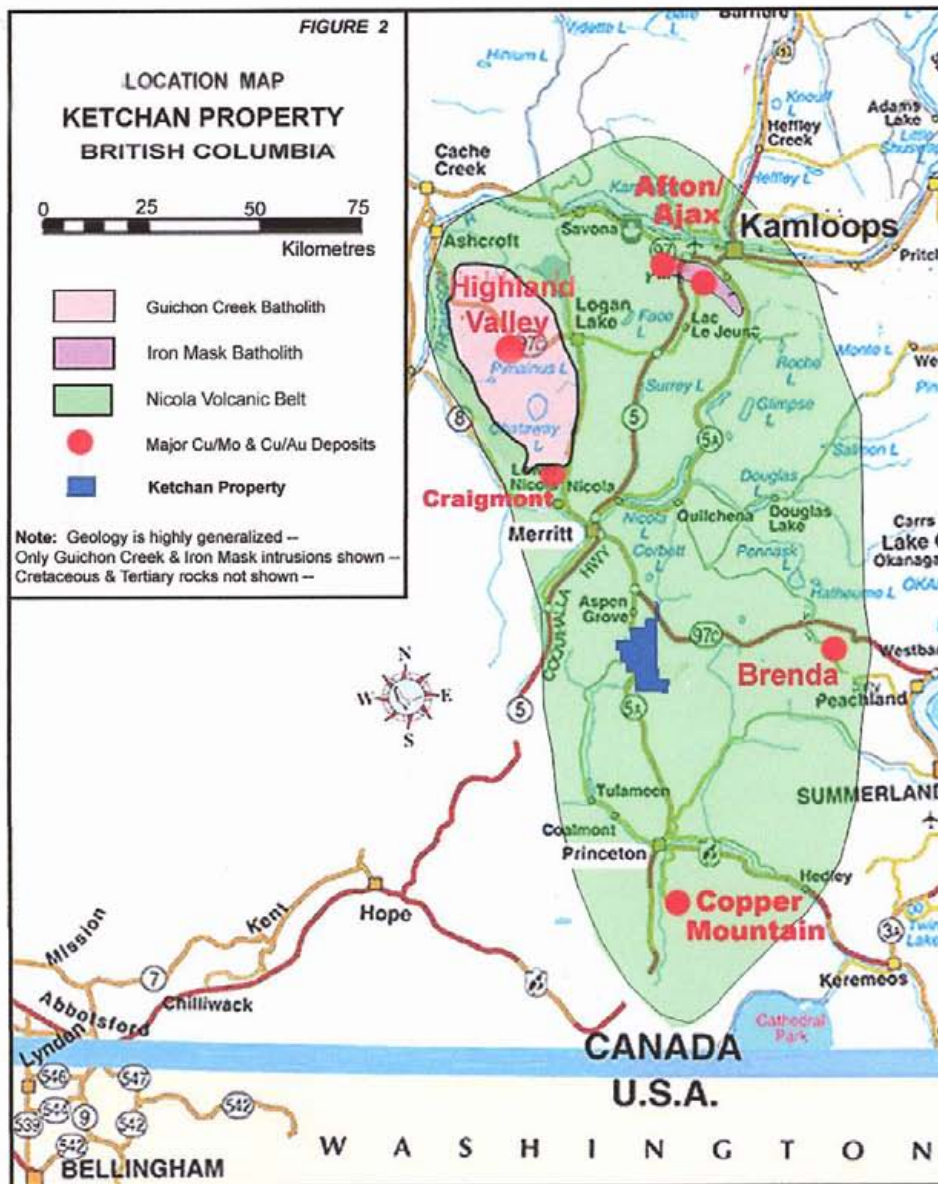
Surface rights are held by other parties (mainly by Douglas Lake Ranch and Quilchena Cattle Co.) on portions of the Property. The extent of these rights is indicated on Figure 1.

FIGURE 1



## LOCATION, ACCESS, & CHARACTER OF THE REGION

The Ketchan Property is located midway between the towns of Merritt and Princeton in south-central British Columbia, about 200 kilometres east of Vancouver. The western part of the Property, south of the hamlet of Aspen Grove, is traversed by Highway 5a and Highway 223. A north-eastern appendage of the Property intersects the Coquihalla Extender, a portion of a freeway that connects the Okanogan Valley with Vancouver, via Merritt. All parts of the Ketchan claims are accessible via a network of gravel and dirt roads.



The Ketchan tenures occupy a rolling upland, the southern extension of the Fairweather Hills, with a maximum elevation of 1500 metres. Local relief is moderate in most of the area. However, the south-eastern part of the Property, in the vicinity of the old Shamrock "mine," follows the steep-sided gorge occupied by Summers Creek below the southern end of Missezula Lake; here local relief exceeds 300 metres. Otter Creek, within the western part of the claims, follows a somewhat less precipitous depression between high, rolling hills.

A mixture of open forest and grassland characteristic of the semi-arid environment is found throughout the region. Ranching and logging are the main economic activities. Large areas of grassland devoted to grazing are found in the relatively flat terrain in the western part of the Property and around Ketchan Lake.

The climate is characterized by hot, dry summers and cold winters. This has not proven to be a hindrance to year-round operations at the large open-pit mines in the region.

## **HISTORY**

The area covered by the present claims has had a long and complex history of exploration. Recorded mineral production consists solely of a shipment of copper ore from the Shamrock mine in 1929.

### General

- 1929: A small shipment from the Shamrock "mine" averaged 5.78% copper (Minfile).
- 1963: Consolidated Woodgreen carried out trenching on the Shamrock prospect and completed 3 diamond drill holes (Minfile).
- 1979: Cominco Ltd. drilled 6 percussion holes in the central part of present claims, based on I.P., magnetic and geochemical surveys. Only two holes reached bedrock. One hole reportedly averaged 0.141% Cu over 32 metres. Further mapping and drilling were recommended (Mehner, 1979, Scott, 1979, Osatenko, 1979). There is no record of follow-up.
- 1985: Vanco Exploration carried out geochemical and geological mapping on central part of present claims. They also mapped and

sampled the Shamrock prospect (Lisle, 1985). There is no record of follow-up exploration.

- 1988: Laramide Resources carried out a geochemical survey for gold in the northern part of the present claims (Watson, 1988).
- 1990: Minequest Exploration carried out 56 kilometres of I.P. surveying on central part of present claims (Gourlay, 1990).
- 1991: Rayrock Yellowknife Mines drilled 9 percussion holes on the Minequest property. No significant Cu or Au values are reported, but a significant, but untested, copper prospect on Zig 3 Claim was noted (Gourlay, 1991).
- 2004-2005: Copper Hill Exploration Corp. and Copper Belt Resources carried out geological and photo- geological mapping of the entire claim block, along with magnetometer and VLF surveying of one Minequest 1990 IP anomaly area (Bergey, 2005).

#### Ketchan Lake Prospect

- 1962: Plateau Metals Ltd. staked the present Ketchan Lake prospect area. Later the same year, they carried out a magnetometer survey and completed 3 diamond drill holes (Minfile).
- 1966: Adera Mining Ltd. optioned the property and carried out geological and geophysical surveys, along with trenching and 512 metres of diamond drilling (Lammle, 1966; Schurr, 1966).
- 1973: Bethlehem Copper Corporation staked Log Group of mineral claims following a large-scale regional exploration program.
- 1974: Bethlehem Copper carried out geological mapping and geochemical sampling, followed by drilling of 10 percussion holes (Nethery, 1974).
- 1975: Bethlehem Copper completed 351 metres of diamond drilling in 4 holes (Anderson, 1975; Anderson, 1976). Assay results from this drilling were not published.
- 1979: Bethlehem Copper completed 410 metres in 2 diamond drill holes to test the results of an I.P. survey carried out earlier in the year (Anderson, 1979; Simpson, 1979,).
- 1991: Cominco Ltd. completed 15 percussion drill holes -- 1067 metres (Aulis, 1991).
- 1992: Cominco Ltd drilled 8 percussion holes -- 640 metres (Aulis, 1992).
- 2005: Copper Belt Resources drilled 10 diamond drill holes – 1210 metres (Thomson, 2006).

- 2006: Copper Belt Resources drilled 2 diamond drill holes – 485 metres (Thomson, 2007).
- 2007: Copper Belt Resources drilled 5 diamond drill holes – 931 metres (Thomson, 2007).

#### PAR Prospect

- 1962-1965: Tormont Mines Ltd, completed 2759 metres of diamond drilling in 18 holes, ostensibly to test a skarn Cu showing west of Otter Creek (Nekrosov, 1965).
- 1970: Andrew Robertson completed a vertical diamond drill hole to a depth of 123 metres at the site of the original showing.
- 1998-2004: W.R.Bergey carried out detailed mapping supplemented by magnetometer and VLF-EM surveys (Bergey, 2002; Bergey, 2004).

#### Coke Prospect

- 1962: The Coke prospect was discovered by Plateau Metals Ltd., along with the Rum prospect to the south.
- 1963-67: Geochemical & geophysical surveys, and several shallow diamond drill holes were completed by Plateau Metals and Adera Mining (Lammle, 1967).
- 1971: Amax Exploration carried out regional geological, geochemical and geophysical exploration, mainly south of the present Property. The geological map indicates a large mass of intrusive breccia west of the Rum and Coke prospects (Christofferson, 1971).
- 1981 Cominco carried out reconnaissance geochemical sampling (Mehner, 1981). Scattered strong copper anomalies were indicated.
- 1985 Peto (1985) collected soil and rock-chip geochemical samples along the Rum/Coke mineralized trend. His results indicated highly anomalous gold values associated with the mineralized zones. He also noted that “transported overburden” overlay the bedrock within the mineralized areas.
- 1987 Mingold Resources carried out a geochemical soil survey on the Coke prospect. Semi-continuous copper anomalies and scattered gold anomalies were indicated (Yarrow, 1987).

## GEOLOGICAL SETTING

### Preamble

Most of the discussion in this section is based on field mapping and photo-geological interpretation carried out intermittently by the author throughout the region between Kamloops Lake and Allison Lake over the past 10 years. Since my interpretation of the geology of the region differs to a very considerable extent from that revealed in published geological reports and maps, a discussion of the methods employed is in order.

Photogeology should not be confused with the identification and interpretation of linear topographic features. To be effective, photogeology must be based on reliable field geological data and it should be re-interpreted constantly as the mapping and other exploration work proceeds. Under favourable circumstances photo-geological interpretation can be made through continuous proximally transported till cover to provide geological information that is difficult or impossible to obtain from field mapping. At the same time, it can identify areas covered by distally transported surficial material that would preclude the effective use of conventional geochemical exploration methods. As it happens, the region surrounding the Property has well above average favourability for the application of photogeology, in large part because the nearly total cover of till presents a serious hindrance to field geology.

My approach in this project was to examine pairs of government air photos at nominal scales of 1:75,000 (black and white) and 1:15,000 (colour) at 2x and 4x magnifications. The regional geology discussed below is based on detailed field mapping and air-photo interpretation in the area surrounding the Ketchen Property, as well as on two similar field and air-photo studies: one that covered a large area extending west from the Iron Mask batholith near Kamloops (Bergey, 2008), and one that covered the western portion of the Guichon Creek batholith and its environs (Bergey, 2009). My field work between these three areas was erratically distributed, and only 1:75,000 photographs were available for interpretation.

The author has utilized air-photo interpretation on occasion as an important adjunct to other mineral exploration methods in a number of countries during the past 50 years.



## Regional Geology

The regional geology is illustrated in highly simplified form on Figure 2. The oldest rocks in the region (except for possible remnants of an older rock unit within the local uplift termed the "Nicola Horst") are volcanic and sedimentary rocks of the Nicola Group of Late Triassic age. These formed the southern portion of a small tectonic plate known as Quesnellia that became accreted to the North American continent late in the Jurassic. A number of batholiths of calc-alkaline granitic rock were intruded into the Nicola rocks at about the end of the Triassic. (Only the Guichon Creek batholith, host to the very large Cu/Mo deposits of the Highland Valley, is shown on Figure 1.) The calc-alkaline deposits appear to have been introduced during the late stages of the introduction of these batholiths.

Some time after the intrusion of the calc-alkaline rocks (according to my interpretation, which is discussed in detail later in the present report) a large number of smaller bodies of alkaline rock were intruded into the rocks of the Nicola Group. The largest, and the most important economically, of these is the Iron Mask batholith, which hosts the Afton and Ajax Cu/Au deposits.

My geological mapping and photo-geological studies in the region over the past 7 years strongly suggest that the alkaline intrusions cover a very much larger area than is generally assumed. These intrusive bodies include large volumes of intrusive breccia that previously were identified as part of the Nicola Group volcanic sequence. I have lumped a number of brecciated and unbrecciated intrusive assemblages into an Alkalic Intrusive Complex. This Complex appears to make up at least 50 % of the rocks that previously were included in the Nicola Group.

A number of sedimentary and volcanic rock formations were deposited intermittently from Late Jurassic up to Recent time. These stratified rocks cover large portions of the region. They are not illustrated on Figure 2.

Most of the Nicola Belt has been presented on geological maps at an extremely small scale (ca. 1:250,000), and little sub-division of stratigraphic units was possible. However, the area between Merritt and Merritt, which includes the Property, was mapped at the intermediate scale of 1:50,000 (Preto, 1979). Preto recognized three major divisions within the volcanic sequence -- Western, Central and Eastern facies -- separated by a pair of regional faults. He believed that they accompanied Nicola volcanism.

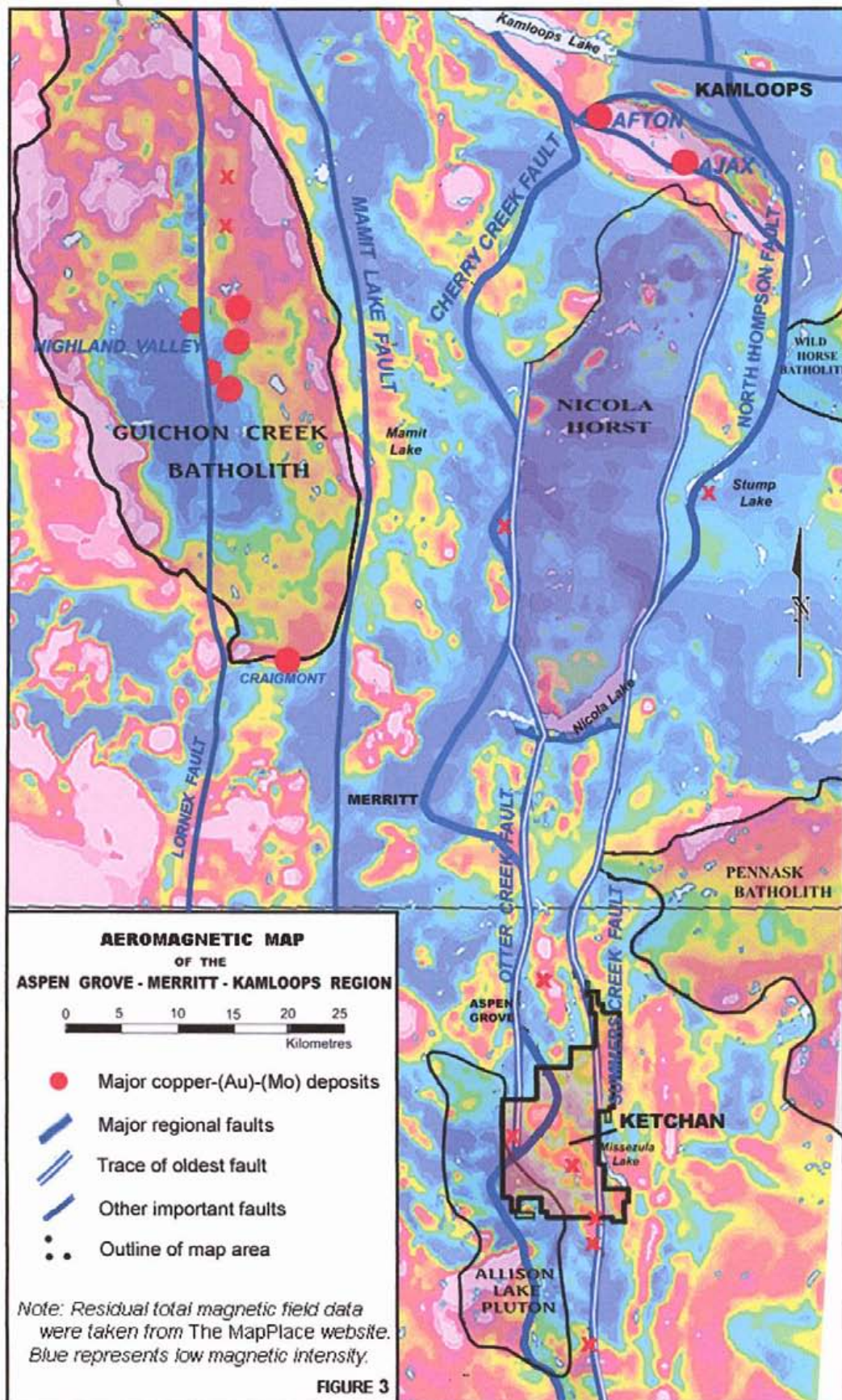


My recent work tends to confirm Preto's tripartite division of the Nicola volcanic rocks. I have extended the interpretation of the two faults identified by Preto (1979) from south of the Ketchikan Property to Kamloops Lake, a distance of 125 kilometres. The earliest movement took place late in the Triassic, and the upper portions of the deep-seated faults were obliterated by later intrusions and covered by younger stratified rocks. However, it is evident from the air-photo interpretation that major faulting continued to follow the deep-seated zones of weakness at least into the early Tertiary.

My interpretation is that the precursor structures followed a comparatively straight, north-south path. Where these faults were offset by cross-faults or by intrusion, younger north-south fault zones tended to follow the general structural trend initiated by the early deep-seated crustal fractures, as suggested by Preto (1979).

The Otter Creek structural zone (previously named the Allison fault) which follows a very straight north-south path (followed by Otter Creek) for about 15 kilometres within and north of the western part of the Property. The deep-seated fault is intruded along a portion of this path by porphyritic granitic intrusive rocks related to the Allison Lake pluton. South of the Property its linear course is interrupted close to the margin of the main mass of the pluton, where the Otter Creek also takes a sharp bend. A successor fault is indicated on the air photos to continue on a rather sinuous, but relentlessly southerly, course through the pluton. A similar situation is apparent in the northern extension of the Otter Creek structural zone southwest of Kamloops. The eastern structural zone, designated the Summers Creek fault by Preto (1979), is less well delineated since it has been intruded by younger rocks along much of its course. The interpreted trace of the original structure is defined along the eastern margin of the Nicola Horst but it has not been clearly distinguished from the later faults elsewhere.

The reason for this discourse on the regional faulting is the apparent economic significance of north-south faults in the region. The alkalic copper-gold deposits within the Nicola Belt appear to lie between or adjacent to the deep-seated faults (Figure 3). The Mt. Polley mine and the Copper Mountain deposits, north and south of Figure 3 respectively, also are interpreted to be located between these faults. The Iron Mask batholith is interpreted to be bounded by a pair of east-west faults that intersect the regional north-south structures and may be related to them.



## **Geology of the Aspen Grove Area**

A revised photo-geological interpretation was carried out over the area that surrounds the Ketchan Property in order to include the nearby Big Kidd and Axe advanced prospects, and also to cover the entire area where samples of volcanic rocks mapped as Nicola Group were selected by Preto (1979) for chemical and petrographic analyses. Air photographs at a scale of 1:75,000 were used for this purpose. The results are shown on Figure 3 at a scale of 1:150,000. [The geological units are described under "Property Geology."]

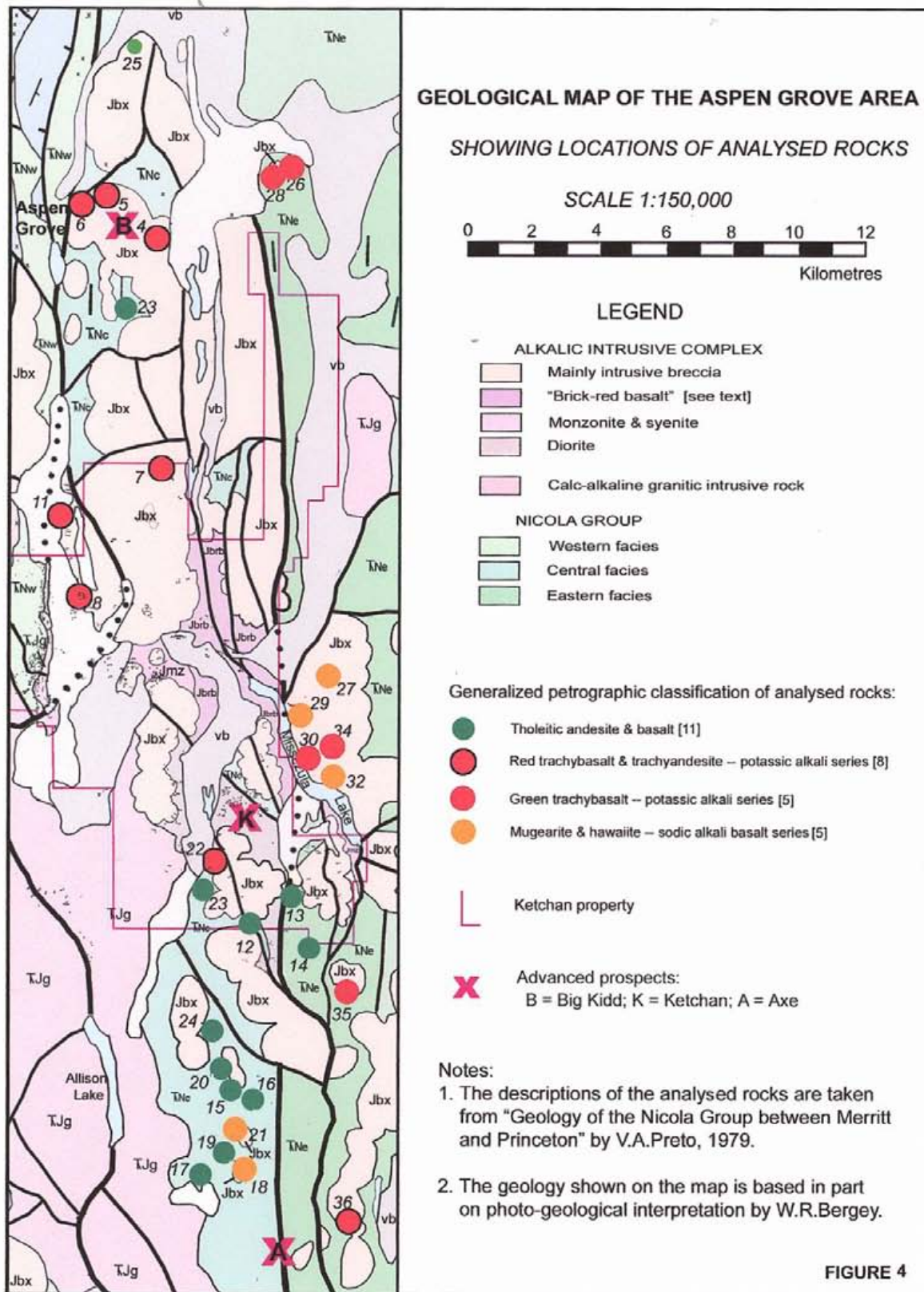
The Big Kidd Prospect appears to be centered on the Big Kidd breccia pipe. The mineralization extends into diorite and intrusive breccia of the Alkalic Intrusive Complex, and also is found within rocks of the Nicola Group. It appears to be confined to the area between the regional faults.

The Axe Prospect includes a cluster of mineralized zones that mainly are located south of the major concentration of rocks of the Alkalic Intrusive Complex in the area. Its origin is enigmatic since some of the mineralization apparently occurs in small bodies of both alkaline and calc-alkaline intrusive rocks, and since both Cu/Au and Cu/Mo are present locally. Two of the main zones were emplaced along a zone of intense deformation in volcanic rocks that I believe represents the original deep-seated fault zone that separates the Central and Eastern belts of the Nicola Group.

Preto (1979) collected 40 samples of rocks that he regarded as volcanic rocks of the Nicola Group. I was able to locate 29 of them, and these I plotted on my photo-geological interpretation. The results are shown on Figure 4.

The samples fell into three general categories -- tholeiitic basalt (11), trachybasalt, potassic alkali series (13), mugearite & hawaiite, sodic alkali series (5). All of the tholeites came from areas that I interpreted as underlain by volcanic rocks. All of the alkalic samples came from areas that I interpreted as intrusive breccia.





Clearly we are dealing with two groups of rocks that are very dissimilar, both chemically and petrographically. It cannot be a coincidence that these two rocks also appear to be very different in the field and on the air photos. The tholeiites tend to be recessive, and they typically show some evidence of stratification. The alkalic rocks tend to form bold outcrop areas, and they typically are massive.

I located several of the sample sites in the field. Each of these outcrops was composed of intrusive breccia. The samples appear to have been selected from portions of the outcrops where a rock type that I refer to as "brick-red basalt" (BRB) formed the matrix of the breccia. [This unit is discussed in detail in the next section, since it lies at the heart of the controversy.] There is a large area of unbrecciated BRB north of Misssezula Lake on the Ketchan Property, but the rock tends to be poorly exposed. The intrusive breccia is well exposed in most of the Aspen Grove area, and the BRB occasionally forms an abundant matrix. Since it is the only rock type in the intrusive breccia that resembles a volcanic, it is the one that was sampled.

## **Property Geology**

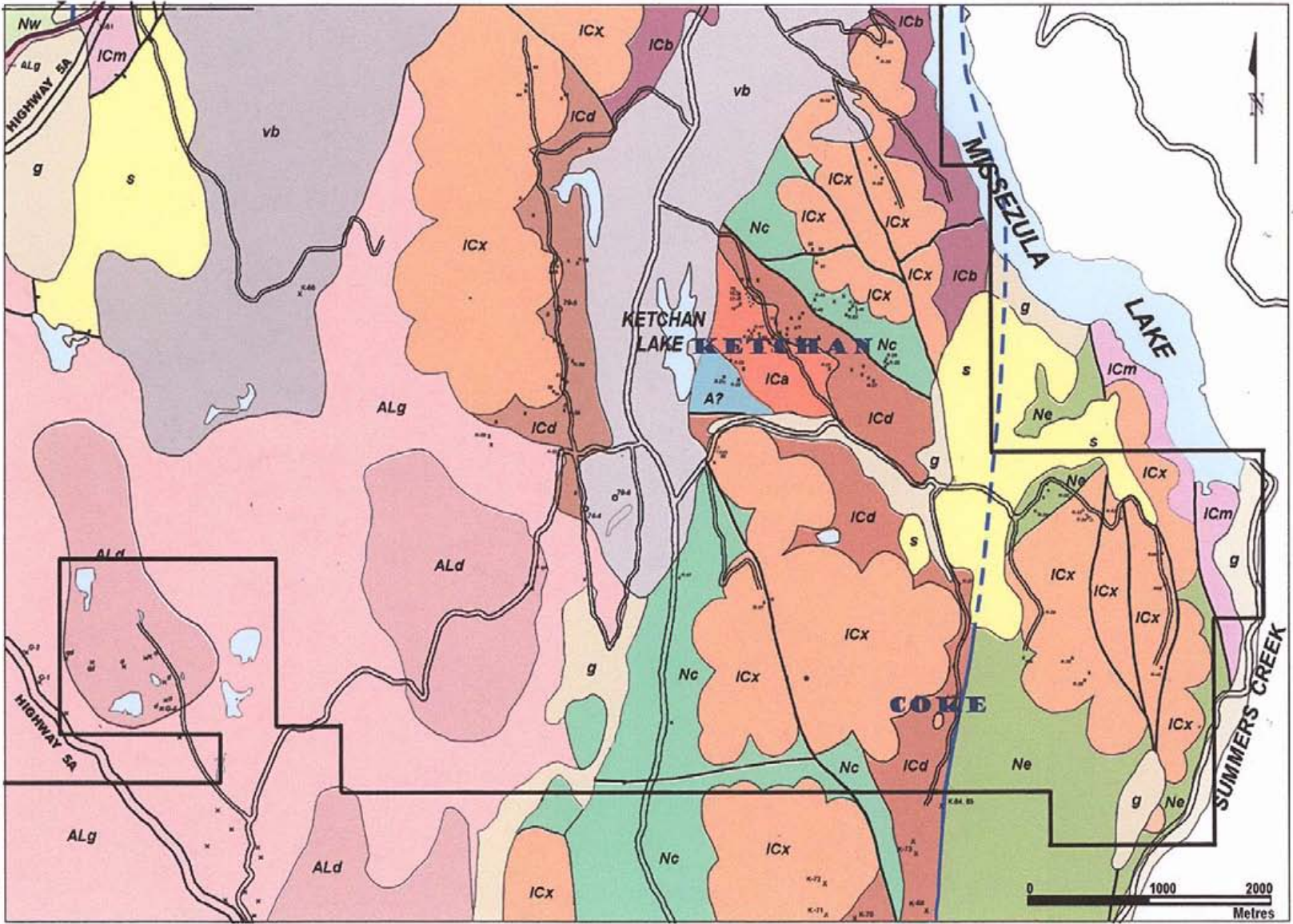
### Nicola Group

The Western Volcanic facies (Unit "Nw") of the Late Triassic Nicola Group is confined to the westernmost part of the Property. Exposures are fairly abundant along the western slope of Otter Creek, but they tend to be small and they offer little structural information except for a pervasive NNE-trending cleavage. The rocks are predominantly intermediate to felsic tuff, andesitic tuff and lava, and minor limestone.

The Central Volcanic facies (Unit "Nc") is exposed mainly in the southern part of the Central Belt. The rocks are mainly andesitic tuff and tuff breccia. Sedimentary rocks appear to be rare. A single outcrop area of laminated felsic ash tuff of indeterminate affiliation was located in the west-central part of the belt (Figure 5b).

The Eastern Volcanic facies (Unit "Ne") crops out along the eastern boundary of the property. The few outcrops that I examined were composed of andesitic flows and pyroclastics. The rocks of the Eastern and Central facies could not be distinguished because of the sparse amount of data available.

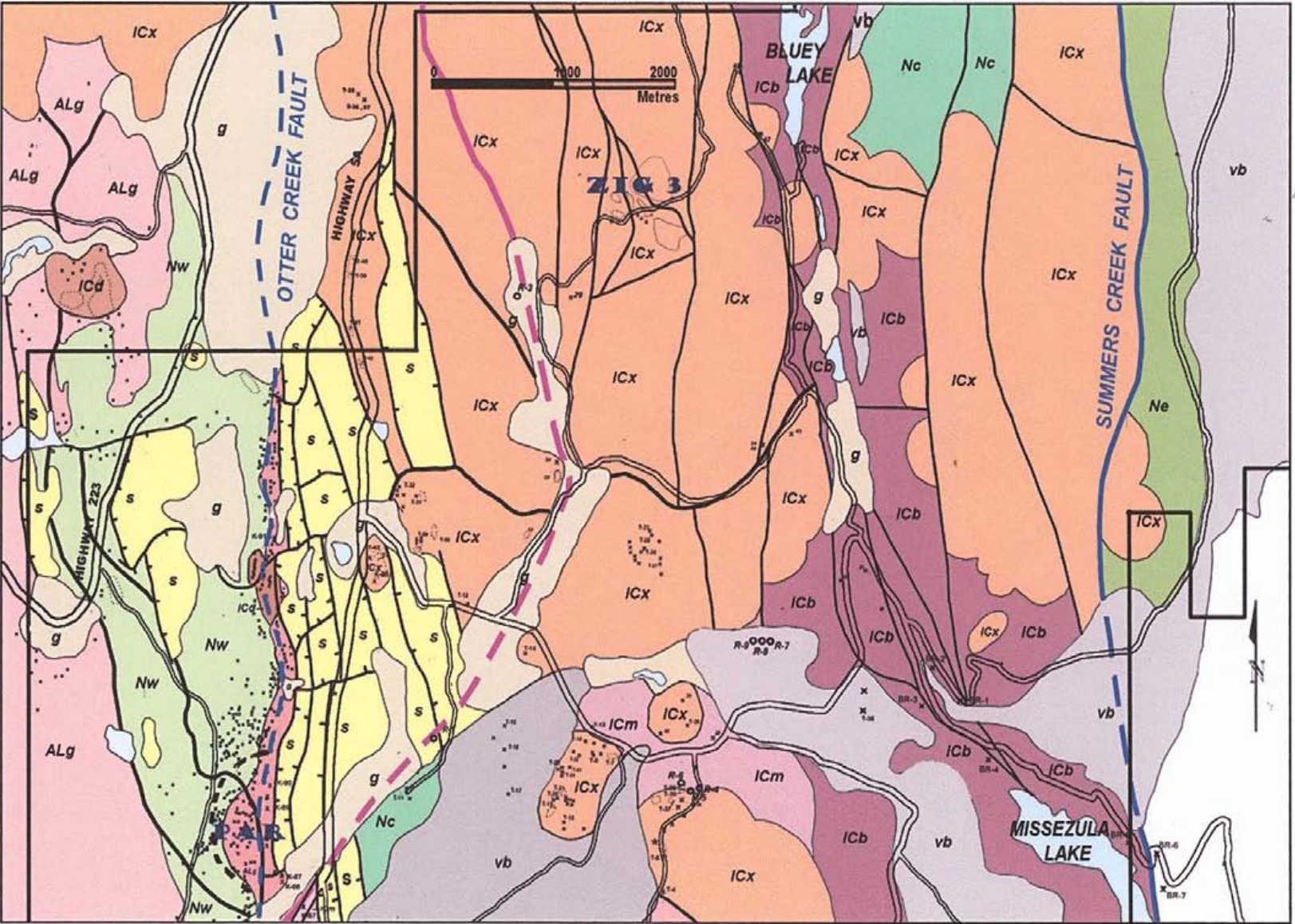




GEOLOGICAL MAP (South Sheet)

Figure 5a





GEOLOGICAL MAP (North Sheet)

Figure 5b

FIGURE 6

## LEGEND FOR GEOLOGICAL MAPS (Figures 5a and 5b)

### QUATERNARY

- g Mainly late-glacial ice-contact deposits; also alluvial & colluvial deposits
- vb "Valley basalt"

### TERTIARY (?)

- s Flat-lying sedimentary rocks -- very poorly exposed -- correlations uncertain

### LATE JURASSIC (?)

- A? Ashcroft Formation (?) -- interbedded graphitic argillite, sandstone, pyroclastic rocks

### EARLY JURASSIC

#### ALKALIC INTRUSIVE COMPLEX

- ICa Fractured and hydrothermally altered diorite & intrusive breccia
- ICx Intrusive breccia (coalescent pipes)
- ICm Monzonite & syenite
- ICb Porphyritic basalt & gabbro, mainly red - probably sub-volcanic intrusion (BRB)
- ICd Diorite

### LATE TRIASSIC AND/OR EARLY JURASSIC

#### CALC-ALKALINE INTRUSIVE ROCKS OF THE ALLISON LAKE PLUTON

- ALg Granite & granodiorite
- ALd Diorite & quartz diorite      ALp Porphyritic granitic rocks of Otter Creek

### LATE TRIASSIC

#### VOLCANIC FACIES OF THE NICOLA GROUP

- Ne Eastern volcanic facies
- Nc Central volcanic facies
- Nw Western volcanic facies

- Major fault
- Regional fault
- Late-Tertiary normal fault
- Zone of brecciation at PAR prospect



Although Preto (1979) considered basaltic flows to be the dominant lithology in the Central facies -- and Monger (1989) evidently used them in revising Preto's sub-divisions -- my field mapping suggests that they are rare in this area. I believe that BRB is responsible for the confusion, as discussed below.

### Calc-alkaline Intrusive Rocks

The eastern margin of the Allison Lake pluton, smallest of the Late Triassic to Early Jurassic batholithic intrusions in the region, follows the western border of the Property. The dominant lithology of the pluton within and adjacent to the property is coarse-textured granite typified by large, rounded quartz phenocrysts (Unit "ALg"). The granite appears to have engulfed an earlier, more mafic, intrusive phase composed of diorite and quartz diorite (Unit "ALd"). Porphyritic rocks (Unit "Alp"), including fine-textured quartz-feldspar porphyry and a distinctive quartz porphyry with large quartz "eyes" in an ultrafine groundmass, intrude the Otter Creek fault in the vicinity of the PAR prospect and northward beyond the Property.

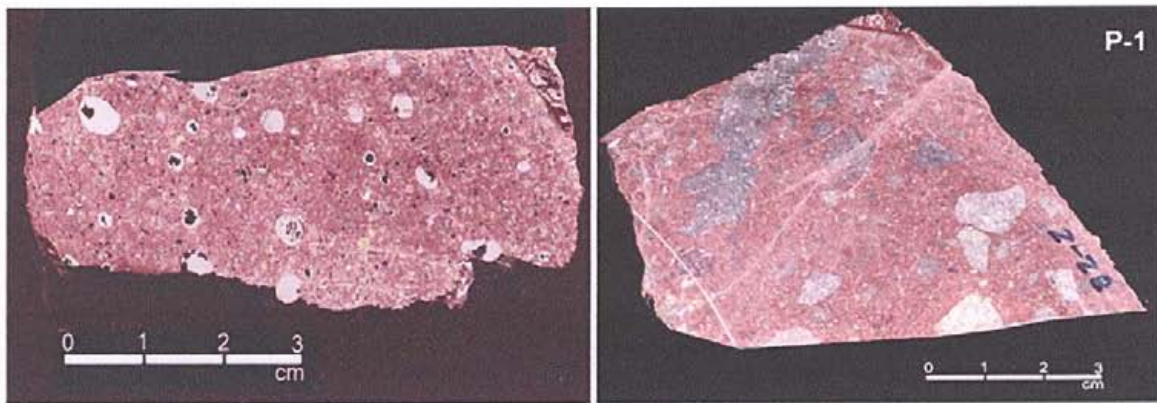
Radiometric dating from a sample of granite collected along Highway 5a near the south-western corner of Figure 5a yielded an age of 200+/-5 Ma (Preto, 1979). This date places the Allison Lake pluton close to the Triassic-Jurassic boundary. Field and air photo evidence strongly suggests that the pluton was emplaced prior to intrusion of the rocks of the alkalic intrusive suite.

### Alkalic Intrusive Complex

The geological map of the area between Merritt and Princeton (Preto, 1979) displays a number of small, isolated bodies of diorite (Unit "ICd"), and of monzonite & syenite (Unit "ICm") within the Nicola Group outcrop area. The largest of the alkaline intrusions within the Property is a body of diorite that underlies the broad valley in the vicinity of Ketchan Lake and extends south to the south boundary of the property.

During 2004 the author identified large areas of intrusive breccia (Unit "ICx") that were made up mainly of clasts of the rock types that composed the alkaline intrusions described by Preto (1979). Since that time, my mapping identified a very much larger area covered by similar rocks close to Kamloops that included the Iron Mask batholith (Bergey, 2008). The brecciated and unbrecciated rocks were combined as an Alkalic Intrusive Complex (Bergey, 2008), and the same designation is used herein.

The 2004 mapping of the Ketchan Property revealed that a common component of the alkalic complex is a fine-textured red to purple mafic rock that I named “Brick-red Basalt” (BRB) in field mapping (Unit “ICb”). Unbrecciated exposures of this rock are found within an area that extends for 4 kilometres northwest from Missezula Lake. The rock is pyroxene-plagioclase-phyric, with a holocrystalline groundmass that varies from very fine- to fairly coarse-textured. While most of the BRB is indeed red, some reddish-green or even green rocks are included in the BRB. Quartz amygdules were noted at the “discovery” outcrop (below), one of only two examples that I found on the property. I believe that BRB is a sub-volcanic intrusive since I have not uncovered any indication of stratification in the field or on the air photos. There is a no evidence to suggest an association of BRB with Nicola volcanic rocks.



“Brick-Red Basalt” (BRB)

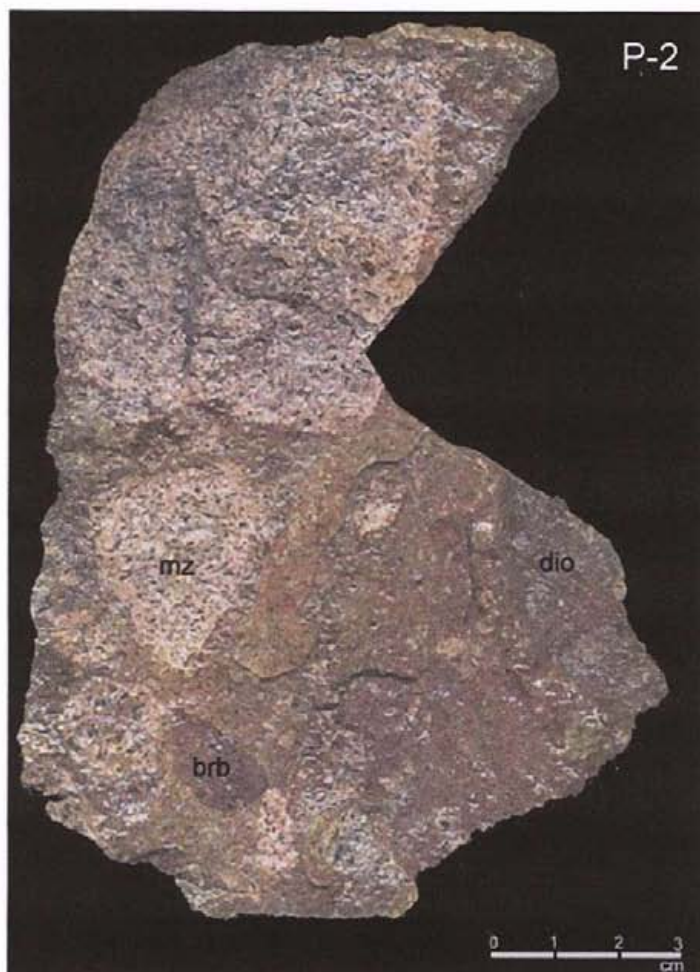
Intrusive Breccia with BRB Groundmass

BRB is particularly significant because it consistently has been identified as a volcanic rock of the Nicola Group. [Preto (1979) analysed 40 samples of “Nicola rocks” from the Aspen Grove area that clearly included many analyses of BRB matrix in intrusive breccia. This subject was discussed above under “Geology of the Aspen Grove Area”]. The presence of this putative volcanic material as fragments and/or matrix in breccia evidently encouraged field geologists to attach a volcanic origin to the breccia.

Small bodies of monzonite and syenite occur throughout the Intrusive Complex. Despite its rather limited areal extent, Preto (1979) analysed 16 samples of monzonite and syenite compared with only 3 samples of diorite, a much more extensive unit. Like the diorite, the syenite and monzonite tend to be fine textured and pyroxene is the common primary mafic mineral.



The dominant component of the Aspen Grove Intrusive Complex is intrusive breccia. This unit comprises a number of separate bodies that appear to be clusters of coalescent pipes. Individual pipes vary considerably in size, but they are generally between 400 metres and 1000 metres in diameter.



Heterolithic Intrusive Breccia

The breccia commonly is composed of a heterolithic assemblage of the other rock types of the Complex. The texture of the material is highly variable both in the degree of rounding of the fragments and in the amount and composition of the matrix. Clast size also is variable – from a few centimetres down to a highly milled variety that resembles an unstratified clastic sedimentary rock or tuff. I have not seen any clasts that I consider to be unequivocally volcanic in origin. The presence of BRB in the mix no doubt accounts for the common misidentification of the intrusive breccia as a volcanic rock that contains “coeval” intrusive rock fragments.

Intrusive breccia has been examined and identified in thin section only at the Ketchan Lake porphyry copper-gold prospect, where altered and mineralized diorite (unit “ICa” on Figure 5a) has been intruded by small bodies of breccia (Dunne & Thompson, 2006). However, I have examined a large number of samples of intrusive breccia under the binocular microscope.

The Alkalic Intrusive Complex appears to be younger than the granitic rocks of the Allison Lake pluton, which have been dated at about 200 Ma (i.e., close to the Triassic-Jurassic boundary), it and is older than Late Jurassic

volcanic rocks elsewhere in the region. Accordingly, the Complex is considered to be Early Jurassic in age.

#### Ashcroft Formation (?)

An enigmatic assemblage of thin-bedded sedimentary and volcanic rocks (Unit "A?") was noted in drill holes and in sparse outcrops in the vicinity of Ketchan Lake. Exposures of sandstone were noted east of the south end of the lake (Figure 5a). The rocks appear to be in unconformable contact with altered diorite. A drill hole at the road junction 500 metres to the east intersected graphitic argillite with thin interbeds of andesitic volcanic rocks at the base of the overburden (Thomson, 2006). Similar rocks were encountered at depth in fault contact with mineralized diorite about 200 metres to the west (Thomson, 2007). A drill hole located approximately a kilometre southwest of Ketchan Lake reportedly intersected andesitic volcanic rocks and minor graphitic argillite apparently related to the same unit (Simpson, 1979). These disparate occurrences apparently are located within a zone of complex faulting.

The rocks of this unit stand out in contrast to the intense deformation, alteration and mineralization of adjacent rocks of the Alkalic Intrusive Complex. They have been assigned tentatively to the Ashcroft Formation of Late Jurassic age based on lithology, structure and metamorphic grade.

These rocks are of particular interest because of their graphite content. This conductive mineral may be responsible for strong positive chargeability results in induced polarization surveying, a behaviour that is difficult to distinguish from the response due to disseminated sulphides in the adjacent Ketchan porphyry copper-gold system.

#### Upper Tertiary (?) Sedimentary Rocks

Outcrops of weakly lithified mudstone and sandstone (Unit "s") were noted during geological mapping in the north-western part of the Property. Subsequent detailed photo-geological interpretation indicated features suggestive of a flat-lying sedimentary unit within large areas in the west, particularly in the valley followed by Highway 5a. A smaller area was identified near Missezula Lake in the southeast. Evidence of the nature of the unit was limited to a few exposures of very weakly indurated sandstone and conglomerate.

All of the regional faults, including ones that offset lower Tertiary rocks elsewhere in the region, terminate against this unit. However, a number of normal faults that clearly down-drop lower Tertiary(?) rocks have been identified.

### Valley Basalt

Flows of vesicular, grey and red olivine basalt of Pleistocene age (Unit "vb") discontinuously underlie a fairly narrow, but laterally extensive, area that extends from south of Ketchan Lake through the north end of Missezula Lake and continues to the north for many kilometres. A smaller outcrop area underlies the southern part of part of a broad valley in the west-central part of the Property. The Valley Basalt that was intersected in a number of drill holes close to Ketchan Lake had an indicated thickness is about 30 metres on average.

### Glacial and Post-glacial Deposits

Deposits of till (more specifically, basal or lodgement till) forms a thin, but nearly continuous, blanket on the bedrock in the region. This material impedes geological mapping but does not seriously inconvenience photo-geological interpretation. Till is considered to be a good medium for geochemical soil sampling.

The till is overlain locally by ice-contact deposits (Unit "g") that formed during the waning stages of glaciation. These deposits are particularly abundant along north-trending valleys in the western part of the Property. Characteristic landforms that can be identified on air photos are eskers, kames and kame terraces. Conventional geochemical soil sampling should not be attempted in areas covered by ice-contact deposits, even very thin ones.

Thin alluvial deposits are found along portions of Summers Creek and Otter Creek. These, along with local landslide deposits are included in unit "g".

### Faulting

The nature and possible significance of the major structural zones, Otter Creek and Summers Creek faults, were discussed under Regional Geology. The fundamental faults themselves have been almost entirely obliterated within the Property by later intrusions. However, subsequent faulting that is partially coincident with the original faults appears to have been controlled to a considerable extent by the deep-seated structural zone, as suggested by

Preto (1979) who hypothesized that the original faulting was associated with Nicola volcanism. This may well be true. However, I favour the hypothesis that these deep-seated regional structures were transcurrent faults related to transverse movement of the plate that later became the Quesnellia accreted terrane. The major fault zones are locally reflected on magnetic surveys reflected as magnetic "lows." A particularly pronounced north-south magnetic "low" follows Otter Creek for more than 25 kilometres.

A number of regional faults are interpreted along and adjacent to Summers Creek. The fault highlighted on Figure 5a is interpreted to be the original trace of the fault based on the presence of zones of intense shearing in adjacent volcanic rocks at several places.

A west-northwest-trending fault marks the north contact of the diorite that is the host of the Ketchan copper-gold porphyry system. A sub-parallel fault along the overburden-covered south margin of the intrusion is suspected.

Two north-south faults that cut the Nicola volcanics and the calc-alkaline intrusives appear to be older than rocks of the alkalic intrusive complex. These faults bracket the zone of brecciation that hosts the PAR prospect. There is some evidence that north-south-trending faults of this relative age are closely associated with the major copper mines and significant copper prospects in the Guichon Creek batholith and in Nicola volcanic rocks elsewhere in the region.

Block faulting of apparent late Tertiary age is displayed in the low-lying area between Otter Creek and Highway 5a. The faults are relatively minor structures that can be readily interpreted only because of their effects on the thin blanket of upper Tertiary(?) sedimentary rocks that covers much of the area.

## DEPOSIT TYPES

Mineral deposits of two types are currently under investigation – alkalic porphyry copper-gold deposits and calc-alkaline porphyry copper deposits. A third deposit type – volcanic redbed copper deposits accounts for many of the plethora of showings and prospects described in Minfile for the Property and its environs (Figure 6). (The term “redbed” refers to the characteristic colour that reflects the oxidizing environment in which the host rocks were formed). Most, if not all, of the “redbed” occurrences in the Aspen Grove area are found in intrusive breccia rather than in volcanic rocks. However, the ingredients that are believed to be essential to the formation of these deposits – copper-rich source rocks and a reducing environment for precipitation of the metals – are present within the Alkalic Intrusive Complex. Despite an abundance of showings, no significant prospects of this class of deposit have been identified.

The Ketchan alkalic porphyry copper-gold system is a representative of the group of porphyry deposits associated with alkalic intrusive complexes that appear to follow the trend of Preto’s deep-seated north-south faults. These deposits include the Copper Mountain deposits to the south, as well as the Afton and Ajax deposits in the Iron Mask batholith and the Mount Polley deposits to the north. Intrusive breccias appear to be present in all of the copper-gold deposits within Alkalic Intrusive Complexes.

Calc-alkaline porphyry copper (+/- molybdenum) deposits are associated with the granitic plutons that lie both east and west of the zone followed by the Alkalic Intrusive Complexes. The major deposits of the Highland Valley group are located near the centre of the Guichon Creek batholith and the Craigmont deposit lies at its margin (Figure 3). The latter is usually considered to be a skarn deposit, but the definition is flexible. It could be interpreted as a porphyry copper deposit of the Highland Valley type where the mineralization was precipitated partly by limestone. The grade of the mineralization in the Highland valley porphyry copper deposits is closely related to fracture density. The PAR prospect in the western part of the Property displays some similarities. The original showing is of the “skarn” type, but most of the known mineralization was deposited in an apophysis of the Allison Lake pluton that follows the Otter Creek fault. The various “Mob” showings near the south-western corner of the Property (Figure 7) are of the calc-alkaline porphyry-copper type (Minfile). The mineralization, like that at the PAR prospect, has a highly elevated silver content.

The two advanced exploration projects adjacent to the Property have published resource estimates in accordance with NI 43-101:

1. Big Kidd (Christopher James Gold Corp.), which lies 8 kilometres to the north of the Ketchan Property, is located on the northern part of the Aspen Grove alkalic intrusive complex. The original discovery was made in an intrusive breccia pipe (Preto, 1979). The mineralized zone extends into other alkalic intrusive rock types.

2. Axe (Weststar Resources) is located about 10 kilometres south of the Ketchan Property. The deposit area overlaps the southern margin of the alkalic intrusive complex. Some of the mineralization was emplaced in calc-alkaline intrusive rocks. The relatively low gold grade and the presence of some molybdenum suggest that the deposit may contain both alkalic and calc-alkalic types of porphyry copper mineralization.

## MINERALIZATION

A search of MINFILE uncovered 43 mineral prospects and showings within and adjacent to the property (Figure 7). Most of these (29) were categorized as "volcanic redbed Cu" occurrences, "alkalic porphyry Cu-Au" had 8 references, "calc-alkaline porphyry Cu" had 5, and there is a single "quartz-stockwork Au" prospect mentioned. Almost all of the occurrences are located in rocks interpreted to be part of the Alkalic Intrusive Complex or are in the Allison Lake pluton. There are no MINFILE references for the portion of the Western Belt that lies within the Property except for the PAR prospect, which is a porphyry-type occurrence with calc-alkaline affiliations that is located adjacent to the regional fault that follows Otter Creek.

Most of the mineralized showings indicated on Figure 6 were examined by the author. The "volcanic redbed Cu" showings (and the Shamrock "mine") contained chalcocite stringers with some pyrite enclosed in intrusive breccia.

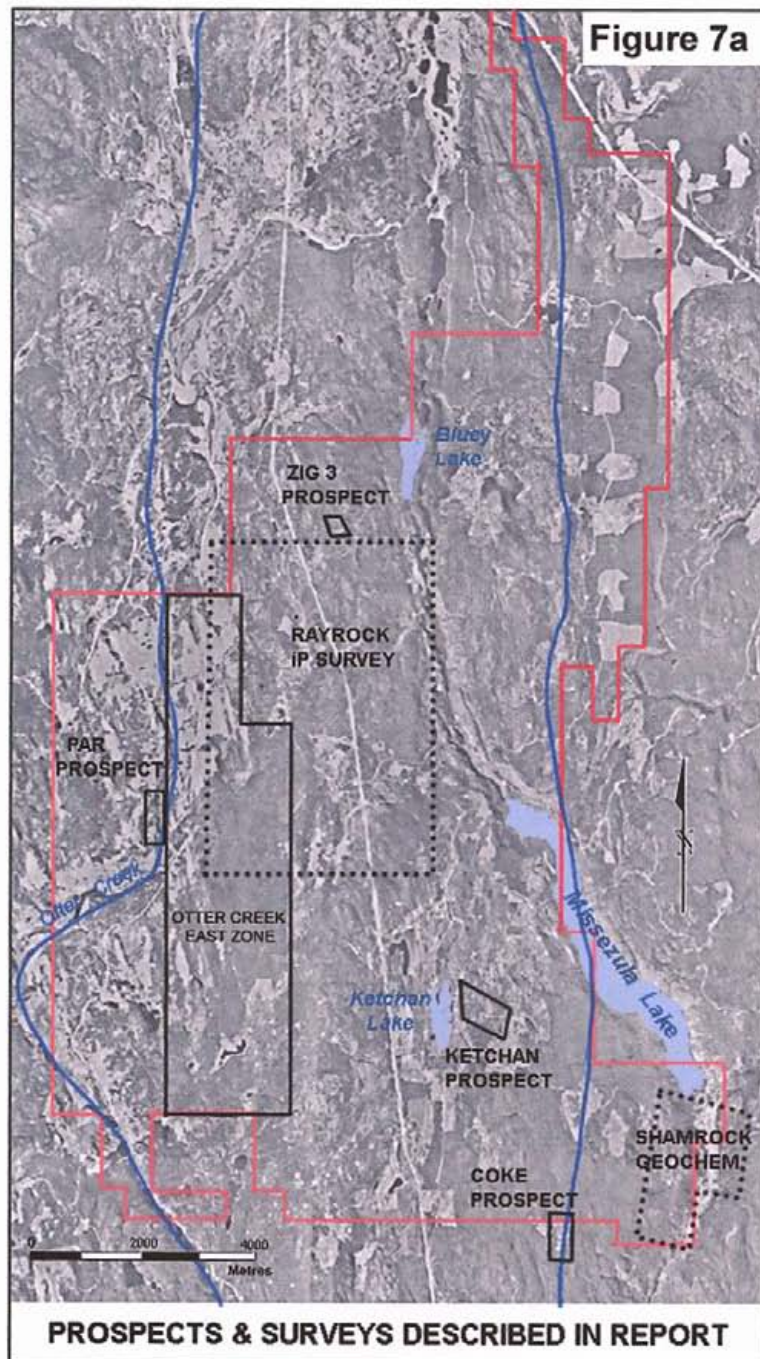
The mineralization of interest that was uncovered in the more significant showings as a result of "historical" exploration work is described in the next two sections of this report.





## DISCUSSION OF PREVIOUS EXPLORATION

The main objectives of this section are to describe the results some of the more important of the numerous "historic" exploration projects and to expand on these results within the framework of the revised geological interpretation expounded in the present report.



In general, the initial exploration results were inadequately followed up. The exceptions were the Coke Prospect and the Ketchan Prospect, both of which were discovered by Plateau Metals in 1962. They were explored nearly continuously for many years afterwards, the former until 1987 and the latter until the present.

The following account of "historic" exploration covers the projects that appear to be of greatest interest. The order of these descriptions does not imply a ranking.



## **PAR Prospect**

Diamond drilling programs by Tormont Mines Ltd. from 1962 to 1965 and by Andrew Robertson in 1970 were virtually the only serious exploration efforts in the area, the property having been tied up by non-performers from that time until 2000. My more recent work (Bergey, 2002; Bergey, 2004) was aimed mainly at placing the drilling results into a more reasonable geological perspective and in expanding the target for economic mineralization beyond the immediate drilling area.

The Tormont program comprised 2759 metres of diamond drilling in 17 holes. The work was based on a copper showing in a geological setting that suggested skarn-type mineralization, although no nearby intrusive rock had been identified at that time. The core was not preserved, and the drill logs are all but indecipherable. Fortunately, the assay results appear to be complete and reliable, and the drill hole locations were found to be accurate.

The author's mapping (Bergey, 2004) indicated that the magnetite-rich skarn mineralization at the original discovery was deposited in andesitic tuff marginal to granitic intrusive rocks related to the Allison Lake pluton. The bulk of the local intrusion is coarsely porphyritic granite that occupies a portion of the Otter Creek valley. Quartz-feldspar intrudes the granite along the Otter Creek fault, and it appears to host most of the mineralization. (The drill logs are not helpful.) A distinctive quartz porphyry, characterized by abundant large quartz "eyes" in an extremely fine-grained, siliceous groundmass, intrudes the other granitic rocks and the adjacent volcanics. The quartz porphyry is found in small exposures throughout the drilling area and to the north. The only large outcrop area of porphyry is located close to Otter Creek (Figure 8). The drilling logs indicate that the porphyry extends across the fault at this point. The granitic rocks and the immediately adjacent volcanic rocks in the drilling area have been subjected to intense brecciation within an ovoid zone, with a maximum dimension of about a kilometre along Otter Creek. The quartz porphyry alone appears to have escaped brecciation, and may well have accompanied the deformation. The fragments in the breccia tend to be homolithic and they are infrequently rotated, unlike the intrusive breccia of the Alkaline Intrusive Complex. However, the zone could represent the uppermost portion of a breccia pipe of unknown affiliation.

The best drill holes in the Tormont program are centrally located within the brecciated area, and they appear to be associated with the largest exposed

body of quartz porphyry, although the porphyry itself is not mineralized except for sparse pyrite. Only two drill holes, H-27 and H-30, were drilled beneath Otter Creek and both of these collared in quartz porphyry and continued in this rock through the assumed trace of the fault. H-31 was the only hole to test the eastern side of the fault. It was abandoned in "caving ground, with heavy water inflow" at the presumed location of the fault.

A number of holes surrounding the large porphyry outcrop contained disseminated pyrite-chalcopyrite mineralization throughout most of their lengths according to the logs. The selection of samples was somewhat erratic, and only short sections of core were analyzed for most of the holes. The following are the most significant assays, from south to north. The hole locations are shown on Figure 8. The assay results are unverified. However, the copper values appear to reflect the descriptions indicated in the drill logs.

Hole 26: 1.4% Cu, 5g/t Ag, <0.1g.t Au / 6 metres; 0.3% Cu, 5 g/t Ag, .1 g/t Au / 9 metres.

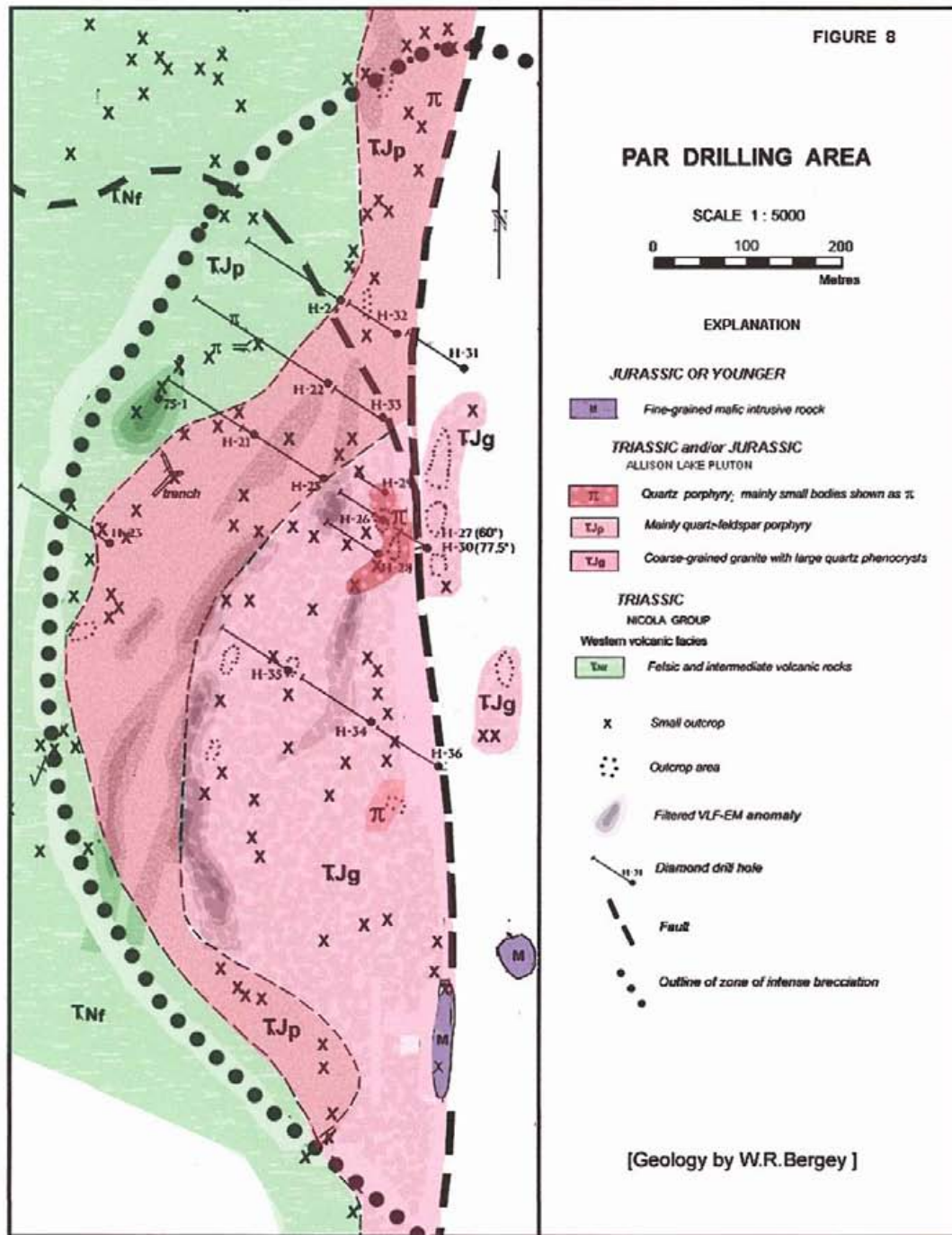
Hole 27: 0.90% Cu, 41 g/t Ag, < 0.1 g/t Au / 20 metres; including 1.9% Cu, 64 g/t Ag / 6.7m.

Hole 29: 0.50% Cu, 12 g/t Ag, 0.25 g/t Au / 34 metres [entire hole except for quartz porphyry]

Hole 31: 0.37% Cu, 34 g/t Ag, 0.6 g/t Au / 1.5 metres [last core before hole lost in fault]

No drilling was done east of the Otter Creek fault except for Hole 31. The fault itself was not tested. Holes 27 and 30 were located east of Otter Creek, but both holes started in quartz porphyry, which appears to occupy the fault zone in this part of the area. (The best Cu-Ag in the core drilling was intersected in Hole 27 immediately west of the porphyry.) Hole 29 was drilled a short distance west of the fault. A short section of significant Cu-Ag-Au mineralization was found in Hole 31 adjacent to the fault zone.

North of the drilling area, exposures of granitic intrusive rocks, mainly quartz-feldspar porphyry are confined mainly to the immediate vicinity of Otter Creek (Bergey, 2004). The porphyry, as well as adjacent volcanic rocks along the margins of beaver ponds, tend to be highly fractured or sheared, and commonly are altered and limonite-stained. The flooded area has a fairly uniform average width of 50 metres.

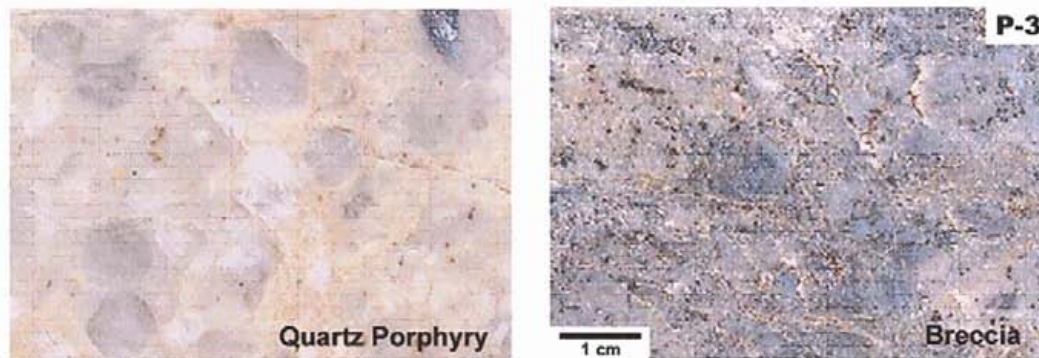


Several VLF-EM anomalies were detected (Figure 8). These generally trend north to north-northeast, and they have lengths of up to 400 metres. Some of the shorter zones can be correlated with known mineralization (e.g. the local anomaly in the vicinity of skarn mineralization in the discovery area) but the much more continuous anomalies farther south have no obvious cause, although "specks and seams of graphite" were reported from Hole 34. [In



view of the uneven quality of the core logging, there is a possibility that the “graphite” could be molybdenite.] VLF-EM anomalies also were detected within quartz-feldspar porphyry and adjacent volcanic rocks north of the drilling area. They tend to be associated with small exposures of quartz porphyry and with a ferruginous breccia of recent origin.

The author’s interpretation of the sequence of faulting and intrusion close to Otter Creek is as follows. 1) The granitic intrusive rocks that follow the creek were emplaced in the regional Otter Creek fault zone that marks the boundary between the Central and Western volcanic facies of the Nicola Group. (This feature is marked by a north-south-trending topographic linear and by a pronounced magnetic “low” for a distance of more than 25 kilometres north from the main body of the Allison Lake pluton.) 2) The shearing within the granitic rocks adjacent to the creek probably appears to be related to a fault with a relatively small displacement. However, it may be of economic interest. 3) The quartz porphyry appears to have been unaffected by the shearing, but this may be evidence of its unyielding nature rather than of its age. 4) The dominant “successor” to the regional Otter Creek fault is interpreted to lie to the east of Otter Creek in this part of the area. 5) The ages of the mineralization and of the brecciated zone have not been determined. I believe that they most likely are related to the later stages of the Allison Lake pluton and are older than the Alkalic Intrusive Complex. The fault in the NW corner of Figure 8 appears, on air-photo evidence, to be related to the swarm of the north-south early Jurassic faults that are younger than the calc-alkaline plutons but are older than the Alkalic Intrusive Complex. Faults of this swarm are closely associated (in space) with many calc-alkaline porphyry copper and skarn deposits in the region (Bergey, 2009).



## **Coke Prospect**

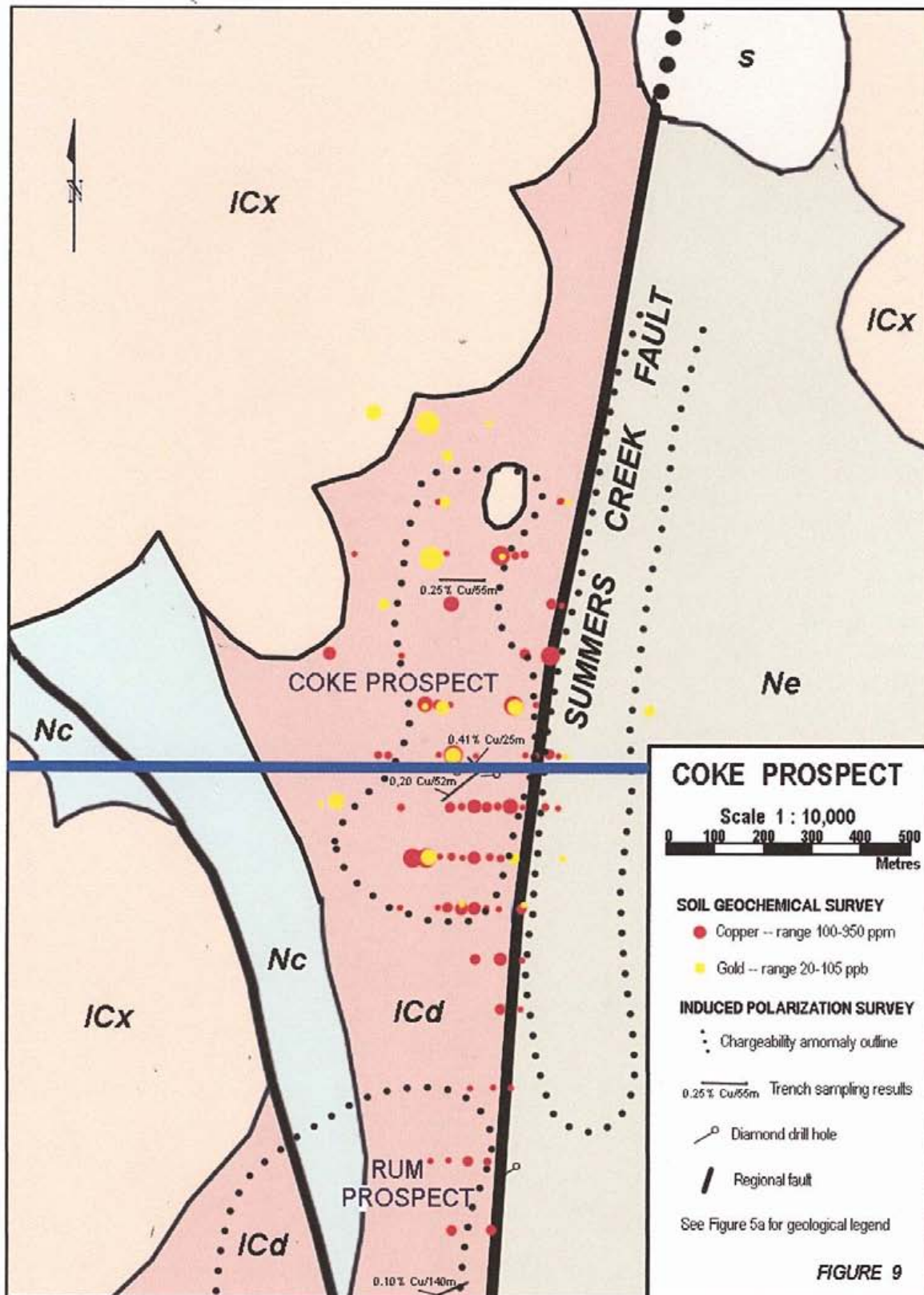
The Coke Prospect along with the Rum Prospect, which lies about one kilometre to the south, were discovered by Plateau Metals in 1962. Exploration work in the area included detailed geological mapping, several soil geochemical surveys, induced polarization (IP) and magnetic surveys, trenching and a minor amount of drilling.

The Amax geological survey that included the Coke Prospect comprises the largest area of detailed mapping in the region (Christofferson et al., 1971). It outlined a large body of intrusive rocks and intrusive breccia that forms a part of the Alkalic Intrusive Complex described in the present report. [This is the only reference to a large body of intrusive breccia that I have uncovered in the geological literature of the region. The results of the Amax survey were not used in the preparation of the later government geological map (Preto, 1979), which shows only Nicola volcanic rocks in the area.]

The rocks of the Alkalic Intrusive Complex are truncated on the east by a major regional fault that I believe follows close to the trace of the original Summers Creek fault, the boundary between the Central and Eastern facies of the Nicola volcanic sequence. The rocks immediately east of the fault are mapped as north-south-trending bedded volcanics of the Nicola Group, but I have not confirmed this.

The Amax IP survey detected two weak chargeability anomalies, each about a kilometre in length along the western side of the Summers Creek regional fault. The known mineralization at the Coke and Rum Prospects is enclosed within these anomalies (Figure 9). A considerably stronger IP anomaly follows the eastern side of the fault for two kilometres and is open to the north. The geological environment and the shape of the anomaly suggest two possible interpretations: 1) the anomaly is related to mineralization in shearing and fracturing adjacent to the north-striking fault; 2) the anomaly reflects graphite in the north-striking bedded rocks.

Anomalous copper and gold soil geochemical values are confined almost entirely to the IP-anomaly areas (Peto, 1985; Yarrow, 1987). However, the regional Summers Creek fault occupies an ancient valley that contains remnants of Tertiary(?) sedimentary rocks and glacial ice-contact deposits. Both of these are composed of transported material, which is an unsatisfactory soil-sampling medium. Accordingly, samples collected over the eastern IP anomaly may not reflect an underlying source.





Mineralization at the Coke Prospect is composed of disseminated pyrite and chalcopyrite in altered microdiorite. Copper values in three trenches are described in assessment reports (Figure 9). The only available information on the results of diamond drilling was a given in MINFILE for one hole, which was reported as 0.23% Cu over 83.2 metres. This result falls within the range of the trench samples. Analysis of gold was not carried out. More recent rock and soil geochemical data indicates that values in gold are highly variable, but that gold is present in the samples in approximately the same ratio as at the Ketchan Lake Prospect described later in the present report. Coke also shows a close similarity to the Ketchan Lake prospect in that the mineralization is hosted by hydrothermally altered microdiorite that apparently has been invaded by pre-mineralization intrusive breccia (Christofferson et al., 1971).

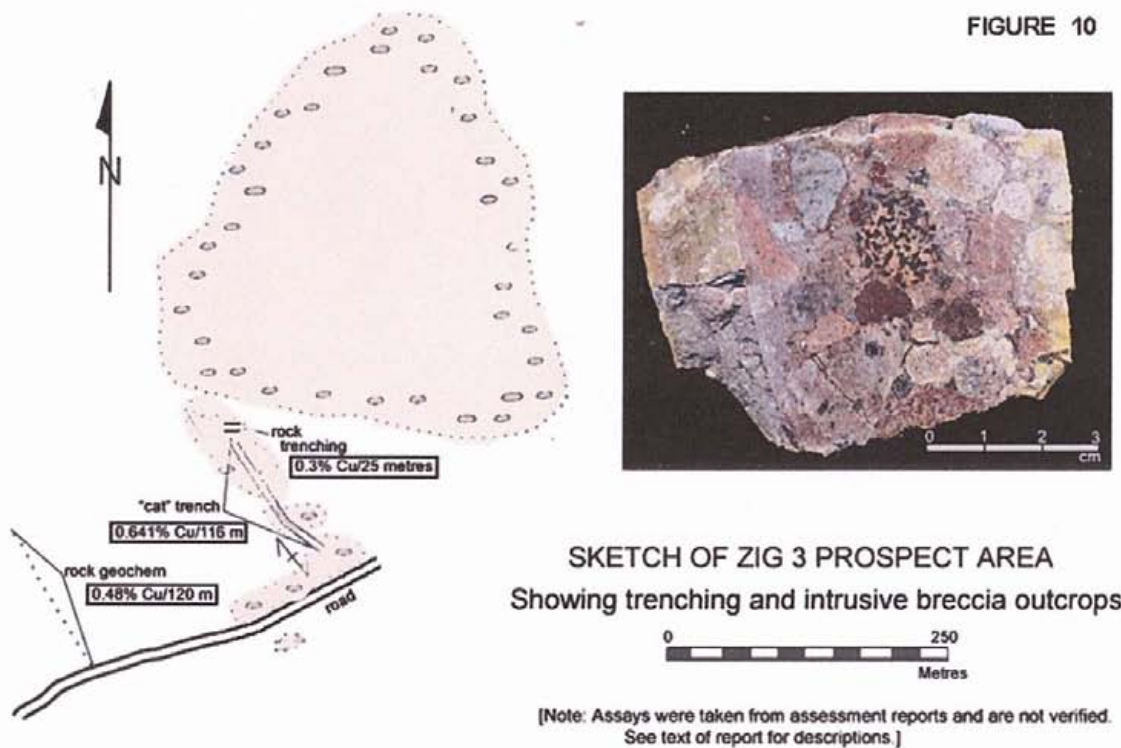
It is of particular interest to note that the known mineralization at Coke apparently is closely associated with a regional fault that is interpreted to follow the Otter Creek fault zone. The projection of this fault north of the Coke prospect intersects the easterly extension of the Ketchan Lake porphyry copper-gold system in an area that is overlain by thin cover of post-mineralization sedimentary rocks. This highly prospective area has not been tested by IP surveying or by drilling, and previous geochemical surveys are not meaningful because of the transported cover material.

### **Zig 3 Prospect**

I examined the Zig 3 Prospect area on my first visit to the main part of Property. As it happened, this also was my first introduction to both alkalic intrusive breccia and “brick-red basalt” (BRB). The former was previously recorded in the region only as localized breccia pipes – e.g., the pipe at the Big Kidd deposit, eight kilometres to the north. Mapping in the vicinity indicated that the intrusive breccia covered an area of at least 600 metres by 400 metres. The BRB in this area occurs sparsely as both matrix and fragments in the breccia. The dominant clasts are monzonite and monzodiorite.

It was discovered subsequently that previous work in the immediate area had been carried out by Vanco Explorations (Lisle, 1985) and by Rayrock Yellowknife (Gourlay, 1991), *inter alia*. The designation “Zig 3” is the name given to a showing described in MINFILE (#092HNE150). The showing is stated to consist of, “native copper and chalcocite in augite plagioclase porphyritic andesite and red volcanic breccia.”

A more detailed examination by the author noted that the chalcocite and native copper appear to be localized in small patches, and that disseminated chalcopyrite and pyrite are more widely distributed. A sample of disseminated sulphides taken from the relatively unaltered breccia sample shown in Figure 10 assayed 0.34% Cu, 0.06 grams/tonne Au and 1 gram/tonne Ag. A sample of malachite-coated material containing some chalcocite collected nearby assayed 2.6% Cu and 97 g/t Ag. These very preliminary observations suggest that mineralization at the Zig 3 Prospect includes both porphyry Cu-Au and redbed Cu types.



Vanco Explorations carried out rock geochemical sampling along two bulldozer trenches at the Zig 3 showing (Lisle, 1985). Results from the westerly trench averaged revealed 0.64% Cu over 116 metres, and the easterly trench averaged 0.48% Cu over 120 metres. These results have not been verified except for the “grab” samples noted above

Rayrock Yellowknife re-sampled a rock trench of unknown provenance during their exploration of an area that coincides with the northern and central parts of the Ketchan property. An assay value of 0.3% copper across 25 metres is shown at a locality near the northern border of the Zig 3 claim. This obviously corresponds to the “rock” trench in intrusive breccia shown on the sketch (Figure 10).

### **Induced Polarization Survey (1991)**

Rayrock Yellowknife Resources Ltd. carried out 54 kilometres of induced polarization surveying that covered about 30 square kilometres in the central part of the Property (Gourlay, 1990). It was followed up with a poorly conceived 8-hole percussion drilling program that tested small portions of four anomalies (Gourlay, 1991). Disseminated pyrite was encountered in several of the holes. The survey did not cover any of the prospects described in the present report.

The survey was re-interpreted in the light of our current geological concept (See Figure 11). Six anomalous zones of interest were selected by the author, based in large part on the opinions expressed by Phillip Hallof, Consulting Geophysicist, in Gourlay (1990). Six of the eight shallow percussion drill holes were designed to test the two lowest rated anomalies.

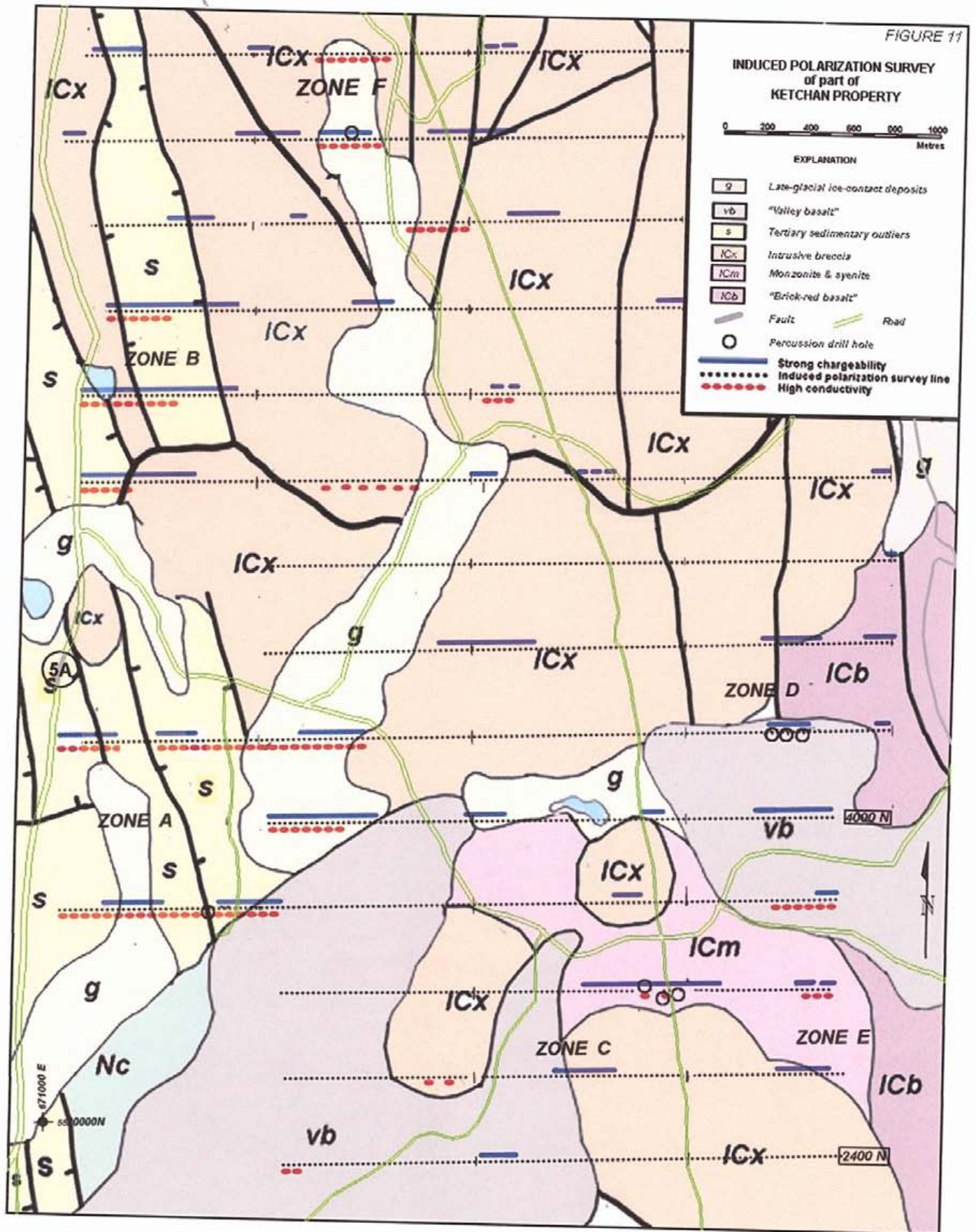
Zone C is located within an area of fairly abundant outcrops of relatively unaltered monzonite/syenite and related breccia. Three closely spaced holes encountered modest amounts of pyrite. Drilling of Zone D penetrated a valley basalt flow in all three closely spaced holes and ended in weakly pyritized "brick-red basalt. Zone E the southern extension of Zone D", has not been tested. The single percussion hole on Zone F did not reach bedrock. This anomaly has been dismissed by Gourlay (1990), without any real evidence, as caused by clay minerals in the overburden. It appears to follow a north-south fault.

In the writer's opinion, no additional work is warranted on Zones C, D and F at this time. Field checking of the area surrounding Zone E should be undertaken.

I believe that Zones A and Zone B are of considerably greater interest based on their size and on the geological setting. All of the anomalies occur at the western end of the survey lines, where they reached the property boundary. Presumably they are wider than indicated. The chargeability and resistivity anomalies tend to be coincident on all of the lines that cross Zone A and Zone B. Regarding the most southerly of the lines in Zone A, Hallof (in Gourlay, 1990) states that, "***the zone of metallic mineralization must be at least 1000 metres in width.***"



FIGURE 11



A single shallow percussion drill hole at the southern limit of surveying of Zone A comprised the entire follow-up on Zones A and B. The cuttings were examined under the microscope and identified as “dacite.” A detailed description of the rock indicates a fine-textured quartz-feldspar porphyry that could be either volcanic, as inferred by Gurlay (1990), or intrusive in origin. Lavas of dacitic composition are uncommon in the Central volcanic facies of the Nicola Group. However, the description closely matches the quartz-feldspar porphyry at the PAR Prospect.

Zones A and B are situated within the broad lowland west of Otter Creek that is followed by Highway 5a. The older rocks in this valley are almost entirely masked by a thin cover of late Tertiary to Recent sediments and lavas. Granitic rocks of the Allison Lake pluton underlie the southern end of the valley about 6 kilometres to the south of the anomalies. The geological interpretation for this area suggests that the lowland is underlain by faulted and sheared Nicola volcanic rocks that were intruded by granitic rocks related to the Allison Lake pluton. The more resistant rocks of the Alkalic Intrusive Complex to the east form the topographically prominent Fairweather Hills and their southward extension to Missezula Mountain. A reasonable interpretation of induced polarization Zones A and B is that the low resistivity (high conductivity) is due to permeable zones of fracturing and shearing related to the deep-seated crustal deformation accompanying the Otter Creek fault. The chargeability most likely reflects disseminated sulphide minerals. It should be stressed that the IP surveys are not able to identify economic minerals within these sulphides. Follow-up conventional soil geochemical sampling to determine the presence of copper or gold is hindered by the nearly continuous cover of transported sedimentary rocks and valley basalt.

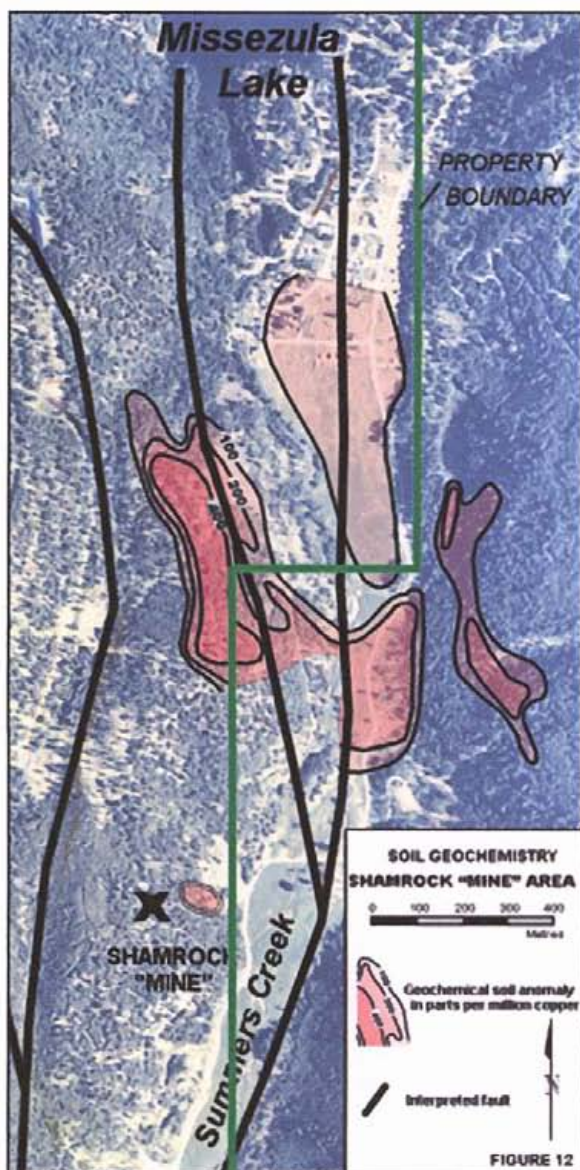
Calc-alkaline porphyry copper mineralization is recorded within this structural belt at the Mob claims near the south end of the valley (Figure 7), and at the PAR Prospect, along its western margin (Bergey, 2004). In both cases the copper is accompanied by very significant amounts of silver. The area of interest that includes Zone A and Zone B, designated herein as the **Otter Creek East Zone**, has a width of two kilometres and a length of nine kilometres. The general outline of this zone is shown on Figures 7 and 7a.



### Shamrock "Mine" Area

The Shamrock "Mine" shipped a token amount of copper ore in 1929. A program of trenching and diamond drilling in 1963 failed to produce encouraging results. The deposit evidently is of the type designated as "volcanic redbed copper." It occurs in intrusive breccia of the Alkalic Intrusive Complex.

During 1972 Belcarra Explorations Ltd. carried out a soil geochemical sampling program for copper that covered an area of about 6 square kilometres surrounding the "mine" (Gutrath, 1972). There was no anomalous response at the mine site. A localized anomaly east of the adits and trenches probably reflects downslope movement of copper from dump material.



The geochemical survey detected a cluster of copper anomalies within an area of about one square kilometre. The strongest portion of the anomalous zone, and the only part that is located within the Property lies midway between Shamrock "mine" and the south end of Missezula Lake. The strongest part of the anomaly has a length of 500 metres and a width of about 100 metres, with copper values mainly in the range of 400 to 600 ppm. There is no record to indicate that the recommended follow-up exploration program was completed. The anomaly is of sufficient size and intensity to warrant serious follow-up exploration.

I have not done any mapping in the immediate vicinity of the anomaly. The photo-geology indicates that the strongest anomaly is located in a narrow slice of Nicola volcanic rocks along the west side of a branch of the Summers Creek fault system.

### **Ketchan Lake Prospect**

Although Ketchan Lake Prospect is by far the most intensively explored portion of the Property it is treated last in this section of the report, which deals mainly with an interpretation of “historical” exploration data, in order to juxtapose it with the “Drilling” section that covers most of the exploration work carried out on behalf of the Owner.

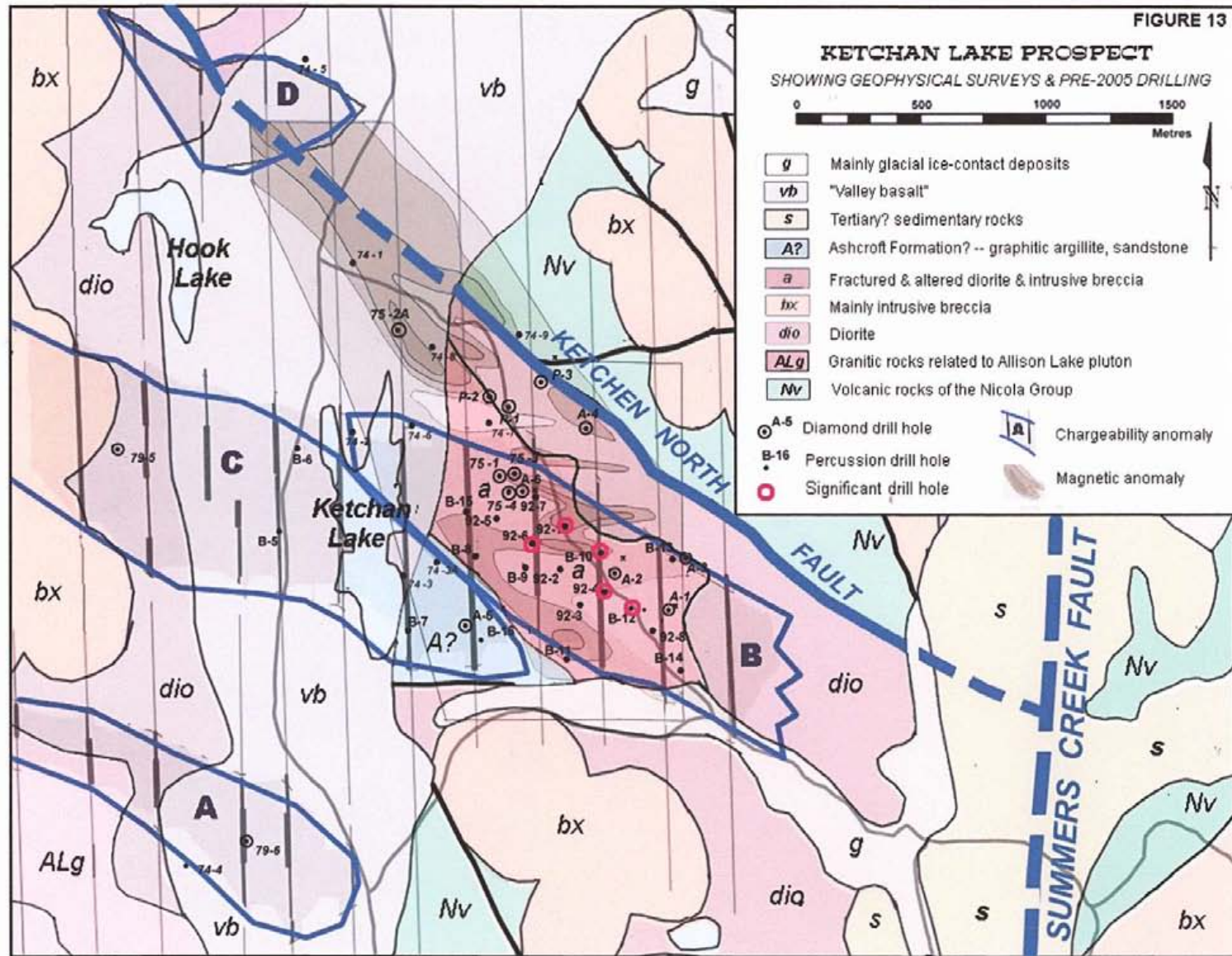
The original discovery was made by Plateau Metals Ltd. in 1962. Geological mapping, geophysical surveys and diamond drilling were carried out by Plateau Metals and by Adera Mining Ltd. in 1966 under an option arrangement. Bethlehem Copper Corp. acquired the Ketchan Lake property in 1973. Geophysical surveys and drilling were undertaken intermittently between 1973 and 1980 by Bethlehem Copper and, during 1991 and 1992, by Cominco Ltd, following its takeover of Bethlehem Copper. Percussion drills of limited depth capability were utilized for most of the “historic” drilling.

Induced polarization and magnetic geophysical surveys were carried out by Plateau/Adera and by Bethlehem/Cominco. The results of the various sets of surveys are not in conflict. Condensed results of the most recent geophysical surveys are shown in Figure 13.

The writer carried out geological mapping at Ketchan Lake on behalf of the Owner and Copper Belt Resources, the Optionee, during 2005 (Bergey, 2005). This work indicated that the mineralization was hosted by the largest body of diorite in the Aspen Grove intrusive complex. The diorite in the mineralized area has been highly fractured and altered. Small exposures of intrusive breccia, monzonite and syenite were noted in the central part of the zone, but fracturing, alteration and a scarcity of outcrops inhibited the delineation of these rock types.

Thirty-seven drill holes were completed within the area surrounding Ketchan Lake prior to 2005 (Figure 13). Twenty-two of the holes were drilled within a northwest-trending zone that includes the known mineralization at the Ketchan Prospect. This zone is approximately 1.5 kilometres in length by 0.5 kilometres in width. This drilling should be considered “historic” since sample handling and data verification cannot be assured.





Both magnetic and IP surveys can provide valuable assistance in the search for mineralization of the Alkalic Porphyry Cu-Au type, but in neither case is the information definitive of copper-gold mineralization.

Magnetite, by far the most significant magnetic mineral, commonly accompanies alkalic porphyry-copper-gold mineralization in the form of hydrothermal veins and fracture fillings. However, the unmineralized intrusive rocks, particularly diorite, often contain considerable amounts of disseminated magnetite that was introduced as part of the rock-forming process. Also, magnetite can be destroyed (oxidized to non-magnetic hematite) during post-ore hydrothermal alteration, particularly adjacent to major faults (as may have happened at the Coke and Axe Prospects south of Ketchan Lake). Near-surface oxidation in the weathering process may also destroy the magnetic property of the rock (as appears to be the case at the Afton Cu-Au deposit), but there is no evidence of a significant amount of surface oxidation in the Ketchan region. Magnetic anomalies do not have a severe depth limitation. However, the amplitude and definition of anomalies decline with depth from the surface.

The most recent (and most complete) ground-based magnetometer survey outlined an anomalous zone that coincided with the central and western part of the mineralized area east of Ketchan Lake. The magnetic zone extends to the northwest within the Ketchan Lake valley for an additional 1500 metres. In its western portion it follows the trace of the regional Ketchan North fault. The anomalous zone comprises a number of rather discontinuous individual magnetic "highs." This type of pattern is not unusual for hydrothermally introduced magnetite.

Chargeability anomalies detected by IP surveys may reflect disseminated sulphide mineralization. However, other materials also are "chargeable." In the case of Ketchan Lake, the most important of these is graphite. This conductive mineral is present in the poorly delineated sedimentary unit (Unit A? on Figure 13) that was encountered in several drill holes along the south margin of the Ketchan prospect. It is evident that portions of the IP anomalies in the Ketchan Lake area are due to graphite. This uncertainty as to the probable source of the anomalies complicates the interpretation of the IP surveys.

Three west-northwest-trending chargeability anomalies have been outlined. Anomaly A appears to reflect graphite – at least in its western portion, where



DDH 75-4 intersected graphitic argillite interbedded with pyroclastic volcanic rocks. The large central anomaly through Ketchan Lake is derived from several sources, and I have sub-divided it into Anomalies B and C. Anomaly B, coincides with the known area of mineralization at the Ketchan Lake Prospect. It is open to the east. Anomaly C has at least two sources. The south-eastern portion overlies sedimentary rocks that are known to contain graphite elsewhere in the area, although none has been encountered here. The valley to the west is underlain by valley basalt and no information has been recorded on the four percussion drill holes in the area. The western part of the anomaly is underlain by diorite and intrusive breccia. DDH 75-5 reported disseminated pyrite with very low copper values in intrusive rocks in this area. Anomaly D is weak and localized. It appears to follow the regional northwest-trending fault that forms the north-eastern boundary of the diorite, but it has no known cause.

A significant feature of the geophysical surveys is the divergence of the overlapping magnetic and IP anomalies at the western edge of the known mineralization (Figure 13). The broad IP anomaly extends to the west under Ketchan Lake, whereas the magnetic feature continues to the northwest.

There is a possibility that the absence of a coincident IP anomaly along the northwest trend is due in part to the deep cover of younger rocks in this area. Diamond drill hole 75-2A is the only hole along this trend for which information on the geology is available. DDH 75-2A penetrated glacial overburden (0-22m), valley basalt (22-64m) and semi-consolidated valley fill (64-105 m) before reaching "bedrock" between 105 and 107 metres, where the hole was lost. The material is described as "soft intrusive bedrock with strong pyrite." Only a few pieces of core were recovered. No assaying was carried out. The hole is located on a magnetic anomaly, but there is no IP expression of the pyrite (Figure 13). There are two earlier percussion holes in the area but there is no information on the results of the drilling and no indication that either of them had reached pre-Tertiary bedrock.

The possibility of south-eastward extension of the Ketchan Lake mineralized structure has not been explored seriously. The IP and magnetic surveys terminated a short distance east of the most easterly drill hole. The deep-seated Summers Creek fault has been interpreted about 1500 metres southeast of the drilling area. The intervening ground is mostly covered by glacial ice-contact deposits and by Tertiary? sedimentary rocks. The Coke and Rum prospects are located along the Summers Creek regional fault,

about 1500 metres south of the projected intersection of the Ketchikan Lake mineralized zone with the fault.

Complete drill logs and analytical data are available for only the more recent historical drilling – i.e. the 1991 and 1992 Cominco programs. The most significant holes were drilled in the eastern part of the drilling area. The locations of the drill holes are shown on Figure 3.

The results of the best Cominco percussion drill holes are as follows (all of the holes were drilled vertically):

- B-10 averaged 0.38% Cu / 0.123 grams/tonne Au over 86.6m (open);
- B-12 averaged 0.23% Cu / 0.135 grams/tonne Au over 80.5m (open);
- B-13 averaged 0.13% Cu / 0.126 grams/tonne Au over 90.6m (open);
- 92-1 averaged 0.19% Cu / 0.10 grams/tonne Au over 48.8m (open);
- 92-4 averaged 0.26% Cu / 0.124 grams/tonne Au over 81.4m (open);
- 92-6 averaged 0.165 Cu / 0.155 grams/tonne Au over 89.1m

The locations of the drill holes are shown on Figure 13.

## **DRILLING**

The factual data contained in this section of the report was taken from Thomson (2007). The author initiated the 2005 program and visited the site from time-to-time during the successive drill programs but was not directly involved in their planning or execution.

### **2005 Diamond Drill Program**

In 2005, a diamond drill program was designed to test the area around Cominco percussion drill holes B-10 and 92-4, as both holes contained promising copper-gold values over significant intervals. The 2005 diamond drill program consisted of 10 drill holes totalling 1202.4 meters and was carried out under the direction of Greg Thomson, P. Geo. Several of the drill holes, in particular K07-04, K07-07, K07-08 and K07-09, contained continuous intervals of moderate to locally high grade copper and gold values. Significant copper/gold intercepts are summarized in the following table; the locations of the drill holes are illustrated on Figure 14.

The results of the 2005 diamond drilling programs are summarized in the following table:

**TABLE 2**

| Hole No. | Location           | Dip | Azimuth | Length<br>(metres) | Elevation<br>(metres) | From<br>(metres)         | To<br>(metres) | Width<br>(metres) | Copper<br>(%) | Gold<br>(g/t) |
|----------|--------------------|-----|---------|--------------------|-----------------------|--------------------------|----------------|-------------------|---------------|---------------|
|          |                    |     |         |                    |                       | 101.2                    | 114.2          | 13.0              | 0.77          | 0.15          |
|          |                    |     |         |                    |                       | 104.25                   | 110.35         | 6.1               | 1.38          | 0.24          |
|          |                    |     |         |                    |                       | 142.4                    | 147.5          | 5.1               | 0.84          | 0.32          |
| K05-01   | 676273<br>5516895  | -90 | 0       | 54.0               | 1373m                 | 6.4                      | 17.4           | 11.0              | 0.35          | 0.11          |
| K05-10   | 676273<br>5516886  | -45 | 240     | 195.7              | 1373m                 | 128.65                   | 143.9          | 15.25             | 0.28          | 0.07          |
| K05-02   | 676273<br>5516895  | -45 | 225     | 54.0               | 1373m                 | 6.1                      | 17.3           | 11.2              | 0.10          | 0.05          |
| K05-03   | 676273<br>5516895  | -45 | 45      | 104.2              | 1373m                 | Negligible               |                |                   |               |               |
| K05-04   | 676412<br>5516719  | -90 | 0       | 109.8              | 1395m                 | 9.2                      | 109.8          | 100.7             | 0.38          | 0.10          |
|          |                    |     |         |                    | Includes              | 22.0                     | 52.5           | 30.5              | 0.58          | 0.14          |
|          |                    |     |         |                    | including             | 22.0                     | 25.0           | 3.1               | 1.00          | 0.32          |
|          |                    |     |         |                    | including             | 49.4                     | 52.5           | 3.1               | 1.32          | 0.37          |
|          |                    |     |         |                    | and                   | 64.7                     | 98.2           | 33.6              | 0.51          | 0.11          |
| K05-05   | 676412<br>5516719  | -45 | 80      | 76.2               | 1395m                 | 22.0                     | 28.0           | 6.0               | 0.30          | 0.08          |
|          |                    |     |         |                    |                       | 34.2                     | 40.3           | 6.1               | 0.88          | 0.125         |
| K05-06   | 676900<br>5516048  | -90 | 0       | 81.4               | 1370m                 | Argillite-<br>No samples |                |                   |               |               |
| K05-07   | 676411<br>5516721  | -60 | 260     | 127.4              | 1395m                 | 22.0                     | 42.1           | 20.2              | 0.32          | 0.14          |
|          |                    |     |         |                    | Includes              | 25.2                     | 26.6           | 1.4               | 1.50          | 0.49          |
|          |                    |     |         |                    |                       | 50.3                     | 86.0           | 35.8              | 0.54          | 0.19          |
|          |                    |     |         |                    | Includes              | 67.7                     | 70.8           | 3.1               | 1.14          | 0.32          |
| K05-08   | 676378,<br>5516640 | -90 | 0       | 236.3              | 1379m                 | 9.8                      | 107.3          | 97.5              | 0.33          | 0.09          |
|          |                    |     |         |                    | Includes              | 15.9                     | 70.8           | 54.9              | 0.42          | 0.12          |
|          |                    |     |         |                    |                       | 119.5                    | 122.6          | 3.1               | 1.28          | 0.28          |
|          |                    |     |         |                    | (fault<br>zone)       | 128.65                   | 143.9          | 15.25             | 0.46          | 0.24          |
|          |                    |     |         |                    |                       | 171.3                    | 177.4          | 6.1               | 0.43          | 0.22          |
|          |                    |     |         |                    |                       | 217.1                    | 236.3          | 19.2              | 0.46          | 0.36          |
|          |                    |     |         |                    | includes              | 217.1                    | 220.1          | 3.1               | 0.17          | 1.25          |
|          |                    |     |         |                    | includes              | 223.15                   | 232.3          | 9.15              | 0.78          | 0.29          |
| K05-09   | 676378,<br>5516640 | -60 | 80      | 171.4              | 1379m                 | 52.45                    | 74.0           | 21.55             | 0.51          | 0.14          |

### 2006 and 2007 Diamond Drill programs

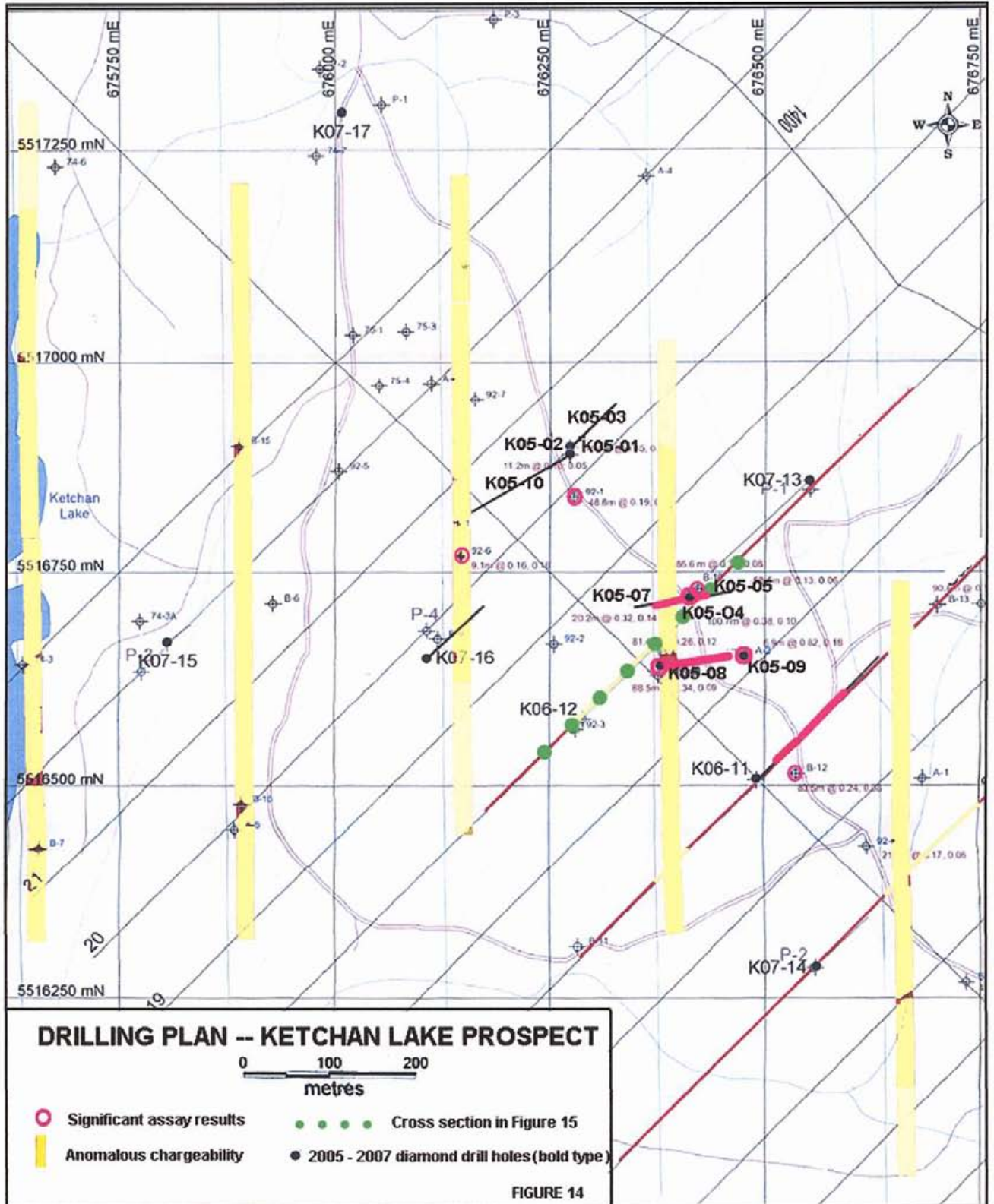
A two-hole diamond drill program, totalling 485.0 metres was carried out on the Ketchan Lake mineralized zone during the period November 26 to December 16, 2006. The work was carried out under the direction of Equity Engineering Ltd. Drill hole K06-11 was drilled to 339.1 metres depth. Anomalous copper values were obtained in drill hole K06-11 with results summarized on the following data table. Due to drilling difficulties, drill hole K06-12 was terminated well short of its target depth and contained generally insignificant copper or gold values throughout its length of 145.1 metres.

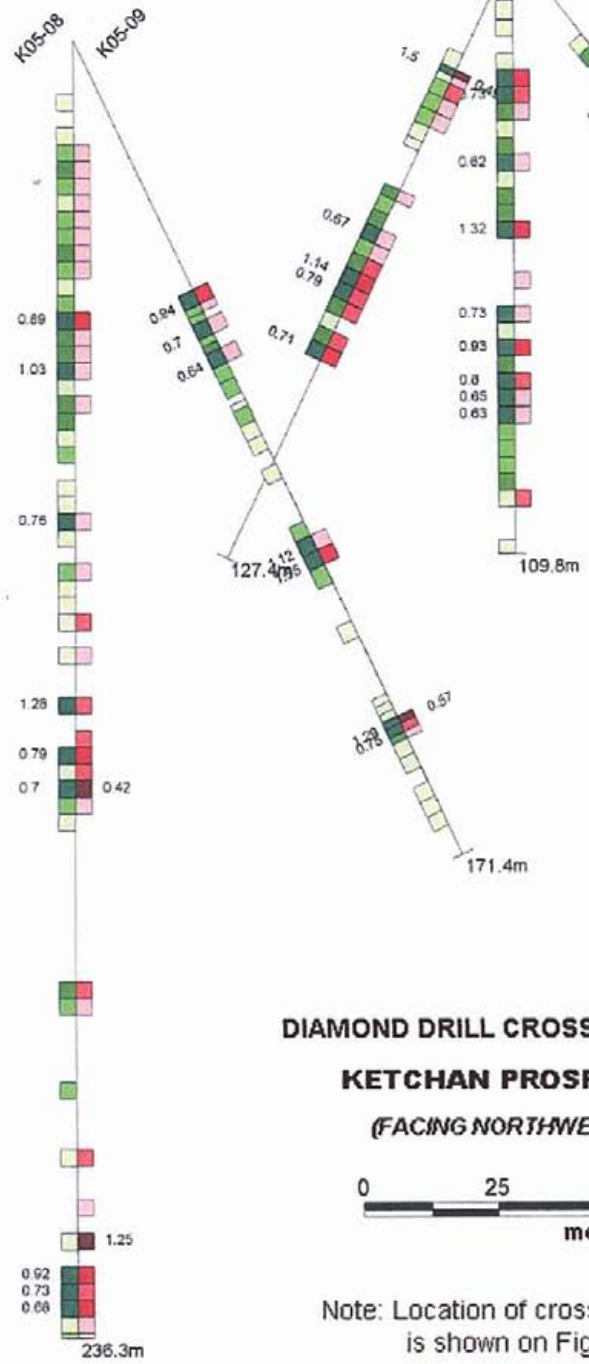
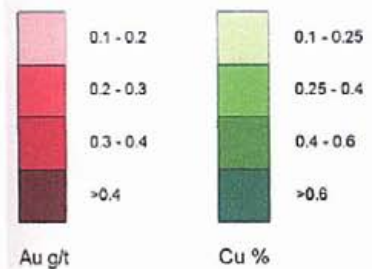
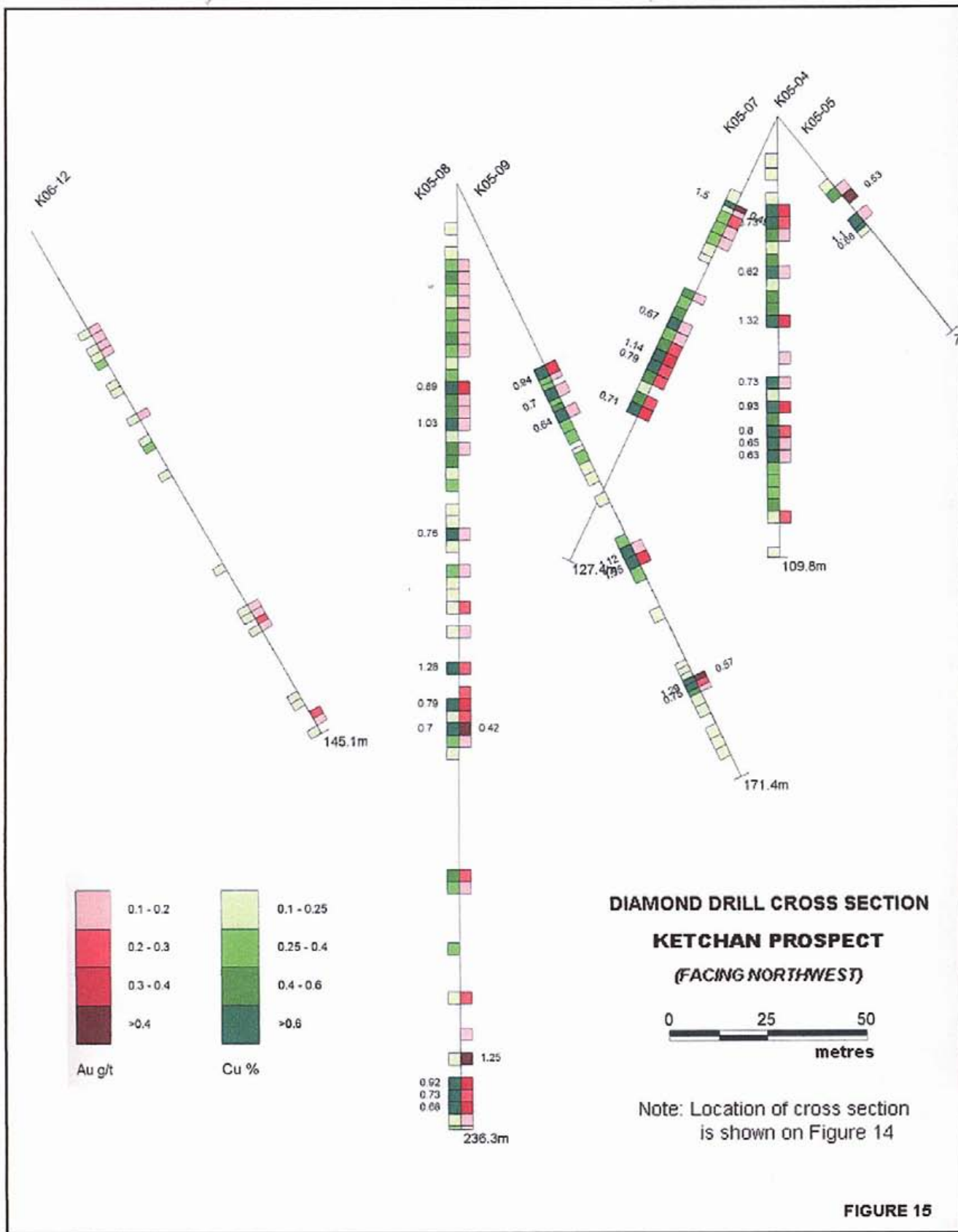
A diamond drill program was carried out on the Ketchan property during March, 2007 under the direction of G. Thomson, P. Geo. A total of 931 meters of drilling was carried out in five drill holes over the drilling period. The majority of these drill holes were drilled beyond the area of the significant drill holes of the 2005 drill program and for the most part contained only weak to moderate locally anomalous copper+/- gold values. The results of the 2006 and 2007 diamond drilling programs are summarized in the following table:

**TABLE 3**

| Hole No. | Location           | Dip | Az. | Length<br>(m) | Elev.<br>(m) | From<br>(m) | To<br>(m) | Width<br>(m) | Copper<br>(%) | Gold<br>(g/t) |
|----------|--------------------|-----|-----|---------------|--------------|-------------|-----------|--------------|---------------|---------------|
| K06-11   | 676491,<br>5516506 | -60 | 47  | 339.9         | 1375         | 107.65      | 145.3     | 37.65        | 0.24          | 0.115         |
|          |                    |     |     |               |              | 204.47      | 241.22    | 36.75        | 0.29          | 0.17          |
| K06-12   | 676289,<br>5516578 | -60 | 47  | 145.1         | 1367.6       | Negligible  |           |              |               |               |
| K07-13   | 676553,<br>5516856 | -60 | 227 | 314.9         | 1404         | 97.0        | 105.0     | 8.0          | 0.13          |               |
|          |                    |     |     |               |              | 177.0       | 181.0     | 4.0          | 0.7           | 0.23          |
| K07-14   | 676559,<br>5516285 | -60 | 47  | 172.8         | 1365         | 88.0        | 114.0     | 26.0         | 0.2           | 0.19          |
|          |                    |     |     |               |              | 124.0       | 134.0     | 10.0         | 0.2           | 0.13          |
| K07-15   | 675806,<br>5516668 | -60 | 53  | 68.0          | 1304         | Argillite   |           |              |               |               |
| K05-16   | 676107,<br>5516649 | -60 | 47  | 181.7         | 1352         | 130.0       | 144.0     | 14.0         | 0.1           | 0.1           |
| K05-17   | 676008,<br>5517294 | -90 | 0   | 193.55        | 1337         | Negligible  |           |              |               |               |







The best copper and gold values revealed in the drilling programs were located within a northeast-trending zone about 500 metres in length in the central portion of the known mineralized area. All of the “significant” holes from both the historical and recent drilling (highlighted on Figures 13 and 14) fall within this zone.

The following account is excerpted from Thomson (2007).

To date, the highest concentrations of copper mineralization (mainly chalcopyrite) are closely associated with strong to semi-massive zones of fine-grained magnetite as found in several of the 2005 drill holes (ie. K05-04, K05-07).

The strongest alteration is prevalent within sections that have been variably faulted and brecciated. It is within these zones of greatest disruption that the highest sulphide concentrations occur. The main observed sulphide forms of mineralization were fine-grained disseminations and local fracture fills of pyrite and intimately-associated chalcopyrite. Minor traces of sporadic bornite have also been observed.

Zones of strong alteration, where present are dominantly chlorite +/- epidote +/- magnetite with local areas of patchy potassic alteration. Silicification was not prevalent throughout most of the drill holes, however zones of silicification (+/- sericite) were noted within drill hole K05-09, from approximately 45.0 to 77.0 m, which also contained fine-grained associated chalcopyrite.

Strong correlation exists between higher copper and gold values. Generally, anomalous gold values range between 0.1 to 0.2 grams per ton gold, with narrower sampled intervals returning 0.2 to 0.7 g/t Au.

The highest gold assay of 1.25 g/t Au was returned from drill hole K05-08, over the interval 217.1-220.1 metres.

There is also a good correlation of higher copper-gold values with increased silver values. Copper values of greater than 0.5% copper are often accompanied by 1.5 to 4.5 ppm silver. Silver values may act as a potential credit towards the valuation of mineralized zones at the Ketchan porphyry copper-gold zone.

In several of the drill holes, molybdenum was found to be associated with areas of stronger copper mineralization. Although not visibly apparent, anomalous molybdenum values were returned in several of the drill holes, however molybdenum does not appear to occur in high enough value or consistent widths for economic consideration.

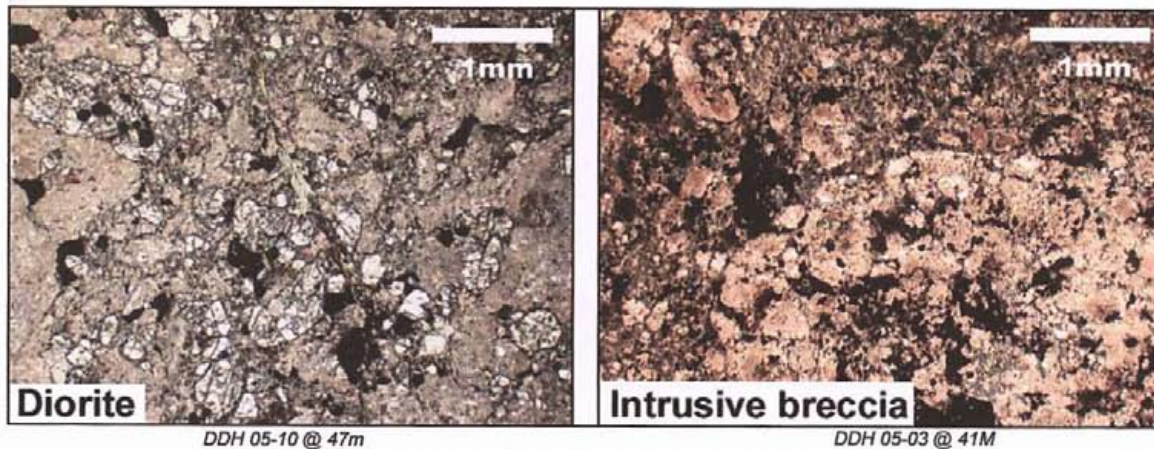


PetraScience Consultants carried out petrographic analyses on eight core samples taken from drill holes DH05-03, 04, 07, 08 and 10 (Dunne & Thompson, 2006). All of the samples except the one from DH05-10 came from holes that contained significant Cu/Au values. The petrographic report states, "***Lithologies are dominated by a variety of breccias including intrusive breccia and crackle breccia*** [emphasis mine]. *The intrusive breccia comprises subrounded to subangular fragments of plagioclase porphyry and locally fine-grained equigranular plagioclase aggregate in a fine to medium-grained, seriate, inequigranular, altered intrusive rock.*"

The following excerpt describes the alteration and mineralization:

K-feldspar alteration is recognized in several sections as pervasive replacement of plagioclase in breccia fragments, matrix or groundmass. Selective replacement of plagioclase by muscovite (sericite) is recognized in section DH05-10@47m and pervasive muscovite (sericite) replacement of host rock occurs in section DH05-08@50.5m. Illite, pyrite and rutile occur as selective replacement of plagioclase in section DH05-04@62.1m. Propylitic alteration including selective actinolite-epidote-chlorite-pyrite±magnetite±carbonate, chlorite-magnetite-clay or chlorite-carbonate-pyrite replacement of former mafic phases is found in most sections. Overprinting of pervasive sericite alteration by patchy rhombohedral carbonate (likely dolomite) occurs in section DH05-08@50.5m.

Sulphides include minor to major amounts of pyrite which occurs in most sections disseminated, as patchy aggregates, in stringers or in veinlets, trace to major amounts of chalcopyrite which occur typically disseminated or enclosing and infilling fractured pyrite, traces of bornite as peripheral replacement of chalcopyrite (in 3 sections) and locally chalcocite and covellite partly replacing the copper sulphides. Veins include pyrite-calcite-chlorite-(epidote-chalcopyrite), quartz-carbonate-(pyrite-chalcopyrite), chlorite-clay, chlorite-chalcopyrite±quartz±rutile±clay, chlorite-calcite-carbonate, calcite-chalcopyrite-clay, and epidote-chalcopyrite-(pyrite-carbonate-chlorite-quartz)



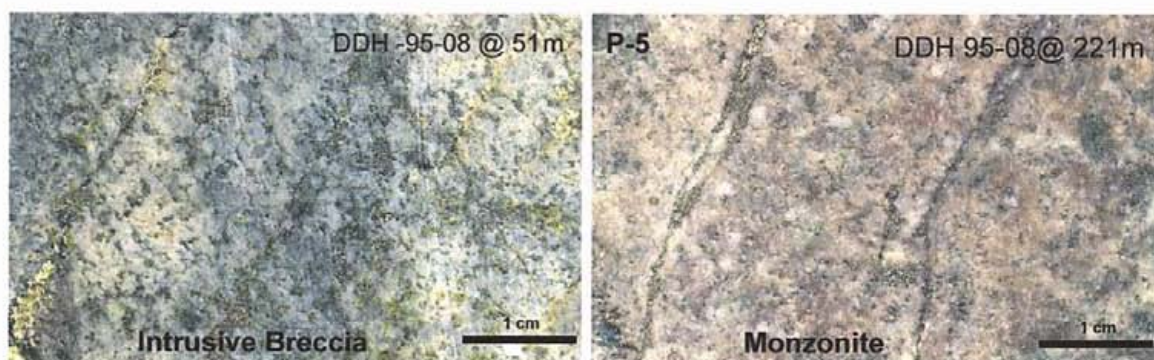
PHOTOMICROGRAPHS OF DRILL CORE

P-4

The only one of the samples that was composed of equigranular diorite, the rock type that constitutes the "country rock" in the area surrounding the Ketchan Lake Prospect, was taken from DH5-10 which is located along the north-western margin of the zone of "significant" mineralization.



I was impressed by the ubiquity of crackle breccia throughout the core that I examined. Most of the rock is composed of altered fine-textured diorite (or “microdiorite” – the term preferred by Thomson [2007] in his drilling logs). Intrusive breccia is relatively uncommon. The intrusive breccia described by Dunne & Thompson (2006) was quite fine grained. Most of the intrusive breccia seen in outcrop within the Alkalic Intrusive Complex is much coarser-textured. However, coarser varieties of intrusive breccia also are found in the core. Monzonite and syenite also were noted in the higher-grade zones. Potassic alteration is widespread in the Ketchan porphyry system, so it is possible that the K-spar in these rocks was due to alteration. This mode of origin is cited frequently with regard to monzonite and syenite of the Cherry Creek phase at the Afton mine.



My interpretation based on the recent drilling is that small bodies of intrusive breccia intruded into the diorite, which appears to be the earliest phase of the Alkalic Intrusive Complex. The crackle breccia may have been a consequence of this injection. These two breccia types would constitute favourable sites for later precipitation of the mineralization. This setting – i.e., localized pipes closely associated with alkalic porphyry copper-gold deposits -- is common in the zone extending from Copper Mountain to Kamloops, and at the Mount Polley mine in the equivalent belt to the north. A good description of a breccia pipe at the Pothook mine, located close to the Afton mine, is given by Stanley et al. (1994): “*In the center of the open pit, and seen only in drill core, there is a large body of hydrothermal breccia that contains rotated clasts of Pothook diorite, Cherry Creek monzonite, Sugarloaf diorite, and Nicola volcanics in a matrix of rock flour. In places, especially toward the center of the breccia, these clasts are well rounded due to milling, range in size from 5 to 100 millimetres, and are clast supported. Toward the margins of the breccia, fragments are larger and more angular.*” The economic mineralization at the mine was emplaced both in the intrusive breccia and in crackle breccia in the intruded rocks.

## MOBILE METAL ION TEST SURVEY

The photo-geological study indicated that large portions of the property were covered by various types of transported overburden that had not been mapped previously. These included weakly indurated upper Tertiary(?) sedimentary rocks, late-glacial sand & gravel, and valley basalt. The cover of overburden prevented geological mapping and prospecting and precluded the effective use of conventional geochemical soil sampling.

The Mobile Metal Ion (MMI) geochemical sampling and extraction technique was developed in Australia for use in prospecting for deeply buried and highly oxidized mineralization. "Mobile Metal Ions" is a term used to describe ions that have moved in the weathering zone and that are only weakly or loosely adsorbed by surface soil particles. The methodology is based on the assumptions that these ions the metals were derived from oxidation of a mineralized source, that they move directly upward, and that they accumulate in surface soils. The mechanism that drives the upward movement is poorly understood. Capillary rise is thought to be a very important process in the near surface environment (above the water table), including the maintenance of the anomalies.

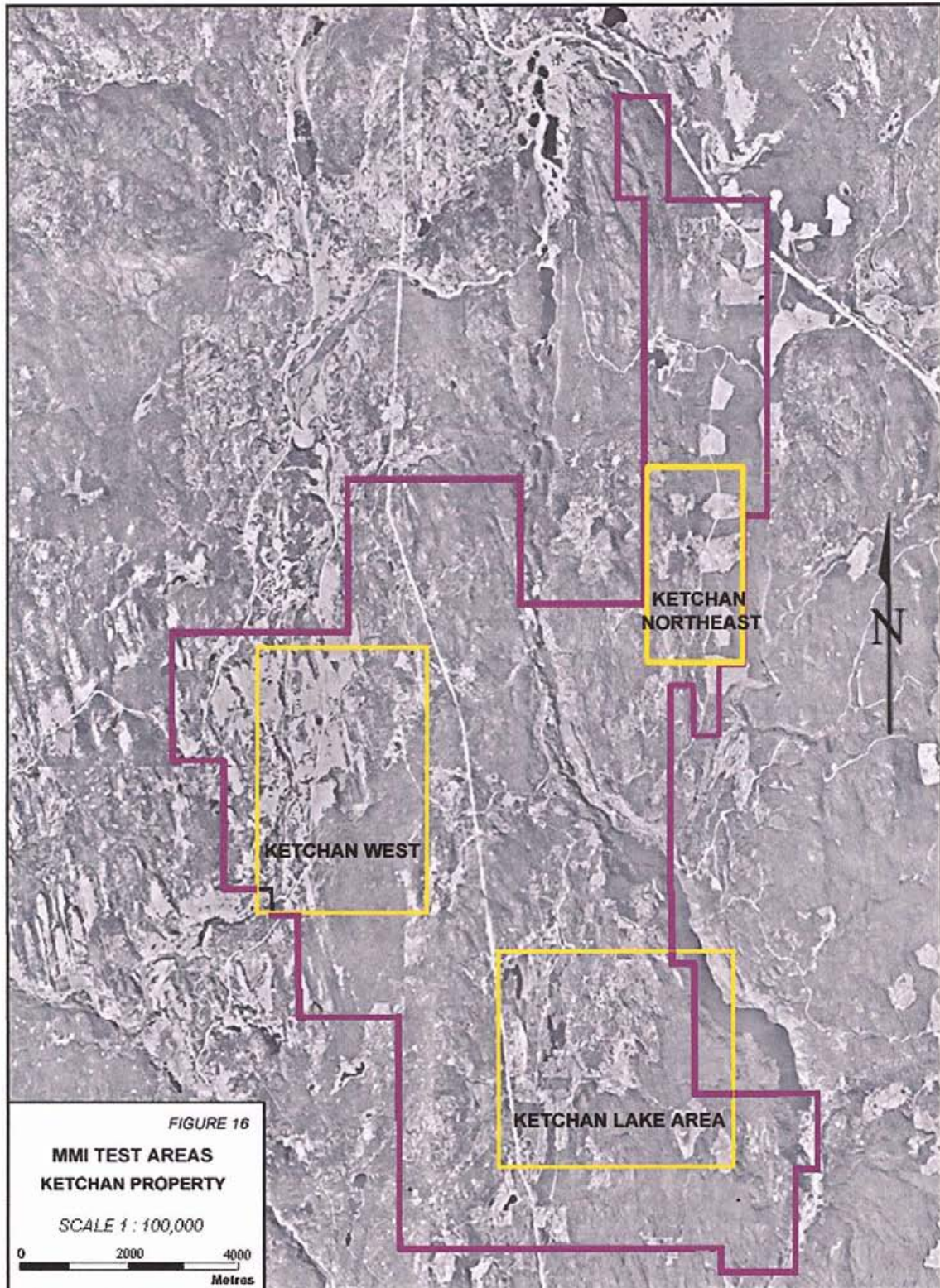
MMI is a partial digestion and, like all partial digestions, the results are very difficult to interpret. An even more serious problem is that we are dealing with a technique that was developed for use under a completely different set of conditions – e.g., shallow water table, lack of deep oxidation, glaciation. Furthermore, the case histories presented by the proponents of the technique for surveys done under the local conditions are mainly unconfirmed reports.

I have examined the results of a number of surveys that were carried out in interior British Columbia. Most of these were performed in till-covered areas, where the use of MMI was unnecessary since conventional soil sampling would have been far easier to interpret. However, in several cases there was evidence that zones of mineralization were detected beneath shallow transported cover. In one example, conspicuous changes in several elements detected two regional faults beneath deep overburden. A strong molybdenum anomaly that was not found in an earlier soil survey also was noted. My conclusion is that MMI can detect metals through transported cover material, but that the effects on the anomalous response due to various types of material and to the depth of the source is undetermined for the local environment.



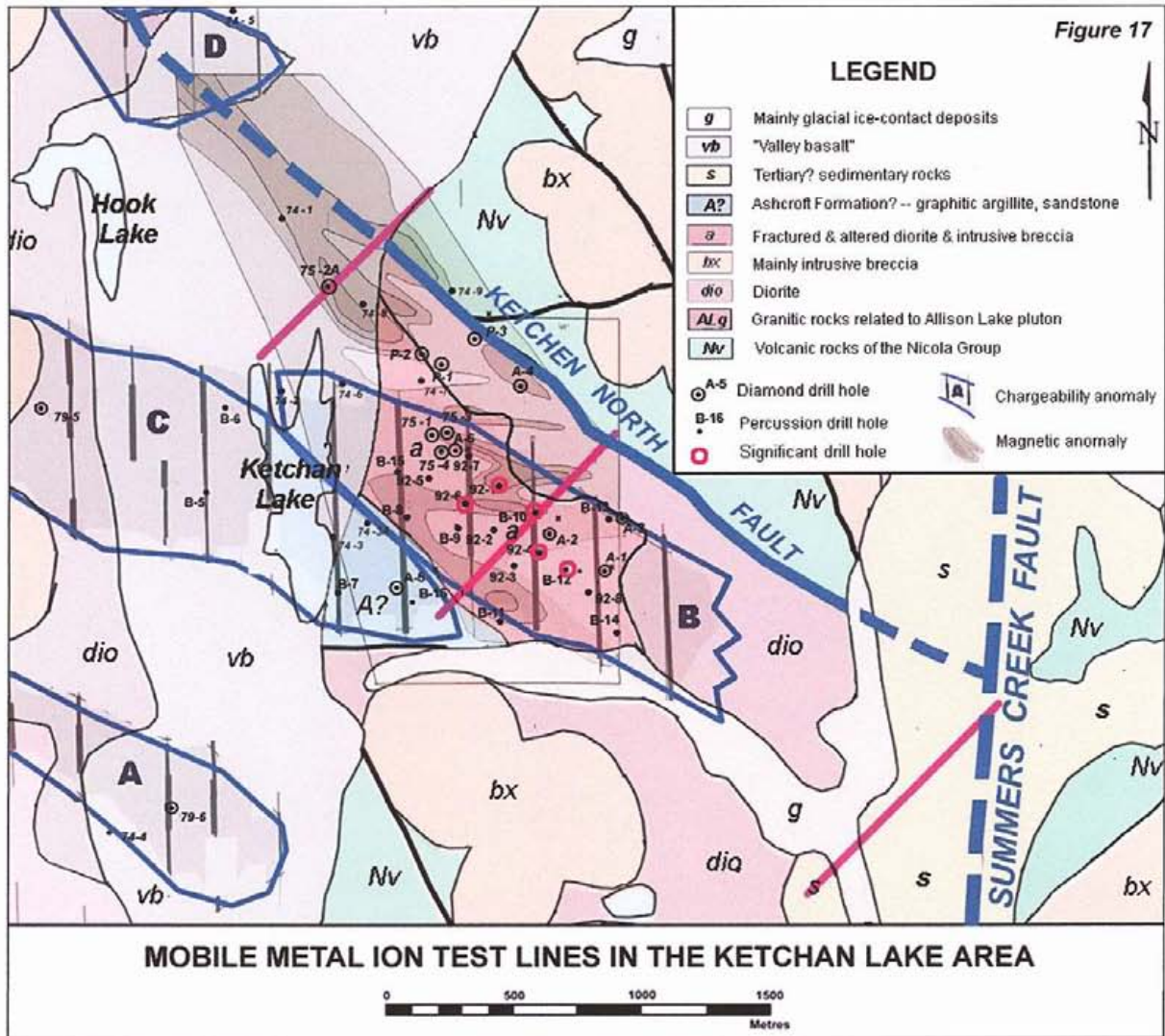
### Scope of the Survey

Three general areas were selected for test surveys as indicated on Figure 16. In all case the samples were collected at 50-metre intervals along the lines.





## Ketchan Lake Area



Three MMI lines were sampled along the indicated mineralized trend. The samples were collected at 50-metre intervals.

The Central line was intended as a test of the best mineralization that was encountered in the diamond drilling programs. (It approximately follows the cross section shown in Figure 15.) Soil samples were analysed by total digestion as well as for MMI content. The total digestion detected weakly anomalous copper values (130-140 ppm) across the zone. The MMI results showed two anomalous Cu values (8x background) and a three weakly anomalous (2-3x) within the same area, along with several weakly anomalous Au & Ag values.



The Western line was intended to test a ground magnetic anomaly north of Ketchan Lake that follows Ketchan North fault, which separates diorite of the Alkalic Intrusive Complex from Nicola volcanic rocks. The MMI line traversed a portion of a valley filled with pre-glacial sediments overlain by valley basalt. The only drill hole to reach bedrock (DDH 75-2A) penetrated glacial overburden (0-22m), valley basalt (22-64m) and semi-consolidated valley fill (64-105 m) before reaching bedrock between 105 and 107 metres, where the hole was lost. The log for the final two metres reported altered and mineralized diorite. The results showed only scattered anomalous Cu and Au values (2x-5x background) -were at the beginning and end of the traverse.

The Eastern line was intended to test the major deep-seated Summers Creek fault along the south-eastern extension of the Ketchan mineralized zone. The area is covered by upper Tertiary(?) sediments. No significant anomalous indications were detected for any of the 54 elements analyzed.

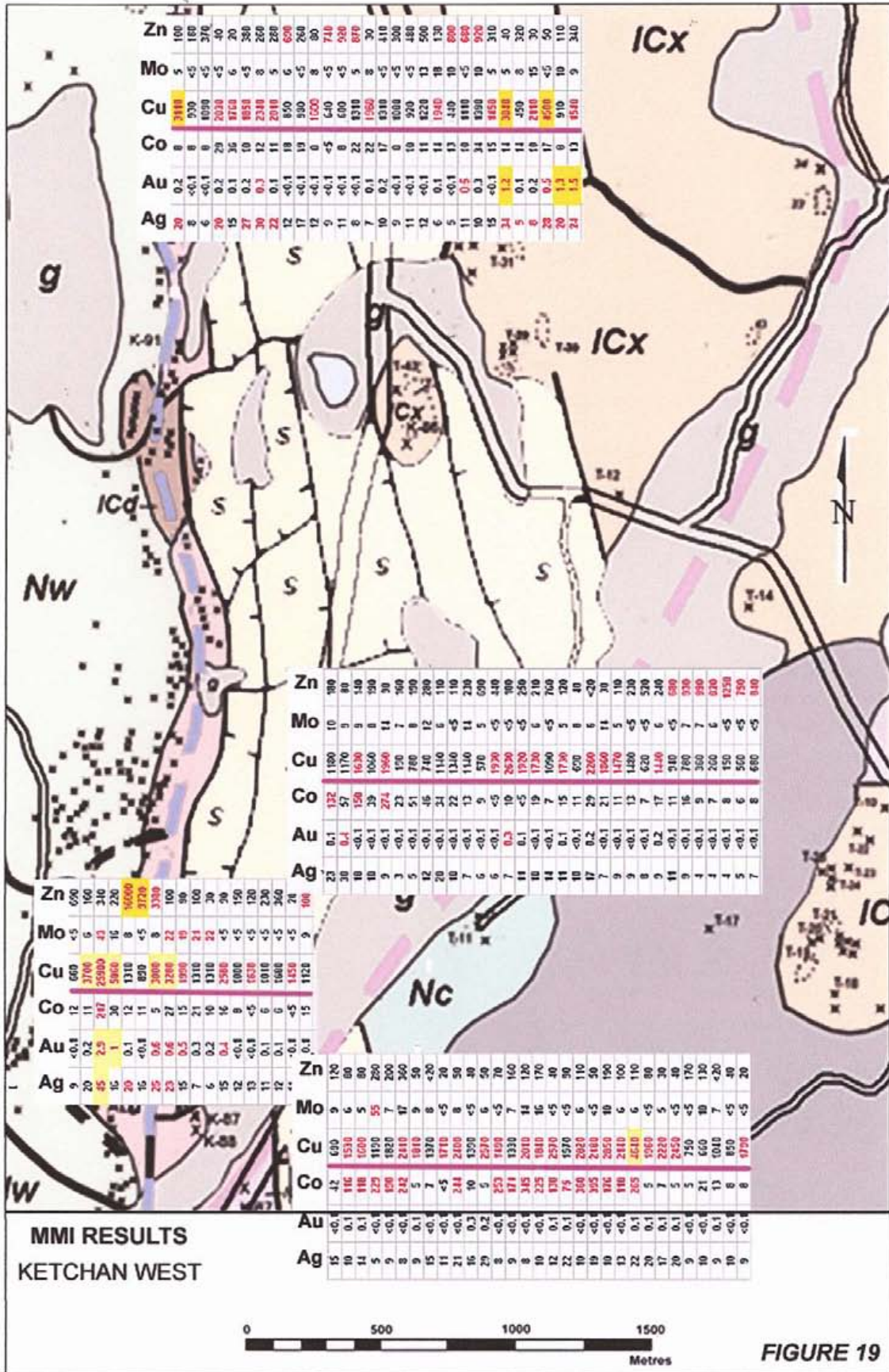
#### Ketchan West Area



A broad valley, about one kilometre in width, follows the east side of Otter Creek. The valley is floored by upper Tertiary(?) sedimentary rocks that have been preserved within a local graben. The south-eastern part of the valley is underlain by valley basalt. The area is of economic interest due to its proximity to the deep-seated Otter Creek fault, and because induced polarization surveys by Rayrock Yellowknife indicated two wide zones of high chargeability and low resistivity along the east side of the valley (see Figure 11). Lines 21000N and 23400N tested anomalies "A" and "B" respectively.

Four MMI traverses were completed.





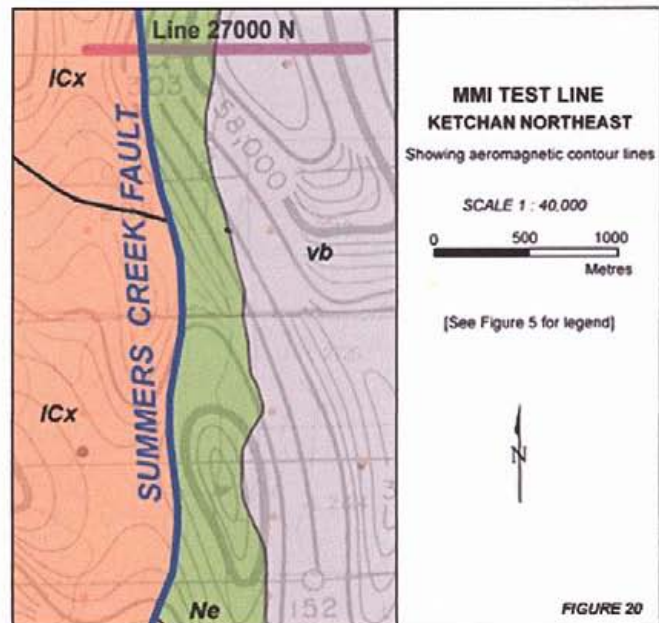
Three of the test areas were interpreted to be covered by younger transported material. The fourth extended over the PAR Prospect, which is located along and west of the deep-seated Otter Creek fault. Figure 19 shows the MMI results for the elements that exhibited significantly anomalous values. These elements are Ag, Au, Co, Cu, Mo and Zn. It seems clear that the anomalous metal content came from beneath the cover materials. The interpretation of the results is particularly difficult for MMI because the anomalous metals are assumed to come from an uncertain depth.

A number of anomalous Cu, Ag, Au, Mo and Zn values were identified at the PAR Prospect. The mineralization at the PAR occurs in porphyritic rocks related to the calc-alkaline Allison Lake pluton and in adjacent skarn. Cu, Ag and Au were the metals of interest noted in the previous drilling. (Mo and Zn were not analyzed.)

### Ketchan Northeast Area

The MMI line was intended to test an aeromagnetic anomaly that followed the eastern side of the Summers Creek fault for several kilometres. The anomaly is almost entirely covered by valley basalt.

The results of the MMI survey do not indicate any anomalous metal values of interest. However, the values west of the major fault are distinctly higher than those to the east. This probably represents a difference in the “background” levels in the volcanic rocks of the Nicola Group and the intrusive breccia of the Alkalic Intrusive Complex.





## INTERPRETATION & CONCLUSIONS

Most of the Ketchan Property is located between two deep-seated regional faults that were defined in Preto (1979). According to Preto, these faults produced a tripartite division of the volcanic rocks of the Nicola Group into area East, Central, and Western facies. The author's interpretation of the geology of the Property, first proposed in 2005, suggested that the Central facies rocks of the Nicola Group in this area were displaced by an Alkalic Intrusive Complex that is made up predominantly of intrusive breccias. Since that time, the suggested displacement of a large proportion of the Nicola volcanic rocks by intrusive breccias has been extended to cover the entire "Nicola Belt." This premise was based entirely on the author's field mapping and photogeology. In order to test the hypothesis in a more scientific manner, the results of some 29 chemical analyses and petrographic descriptions taken from Preto (1979) were compared with the author's interpretation of the rocks at the sample sites. The comparison indicated that all of the interpreted volcanic rocks were tholeiitic, while all of the interpreted intrusive breccias were alkaline. This result tended to support the author's contention that the intrusive breccias were related to the alkaline intrusions that host major porphyry copper-gold deposits of the alkaline type.

The Ketchan Lake porphyry copper-gold system has received by far the most exploration work of any of the mineral prospects on the Property. The most recent exploration on behalf of Moag Resources at Ketchan Lake followed up on the results of "historic" drilling. The strongest and most consistent mineralized zone encountered in the drilling was intersected in 8 drill holes. It has a length of about 500 metres and has been tested to a depth of more than 250 metres. The drilling density has been insufficient to determine the true width of this block or to calculate an indicated resource. Additional diamond drilling within and adjacent to this zone is warranted by the previous results.

Core logging and a petrographic analysis suggest that the higher-grade drill intersections are associated with the injection of intrusive breccia into older diorite of the Intrusive Igneous Complex. This association is a common, and perhaps an essential, ingredient in the genesis of alkalic porphyry copper-gold orebodies within the region. It also has been observed at the Coke Prospect in the southern part of the Property.



A strong association of magnetite with the more significant mineralized intersections was noted in the drill logging (Thomson, 2007). Anomalies in ground magnetic surveys correlate with the mineralized zone, and they continue well beyond the areas tested by drilling. In particular, the surveys indicated that the anomalous indications extended to the northwest for at least 1.5 kilometres, beyond the chargeability anomaly that is coincident with the known mineralized zone. This extension is located mainly in the Ketchikan Lake valley where the overburden is indicated to reach a depth of more than 100 metres. A chargeability anomaly was noted at the northwestern end of the magnetic anomaly. There is a possibility that the previous induced polarization survey did not detect mineralization within the deepest part of the valley due to the physical properties of the overburden.

A semi-continuous mineralized zone that includes the Coke and Rum Prospects follows the major Summers Creek fault zone that separates the Central and Eastern Facies of the Nicola volcanic rocks. Portions of the indicated copper resource at the Axe prospect to south of the Property appear to have been emplaced in sheared zones associated with the same structure. To the north, the Summers Creek fault intersects the south-eastern extension of the Ketchikan Lake mineralized zone about 1.5 kilometres from the nearest drill hole. This area is almost entirely covered by sedimentary rocks and by late-glacial deposits. The induced polarization and magnetic surveys did not extend to the southeast beyond the area tested by drilling.

Contemporary induced polarization techniques are capable of providing reliable chargeability data for possible drill targets below the deepest drill holes at the Ketchikan Lake prospect. An IP survey that would test the zone at depth and to both the northeast and southwest is warranted.

The PAR Prospect has been tested by a moderate amount of drilling, but I believe that much of the drilling was wasted due to application of a flawed deposit model. Several significant intersections of copper-gold-silver that were obtained close to the regional Otter Creek fault were not followed up, and the fault zone itself was not tested. The known mineralization was emplaced within a circular zone of brecciation. The breccia is unlike that in the breccia pipes of the Alkalic Intrusive Complex, but it could represent a zone of fracturing above a breccia pipe of unknown affiliation. Deeper testing of the Otter Creek fault and the breccia zone are warranted.

The lowland area between the Otter Creek fault and the Fairweather Hills in the western part of the Property (Otter Creek East Zone) is interpreted to be underlain by Nicola volcanic rocks and by granitic rocks of the Allison Lake pluton. An IP survey that tested a portion of this area indicated two wide chargeability and resistivity anomaly zones. The resistivity "lows" may reflect shearing related to north-south faulting associated with the deep-seated Otter Creek fault zone. There is no information on the cause of the chargeability anomalies. However, the geophysical consultant stated that, in the portion of the zone tested, "the metallic mineralization must be at least 1000 metres in width." A number of porphyry copper indications (the "Mob" showings) occur in calc-alkaline granitic rocks of the Allison pluton at the southern end of the Otter Creek East Zone, outside of the Property. Like the PAR mineralization on the western border of the Otter Creek East Zone, they appear to have an unusually high silver content. North-south faults of the type that are interpreted to be present in the zone appear to be associated with the major copper deposits and significant prospects of the Highland Valley. The extensive anomalous IP indications within a north-south zone adjacent to the major regional Otter Creek fault -- and the associated PAR prospect -- indicate attractive exploration targets that have not been tested in the past due to masking by the nearly continuous overburden. A serious follow-up exploration program is warranted. It should include some diamond drilling to assist in the determination of the cause of the anomalous indications prior to carrying out geophysical and geochemical surveying of the zone, which has a north-south extent of nine kilometres.

The Coke Prospect has received a considerable amount of technical surveying but very little drill testing. The cause of the strong chargeability anomaly east of the regional fault has not been determined. This area and the northern extension of the zone are covered to a considerable extent by transported overburden, which reduced the effectiveness of the geological mapping and the geochemical survey. Detailed geological mapping covering the area from the Coke Prospect east to Summers Creek would provide a foundation for exploration of this relatively untested area, which includes the Shamrock mine. The "mine" itself is of no obvious exploration interest. However, the strong soil copper geochemical anomaly to the north deserves a detailed surface examination.

The results of trenching and sampling of the Zig 3 Prospect indicated significant copper mineralization along two bulldozer trenches, each greater

than 100 metres in length, but the true width of the mineralization and its strike continuity are unknown. Unlike the extensions of the Ketchan Lake and Coke prospect areas, overburden is thin in the vicinity of Zig 3 Prospect. Conventional geochemical soil sampling, in conjunction with prospecting and geological mapping, is an obvious choice prior to drill testing in a later stage of exploration.

The Mobile Metal Ion test was not an unqualified success since it failed to substantiate the known mineralized zone at Ketchan Lake, which reduces its perceived effectiveness in the evaluation of geologically and geophysically promising targets. However, it is clear that in some cases it appears to be capable of detecting metals at depth beneath a variety of transported materials. This is particularly apparent within the broad, overburden-covered valley in the western part of the Property. Two MMI lines over very wide IP anomalies, which were underlain by sedimentary and volcanic cover rocks, detected significant copper-gold-silver anomalies. The results over the PAR prospect are compatible with those from the previous drilling. However, the MMI data suggested that molybdenum and zinc may also be present in the mineralization.

## **RECOMMENDATIONS**

It is recommended that field exploration be carried out in five areas within the very large Ketchan Property. I have not divided the program into stages since the various components may be undertaken concurrently for mutual corroboration and planning.

The porphyry copper-gold system that has been identified east of Ketchan Lake has received by far the most attention from previous operators and it is recommended that this area, along with its interpreted extensions to the west and to the east, again receive the bulk of the exploration effort. One objective is to raise the status of the most intensely mineralized portion of the system into the category of an "Indicated Resource.

The other areas that are recommended for exploration work in the next phase of exploration are designated as the PAR Prospect, the Otter Creek East Zone, the Coke East Prospect, and the Zig 3 Prospect.

In some cases diamond drilling is recommended in conjunction with geophysical and geochemical surveys. However, the drilling is not

contingent on the results of the surveys. The cost estimate for diamond drilling includes mobilization & demobilization, travel & living expenses, supervision, core logging & storage, and environmental remediation.

## Cost Estimate

### Ketchan Lake Zone

|  |                  |
|--|------------------|
| Induced polarization survey: 30 kilometres @ \$2800./km. | \$ 84,000.       |
| MMI geochemical survey: 120 samples @ \$50./sample       | 6,000.           |
| Diamond drilling:  |                  |
| Main Zone -- 2000 metres in 5 holes @ \$200./ metre      | 400,000.         |
| West Extension – 300 metres in 2 holes @ \$200./metre    | 60,000.          |
| East Extension – 300 metres in 2 holes @ \$200./metre    | <u>60,000.</u>   |
| <b>Total</b>   | <b>\$610,000</b> |

### PAR Prospect

|  |                   |
|--|-------------------|
| Induced polarization: 10 kilometres @ \$2800./km.      | \$ 28,000.        |
| Diamond drilling: 600 metres in 3 holes @ \$200./metre | <u>120,000.</u>   |
| <b>Total</b>   | <b>\$148,000.</b> |

### Otter Creek East Zone

|  |                   |
|--|-------------------|
| Diamond drilling: 400 metres in 4 holes @ \$200./metre     | \$ 80,000.        |
| MMI geochemical survey: 60 samples @ \$50./sample          | 3,000.            |
| 3D induced polarization survey 10 kilometres @ \$2800./km. | <u>28,000.</u>    |
| <b>Total</b>   | <b>\$111,000.</b> |

### Coke East Prospect

|   |                   |
|---|-------------------|
| Geological mapping & prospecting: 10 days @ \$1000./day | \$ 10,000.        |
| Geochemical survey: 500 samples @ \$30./sample          | <u>15,000.</u>    |
| <b>Total</b>  | <b>\$ 25,000.</b> |

### Zig 3 Prospect

|   |                   |
|---|-------------------|
| Geochemical survey: 500 samples @ \$30./sample        | \$ 15,000.        |
| Geological mapping & prospecting: 10 days @ 1000./day | <u>10,000.</u>    |
| <b>Total</b>  | <b>\$ 25,000.</b> |

**Grand Total      \$919,000.**



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Respectfully submitted,

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**W. R. Bergey, P.Eng.**

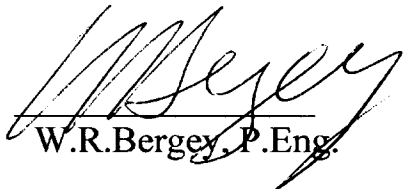
## STATEMENT OF COSTS

| <u>Type of Work</u>                        | <u>Days</u> | <u>Cost/day</u> | <u>Cost</u>      |
|--|-------------|-----------------|------------------|
| <b>Geological</b>                          |             |                 |                  |
| <u>W.R.Bergey, P.Eng.</u>                  |             |                 |                  |
| Geological mapping                         | 5           | \$ 600.         | \$ 3,000.        |
| Specimen preparation/examination           | 1           | 600.            | 600.             |
| Literature review, data plotting           | 6           | 600.            | 3,600.           |
| Photo-geological interpretation            | 15          | 600.            | 9,000.           |
| Map & report preparation                   | 5           | 600.            | 3,000.           |
| <u>G.Lovang</u>                            |             |                 |                  |
| Geological field assistant                 | 5           | 200.            | 1,000.           |
| <br><u>Field &amp; Office Expenses</u>     |             |                 |                  |
| Meals & accommodation                      |             |                 | 1,400.           |
| Vehicle expenses                           |             |                 | <u>640.</u>      |
|  |             |                 | \$ 19,540.       |
| <br><b>Geochemical</b>                     |             |                 |                  |
| <u>Sample Collection</u>                   |             |                 |                  |
| G. Lovang                                  |             |                 | \$ 3,800.        |
| G. Brown                                   |             |                 | 4,400.           |
| P. Forrester                               |             |                 | 4,400.           |
| Meals & accommodation                      |             |                 | 3,000.           |
| Vehicle expenses                           |             |                 | 1,600.           |
| Field supplies                             |             |                 | 720.             |
| <br><u>Laboratory Expenses</u>             |             |                 |                  |
| Conventional soil samples (ACL Laboratory) |             |                 | \$ 1,670.        |
| Mobile metal ion samples (SGS Laboratory)  |             |                 | <u>13,650.</u>   |
|  |             |                 | \$ 33,240.       |
| <b>TOTAL EXPENDITURES</b>                  |             |                 | <b>\$ 52,780</b> |

## STATEMENT OF QUALIFICATIONS

I, William Richard Bergey of 25789 - 8<sup>th</sup> Ave., Aldergrove, B.C., do hereby certify that:

1. I am a Professional Engineer (Geological) in the Province of British Columbia.
2. I have been employed in mining and mineral exploration for the past 64 years.
3. I have had many years of experience in geological mapping, and photo-geological interpretation related to mineral exploration.
4. I personally conducted all of the recent geological work described in the above report.

  
W.R. Bergey, P. Eng.

November 7, 2011

# **APPENDIX A**

## **Mobile Metal Ion analytical results**

### **Ketchan Property**



| ANALYTE<br>METHOD<br>DETECTION<br>UNITS | MMI           | Ag     | Al      | As      | Au     | Ba      | Bi     | Ca     | Cd     | Ce     | Co       | Cr     | Cs     | Cu     | Dy     | Er     | Eu     |        |
|---|---------------|--------|---------|---------|--------|---------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|
|   |               | MMI-M5 | MMI-M5  | MMI-M5  | MMI-M5 | MMI-M5  | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 |
|   |               | 1      | 1       | 10      | 0.1    | 10      | 10     | 1      | 10     | 1      | 5        | 5      | 100    | 0.5    | 10     | 1      | 0.5    | 0.5    |
| ppb                                     | ppm           | ppb    | ppb     | ppb     | ppb    | ppb     | ppm    | ppb    | ppb    | ppb    | ppb      | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    |        |
| North of Ketchikan Lake                 |               |        |         |         |        |         |        |        |        |        |          |        |        |        |        |        |        |        |
| G094051                                 | 76000E 18000N |        |         | 107 <10 | 0.1    | 990 <1  |        | 270    | 4      | 287    | 51       | 100    | 0.7    | 270    | 44     | 24.6   | 11.2   |        |
| G094052                                 | 50SE          | 7      | 18 <10  |         | 0.6    | 2410 <1 |        | 390    | 2      | 141    | 272 <100 |        | <0.5   | 3160   | 22     | 12     | 6.6    |        |
| G094053                                 | 100           | 14     | 26 <10  |         | 0.2    | 2590 <1 |        | 320    | 2      | 179    | 8 <100   |        | 0.9    | 1170   | 25     | 12.9   | 7.5    |        |
| G094054                                 | 150           | 8      | 94 <10  |         | 0.2    | 1870 <1 |        | 210    | 2      | 318    | 156      | 100    | 1.3    | 960    | 31     | 16.8   | 8.2    |        |
| G094055                                 | 200           | 6      | 139 <10 |         | 0.1    | 1080 <1 |        | 120    | 5      | 221    | 25 <100  |        | 3.3    | 330    | 32     | 16.2   | 8.2    |        |
| G094056                                 | 250           | 15     | 63 <10  |         | 0.1    | 2840 <1 |        | 390    | 5      | 184    | 10 <100  |        | 0.7    | 1630   | 27     | 14.2   | 8      |        |
| G094057                                 | 300           | 4      | 108 <10 |         | 0.1    | 770 <1  |        | 150    | 2      | 165    | 11 <100  |        | 2.6    | 460    | 20     | 9.5    | 5.9    |        |
| G094058                                 | 350           | 7      | 85 <10  |         | 0.1    | 1470 <1 |        | 270    | 3      | 88     | 21 <100  |        | 1.3    | 430    | 9      | 4.4    | 2.6    |        |
| G094059                                 | 400           | 6      | 97 <10  | <0.1    |        | 890 <1  |        | 260    | 6      | 116    | 9 <100   |        | 1.2    | 260    | 16     | 8.2    | 4      |        |
| G094060                                 | 450           | 7      | 124 <10 | <0.1    |        | 760 <1  |        | 150    | 5      | 91     | 19 <100  |        | 2.9    | 240    | 13     | 7.1    | 3.6    |        |
| G094061                                 | 500           | 9      | 118 <10 | <0.1    |        | 930 <1  |        | 190    | 6      | 103    | 18 <100  |        | 1.9    | 360    | 24     | 13.1   | 5.6    |        |
| G094062                                 | 550           | 23     | 104 <10 |         | 0.1    | 810 <1  |        | 260    | 6      | 43     | 8 <100   |        | 2.2    | 330    | 6      | 3.3    | 1.8    |        |
| G094063                                 | 600           | 7      | 102 <10 |         | 0.1    | 2250 <1 |        | 170    | 3      | 184    | 10 <100  |        | 2.9    | 360    | 21     | 10.6   | 5.4    |        |
| G094064                                 | 650           | 6      | 105 <10 | <0.1    |        | 920 <1  |        | 100    | 3      | 113    | 139 <100 |        | 2.9    | 860    | 13     | 6.7    | 3.1    |        |
| G094065                                 | 700           | 11     | 87 <10  |         | 0.1    | 1470 <1 |        | 170    | 3      | 105    | 51 <100  |        | 2.8    | 610    | 8      | 3.7    | 2.2    |        |
| G094066                                 | 750           | 17     | 123 <10 | <0.1    |        | 1030 <1 |        | 140    | 5      | 114    | 6 <100   |        | 3.5    | 290    | 20     | 10.3   | 5.2    |        |
| G094067                                 | 800           | 10     | 104 <10 | <0.1    |        | 1040 <1 |        | 100    | 5      | 137    | 98 <100  |        | 3      | 670    | 11     | 5.5    | 2.9    |        |
| G094068                                 | 850           | 13     | 10 <10  |         | 0.5    | 2800 <1 |        | 620    | 3      | 35     | 5 <100   |        | <0.5   | 1930   | 17     | 8.5    | 5.4    |        |
| G094069                                 | 900           | 11     | 41 <10  | <0.1    |        | 1930 <1 |        | 440    | 7      | 200    | 5 <100   |        | 0.5    | 1190   | 30     | 15.3   | 9.2    |        |
| G094070                                 | 950SE         | 9      | 88 <10  |         | 0.2    | 1500 <1 |        | 190    | 3      | 168    | 18 <100  |        | 1.4    | 600    | 18     | 8.9    | 5.4    |        |
| Ketchikan Zone                          |               |        |         |         |        |         |        |        |        |        |          |        |        |        |        |        |        |        |
| G094071                                 | 76400E 16700N | Ag     | Al      | As      | Au     | Ba      | Bi     | Ca     | Cd     | Ce     | Co       | Cr     | Cs     | Cu     | Dy     | Er     | Eu     |        |
| G094072                                 | 50NE          | 43     | 129 <10 |         | 0.1    | 1080 <1 |        | 130    | 9      | 186    | 33 <100  |        | 2.4    | 1420   | 33     | 16.9   | 7.6    |        |
| G094073                                 | 100           | 18     | 132 <10 | <0.1    |        | 1280 <1 |        | 160    | 7      | 154    | 50 <100  |        | 1.9    | 340    | 19     | 10     | 4.9    |        |
| G094074                                 | 150           | 29     | 118 <10 |         | 0.1    | 1360 <1 |        | 180    | 9      | 185    | 25 <100  |        | 1.4    | 630    | 30     | 16.2   | 7.7    |        |
| G094075                                 | 200           | 26     | 73 <10  |         | 0.1    | 820 <1  |        | 290    | 15     | 56     | 7 <100   |        | 1.6    | 860    | 7      | 3.4    | 1.9    |        |
| G094076                                 | 250           | 27     | 81 <10  |         | 0.1    | 1910 <1 |        | 290    | 6      | 210    | 21 <100  |        | 0.9    | 4040   | 22     | 11.3   | 6.2    |        |
| G094077                                 | 300           | 31     | 94 <10  | <0.1    |        | 1110 <1 |        | 180    | 6      | 84 <5  | <100     |        | 4.2    | 540    | 16     | 9.2    | 4.4    |        |
| G094078                                 | 350           | 47     | 63 <10  |         | 0.6    | 3500 <1 |        | 280    | 3      | 118    | 7 <100   |        | 1.7    | 1370   | 13     | 5.6    | 3.9    |        |
| G094079                                 | 400           | 27     | 137 <10 | <0.1    |        | 1530 <1 |        | 170    | 8      | 185    | 17 <100  |        | 1.9    | 340    | 24     | 11.2   | 6.2    |        |
| G094080                                 | 450NE         | 64     | 11 <10  |         | 0.4    | 1120 <1 |        | 410    | 12     | 20     | 12 <100  |        | <0.5   | 4530   | 7      | 3.2    | 2.1    |        |
| G094081                                 | 50SW          | 53     | 73 <10  | <0.1    |        | 1780 <1 |        | 200    | 8      | 128    | 27 <100  |        | 1.2    | 330    | 10     | 4.9    | 3      |        |
| G094082                                 | 100           | 23     | 122 <10 |         | 0.2    | 1750 <1 |        | 150    | 10     | 196    | 35 <100  |        | 3.4    | 2270   | 17     | 8.5    | 4.5    |        |
| G094083                                 | 150           | 28     | 92 <10  |         | 0.3    | 1600 <1 |        | 190    | 7      | 144    | 18 <100  |        | 2.6    | 1630   | 14     | 6.8    | 3.8    |        |
| G094084                                 | 200           | 19     | 114 <10 | <0.1    |        | 890 <1  |        | 180    | 10     | 102    | 14 <100  |        | 2.2    | 460    | 15     | 7.6    | 3.5    |        |
| G094085                                 | 250           | 27     | 92 <10  |         | 0.1    | 690 <1  |        | 190    | 11     | 109    | 7 <100   |        | 1.4    | 590    | 19     | 9.5    | 5.3    |        |
| G094086                                 | 300           | 19     | 117 <10 | <0.1    |        | 1100 <1 |        | 180    | 8      | 110    | 14 <100  |        | 1.6    | 310    | 12     | 5.4    | 3      |        |
| G094087                                 | 350           | 13     | 118 <10 | <0.1    |        | 1280 <1 |        | 210    | 14     | 252    | 63 <100  |        | 0.9    | 670    | 34     | 18     | 8.5    |        |
| G094088                                 | 400           | 21     | 79 <10  |         | 0.1    | 1400 <1 |        | 240    | 5      | 152    | 13 <100  |        | 1.2    | 510    | 16     | 8      | 4.7    |        |
| G094089                                 | 450           | 16     | 120 <10 |         | 0.6    | 1670 <1 |        | 180    | 5      | 235    | 33 <100  |        | 2.1    | 510    | 21     | 10.3   | 5.7    |        |
| G094090                                 | 500SW         | 21     | 96 <10  |         | 0.3    | 1260 <1 |        | 180    | 5      | 182    | 195 <100 |        | 0.5    | 560    | 18     | 8.5    | 4.8    |        |
|   |               | 18     | 39 <10  |         | 0.2    | 1360 <1 |        | 440    | 9      | 71     | 7 <100   |        | <0.5   | 1260   | 18     | 8.7    | 5.4    |        |
| Summers Creek Fault                     |               |        |         |         |        |         |        |        |        |        |          |        |        |        |        |        |        |        |
| G094091                                 | 77800 15650   | 24     | 118 <10 | <0.1    |        | 470 <1  |        | 130    | 6      | 113    | 28 <100  |        | 3      | 720    | 20     | 11.1   | 5.2    |        |
| G094092                                 | 50NE          | 29     | 130 <10 | <0.1    |        | 570 <1  |        | 130    | 5      | 103    | 30 <100  |        | 3.6    | 760    | 18     | 9.1    | 4.7    |        |
| G094093                                 | 100           | 19     | 107 <10 | <0.1    |        | 830 <1  |        | 140    | 4      | 113    | 18 <100  |        | 2.7    | 500    | 15     | 7.5    | 4.5    |        |
| G094094                                 | 150           | 17     | 118 <10 | <0.1    |        | 1050 <1 |        | 140    | 4      | 147    | 13 <100  |        | 4.3    | 340    | 21     | 10.3   | 6      |        |
| G094095                                 | 200           | 7      | 131 <10 | <0.1    |        | 870 <1  |        | 180    | 6      | 107    | 16 <100  |        | 3.2    | 430    | 20     | 10.4   | 5.4    |        |
| G094096                                 | 250           | 9      | 143 <10 | <0.1    |        | 750 <1  |        | 150    | 8      | 131    | 17 <100  |        | 3.3    | 370    | 26     | 13.9   | 6.2    |        |
| G094097                                 | 300           | 13     | 127 <10 | <0.1    |        | 590 <1  |        | 110    | 4      | 185    | 19 <100  |        | 3.4    | 530    | 32     | 17.3   | 8.3    |        |
| G094098                                 | 350           | 22     | 117 <10 |         | 0.1    | 660 <1  |        | 140    | 7      | 126    | 14 <100  |        | 4.1    | 730    | 27     | 14.5   | 7      |        |
| G094099                                 | 400           | 20     | 112 <10 | <0.1    |        | 580 <1  |        | 160    | 4      | 114    | 12 <100  |        | 2.8    | 620    | 19     | 9.7    | 5.7    |        |
| G094100                                 | 450NE         | 8      | 58 <10  | <0.1    |        | 1390 <1 |        | 280    | 2      | 112    | 29 <100  |        | 0.9    | 1020   | 14     | 7.2    | 4.1    |        |
| G094101                                 | 50SW          | 9      | 195 <10 | <0.1    |        | 500 <1  |        | 100    | 8      | 85     | 55 <100  |        | 4.7    | 570    | 16     | 8.5    | 3.9    |        |
| G094102                                 | 100           | 37     | 124 <10 |         | 0.3    | 770 <1  |        | 180    | 5      | 128    | 16 <100  |        | 3.5    | 910    | 17     | 9      | 5      |        |
| G094103                                 | 150           | 46     | 143 <10 | <0.1    |        | 700 <1  |        | 180    | 25     | 111    | 16 <100  |        | 3.6    | 880    | 22     | 11.2   | 5.7    |        |
| G094104                                 | 200           | 33     | 87 <10  | <0.1    |        | 1460 <1 |        | 310    | 9      | 111    | 31 <100  |        | 0.7    | 360    | 12     | 5.9    | 3.6    |        |
| G094105                                 | 250           | 36     | 145 <10 | <0.1    |        | 470 <1  |        | 100    | 8      | 127    | 25 <100  |        | 5.2    | 610    | 18     | 9.7    | 5      |        |
| G094107                                 | 300           | 37     | 165 <10 | <0.1    |        | 460 <1  |        | 100    | 6      | 140    | 24 <100  |        | 4.1    | 450    | 15     | 7.7    | 4.6    |        |
| G094108                                 | 350           | 24     | 123 <10 | <0.1    |        | 1060 <1 |        | 160    | 5      | 115    | 14 <100  |        | 4      | 750    | 21     | 11.4   | 5.8    |        |
| G094109                                 | 400           | 19     | 141 <10 |         | 0.2    | 1280 <1 |        | 160    | 6      | 141    | 14 <100  |        | 2      | 710    | 16     | 7.7    | 4.5    |        |
| G094110                                 | 450SW         | 33     | 152 <10 | <0.1    |        | 1990 <1 |        | 120    | 5      | 286    | 31 <100  |        | 2.3    | 940    | 41     | 21.4   | 11.9   |        |
| Ketchikan NE Line 27000                 |               |        |         |         |        |         |        |        |        |        |          |        |        |        |        |        |        |        |
| G094111                                 | 50W           | 9      | 128 <10 |         | 0.3    | 1060 <1 |        | 180    | 4      | 104    | 9 <100   |        | 2.2    | 100    | 8      | 4.2    | 2.6    |        |
| G094112                                 | 100           | 13     | 56 <10  |         | 0.1    | 1620 <1 |        | 260    | 3      | 173    | 170 <100 |        | 0.6    | 680    | 5      | 2.4    | 1.6    |        |
| G094113                                 | 150           | 10     | 120 <10 | <0.1    |        | 740 <1  |        | 180    | 3      | 66     | 102 <100 |        | 2.6    | 290    | 5      | 2.3    | 1.4    |        |
| G094114                                 | 200           | 5      | 50 <10  |         | 0.2    | 1890 <1 |        | 250    | 2      | 117    | 167 <100 |        | 0.8    | 710    | 5      | 2.3    | 1.7    |        |
| G094115                                 | 250           | 2      | 90 <10  | <0.1    |        | 940 <1  |        | 120    | 3      | 222    | 8 <100   |        | 4.6    | 400    | 31     | 15     | 10.2   |        |
| G094116                                 | 300           | <1     | 80 <10  | <0.1    |        | 2240 <1 |        | 140    | 2      | 377    | 79 <100  |        | 3      | 600    | 20     | 9      | 6.8    |        |
| G094117                                 | 350           | 7      | 38 <10  | <0.1    |        | 4850 <1 |        | 200    | 4      | 362    | 119 <100 |        | 1      | 670    | 17     | 7.9    | 5.8    |        |
| G094118                                 | 400           | 6      | 36 <10  | <0.1    |        | 3170 <1 |        | 240    | 3      | 105    | 127 <100 |        | <0.5   | 580    | 7      | 3.6    | 2.4    |        |
| G094119                                 | 45            |        |         |         |        |         |        |        |        |        |          |        |        |        |        |        |        |        |

| Fe     | Ga     | Gd     | Hg     | In     | K      | La     | Li     | Mg     | Mn     | Mo     | Nb     | Nd     | Ni     | P      | Pb     | Pd     | Pr     | Pt     |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS | MMI-MS |
| 1      | 1      | 1      | 1      | 1      | 0.5    | 0.1    | 1      | 5      | 1      | 10     | 5      | 0.5    | 1      | 5      | 0.1    | 10     | 1      | 1      |
| ppm    | ppb    | ppb    | ppb    | ppb    | ppm    | ppb    | ppb    | ppm    | ppb    | ppb    | ppb    | ppb    | ppb    | ppm    | ppb    | ppb    | ppb    | ppb    |
| 73     | 20     | 52     | <1     | <0.5   | 37.5   | 79     | <5     | 47     | 9780   | 10     | 3.1    | 163    | 224    | 6.2    | 70     | <1     | 36     | <1     |
| 48     | 44     | 29     | <1     | <0.5   | 37.7   | 55     | <5     | 92     | 14100  | 10     | 1.8    | 108    | 203    | 1.1    | <10    | <1     | 23     | <1     |
| 36     | 48     | 34     | <1     | <0.5   | 28.3   | 56     | <5     | 84     | 230    | <5     | 1.8    | 118    | 93     | 2.4    | <10    | <1     | 25     | <1     |
| 120    | 36     | 36     | <1     | <0.5   | 31.9   | 76     | <5     | 33     | 12000  | 7      | 4.8    | 136    | 167    | 4      | 40     | 1      | 31     | <1     |
| 60     | 28     | 36     | <1     | <0.5   | 35.3   | 65     | <5     | 12     | 3290   | <5     | 2.6    | 123    | 60     | 4.9    | 60     | 2      | 28     | <1     |
| 38     | 49     | 36     | <1     | <0.5   | 19.8   | 66     | <5     | 58     | 590    | <5     | 2.2    | 124    | 92     | 1.8    | 30     | <1     | 27     | <1     |
| 39     | 18     | 24     | <1     | <0.5   | 129    | 46     | <5     | 19     | 930    | 10     | 1.4    | 88     | 43     | 3.7    | 50     | <1     | 20     | <1     |
| 45     | 28     | 11     | <1     | <0.5   | 58.8   | 28     | <5     | 26     | 2450   | <5     | 2.5    | 44     | 45     | 5.4    | 20     | <1     | 10     | <1     |
| 43     | 17     | 17     | <1     | <0.5   | 35.5   | 27     | <5     | 45     | 2310   | <5     | 2.6    | 54     | 90     | 6.6    | 40     | <1     | 12     | <1     |
| 55     | 19     | 15     | <1     | <0.5   | 32.3   | 26     | <5     | 17     | 7000   | <5     | 2.5    | 49     | 90     | 6.6    | 70     | <1     | 11     | <1     |
| 61     | 20     | 25     | <1     | <0.5   | 43.3   | 31     | <5     | 21     | 2700   | <5     | 2.3    | 70     | 89     | 6.5    | 60     | <1     | 15     | <1     |
| 32     | 16     | 7      | <1     | <0.5   | 62.6   | 11     | <5     | 26     | 710    | <5     | 1.6    | 22     | 54     | 5.8    | 40     | <1     | 5      | <1     |
| 34     | 44     | 24     | <1     | <0.5   | 83.7   | 51     | <5     | 25     | 1150   | <5     | 1.5    | 84     | 22     | 3      | 40     | 1      | 20     | <1     |
| 112    | 19     | 13     | <1     | <0.5   | 101    | 29     | <5     | 11     | 21500  | 10     | 4.3    | 48     | 52     | 7.8    | 50     | 2      | 11     | <1     |
| 65     | 29     | 9      | <1     | <0.5   | 44.5   | 30     | <5     | 27     | 14900  | <5     | 4.1    | 41     | 43     | 6.6    | 30     | 1      | 10     | <1     |
| 40     | 24     | 23     | <1     | <0.5   | 60.9   | 38     | <5     | 11     | 1780   | <5     | 1.9    | 74     | 40     | 4.1    | 40     | 1      | 16     | <1     |
| 110    | 22     | 12     | <1     | <0.5   | 47.3   | 33     | <5     | 12     | 32300  | 10     | 4.5    | 51     | 50     | 6.1    | 40     | 2      | 12     | <1     |
| 11     | 47     | 25     | <1     | <0.5   | 17.6   | 27     | <5     | 83     | 410    | <5     | 0.8    | 70     | 278    | 1      | <10    | <1     | 13     | <1     |
| 27     | 34     | 42     | <1     | <0.5   | 20.4   | 62     | <5     | 119    | 710    | <5     | 0.6    | 135    | 249    | 0.9    | 20     | <1     | 28     | <1     |
| 30     | 30     | 23     | <1     | <0.5   | 71.4   | 53     | <5     | 33     | 5880   | <5     | 1.3    | 91     | 41     | 2.7    | 20     | 1      | 21     | <1     |
| 82     | 24     | 34     | <1     | <0.5   | 98     | 44     | <5     | 14     | 3430   | 10     | 3.6    | 94     | 93     | 7.7    | 100    | 1      | 20     | <1     |
| 81     | 26     | 21     | <1     | <0.5   | 33.4   | 38     | <5     | 25     | 3840   | <5     | 3.6    | 69     | 66     | 5.4    | 120    | 1      | 16     | <1     |
| 65     | 26     | 34     | <1     | <0.5   | 60.9   | 50     | <5     | 32     | 1930   | 6      | 2.4    | 103    | 79     | 3.7    | 90     | <1     | 23     | <1     |
| 38     | 16     | 9      | <1     | <0.5   | 226    | 19     | <5     | 50     | 1840   | 8      | 2.2    | 31     | 86     | 4.7    | 30     | <1     | 7      | <1     |
| 50     | 35     | 26     | <1     | <0.5   | 46.6   | 54     | <5     | 61     | 1420   | <5     | 2      | 92     | 63     | 2.9    | 70     | <1     | 21     | <1     |
| 26     | 23     | 20     | <1     | <0.5   | 72.7   | 30     | <5     | 20     | 2120   | <5     | 0.5    | 62     | 26     | 1.9    | 50     | <1     | 13     | <1     |
| 28     | 62     | 16     | <1     | <0.5   | 65.3   | 38     | <5     | 38     | 740    | <5     | 1.2    | 53     | 46     | 3.1    | 20     | <1     | 12     | <1     |
| 67     | 31     | 26     | <1     | <0.5   | 78.6   | 49     | <5     | 22     | 4820   | <5     | 3.7    | 81     | 66     | 6.4    | 80     | 2      | 19     | <1     |
| 6      | 19     | 9      | <1     | <0.5   | 21.1   | 10     | <5     | 287    | 2930   | <5     | <0.5   | 26     | 117    | 0.5    | 10     | <1     | 5      | <1     |
| 43     | 33     | 12     | <1     | <0.5   | 38.2   | 29     | <5     | 39     | 3360   | <5     | 2.2    | 45     | 57     | 2.8    | 40     | <1     | 11     | <1     |
| 48     | 36     | 20     | <1     | <0.5   | 79.1   | 47     | <5     | 14     | 6180   | 10     | 2.8    | 73     | 85     | 4.8    | 70     | 2      | 17     | <1     |
| 39     | 31     | 18     | <1     | <0.5   | 69.3   | 39     | <5     | 26     | 2160   | 8      | 2.1    | 61     | 37     | 3.6    | 30     | 1      | 14     | <1     |
| 50     | 20     | 16     | <1     | <0.5   | 65.2   | 23     | <5     | 29     | 3740   | 6      | 1.8    | 47     | 110    | 4.6    | 80     | <1     | 10     | <1     |
| 34     | 14     | 22     | <1     | <0.5   | 407    | 33     | <5     | 56     | 1690   | 5      | 1.1    | 70     | 86     | 4.4    | 30     | <1     | 15     | <1     |
| 62     | 23     | 13     | <1     | <0.5   | 72.8   | 26     | <5     | 28     | 4900   | 7      | 3.2    | 42     | 100    | 9.6    | 60     | <1     | 10     | <1     |
| 91     | 25     | 37     | <1     | <0.5   | 88.4   | 61     | <5     | 43     | 6090   | 14     | 3.8    | 113    | 181    | 9.3    | 170    | <1     | 25     | <1     |
| 49     | 26     | 20     | <1     | <0.5   | 86.1   | 40     | <5     | 39     | 2050   | <5     | 1.9    | 89     | 96     | 6.2    | 40     | <1     | 15     | <1     |
| 75     | 33     | 24     | <1     | <0.5   | 70.2   | 50     | <5     | 28     | 4140   | 6      | 5      | 82     | 104    | 10.7   | 80     | 2      | 19     | <1     |
| 74     | 24     | 20     | <1     | <0.5   | 149    | 50     | <5     | 26     | 19600  | 6      | 2.8    | 75     | 118    | 9.3    | 60     | 1      | 18     | <1     |
| 28     | 24     | 24     | <1     | <0.5   | 61.6   | 34     | <5     | 60     | 770    | <5     | 0.7    | 76     | 212    | 2.7    | 20     | <1     | 16     | <1     |
| 32     | 15     | 23     | <1     | <0.5   | 30.4   | 32     | <5     | 8      | 2220   | 9      | 0.8    | 70     | 43     | 2.2    | 100    | 1      | 15     | <1     |
| 40     | 19     | 20     | <1     | <0.5   | 34.6   | 36     | <5     | 8      | 3990   | <5     | 1.1    | 65     | 44     | 2.9    | 140    | <1     | 15     | <1     |
| 34     | 16     | 20     | <1     | <0.5   | 61.8   | 36     | <5     | 16     | 1800   | <5     | 0.6    | 68     | 28     | 2.3    | 60     | <1     | 15     | <1     |
| 37     | 23     | 25     | <1     | <0.5   | 34.5   | 51     | <5     | 14     | 2780   | <5     | 1.4    | 88     | 24     | 2.9    | 50     | 1      | 20     | <1     |
| 38     | 21     | 24     | <1     | <0.5   | 29.2   | 45     | <5     | 16     | 3520   | <5     | 1.2    | 82     | 66     | 2.9    | 70     | 1      | 18     | <1     |
| 43     | 19     | 28     | <1     | <0.5   | 39.1   | 43     | <5     | 14     | 4660   | <5     | 1      | 89     | 59     | 2.9    | 80     | 1      | 19     | <1     |
| 52     | 20     | 37     | <1     | <0.5   | 43.9   | 59     | <5     | 6      | 3570   | 7      | 1.1    | 119    | 43     | 3      | 70     | 2      | 26     | <1     |
| 36     | 18     | 32     | <1     | <0.5   | 39.2   | 49     | <5     | 10     | 2540   | <5     | <0.5   | 98     | 36     | 2.1    | 70     | <1     | 21     | <1     |
| 32     | 15     | 25     | <1     | <0.5   | 72     | 46     | <5     | 13     | 1950   | <5     | <0.5   | 88     | 33     | 2.9    | 40     | <1     | 19     | <1     |
| 45     | 24     | 18     | <1     | <0.5   | 20.1   | 41     | <5     | 95     | 470    | <5     | 1.2    | 69     | 79     | 2.1    | 20     | <1     | 16     | <1     |
| 92     | 21     | 15     | <1     | <0.5   | 43.2   | 29     | <5     | 13     | 5860   | 7      | 2.6    | 47     | 104    | 6.2    | 180    | 1      | 11     | <1     |
| 30     | 18     | 22     | <1     | <0.5   | 64.1   | 43     | <5     | 23     | 1290   | 8      | <0.5   | 76     | 36     | 1.5    | 60     | 1      | 17     | <1     |
| 44     | 17     | 24     | <1     | <0.5   | 43.4   | 36     | <5     | 13     | 2910   | <5     | 1.2    | 89     | 52     | 2.7    | 130    | <1     | 15     | <1     |
| 59     | 25     | 15     | <1     | <0.5   | 32.6   | 32     | <5     | 49     | 980    | <5     | 1.4    | 50     | 81     | 4      | 90     | <1     | 11     | <1     |
| 63     | 21     | 21     | <1     | <0.5   | 49.5   | 38     | <5     | 5      | 5700   | <5     | 2.4    | 72     | 57     | 6.0    | 90     | 2      | 16     | <1     |
| 41     | 19     | 18     | <1     | <0.5   | 26.2   | 44     | <5     | 4      | 4570   | <5     | 0.7    | 72     | 55     | 2.6    | 70     | 1      | 17     | <1     |
| 31     | 24     | 25     | <1     | <0.5   | 25.8   | 47     | <5     | 4      | 3820   | <5     | <0.5   | 84     | 27     | 1.5    | 90     | <1     | 19     | <1     |
| 34     | 27     | 19     | <1     | <0.5   | 32.1   | 38     | <5     | 8      | 4070   | <5     | 0.8    | 62     | 25     | 2.1    | 90     | 1      | 15     | <1     |
| 54     | 40     | 49     | <1     | <0.5   | 31.9   | 87     | <5     | 8      | 2490   | <5     | 1.0    | 164    | 30     | 3      | 110    | 2      | 37     | <1     |
| 43     | 22     | 11     | <1     | <0.5   | 37.6   | 26     | <5     | 21     | 4350   | 8      | 2.9    | 42     | 72     | 6.6    | 50     | <1     | 10     | <1     |
| 82     | 27     | 6      | <1     | <0.5   | 50.2   | 37     | <5     | 67     | 3430   | 6      | 4.2    | 33     | 111    | 10.2   | 30     | 1      | 9      | <1     |
| 64     | 15     | 6      | <1     | <0.5   | 76.2   | 15     | <5     | 29     | 5110   | 5      | 3.2    | 21     | 97     | 9      | 60     | <1     | 5      | <1     |
| 55     | 32     | 7      | <1     | <0.5   | 74.2   | 33     | <5     | 60     | 18300  | 12     | 3.4    | 40     | 60     | 5.5    | 10     | <1     | 10     | <1     |
| 15     | 22     | 45     | <1     | <0.5   | 36.3   | 110    | <5     | 8      | 1180   | 7      | <0.5   | 194    | 14     | 1.6    | 40     | <1     | 44     | <1     |
| 60     | 38     | 30     | <1     | <0.5   | 107    | 116    | <5     | 32     | 14000  | 12     | 6      | 161    | 24     | 6.8    | 30     | 2      | 41     | <1     |
| 58     | 78     | 25     | <1     | <0.5   | 32     | 105    | <5     | 94     | 10200  | 8      | 2.8    | 131    | 164    | 2.8    | 20     | 1      | 34     | <1     |
| 58     | 50     | 10     | <1     | <0.5   | 71.3   | 39     | <5     | 77     | 10700  | 12     | 3.1    | 53     | 139    | 4.7    | 20     | <1     | 13     | <1     |
| 44     | 61     | 38     | <1     | <0.5   | 60.3   | 121    | <5     | 95     | 350    | <5     | 2      | 171    | 195    | 2.9    | 40     | 2      | 42     | <1     |
| 53     | 54     | 11     | <1     | <0.5   | 68.4   | 43     | <5     | 48     | 3640   | 8      | 4.6    | 51     | 67     | 7.1    | 50     | 1      | 13     | <1     |
| 48     | 26     | 11     | <1     | <0.5   | 119    | 31     | <5     | 43     | 1590   | 8      | 4.1    | 47     | 101    | 11.1   | 40     | 1      | 12     | <1     |
| 42     | 16     | 12     | <1     | <0.5   | 125    | 36     | <5     | 25     | 1080   | <5     | 4.1    | 52     | 36     | 11.9   | 50     | 1      | 13     | <1     |
| 61     | 16     | 13     | <1     | <0.5   | 109    | 39     | <5     | 50     | 13700  | 7      | 2.7    | 61     | 186    | 5.3    | 20     | <1     | 15     | <1     |
| 36     | 12     | 7      | <1     | <0.5   | 93.6   | 16     | <5     | 23     | 1610   | <5     | 2.7    | 26     | 55     | 12.5   | 40     | <1     | 6      | <1     |
| 65     | 28     | 40     | <1     | <0.5   | 98.5   | 121    | <5     | 56     | 2800   | <5     | 5      | 170    | 95     | 7.5    | 80     | 2      | 44     | <1     |
| 38     | 7      | 10     | <1     | <0.5   | 113    | 21     | <5     | 30     | 1030   | <5     | 2      | 42     | 65     | 11.9   | 30     | <1     | 9      | <1     |
| 69     | 14     | 9      | <1     | <0.5   | 80.2   | 22     | <5     | 28     | 34100  | 15     | 2.5    | 39     | 109    | 6.4    | 30     | <1     | 9      | <1     |
| 29     | 17     | 18     | <1     | <0.5   | 222    | 40     | <5     | 50     | 770    | <5     | 1.2    | 75     | 85     | 11     | 30     | <1     | 18     | <1     |
| 31     | 26     | 11     | <1     | <0.5   | 119    | 26     | <5     | 66     | 310    | <5     | 1.3    | 47     | 90     |        |        |        |        |        |



| Rb     | Sb     | Sc     | Sm     | Sn     | Sr      | Ta     | Tb     | Te     | Th     | Ti       | Ti     | U      | W      | Y      | Yb     | Zn     | Zr     |
|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|
| MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5  | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 |
| 5      | 5      | 1      | 5      | 1      | 1       | 10     | 1      | 1      | 10     | 0.5      | 3      | 0.5    | 1      | 1      | 5      | 1      | 20     |
| ppb    | ppb    | ppb    | ppb    | ppb    | ppb     | ppb    | ppb    | ppb    | ppb    | ppb      | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    |
| 54 <1  |        | 58     | 42 <1  |        | 930 <1  |        | 8 <10  |        | 21.2   | 230 <0.5 |        | 11     | 2      | 233    | 20     | 70     | 171    |
| 35 <1  |        | 23     | 25 <1  |        | 1890 <1 |        | 4 <10  |        | 12.5   | 26 <0.5  |        | 24     | 2      | 123    | 10 <20 |        | 79     |
| 51 <1  |        | 18     | 28 <1  |        | 1620 <1 |        | 5 <10  |        | 14.4   | 42 <0.5  |        | 19     | 2      | 143    | 10     | 50     | 83     |
| 83 <1  |        | 60     | 32 <1  |        | 670 <1  |        | 6 <10  |        | 26.5   | 502 <0.5 |        | 19     | 2      | 150    | 14     | 50     | 210    |
| 125 <1 |        | 64     | 31 <1  |        | 320 <1  |        | 6 <10  |        | 18.9   | 427 <0.5 |        | 12     | 1      | 150    | 13     | 150    | 258    |
| 51 <1  |        | 25     | 30 <1  |        | 1320 <1 |        | 5 <10  |        | 13.8   | 44 <0.5  |        | 19 <1  |        | 156    | 11 <20 |        | 79     |
| 106 <1 |        | 47     | 22 <1  |        | 260 <1  |        | 4 <10  |        | 11.1   | 216 <0.5 |        | 12     | 1      | 89     | 7      | 30     | 151    |
| 79 <1  |        | 22     | 10 <1  |        | 830 <1  |        | 2 <10  |        | 11.4   | 218 <0.5 |        | 8 <1   |        | 44     | 4      | 30     | 111    |
| 56 <1  |        | 28     | 14 <1  |        | 750 <1  |        | 3 <10  |        | 10.2   | 241 <0.5 |        | 8 <1   |        | 82     | 6      | 290    | 117    |
| 105 <1 |        | 35     | 13 <1  |        | 380 <1  |        | 3 <10  |        | 12.4   | 430 <0.5 |        | 7 <1   |        | 67     | 6      | 580    | 134    |
| 91 <1  |        | 43     | 20 <1  |        | 500 <1  |        | 4 <10  |        | 11.9   | 323 <0.5 |        | 9 <1   |        | 127    | 10     | 500    | 136    |
| 123 <1 |        | 16     | 6 <1   |        | 540 <1  |        | 1 <10  |        | 6.1    | 154 <0.5 |        | 6 <1   |        | 31     | 3      | 70     | 70     |
| 179 <1 |        | 64     | 21 <1  |        | 690 <1  |        | 4 <10  |        | 11     | 250 <0.5 |        | 12 <1  |        | 99     | 8      | 140    | 175    |
| 130 <1 |        | 52     | 11 <1  |        | 280 <1  |        | 2 <10  |        | 15.1   | 688 <0.5 |        | 13     | 1      | 58     | 6      | 40     | 243    |
| 127 <1 |        | 30     | 9 <1   |        | 490 <1  |        | 2 <10  |        | 16     | 552 <0.5 |        | 8      | 1      | 35     | 3      | 170    | 212    |
| 163 <1 |        | 49     | 19 <1  |        | 280 <1  |        | 4 <10  |        | 12.7   | 335 <0.5 |        | 11 <1  |        | 94     | 8      | 70     | 188    |
| 140 <1 |        | 40     | 11 <1  |        | 270 <1  |        | 2 <10  |        | 15.5   | 678 <0.5 |        | 12     | 1      | 47     | 5      | 40     | 217    |
| 46 <1  |        | 6      | 19 <1  |        | 1810 <1 |        | 4 <10  |        | 4.9    | 22 <0.5  |        | 11 <1  |        | 94     | 6 <20  |        | 34     |
| 42 <1  |        | 12     | 34 <1  |        | 1500 <1 |        | 6 <10  |        | 13.9   | 30 <0.5  |        | 15 <1  |        | 170    | 12     | 330    | 42     |
| 101 <1 |        | 53     | 21 <1  |        | 650 <1  |        | 4 <10  |        | 12.3   | 307 <0.5 |        | 13 <1  |        | 85     | 8      | 200    | 186    |

| Rb     | Sb     | Sc     | Sm     | Sn     | Sr      | Ta     | Tb     | Te     | Th     | Ti       | Ti     | U      | W      | Y      | Yb     | Zn     | Zr     |
|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|
| MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5  | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 |
| 5      | 5      | 1      | 5      | 1      | 1       | 10     | 1      | 1      | 10     | 0.5      | 3      | 0.5    | 1      | 1      | 5      | 1      | 20     |
| ppb    | ppb    | ppb    | ppb    | ppb    | ppb     | ppb    | ppb    | ppb    | ppb    | ppb      | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    |
| 121 <1 |        | 63     | 27 <1  |        | 410 <1  |        | 6 <10  |        | 19.7   | 512 <0.5 |        | 15 <1  |        | 155    | 13     | 170    | 226    |
| 115 <1 |        | 46     | 18 <1  |        | 490 <1  |        | 4 <10  |        | 21.2   | 500 <0.5 |        | 9 <1   |        | 89     | 8      | 100    | 176    |
| 91 <1  |        | 43     | 28 <1  |        | 520 <1  |        | 6 <10  |        | 18.1   | 290 <0.5 |        | 11 <1  |        | 150    | 12     | 180    | 132    |
| 190 <1 |        | 18     | 7 <1   |        | 790 <1  |        | 1 <10  |        | 7.9    | 104 <0.5 |        | 9 <1   |        | 33     | 3      | 310    | 83     |
| 87 <1  |        | 33     | 22 <1  |        | 1100 <1 |        | 4 <10  |        | 12.9   | 104 <0.5 |        | 10 <1  |        | 113    | 9      | 50     | 104    |
| 160 <1 |        | 39     | 17 <1  |        | 480 <1  |        | 3 <10  |        | 5.8    | 81 <0.5  |        | 14 <1  |        | 84     | 7      | 90     | 103    |
| 98 <1  |        | 18     | 13 <1  |        | 880 <1  |        | 3 <10  |        | 12.6   | 99 <0.5  |        | 8 <1   |        | 57     | 4      | 150    | 93     |
| 101 <1 |        | 60     | 21 <1  |        | 420 <1  |        | 4 <10  |        | 19.6   | 499 <0.5 |        | 11 <1  |        | 108    | 8      | 550    | 249    |
| 16 <1  | <5     | 7      | 7 <1   |        | 3400 <1 |        | 1 <10  |        | 2.4    | 13 <0.5  |        | 2 <1   |        | 36     | 3      | 40     | 12     |
| 73 <1  |        | 29     | 11 <1  |        | 760 <1  |        | 2 <10  |        | 13.2   | 323 <0.5 |        | 6 <1   |        | 41     | 4      | 950    | 121    |
| 214 <1 |        | 39     | 18 <1  |        | 450 <1  |        | 3 <10  |        | 18.8   | 472 <0.5 |        | 12 <1  |        | 73     | 7      | 400    | 229    |
| 161 <1 |        | 31     | 15 <1  |        | 640 <1  |        | 3 <10  |        | 14.8   | 299 <0.5 |        | 11 <1  |        | 63     | 5      | 50     | 157    |
| 121 <1 |        | 31     | 13 <1  |        | 510 <1  |        | 3 <10  |        | 12.2   | 321 <0.5 |        | 6 <1   |        | 67     | 6      | 230    | 134    |
| 217 <1 |        | 31     | 19 <1  |        | 390 <1  |        | 4 <10  |        | 8.2    | 168 <0.5 |        | 11 <1  |        | 85     | 7      | 240    | 96     |
| 93 <1  |        | 37     | 11 <1  |        | 460 <1  |        | 2 <10  |        | 12.7   | 436 <0.5 |        | 8 <1   |        | 49     | 4      | 710    | 155    |
| 104 <1 |        | 52     | 30 <1  |        | 440 <1  |        | 6 <10  |        | 18.7   | 366 <0.5 |        | 10 <1  |        | 174    | 14     | 1780   | 148    |
| 84 <1  |        | 34     | 17 <1  |        | 850 <1  |        | 3 <10  |        | 12.8   | 206 <0.5 |        | 9 <1   |        | 78     | 6      | 180    | 115    |
| 107 <1 |        | 53     | 21 <1  |        | 550 <1  |        | 4 <10  |        | 22.2   | 849 <0.5 |        | 10 <1  |        | 98     | 8      | 190    | 269    |
| 42 <1  |        | 49     | 17 <1  |        | 560 <1  |        | 3 <10  |        | 15.4   | 374 <0.5 |        | 9 <1   |        | 79     | 6      | 90     | 158    |
| 37 <1  |        | 9      | 20 <1  |        | 1230 <1 |        | 4 <10  |        | 7.4    | 39 <0.5  |        | 8 <1   |        | 88     | 7      | 150    | 34     |

|        |  |    |       |  |         |  |       |  |      |          |  |       |  |     |    |     |     |
|--------|--|----|-------|--|---------|--|-------|--|------|----------|--|-------|--|-----|----|-----|-----|
| 93 <1  |  | 33 | 19 <1 |  | 230 <1  |  | 4 <10 |  | 11   | 177 <0.5 |  | 12 <1 |  | 92  | 8  | 40  | 161 |
| 98 <1  |  | 29 | 17 <1 |  | 190 <1  |  | 3 <10 |  | 12.1 | 277 <0.5 |  | 11 <1 |  | 80  | 8  | 270 | 159 |
| 118 <1 |  | 31 | 17 <1 |  | 310 <1  |  | 3 <10 |  | 10.4 | 198 <0.5 |  | 10 <1 |  | 66  | 6  | 90  | 122 |
| 143 <1 |  | 44 | 22 <1 |  | 310 <1  |  | 4 <10 |  | 14.5 | 297 <0.5 |  | 12 <1 |  | 97  | 8  | 90  | 188 |
| 103 <1 |  | 42 | 21 <1 |  | 440 <1  |  | 4 <10 |  | 13.5 | 265 <0.5 |  | 13 <1 |  | 97  | 8  | 170 | 207 |
| 129 <1 |  | 41 | 24 <1 |  | 310 <1  |  | 5 <10 |  | 14.1 | 244 <0.5 |  | 12 <1 |  | 129 | 11 | 320 | 160 |
| 107 <1 |  | 54 | 32 <1 |  | 200 <1  |  | 6 <10 |  | 14.8 | 237 <0.5 |  | 16 <1 |  | 155 | 14 | 40  | 196 |
| 118 <1 |  | 48 | 27 <1 |  | 280 <1  |  | 5 <10 |  | 9.4  | 164 <0.5 |  | 15 <1 |  | 133 | 12 | 120 | 152 |
| 140 <1 |  | 41 | 22 <1 |  | 280 <1  |  | 4 <10 |  | 8.1  | 154 <0.5 |  | 12 <1 |  | 89  | 8  | 50  | 129 |
| 77 <1  |  | 19 | 16 <1 |  | 920 <1  |  | 3 <10 |  | 8.1  | 126 <0.5 |  | 9 <1  |  | 72  | 6  | 30  | 63  |
| 109 <1 |  | 35 | 13 <1 |  | 220 <1  |  | 3 <10 |  | 13.2 | 516 <0.5 |  | 7 <1  |  | 77  | 7  | 160 | 161 |
| 138 <1 |  | 37 | 19 <1 |  | 280 <1  |  | 3 <10 |  | 10.6 | 177 <0.5 |  | 13 <1 |  | 86  | 7  | 50  | 165 |
| 112 <1 |  | 44 | 19 <1 |  | 340 <1  |  | 4 <10 |  | 12.4 | 289 <0.5 |  | 11 <1 |  | 105 | 9  | 390 | 166 |
| 47 <1  |  | 25 | 12 <1 |  | 1100 <1 |  | 2 <10 |  | 10   | 104 <0.5 |  | 7 <1  |  | 57  | 4  | 190 | 70  |
| 133 <1 |  | 48 | 19 <1 |  | 130 <1  |  | 3 <10 |  | 13.3 | 441 <0.5 |  | 12 <1 |  | 79  | 8  | 160 | 207 |
| 100 <1 |  | 26 | 17 <1 |  | 160 <1  |  | 3 <10 |  | 13.9 | 214 <0.5 |  | 8 <1  |  | 73  | 6  | 60  | 155 |
| 112 <1 |  | 36 | 22 <1 |  | 180 <1  |  | 4 <10 |  | 9.9  | 150 <0.5 |  | 16 <1 |  | 106 | 9  | 140 | 146 |
| 119 <1 |  | 33 | 16 <1 |  | 260 <1  |  | 3 <10 |  | 15.1 | 289 <0.5 |  | 10 <1 |  | 74  | 6  | 90  | 175 |
| 99 <1  |  | 67 | 42 <1 |  | 250 <1  |  | 8 <10 |  | 21.4 | 454 <0.5 |  | 15 <1 |  | 204 | 16 | 50  | 281 |

|        |  |    |       |  |         |  |       |  |      |          |  |       |  |     |    |     |     |
|--------|--|----|-------|--|---------|--|-------|--|------|----------|--|-------|--|-----|----|-----|-----|
| 96 <1  |  | 24 | 10 <1 |  | 520 <1  |  | 2 <10 |  | 11.8 | 612 <0.5 |  | 6 <1  |  | 38  | 3  | 840 | 142 |
| 54 <1  |  | 29 | 6 <1  |  | 1300 <1 |  | 1 <10 |  | 24.6 | 295 <0.5 |  | 9 <1  |  | 22  | 2  | 70  | 177 |
| 74 <1  |  | 21 | 5 <1  |  | 590 <1  |  | <1    |  | 10.1 | 369 <0.5 |  | 8 <1  |  | 22  | 2  | 80  | 143 |
| 92 <1  |  | 14 | 7 <1  |  | 1670 <1 |  | 1 <10 |  | 15.7 | 190 <0.5 |  | 10 <1 |  | 23  | 2  | 20  | 132 |
| 159 <1 |  | 37 | 44 <1 |  | 460 <1  |  | 7 <10 |  | 5.6  | 69 <0.5  |  | 16 <1 |  | 143 | 12 | 30  | 93  |
| 171 <1 |  | 33 | 32 <1 |  | 830 <1  |  | 4 <10 |  | 20.2 | 499 <0.5 |  | 20 <1 |  | 86  | 8  | 50  | 309 |
| 72 <1  |  | 29 | 24 <1 |  | 1910 <1 |  | 4 <10 |  | 30.3 | 151 <0.5 |  | 17 <1 |  | 82  | 6  | 170 | 156 |
| 46 <1  |  | 18 | 10 <1 |  | 1470 <1 |  | 2 <10 |  | 16.3 | 229 <0.5 |  | 9 <1  |  | 36  | 3  | 200 | 104 |
| 64 <1  |  | 43 | 36 <1 |  | 2350 <1 |  | 6 <10 |  | 31.8 | 84 <0.5  |  | 20 <1 |  | 128 | 10 | 70  | 244 |
| 94 <1  |  | 29 | 11 <1 |  | 990 <1  |  | 2 <10 |  | 21.4 | 398 <0.5 |  | 12 <1 |  | 38  | 3  | 190 | 194 |
| 125 <1 |  | 25 | 11 <1 |  | 730 <1  |  | 2 <10 |  | 13.2 | 428 <0.5 |  | 7 <1  |  | 41  | 4  | 260 | 173 |
| 97 <1  |  | 27 | 12 <1 |  | 550 <1  |  | 2 <10 |  | 14.7 | 367 <0.5 |  | 11 <1 |  | 40  | 3  | 60  | 182 |
| 47 <1  |  | 17 | 13 <1 |  | 1110 <1 |  | 2 <10 |  | 14.3 | 110 <0.5 |  | 9 <1  |  | 47  | 4  | 340 | 79  |
| 81 <1  |  | 15 | 6 <1  |  | 520 <1  |  | 1 <10 |  | 8.2  | 289 <0.5 |  | 7 <1  |  | 24  | 2  | 420 | 95  |
| 77 <1  |  | 70 | 38 <1 |  | 770 <1  |  | 7 <10 |  | 49.3 | 328 <0.5 |  | 11 <1 |  | 136 | 13 | 440 | 325 |
| 73 <1  |  | 13 | 9 <1  |  | 1130 <1 |  | 2 <10 |  | 8    | 184 <0.5 |  | 10 <1 |  | 35  | 3  | 500 | 78  |
| 71 <1  |  | 22 | 8 <1  |  | 640 <1  |  | 1 <10 |  | 10.2 | 224 <0.5 |  | 9 <1  |  | 33  | 3  | 460 | 86  |
| 33 <1  |  | 15 | 17 <1 |  | 1210 <1 |  | 3 <10 |  |      |          |  |       |  |     |    |     |     |

ANALYTE  
METHOD  
DETECTION  
UNITS

|                     | Ag     | Al     | As      | Au     | Ba      | Bi      | Ca     | Cd     | Ce     | Co       | Cr     | Cs     | Cu     | Dy     | Er       | Eu     |
|---------------------|--------|--------|---------|--------|---------|---------|--------|--------|--------|----------|--------|--------|--------|--------|----------|--------|
|                     | MMI-M5 | MMI-M5 | MMI-M5  | MMI-M5 | MMI-M5  | MMI-M5  | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 |
|                     | 1      | 1      | 10      | 0.1    | 10      | 10      | 1      | 10     | 1      | 5        | 5      | 100    | 0.5    | 10     | 1        | 0.5    |
|                     | ppb    | ppm    | ppb     | ppb    | ppb     | ppb     | ppm    | ppb    | ppb    | ppb      | ppb    | ppb    | ppb    | ppb    | ppb      | ppb    |
| <b>Ketchan West</b> |        |        |         |        |         |         |        |        |        |          |        |        |        |        |          |        |
| <b>Line 23400N</b>  |        |        |         |        |         |         |        |        |        |          |        |        |        |        |          |        |
| G094142             | 71800  | 20     | 38 <10  | 0.2    | 1210 <1 |         | 500    | 26     | 131    | 8 <100   |        | 0.5    | 3110   | 48     | 23.9     | 16.1   |
| G094143             | 71750  | 8      | 44 <10  | <0.1   | 1100 <1 |         | 530    | 26     | 103    | 8 <100   |        | 0.5    | 930    | 28     | 13.6     | 9.4    |
| G094144             | 71700  | 6      | 63 <10  | <0.1   | 1190 <1 |         | 440    | 30     | 82     | 8 <100   |        | 0.6    | 1090   | 38     | 20.6     | 10.5   |
| G094145             | 71850  | 20     | 6 <10   | 0.2    | 770 <1  |         | 480    | 9 <5   |        | 29 <100  | <0.5   |        | 2030   | 8      | 4.1      | 1.6    |
| G094146             | 71600  | 15     | 11 <10  | 0.1    | 810 <1  |         | 540    | 9 <5   |        | 36 <100  |        | 0.6    | 1760   | 4      | 2.3      | 0.6    |
| G094147             | 71550  | 27     | 44 <10  | 0.2    | 1340 <1 |         | 550    | 35     | 46     | 10 <100  |        | 0.7    | 1850   | 26     | 11.7     | 9.4    |
| G094148             | 71500  | 30     | 18 <10  | 0.3    | 960 <1  |         | 730    | 29     | 9      | 12 <100  |        | 0.5    | 2340   | 13     | 6.6      | 3.6    |
| G094149             | 71450  | 22     | 56 <10  | 0.1    | 1550 <1 |         | 550    | 30     | 56     | 11 <100  |        | 1      | 2010   | 29     | 13.2     | 9.9    |
| G094150             | 71400  | 12     | 55 <10  | <0.1   | 1180 <1 |         | 550    | 38     | 58     | 18 <100  |        | 0.7    | 850    | 22     | 11       | 7.4    |
| G094151             | 71350  | 17     | 32 <10  | <0.1   | 1430 <1 |         | 600    | 27     | 24     | 19 <100  |        | 0.8    | 980    | 15     | 7.1      | 4.7    |
| G094152             | 71300  | 12     | 23 <10  | <0.1   | 1050 <1 |         | 500    | 6      | 24     | 8 <100   | <0.5   |        | 1600   | 19     | 9.8      | 5.5    |
| G094153             | 71250  | 9      | 77 <10  | <0.1   | 900 <1  |         | 430    | 35     | 45 <5  | <100     |        | 0.5    | 640    | 17     | 8.9      | 5.2    |
| G094154             | 71200  | 11     | 77 <10  | <0.1   | 960 <1  |         | 450    | 40     | 54     | 8 <100   |        | 0.9    | 600    | 25     | 13.1     | 7.5    |
| G094155             | 71150  | 8      | 24 <10  | <0.1   | 1380 <1 |         | 550    | 47     | 34     | 22 <100  |        | 0.8    | 1310   | 20     | 10       | 6.3    |
| G094156             | 71100  | 7      | 5 <10   | 0.1    | 860 <1  |         | 340    | 8 <5   |        | 22 <100  | <0.5   |        | 1960   | 1      | 0.8 <0.5 |        |
| G094157             | 71050  | 10     | 69 <10  | 0.2    | 1180 <1 |         | 510    | 24     | 68     | 17 <100  |        | 0.6    | 1310   | 24     | 11.8     | 8      |
| G094158             | 71000  | 9      | 95 <10  | <0.1   | 1320 <1 |         | 460    | 25     | 78     | 8 <100   |        | 0.8    | 1060   | 33     | 16.7     | 9.7    |
| G094159             | 70950  | 11     | 78 <10  | <0.1   | 1300 <1 |         | 520    | 28     | 104    | 10 <100  |        | 0.5    | 920    | 28     | 13.7     | 8.6    |
| G094160             | 70900  | 12     | 75 <10  | <0.1   | 2180 <1 |         | 490    | 27     | 299    | 11 <100  |        | 0.5    | 1220   | 73     | 41.1     | 18.3   |
| G094161             | 70850  | 6      | 103     | 10     | 0.1     | 760 <1  | 380    | 15     | 170    | 14 <100  |        | 0.6    | 1940   | 60     | 36.1     | 16.3   |
| G094162             | 70800  | 5      | 28 <10  | <0.1   | 1270 <1 |         | 560    | 27     | 13     | 13 <100  |        | 0.7    | 440    | 10     | 5        | 2.6    |
| G094163             | 70750  | 11     | 70 <10  |        | 0.5     | 1510 <1 | 520    | 43     | 55     | 10 <100  |        | 0.9    | 1110   | 24     | 11.4     | 7.6    |
| G094164             | 70700  | 10     | 71 <10  | 0.3    | 1620 <1 |         | 580    | 56     | 87     | 34 <100  |        | 0.9    | 1390   | 30     | 15.5     | 9.1    |
| G094165             | 70650  | 15     | 31 <10  | <0.1   | 1420 <1 |         | 590    | 28     | 37     | 15 <100  |        | 1.2    | 1450   | 15     | 7        | 5.2    |
| G094166             | 70600  | 34     | 6 <10   | 1.2    | 1570 <1 |         | 750    | 17     | 7      | 14 <100  | <0.5   |        | 3040   | 8      | 4        | 2      |
| G094167             | 70550  | 5      | 27 <10  | 0.1    | 2520 <1 |         | 690    | 37     | 29     | 14 <100  | <0.5   |        | 450    | 28     | 13.8     | 7.2    |
| G094168             | 70500  | 8      | 43 <10  | 0.2    | 1730 <1 |         | 480    | 18     | 190    | 10 <100  | <0.5   |        | 2110   | 77     | 39.1     | 22.8   |
| G094169             | 70450  | 28     | 15 <10  | 0.5    | 550 <1  |         | 420    | 17 <5  |        | 17 <100  |        | 0.5    | 4500   | 10     | 5.9      | 1.3    |
| G094170             | 70400  | 20     | 56 <10  | 1.3    | 1250 <1 |         | 540    | 44     | 75     | 8 <100   |        | 0.6    | 910    | 35     | 18.3     | 12.5   |
| G094171             | 70375  | 24     | 68 <10  | 1.5    | 800 <1  |         | 510    | 30     | 28     | 13 <100  |        | 0.8    | 1540   | 19     | 9.5      | 6.2    |
| <b>Ketchan West</b> |        |        |         |        |         |         |        |        |        |          |        |        |        |        |          |        |
| <b>Line 21000N</b>  |        |        |         |        |         |         |        |        |        |          |        |        |        |        |          |        |
| G094173             | 72500  | 23     | 58 <10  | 0.1    | 2250 <1 |         | 350    | 7      | 239    | 132 <100 |        | 0.8    | 1180   | 20     | 10.3     | 5.8    |
| G094174             | 72450  | 30     | 12 <10  | 0.4    | 1370 <1 |         | 510    | 6      | 20     | 57 <100  | <0.5   |        | 1170   | 5      | 2.6      | 1.5    |
| G094175             | 72400  | 18     | 83 <10  | <0.1   | 2630 <1 |         | 330    | 8      | 402    | 150 <100 |        | 1.3    | 1630   | 47     | 25.7     | 14.1   |
| G094176             | 72350  | 10     | 34 <10  | <0.1   | 2550 <1 |         | 340    | 6      | 242    | 39 <100  | <0.5   |        | 1060   | 28     | 14.3     | 8.6    |
| G094177             | 72300  | 9      | 30      | 10     | <0.1    | 1950 <1 | 250    | 4      | 502    | 274 <100 | <0.5   |        | 1950   | 49     | 27.8     | 16.6   |
| G094178             | 72250  | 3      | 112 <10 | <0.1   | 620 <1  |         | 210    | 8      | 58     | 23 <100  |        | 4.3    | 190    | 11     | 6        | 2.5    |
| G094179             | 72200  | 5      | 37 <10  | <0.1   | 3660 <1 |         | 440    | 5      | 170    | 51 <100  |        | 0.5    | 780    | 30     | 13.9     | 9.8    |
| G094180             | 72150  | 12     | 71      | 10     | <0.1    | 2250 <1 | 270    | 7      | 209    | 46 <100  |        | 1.4    | 740    | 15     | 6.9      | 4.2    |
| G094181             | 72100  | 20     | 19 <10  | <0.1   | 3180 <1 |         | 460    | 8      | 53     | 34 <100  | <0.5   |        | 1140   | 13     | 6.0      | 3.9    |
| G094182             | 72050  | 10     | 123 <10 | <0.1   | 580 <1  |         | 210    | 19     | 103    | 22 <100  |        | 3      | 1340   | 27     | 16.9     | 6.2    |
| G094183             | 72000  | 7      | 138 <10 | <0.1   | 610 <1  |         | 270    | 10     | 98     | 13 <100  |        | 2.3    | 1140   | 27     | 16       | 6.6    |
| G094184             | 71950  | 6      | 125 <10 | <0.1   | 1070 <1 |         | 310    | 19     | 106    | 9 <100   |        | 2.9    | 570    | 35     | 21.6     | 7.3    |
| G094185             | 71900  | 6      | 52 <10  | <0.1   | 570 <1  |         | 430    | 29     | 36 <5  | <100     |        | 0.8    | 1930   | 11     | 5.8      | 3.9    |
| G094186             | 71850  | 7      | 50 <10  | 0.3    | 700 <1  |         | 380    | 12     | 40     | 10 <100  | <0.5   |        | 2630   | 43     | 23.1     | 13.5   |
| G094187             | 71800  | 11     | 86 <10  | 0.1    | 1090 <1 |         | 430    | 28     | 75 <5  | <100     | <0.5   |        | 1620   | 30     | 15.5     | 9.9    |
| G094188             | 71750  | 10     | 47 <10  | <0.1   | 1450 <1 |         | 560    | 31     | 56     | 19 <100  |        | 0.7    | 1730   | 28     | 13.5     | 9.2    |
| G094189             | 71700  | 14     | 139 <10 | <0.1   | 690 <1  |         | 300    | 36     | 162    | 7 <100   |        | 1.3    | 1090   | 48     | 26.1     | 12.2   |
| G094190             | 71650  | 11     | 44 <10  | 0.1    | 1580 <1 |         | 480    | 21     | 100    | 15 <100  | <0.5   |        | 1730   | 37     | 18.5     | 12.1   |
| G094191             | 71600  | 10     | 152 <10 | <0.1   | 680 <1  |         | 280    | 11     | 108    | 11 <100  |        | 2.5    | 690    | 31     | 18.4     | 7.3    |
| G094193             | 71500  | 17     | 6 <10   | 0.2    | 800 <1  |         | 470    | 6      | 7      | 29 <100  | <0.5   |        | 2260   | 8      | 4        | 1.8    |
| G094194             | 71450  | 7      | 124 <10 | <0.1   | 990 <1  |         | 340    | 8      | 334    | 21 <100  |        | 0.6    | 1860   | 98     | 57.5     | 25.1   |
| G094195             | 71400  | 9      | 135 <10 | <0.1   | 980 <1  |         | 340    | 15     | 171    | 11 <100  |        | 1.3    | 1470   | 63     | 35.5     | 16.2   |
| G094196             | 71350  | 9      | 105 <10 | <0.1   | 1070 <1 |         | 380    | 25     | 274    | 13 <100  |        | 0.9    | 1480   | 61     | 35.3     | 16.7   |
| G094197             | 71300  | 8      | 98 <10  | <0.1   | 970 <1  |         | 400    | 46     | 177    | 7 <100   |        | 0.5    | 620    | 36     | 19.5     | 10.1   |
| G094198             | 71250  | 9      | 79 <10  | 0.2    | 840 <1  |         | 450    | 28     | 78     | 17 <100  |        | 1.2    | 1440   | 24     | 11.7     | 8.5    |
| G094199             | 71200  | 11     | 63 <10  | <0.1   | 1140 <1 |         | 490    | 37     | 58     | 11 <100  |        | 1      | 940    | 20     | 9.7      | 7.1    |
| G094200             | 71150  | 9      | 62 <10  | <0.1   | 930 <1  |         | 510    | 31     | 70     | 16 <100  |        | 0.7    | 780    | 19     | 9        | 6.4    |
| G094201             | 71100  | 4      | 68 <10  | <0.1   | 1230 <1 |         | 580    | 32     | 50     | 9 <100   |        | 0.8    | 360    | 20     | 10.4     | 6.2    |
| G094202             | 71050  | 4      | 58 <10  | <0.1   | 1320 <1 |         | 580    | 26     | 26     | 7 <100   |        | 0.6    | 260    | 13     | 6.7      | 4      |
| G094203             | 71000  | 4      | 96 <10  | <0.1   | 1390 <1 |         | 500    | 27     | 58     | 8 <100   |        | 0.9    | 150    | 16     | 8.5      | 4.5    |
| G094204             | 70950  | 5      | 88 <10  | <0.1   | 1170 <1 |         | 500    | 34     | 53     | 6 <100   |        | 1.5    | 560    | 20     | 9.8      | 5.9    |
| G094205             | 70900  | 7      | 85 <10  | <0.1   | 1270 <1 |         | 600    | 34     | 31     | 8 <100   |        | 1.2    | 680    | 15     | 8        | 4.3    |



| ANALYTE             | Ag | Al | As      | Au      | Ba  | Bi      | Ca     | Cd  | Ce       | Co       | Cr | Cs   | Cu    | Dy   | Er   | Eu   |
|---------------------|----|----|---------|---------|-----|---------|--------|-----|----------|----------|----|------|-------|------|------|------|
| <b>KETCHAN WEST</b> |    |    |         |         |     |         |        |     |          |          |    |      |       |      |      |      |
| Line 20400N         |    |    |         |         |     |         |        |     |          |          |    |      |       |      |      |      |
| G094206 70000       | 9  |    | 77 <10  | <0.1    |     | 2160 <1 | 450    | 31  | 81       | 12 <100  |    | 0.8  | 660   | 42   | 20.4 | 12.7 |
| G094207 70050       | 20 |    | 68 <10  |         | 0.2 | 2080 <1 | 400    | 37  | 63       | 11 <100  |    | 1    | 3700  | 38   | 17.8 | 12.5 |
| G094208 70100       | 45 |    | 34 <10  |         | 2.9 | 1210 <1 | 460    | 24  | 72       | 217 <100 |    | 1    | 25900 | 23   | 11.1 | 8.3  |
| G094209 70150       | 16 |    | 29 <10  |         | 1   | 1840 <1 | 620    | 37  | 53       | 30 <100  |    | <0.5 | 5860  | 29   | 14.2 | 8.7  |
| G094210 70200       | 20 |    | 86 <10  |         | 0.1 | 930 <1  | 400    | 958 | 78       | 12 <100  |    | 2.1  | 1310  | 25   | 11.9 | 10.1 |
| G094211 70250       | 16 |    | 146 <10 | <0.1    |     | 960 <1  | 300    | 631 | 109      | 11 <100  |    | 3.4  | 890   | 35   | 19.8 | 9.1  |
| G094212 70300       | 25 |    | 47 <10  |         | 0.6 | 330 <1  | 420    | 125 | 29       | 5 <100   |    | 1.1  | 3000  | 10   | 5.3  | 4    |
| G094214 70400       | 23 |    | 29 <10  |         | 0.6 | 1530 <1 | 690    | 28  | 18       | 27 <100  |    | <0.5 | 3280  | 19   | 10.1 | 4.6  |
| G094215 70450       | 15 |    | 20 <10  |         | 0.5 | 2990 <1 | 790    | 21  | 31       | 15 <100  |    | <0.5 | 1990  | 42   | 18.6 | 11.6 |
| G094216 70500       | 7  |    | 23 <10  |         | 0.3 | 2500 <1 | 520    | 9   | 94       | 21 <100  |    | <0.5 | 1310  | 55   | 27.1 | 14.5 |
| G094217 70550       | 6  |    | 21 <10  |         | 0.2 | 2560 <1 | 480    | 8   | 49       | 10 <100  |    | <0.5 | 1310  | 38   | 18.8 | 11   |
| G094218 70600       | 15 |    | 32 <10  |         | 0.4 | 850 <1  | 490    | 20  | 34       | 16 <100  |    | <0.5 | 2590  | 19   | 9.1  | 6.7  |
| G094219 70650       | 12 |    | 95 <10  | <0.1    |     | 1360 <1 | 420    | 38  | 125      | 8 <100   |    | 0.9  | 1000  | 37   | 19.2 | 11.5 |
| G094220 70700       | 13 |    | 84 <10  | <0.1    |     | 1420 <1 | 460    | 25  | 23 <5    | <100     |    | 1.6  | 1630  | 19   | 9.4  | 6.5  |
| G094221 70750       | 11 |    | 83 <10  |         | 0.1 | 1450 <1 | 440    | 35  | 32       | 6 <100   |    | 1.1  | 1010  | 22   | 10.7 | 7.2  |
| G094222 70800       | 12 |    | 65 <10  |         | 0.1 | 950 <1  | 430    | 30  | 33       | 6 <100   |    | 0.6  | 1680  | 24   | 11.3 | 8.1  |
| G094223 70850       | 11 |    | 47 <10  | <0.1    |     | 1020 <1 | 410    | 15  | 41 <5    | <100     |    | 0.8  | 1450  | 25   | 11.9 | 8.3  |
| G094224 70900       | 9  |    | 124 <10 | <0.1    |     | 790 <1  | 240    | 10  | 113      | 15 <100  |    | 2.3  | 1120  | 32   | 18   | 8    |
| <b>KETCHAN WEST</b> |    |    |         |         |     |         |        |     |          |          |    |      |       |      |      |      |
| Line 20000 N        |    |    |         |         |     |         |        |     |          |          |    |      |       |      |      |      |
| G094225 72500       | 15 |    | 107 <10 | <0.1    |     | 1160 <1 | 230    | 5   | 222      | 42 <100  |    | 1.5  | 690   | 35   | 17.8 | 9.2  |
| G094226 72500       | 9  |    | 94 <10  | <0.1    |     | 920 <1  | 240    | 5   | 113      | 10 <100  |    | 1.7  | 350   | 19   | 9.5  | 4.9  |
| G094227 72450       | 10 |    | 21 <10  |         | 0.1 | 1390 <1 | 320    | 3   | 198      | 116 <100 |    | <0.5 | 1530  | 44   | 23.2 | 13.8 |
| G094228 72450       | 13 |    | 18 <10  | <0.1    |     | 1760 <1 | 270    | 5   | 302      | 183 <100 |    | <0.5 | 1660  | 24   | 12.1 | 7.6  |
| G094229 72400       | 14 |    | 20 <10  |         | 0.1 | 1060 <1 | 360    | 5   | 172      | 118 <100 |    | <0.5 | 1600  | 25   | 11.7 | 8.1  |
| G094230 72400       | 9  |    | 19 <10  |         | 0.2 | 1510 <1 | 340    | 4   | 216      | 35 <100  |    | <0.5 | 780   | 31   | 14.5 | 9.5  |
| G094231 72350       | 6  |    | 48 <10  | <0.1    |     | 840 <1  | 250    | 4   | 212      | 112 <100 |    | 0.7  | 1020  | 37   | 19.5 | 11.7 |
| G094232 72350       | 5  |    | 65 <10  | <0.1    |     | 860 <1  | 230    | 9   | 274      | 229 <100 |    | 0.6  | 1190  | 35   | 18.4 | 9.3  |
| G094233 72300       | 9  |    | 72 <10  | <0.1    |     | 1130 <1 | 240    | 6   | 369      | 190 <100 |    | 0.8  | 1620  | 52   | 24.8 | 14   |
| G094234 72300       | 5  |    | 135 <10 | <0.1    |     | 1490 <1 | 220    | 9   | 319      | 222 <100 |    | 1    | 490   | 65   | 33.4 | 13.3 |
| G094235 72250       | 13 |    | 69 <10  | <0.1    |     | 1160 <1 | 310    | 11  | 220      | 22 <100  |    | 1    | 1050  | 25   | 12.9 | 6.7  |
| G094236 72250       | 8  |    | 68 <10  | <0.1    |     | 1390 <1 | 260    | 11  | 222      | 242 <100 |    | 1.3  | 2410  | 25   | 13.2 | 6.2  |
| G094237 72200       | 9  |    | 62 <10  |         | 0.1 | 1130 <1 | 320    | 6   | 137      | 5 <100   |    | <0.5 | 1810  | 56   | 28.4 | 16.6 |
| G094238 72200       | 7  |    | 60 <10  | <0.1    |     | 1240 <1 | 340    | 9   | 154      | 6 <100   |    | <0.5 | 900   | 44   | 23   | 12.1 |
| G094239 72150       | 15 |    | 86 <10  | <0.1    |     | 730 <1  | 280    | 8   | 164      | 7 <100   |    | 1.2  | 1370  | 41   | 21.5 | 11.7 |
| G094240 72150       | 5  |    | 93 <10  | <0.1    |     | 730 <1  | 250    | 6   | 207      | 10 <100  |    | 1    | 800   | 48   | 24.3 | 13.2 |
| G094241 72100       | 11 |    | 26 <10  | <0.1    |     | 1700 <1 | 400    | 4   | 39 <5    | <100     |    | <0.5 | 1710  | 22   | 10.1 | 6.9  |
| G094242 72100       | 8  |    | 34 <10  | <0.1    |     | 1590 <1 | 400    | 6   | 96       | 6 <100   |    | <0.5 | 1030  | 28   | 12.8 | 8.2  |
| G094243 72050       | 21 |    | 27 <10  | <0.1    |     | 1710 <1 | 300    | 7   | 300      | 244 <100 |    | 1    | 2400  | 30   | 15.8 | 9.5  |
| G094244 72050       | 12 |    | 49 <10  | <0.1    |     | 1620 <1 | 240    | 11  | 370      | 301 <100 |    | 0.8  | 1940  | 33   | 17.7 | 9.3  |
| G094245 72000       | 16 |    | 29 <10  |         | 0.3 | 1440 <1 | 290    | 5   | 108      | 10 <100  |    | <0.5 | 1390  | 29   | 13.8 | 9.4  |
| G094246 72000       | 23 |    | 53 <10  | <0.1    |     | 1480 <1 | 290    | 5   | 284      | 18 <100  |    | <0.5 | 1040  | 66   | 33.8 | 18.1 |
| G094247 71950       | 29 |    | 22 <10  |         | 0.2 | 1600 <1 | 380    | 8   | 35       | 5 <100   |    | 0.6  | 2570  | 16   | 8.2  | 4.7  |
| G094248 71950       | 15 |    | 58 <10  |         | 0.1 | 1520 <1 | 350    | 8   | 177      | 7 <100   |    | 0.9  | 1660  | 50   | 27.2 | 13.8 |
| G094249 71900       | 8  |    | 12 <10  | <0.1    |     | 2400 <1 | 350    | 3   | 269      | 263 <100 |    | <0.5 | 1460  | 36   | 16.5 | 11.6 |
| G094250 71900       | 4  |    | 19 <10  | <0.1    |     | 3270 <1 | 300    | 4   | 350      | 253 <100 |    | <0.5 | 1170  | 19   | 8.9  | 5.6  |
| G094251 71850       | 9  |    | 33 <10  | <0.1    |     | 1720 <1 | 260    | 4   | 217      | 171 <100 |    | 0.7  | 1330  | 37   | 19.9 | 10.7 |
| G094252 71850       | 8  |    | 27 <10  | <0.1    |     | 1820 <1 | 240    | 6   | 378      | 345 <100 |    | 0.6  | 2010  | 36   | 19.5 | 10.7 |
| G094253 71800       | 4  |    | 21 <10  |         | 0.1 | 2530 <1 | 280 <1 | 320 | 181 <100 | <0.5     |    | 880  | 24    | 10.4 | 6.8  |      |
| G094254 71800       | 8  |    | 27 <10  | 10 <0.1 |     | 2710 <1 | 240    | 3   | 358      | 340 <100 |    | <0.5 | 1320  | 20   | 9.6  | 6    |
| G094255 71750       | 12 |    | 34 <10  |         | 0.1 | 2210 <1 | 310    | 3   | 225      | 170 <100 |    | 0.5  | 1370  | 30   | 14.3 | 7.9  |
| G094256 71750       | 10 |    | 33 <10  | <0.1    |     | 2500 <1 | 250    | 5   | 411      | 225 <100 |    | 0.8  | 1640  | 33   | 17.3 | 9.5  |
| G094257 71700       | 12 |    | 20 <10  |         | 0.1 | 2120 <1 | 430    | 5   | 122      | 130 <100 |    | <0.5 | 2570  | 26   | 13.5 | 7.7  |
| G094258 71700       | 12 |    | 23 <10  | <0.1    |     | 2790 <1 | 390    | 7   | 371      | 295 <100 |    | <0.5 | 3230  | 35   | 19.6 | 11.1 |
| G094259 71650       | 22 |    | 20 <10  |         | 0.1 | 2620 <1 | 380    | 4   | 134      | 75 <100  |    | <0.5 | 1570  | 23   | 11.8 | 7.1  |
| G094260 71650       | 13 |    | 28 <10  | <0.1    |     | 1640 <1 | 340    | 5   | 103      | 7 <100   |    | 0.7  | 880   | 20   | 9.7  | 6.1  |
| G094261 71600       | 10 |    | 20 <10  | 10 <0.1 |     | 2110 <1 | 340    | 5   | 347      | 360 <100 |    | <0.5 | 2820  | 53   | 29.4 | 16   |
| G094262 71600       | 11 |    | 36 <10  | 10 <0.1 |     | 1700 <1 | 280    | 5   | 322      | 246 <100 |    | <0.5 | 1690  | 32   | 16.1 | 8.1  |
| G094263 71550       | 19 |    | 22 <10  | <0.1    |     | 1980 <1 | 360    | 4   | 629      | 395 <100 |    | 0.6  | 2180  | 59   | 27.7 | 17.8 |
| G094264 71550       | 13 |    | 24 <10  | <0.1    |     | 2010 <1 | 350    | 4   | 588      | 472 <100 |    | 0.6  | 1930  | 48   | 22.6 | 14.3 |
| G094265 71500       | 10 |    | 26 <10  | <0.1    |     | 3330 <1 | 440    | 8   | 186      | 176 <100 |    | 0.5  | 2850  | 23   | 12.2 | 7.2  |
| G094266 71500       | 7  |    | 55 <10  | <0.1    |     | 2920 <1 | 340    | 18  | 377      | 78 <100  |    | <0.5 | 1020  | 35   | 18.6 | 9.6  |
| G094267 71450       | 13 |    | 50 <10  | <0.1    |     | 1090 <1 | 380    | 8   | 70       | 110 <100 |    | 0.6  | 2140  | 24   | 13.4 | 6.1  |
| G094268 71450       | 8  |    | 64 <10  | <0.1    |     | 1150 <1 | 320    | 13  | 245      | 39 <100  |    | 0.8  | 1130  | 37   | 20.7 | 9.5  |
| G094269 71400       | 22 |    | 51 <10  |         | 0.1 | 2370 <1 | 390    | 7   | 313      | 265 <100 |    | 0.7  | 4640  | 54   | 31.5 | 15.3 |
| G094270 71400       | 13 |    | 72 <10  | <0.1    |     | 2370 <1 | 300    | 15  | 334      | 149 <100 |    | 0.8  | 1980  | 48   | 26.5 | 11.8 |
| G094271 71350       | 20 |    | 32 <10  |         | 0.1 | 1810 <1 | 470    | 11  | 54       | 5 <100   |    | <0.5 | 1980  | 27   | 13.4 | 8.2  |
| G094272 71350       | 14 |    | 42 <10  |         | 0.1 | 1710 <1 | 460    | 22  | 79       | 5 <100   |    | 0.5  | 1660  | 28   | 14.3 | 8.2  |
| G094273 71300       | 17 |    | 64 <10  |         | 0.1 | 1470 <1 | 450    | 21  | 49       | 7 <100   |    | 0.6  | 2220  | 37   | 19.8 | 10.3 |
| G094274 71300       | 8  |    | 85 <10  |         | 0.5 | 1390 <1 | 360    | 28  | 163      | 7 <100   |    | 0.5  | 1230  | 82   | 46.6 | 19.1 |
| G094275 71250       | 20 |    | 40 <10  |         | 0.1 | 2050 <1 | 430    | 17  | 89       | 5 <100   |    | <0.5 | 2450  | 40   | 21   | 12.2 |
| G094276 71250       | 8  |    | 51 <10  | <0.1    |     | 1580 <1 | 400    | 26  | 172      | 7 <100   |    | <0.5 | 1370  | 44   | 23.2 | 13.2 |
| G094277 71200       | 9  |    | 59 <10  | <0.1    |     | 1020 <1 | 370    | 23  | 208      | 5 <100   |    | 0.5  | 750   | 48   | 24.9 | 14.3 |

| Fe     | Ga     | Gd     | Hg     | In     | K      | La     | Li     | Mg     | Mn     | Mo     | Nb     | Nd     | Ni     | P      | Pb     | Pd     | Pr     | Pt     |    |    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|----|
| MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 |    |    |
| 1      | 1      | 1      | 1      | 1      | 0.5    | 0.1    | 1      | 5      | 1      | 10     | 5      | 0.5    | 1      | 5      | 0.1    | 10     | 1      | 1      |    |    |
| ppm    | ppb    | ppb    | ppb    | ppb    | ppm    | ppb    | ppb    | ppm    | ppb    | ppb    | ppb    | ppb    | ppb    | ppm    | ppb    | ppb    | ppb    | ppb    |    |    |
| 21     | 25     | 70     | <1     | <0.5   | 89     | 59     | <5     | 94     | 1790   | 5      | 0.6    | 180    | 365    | 1.7    | <10    | <1     |        | 32     | <1 |    |
| 18     | 25     | 43     | <1     | <0.5   | 111    | 35     | <5     | 61     | 2090   | <5     | 0.6    | 111    | 159    | 0.9    | <10    | <1     |        | 20     | <1 |    |
| 23     | 26     | 50     | <1     | <0.5   | 186    | 44     | <5     | 96     | 2360   | <5     | 0.8    | 120    | 218    | 3.8    |        | 10     | <1     | 22     | <1 |    |
| 7      | 17     | 9      | <1     | <0.5   | 75.3   | <1     | <5     | 39     | 4870   | <5     | <0.5   | 7      | 243    | 0.5    | <10    | <1     | <1     |        | <1 |    |
| 8      | 18     | 4      | <1     | <0.5   | 94.6   | <1     |        | 74     | 5480   |        | 0.6    | 3      | 349    | 0.7    | <10    | <1     | <1     |        | <1 |    |
| 18     | 29     | 39     | <1     | <0.5   | 99.3   | 31     | <5     | 66     | 1620   | <5     | <0.5   | 101    | 319    | 1.8    | <10    | <1     |        | 18     | <1 |    |
| 12     | 21     | 17     | <1     | <0.5   | 144    | 7      | <5     | 88     | 1750   |        | 8      | 30     | 353    | 2.4    | <10    | <1     |        | 5      | <1 |    |
| 21     | 32     | 43     | <1     | <0.5   | 156    | 36     | <5     | 67     | 1330   |        | 5      | 115    | 403    | 1.4    | <10    |        | 2      | 21     | <1 |    |
| 21     | 26     | 33     | <1     | <0.5   | 154    | 25     | <5     | 89     | 3180   |        | 6      | 83     | 356    | 1.4    | <10    | <1     |        | 15     | <1 |    |
| 14     | 31     | 22     | <1     | <0.5   | 161    | 15     | <5     | 94     | 3050   | <5     | <0.5   | 52     | 360    | 1      | <10    | <1     |        | 9      | <1 |    |
| 18     | 24     | 26     | <1     | <0.5   | 306    | 18     | <5     | 99     | 1200   |        | 8      | 61     | 233    | 6.2    | <10    | <1     |        | 11     | <1 |    |
| 17     | 21     | 24     | <1     | <0.5   | 107    | 21     | <5     | 78     | 1130   | <5     | 0.5    | 63     | 134    | 3.1    | <10    | <1     |        | 12     | <1 |    |
| 17     | 22     | 34     | <1     | <0.5   | 135    | 24     | <5     | 76     | 1590   | <5     | 0.5    | 83     | 260    | 1.8    | <10    | <1     |        | 15     | <1 |    |
| 16     | 31     | 28     | <1     | <0.5   | 196    | 17     | <5     | 91     | 3110   |        | 5      | 64     | 337    | 2      | <10    | <1     |        | 11     | <1 |    |
| 8      | 14     | <1     | <1     | <0.5   | 41.8   | <1     |        | 300    | 1800   |        | 8      | 1      | 247    | 0.4    | 20     | <1     | <1     |        | <1 |    |
| 24     | 25     | 35     | <1     | <0.5   | 141    | 30     | <5     | 61     | 2150   | <5     | <0.5   | 96     | 439    | 1.3    | <10    | <1     |        | 18     | <1 |    |
| 20     | 29     | 44     | <1     | <0.5   | 104    | 38     | <5     | 78     | 960    | <5     | 0.6    | 115    | 245    | 2.3    | <10    | <1     |        | 21     | <1 |    |
| 29     | 28     | 38     | <1     | <0.5   | 85     | 36     | <5     | 45     | 1830   | <5     | 0.7    | 107    | 253    | 1.6    | <10    | <1     |        | 20     | <1 |    |
| 29     | 45     | 91     | <1     | <0.5   | 162    | 91     |        | 93     | 3100   |        | 13     | 236    | 468    | 2      | 40     | <1     |        | 45     | <1 |    |
| 58     | 18     | 76     | <1     | <0.5   | 98.6   | 84     | <5     | 39     | 2920   |        | 18     | 2.4    | 212    | 175    | 10.7   | 40     | 1      | 40     | <1 |    |
| 9      | 27     | 13     | <1     | <0.5   | 191    | 7      | <5     | 193    | 3210   |        | 10     | 24     | 218    | 2.8    | <10    | <1     |        | 4      | <1 |    |
| 17     | 33     | 34     | <1     | <0.5   | 161    | 28     | <5     | 78     | 1460   | <5     | <0.5   | 87     | 286    | 1.2    | <10    | <1     |        | 16     | <1 |    |
| 20     | 36     | 41     | <1     | <0.5   | 143    | 35     | <5     | 64     | 4160   |        | 10     | 1.2    | 105    | 281    | 3.5    | <10    | 1      | 20     | <1 |    |
| 13     | 29     | 24     | <1     | <0.5   | 129    | 18     | <5     | 75     | 1900   | 5      | 0.5    | 61     | 359    | 2      | <10    | <1     |        | 10     | <1 |    |
| 4      | 32     | 10     | <1     | <0.5   | 210    | 3      | <5     | 146    | 1160   |        | 5      | 14     | 786    | 1.4    | <10    | <1     |        | 2      | <1 |    |
| 13     | 52     | 36     | <1     | <0.5   | 204    | 18     |        | 181    | 3080   |        | 8      | 68     | 658    | 1.3    | 20     | <1     |        | 12     | <1 |    |
| 24     | 36     | 105    | <1     | <0.5   | 166    | 79     | <5     | 76     | 1890   |        | 15     | 250    | 733    | 2.2    | <10    | <1     |        | 44     | <1 |    |
| 11     | 12     | 9      | <1     | <0.5   | 68.3   | <1     | <5     | 82     | 1690   | <5     | <0.5   | 2      | 399    | 0.6    | <10    | <1     | <1     |        | <1 |    |
| 30     | 25     | 49     | <1     | <0.5   | 82.4   | 37     | <5     | 84     | 2750   |        | 10     | 113    | 268    | 1      | <10    | <1     |        | 20     | <1 |    |
| 19     | 17     | 26     | <1     | <0.5   | 65.6   | 18     | <5     | 98     | 2010   |        | 9      | 58     | 208    | 0.8    | <10    | <1     |        | 11     | <1 |    |
| 74     | 45     | 27     | <1     | <0.5   | 43.6   | 76     | <5     | 37     | 12800  |        | 10     | 3.6    | 120    | 207    | 5.6    | 20     | 1      | 28     | <1 |    |
| 23     | 28     | 7      | <1     | <0.5   | 93.2   | 7      | <5     | 43     | 1470   |        | 9      | 1.8    | 21     | 109    | 6.3    | 10     | <1     | 4      | <1 |    |
| 82     | 53     | 66     | <1     | <0.5   | 34.8   | 153    | <5     | 38     | 17100  |        | 9      | 3.5    | 272    | 149    | 3.9    | 20     | 1      | 61     | <1 |    |
| 57     | 52     | 40     | <1     | <0.5   | 121    | 92     | <5     | 50     | 2890   |        | 8      | 3.2    | 170    | 209    | 5.3    | 20     | <1     | 38     | <1 |    |
| 100    | 41     | 76     | <1     | <0.5   | 83.4   | 215    | <5     | 96     | 15900  |        | 14     | 5.3    | 355    | 331    | 4.1    | 30     | 1      | 81     | <1 |    |
| 38     | 16     | 13     | <1     | <0.5   | 91.2   | 22     | <5     | 20     | 9680   |        | 7      | 2.3    | 45     | 66     | 5.8    | 30     | <1     | 10     | <1 |    |
| 33     | 76     | 45     | <1     | <0.5   | 30.1   | 104    | <5     | 97     | 8040   |        | 8      | 2.7    | 185    | 173    | 2.7    | 10     | <1     | 41     | <1 |    |
| 69     | 47     | 19     | <1     | <0.5   | 72.9   | 65     | <5     | 32     | 12700  |        | 12     | 5.9    | 94     | 49     | 13.4   | 40     | 1      | 23     | <1 |    |
| 22     | 63     | 20     | <1     | <0.5   | 95.1   | 33     | <5     | 98     | 4860   |        | 6      | 1.8    | 67     | 198    | 4.3    | 10     | <1     | 14     | <1 |    |
| 45     | 15     | 31     | <1     | <0.5   | 35.3   | 34     | <5     | 17     | 6510   | <5     | 2.4    | 82     | 74     | 4.7    | 40     | <1     |        | 16     | <1 |    |
| 45     | 10     | 31     | <1     | <0.5   | 62.8   | 41     | <5     | 21     | 4390   |        | 14     | 2.4    | 88     | 136    | 5.3    | 50     | <1     | 18     | <1 |    |
| 30     | 26     | 37     | <1     | <0.5   | 62.3   | 45     | <5     | 30     | 2120   |        | 5      | 1.7    | 102    | 95     | 2.1    | 40     | 1      | 21     | <1 |    |
| 40     | 13     | 17     | <1     | <0.5   | 88.4   | 22     | <5     | 67     | 650    | <5     | 1.4    | 59     | 204    | 6.7    | <10    | <1     |        | 11     | <1 |    |
| 26     | 15     | 61     | <1     | <0.5   | 155    | 52     | <5     | 68     | 730    | <5     | <0.5   | 160    | 133    | 7.2    | <10    | <1     |        | 28     | <1 |    |
| 29     | 23     | 43     | <1     | <0.5   | 78.9   | 47     | <5     | 52     | 580    | <5     | 1      | 130    | 246    | 3.6    | <10    | <1     |        | 25     | <1 |    |
| 22     | 29     | 42     | <1     | <0.5   | 122    | 37     | <5     | 84     | 2590   |        | 6      | 0.6    | 112    | 339    | 2.7    | <10    | <1     | 20     | <1 |    |
| 23     | 15     | 58     | <1     | <0.5   | 138    | 52     | <5     | 40     | 1730   | <5     | 1.2    | 149    | 106    | 6.3    | 30     | 1      | 28     | <1     |    |    |
| 24     | 32     | 55     | <1     | <0.5   | 127    | 54     | <5     | 78     | 2300   |        | 5      | 0.8    | 155    | 341    | 2.4    | <10    | <1     | 29     | <1 |    |
| 30     | 16     | 35     | <1     | <0.5   | 105    | 39     | <5     | 37     | 1970   |        | 8      | 1.5    | 93     | 142    | 2.1    | 40     | 1      | 19     | <1 |    |
| 5      | 16     | 9      | <1     | <0.5   | 176    | 3      |        | 229    | 1480   |        | 6      | <0.5   | 14     | 602    | 0.5    | <10    | <1     | 2      | <1 |    |
| 60     | 22     | 114    | <1     | <0.5   | 85.1   | 111    | <5     | 41     | 2560   |        | 14     | 2      | 304    | 359    | 5.1    | 40     | 2      | 58     | <1 |    |
| 47     | 21     | 75     | <1     | <0.5   | 100    | 82     | <5     | 44     | 2160   |        | 5      | 2      | 205    | 174    | 6.5    | 30     | 1      | 40     | <1 |    |
| 41     | 22     | 76     | <1     | <0.5   | 71.6   | 85     | <5     | 35     | 2120   | <5     | 1.3    | 220    | 285    | 4      | 20     | <1     |        | 43     | <1 |    |
| 28     | 21     | 46     | <1     | <0.5   | 99.1   | 43     | <5     | 41     | 1580   | <5     | 0.6    | 123    | 252    | 1.1    | 20     | <1     |        | 24     | <1 |    |
| 22     | 18     | 37     | <1     | <0.5   | 106    | 33     | <5     | 62     | 1820   |        | 6      | 0.6    | 109    | 373    | 2.1    | <10    | 1      | 20     | <1 |    |
| 21     | 23     | 31     | <1     | <0.5   | 150    | 29     | <5     | 74     | 1610   | <5     | <0.5   | 91     | 260    | 1.3    | <10    | <1     |        | 17     | <1 |    |
| 21     | 20     | 28     | <1     | <0.5   | 195    | 24     | <5     | 78     | 2320   |        | 7      | 0.6    | 80     | 226    | 2.6    | <10    | <1     |        | 15 | <1 |
| 18     | 25     | 28     | <1     | <0.5   | 166    | 20     | <5     | 90     | 2090   |        | 7      | 0.5    | 70     | 204    | 3      | 10     | <1     |        | 13 | <1 |
| 16     | 26     | 19     | <1     | <0.5   | 257    | 14     | <5     | 105    | 1830   |        | 6      | <0.5   | 48     | 179    | 1.3    | <10    | <1     |        | 9  | <1 |
| 18     | 27     | 21     | <1     | <0.5   | 201    | 17     | <5     | 64     | 1950   | <5     | <0.5   | 53     | 161    | 0.9    | 20     | <1     |        | 10     | <1 |    |
| 15     | 24     | 26     | <1     | <0.5   | 90.6   | 22     | <5     | 69     | 1310   | <5     | 0.6    | 71     | 146    | 1.6    | 20     | <1     |        | 13     | <1 |    |
| 13     | 26     | 20     | <1     | <0.5   | 214    | 15     | <5     | 60     | 1470   | <5     | <0.5   | 48     | 153    | 2.2    | 10     | <1     |        | 9      | <1 |    |



| Fe  | Ga | Gd | Hg | In   | K | La   | Li  | Mg | Mn  | Mo   | Nb    | Nd   | Ni   | P   | Pb   | Pd  | Pr  | Pt |    |      |
|-----|----|----|----|------|---|------|-----|----|-----|------|-------|------|------|-----|------|-----|-----|----|----|------|
| 18  | 42 | 57 | <1 | <0.5 |   | 169  | 42  | <5 | 68  | 2230 | <5    |      | 134  | 167 | 1.1  | 10  | <1  | 25 | <1 |      |
| 19  | 41 | 55 | <1 | <0.5 |   | 103  | 48  | <5 | 61  | 1230 | 6     | <0.5 | 152  | 195 | 1    | <10 | <1  | 28 | <1 |      |
| 14  | 24 | 35 | <1 | <0.5 |   | 127  | 20  | <5 | 80  | 8200 | 43    | <0.5 | 98   | 258 | 0.9  | <10 | <1  | 17 | <1 |      |
| 13  | 37 | 41 | <1 | <0.5 |   | 78.5 | 19  | <5 | 60  | 3370 | 16    | <0.5 | 80   | 572 | 0.9  | <10 | <1  | 13 | <1 |      |
| 19  | 20 | 37 | <1 | <0.5 |   | 287  | 51  | <5 | 48  | 1590 | 8     | <0.5 | 128  | 286 | 2.2  | <10 | <1  | 25 | <1 |      |
| 18  | 21 | 40 | <1 | <0.5 |   | 88   | 42  | <5 | 21  | 1490 | <5    |      | 104  | 140 | 1.1  | 30  | <1  | 21 | <1 |      |
| 38  | 7  | 15 | <1 | <0.5 |   | 100  | 17  | <5 | 71  | 1040 | 8     | 0.7  | 50   | 75  | 5.3  | <10 | <1  | 9  | <1 |      |
| 14  | 29 | 23 | <1 | <0.5 |   | 106  | 8   | <5 | 121 | 3510 | 22    | 0.5  | 39   | 786 | 2.4  | 10  | <1  | 6  | <1 |      |
| 9   | 56 | 57 | <1 | <0.5 |   | 104  | 25  |    | 8   | 189  | 2240  | 19   | <0.5 | 101 | 1010 | 0.9 | <10 | <1 | 16 | <1   |
| 8   | 49 | 71 | <1 | <0.5 |   | 89.4 | 42  |    | 23  | 264  | 2610  | 21   | 0.7  | 150 | 983  | 1.5 | 20  | <1 | 26 | <1   |
| 13  | 50 | 52 | <1 | <0.5 |   | 266  | 43  |    | 9   | 195  | 1250  | 22   | 0.5  | 141 | 999  | 1.2 | <10 | <1 | 25 | <1   |
| 17  | 17 | 29 | <1 | <0.5 |   | 180  | 20  | <5 |     | 59   | 1780  | <5   | <0.5 | 71  | 505  | 3.8 | <10 | <1 | 12 | <1   |
| 22  | 28 | 52 | <1 | <0.5 |   | 209  | 53  | <5 |     | 58   | 1170  | <5   | 0.5  | 147 | 422  | 1.1 | 10  | <1 | 28 | <1   |
| 18  | 28 | 28 | <1 | <0.5 |   | 178  | 31  | <5 |     | 57   | 440   | <5   | <0.5 | 86  | 171  | 1   | <10 | <1 | 16 | <1   |
| 21  | 29 | 32 | <1 | <0.5 |   | 141  | 35  | <5 |     | 61   | 710   | <5   | <0.5 | 96  | 266  | 0.8 | <10 | <1 | 19 | <1   |
| 22  | 20 | 35 | <1 | <0.5 |   | 118  | 33  | <5 |     | 68   | 580   | <5   | <0.5 | 101 | 254  | 1.8 | <10 | <1 | 19 | <1   |
| 19  | 22 | 37 | <1 | <0.5 |   | 140  | 41  | <5 |     | 65   | 530   | <5   | 0.5  | 115 | 298  | 1.4 | <10 | <1 | 22 | <1   |
| 48  | 19 | 39 | <1 | <0.5 |   | 142  | 47  | <5 |     | 25   | 2760  | 9    | 2.2  | 107 | 96   | 9.9 | 60  | 1  | 21 | <1   |
| 69  | 15 | 44 | <1 | <0.5 |   | 132  | 69  | <5 |     | 38   | 1790  | 9    | 4.2  | 143 | 177  | 9.6 | 60  | 1  | 31 | <1   |
| 52  | 12 | 24 | <1 | <0.5 |   | 201  | 35  | <5 |     | 41   | 2340  | 8    | 2.7  | 75  | 110  | 8.6 | 40  | <1 | 15 | <1   |
| 42  | 14 | 66 | <1 | <0.5 |   | 94.7 | 115 | <5 |     | 72   | 1310  | 6    | 2.6  | 247 | 241  | 6.8 | <10 | <1 | 49 | <1   |
| 66  | 18 | 36 | <1 | <0.5 |   | 80   | 105 | <5 |     | 56   | 13000 | 11   | 3.9  | 171 | 269  | 4.7 | <10 | <1 | 40 | <1   |
| 38  | 11 | 38 | <1 | <0.5 |   | 98.5 | 80  | <5 |     | 61   | 3220  | 5    | 2.5  | 155 | 581  | 4.9 | <10 | <1 | 33 | <1   |
| 35  | 16 | 47 | <1 | <0.5 |   | 79.8 | 106 | <5 |     | 57   | 1000  | <5   | 2.3  | 189 | 439  | 4.4 | <10 | <1 | 41 | <1   |
| 47  | 7  | 56 | <1 | <0.5 |   | 47.6 | 105 | <5 |     | 60   | 5750  | 9    | 2.0  | 218 | 353  | 8.2 | <10 | <1 | 46 | <1   |
| 79  | 10 | 47 | <1 | <0.5 |   | 55.8 | 82  | <5 |     | 46   | 25000 | 55   | 3.8  | 183 | 637  | 6.2 | 10  | <1 | 38 | <1   |
| 88  | 13 | 69 | <1 | <0.5 |   | 50.5 | 161 | <5 |     | 106  | 3410  | 7    | 3.3  | 271 | 423  | 5.5 | 20  | 1  | 58 | <1   |
| 112 | 19 | 66 | <1 | <0.5 |   | 64.2 | 118 | <5 |     | 61   | 4620  | 6    | 4.6  | 190 | 617  | 8.3 | 90  | 1  | 43 | <1   |
| 48  | 13 | 33 | <1 | <0.5 |   | 86.2 | 63  | <5 |     | 51   | 3460  | <5   | 3.4  | 117 | 252  | 5.1 | 20  | <1 | 25 | <1   |
| 95  | 16 | 31 | <1 | <0.5 |   | 57.3 | 89  | <5 |     | 48   | 35100 | 17   | 5.3  | 126 | 337  | 4.3 | 30  | <1 | 29 | <1   |
| 34  | 12 | 80 | <1 | <0.5 |   | 80.1 | 115 | <5 |     | 77   | 410   | 9    | 2.1  | 263 | 504  | 5.2 | <10 | <1 | 51 | <1   |
| 40  | 14 | 61 | <1 | <0.5 |   | 133  | 91  | <5 |     | 87   | 990   | 10   | 2.1  | 192 | 476  | 5   | 20  | <1 | 39 | <1   |
| 45  | 9  | 56 | <1 | <0.5 |   | 46.7 | 87  | <5 |     | 35   | 480   | 8    | 2.5  | 187 | 155  | 6.5 | 10  | <1 | 38 | <1   |
| 52  | 9  | 61 | <1 | <0.5 |   | 43.7 | 86  | <5 |     | 37   | 1180  | 12   | 3.4  | 197 | 193  | 8.1 | 20  | <1 | 40 | <1   |
| 21  | 17 | 34 | <1 | <0.5 |   | 68.5 | 51  | <5 |     | 136  | 320   | <5   | 1.3  | 117 | 354  | 5.1 | <10 | <1 | 23 | <1   |
| 28  | 16 | 40 | <1 | <0.5 |   | 104  | 69  | <5 |     | 106  | 810   | <5   | 1.1  | 137 | 443  | 4.3 | <10 | <1 | 28 | <1   |
| 60  | 17 | 45 | <1 | <0.5 |   | 35.7 | 120 | <5 |     | 106  | 17100 | 8    | 3.6  | 200 | 278  | 3.2 | 10  | <1 | 46 | <1   |
| 76  | 16 | 44 | <1 | <0.5 |   | 43.7 | 112 | <5 |     | 80   | 42500 | 17   | 4.2  | 193 | 525  | 3.1 | 10  | <1 | 44 | <1   |
| 26  | 15 | 44 | <1 | <0.5 |   | 110  | 82  | <5 |     | 142  | 750   | <5   | 1.8  | 163 | 359  | 6.5 | 10  | <1 | 33 | <1   |
| 37  | 15 | 88 | <1 | <0.5 |   | 66.1 | 137 | <5 |     | 127  | 1500  | 6    | 2    | 285 | 680  | 5   | 20  | <1 | 59 | <1   |
| 22  | 16 | 24 | <1 | <0.5 |   | 58.6 | 32  | <5 |     | 107  | 560   | 6    | 1.1  | 74  | 124  | 6.1 | <10 | <1 | 14 | <1   |
| 37  | 16 | 69 | <1 | <0.5 |   | 52.6 | 97  | <5 |     | 67   | 780   | 7    | 1.4  | 211 | 215  | 5.7 | 10  | <1 | 42 | <1   |
| 34  | 24 | 56 | <1 | <0.5 |   | 45.1 | 140 | <5 |     | 104  | 3580  | <5   | 2.2  | 238 | 315  | 3.4 | <10 | <1 | 54 | <1   |
| 50  | 33 | 29 | <1 | <0.5 |   | 57   | 111 | <5 |     | 67   | 17500 | 11   | 3.3  | 144 | 519  | 3   | <10 | <1 | 36 | <1   |
| 50  | 17 | 53 | <1 | <0.5 |   | 50.5 | 102 | <5 |     | 59   | 7670  | 7    | 2    | 215 | 245  | 5.5 | <10 | <1 | 46 | <1   |
| 76  | 18 | 51 | <1 | <0.5 |   | 58.3 | 138 | <5 |     | 51   | 26400 | 14   | 3.7  | 237 | 329  | 5.8 | <10 | 1  | 54 | <1   |
| 36  | 26 | 32 | <1 | <0.5 |   | 72.5 | 108 | <5 |     | 98   | 1400  | <5   | 2.2  | 147 | 252  | 5.4 | 20  | <1 | 37 | <1   |
| 82  | 29 | 29 | <1 | <0.5 |   | 105  | 107 | <5 |     | 89   | 17900 | 14   | 5.7  | 146 | 309  | 5.7 | 20  | 1  | 36 | <1   |
| 53  | 23 | 39 | <1 | <0.5 |   | 69.9 | 88  | <5 |     | 62   | 5300  | <5   | 2.5  | 150 | 159  | 5.8 | 20  | <1 | 34 | <1   |
| 87  | 26 | 45 | <1 | <0.5 |   | 71.3 | 153 | <5 |     | 50   | 31400 | 16   | 3.1  | 212 | 321  | 3.3 | 10  | 1  | 52 | <1   |
| 38  | 22 | 37 | <1 | <0.5 |   | 69   | 60  | <5 |     | 81   | 7140  | <5   | 2.1  | 133 | 162  | 5.9 | 20  | <1 | 27 | <1   |
| 66  | 29 | 51 | <1 | <0.5 |   | 52.9 | 134 | <5 |     | 68   | 20800 | 8    | 2.9  | 230 | 323  | 2.7 | 10  | <1 | 52 | <1   |
| 34  | 27 | 34 | <1 | <0.5 |   | 70.2 | 65  | <5 |     | 58   | 3580  | <5   | 2.3  | 132 | 113  | 6.1 | 10  | <1 | 28 | <1   |
| 27  | 17 | 29 | <1 | <0.5 |   | 53.2 | 55  | <5 |     | 48   | 1370  | 6    | 1.5  | 112 | 116  | 5.4 | <10 | <1 | 23 | <1   |
| 71  | 21 | 78 | <1 | <0.5 |   | 100  | 191 | <5 |     | 91   | 9330  | 6    | 3.1  | 322 | 214  | 3.8 | 20  | <1 | 71 | <1   |
| 109 | 18 | 38 | <1 | <0.5 |   | 88.1 | 118 | <5 |     | 74   | 16900 | 14   | 4.8  | 177 | 211  | 7.1 | 30  | 1  | 42 | <1   |
| 56  | 20 | 83 | <1 | <0.5 |   | 31.9 | 251 | <5 |     | 117  | 7370  | <5   | 2.8  | 374 | 236  | 3.1 | 20  | <1 | 89 | <1   |
| 62  | 20 | 67 | <1 | <0.5 |   | 32.5 | 199 | <5 |     | 103  | 7430  | 7    | 3.1  | 298 | 206  | 3.5 | 20  | 1  | 60 | <1   |
| 53  | 34 | 35 | <1 | <0.5 |   | 58.5 | 85  | <5 |     | 76   | 12000 | 10   | 2.9  | 148 | 305  | 2.3 | 20  | <1 | 33 | <1   |
| 57  | 30 | 46 | <1 | <0.5 |   | 91.2 | 91  | <5 |     | 48   | 20900 | 15   | 2.4  | 171 | 441  | 2.8 | 30  | <1 | 38 | <1   |
| 43  | 13 | 32 | <1 | <0.5 |   | 108  | 38  | <5 |     | 51   | 7020  | 6    | 2    | 89  | 51   | 6.2 | 20  | <1 | 17 | <1   |
| 48  | 13 | 46 | <1 | <0.5 |   | 115  | 63  | <5 |     | 34   | 8220  | 12   | 2.5  | 147 | 120  | 6.5 | 20  | <1 | 29 | <1   |
| 64  | 24 | 72 | <1 | <0.5 |   | 41.6 | 133 | <5 |     | 56   | 13500 | 6    | 3.1  | 277 | 76   | 3.9 | 20  | <1 | 58 | <1   |
| 80  | 24 | 57 | <1 | <0.5 |   | 76.8 | 101 | <5 |     | 32   | 19100 | 8    | 2.9  | 204 | 198  | 3.3 | 40  | 1  | 44 | <1   |
| 21  | 19 | 40 | <1 | <0.5 |   | 56.5 | 46  | <5 |     | 34   | 780   | <5   | 1    | 116 | 176  | 3.9 | <10 | <1 | 22 | <1   |
| 28  | 18 | 40 | <1 | <0.5 |   | 57.9 | 53  | <5 |     | 33   | 840   | 6    | 1.4  | 126 | 222  | 4.1 | <10 | <1 | 24 | <1   |
| 25  | 15 | 49 | <1 | <0.5 |   | 83.3 | 50  | <5 |     | 60   | 800   | 5    | 0.9  | 127 | 284  | 3.9 | 10  | <1 | 24 | <1   |
| 47  | 15 | 93 | <1 | <0.5 |   | 111  | 79  | <5 |     | 41   | 1490  | 10   | 1.1  | 218 | 423  | 3.3 | 30  | <1 | 40 | <1   |
| 25  | 21 | 57 | <1 | <0.5 |   | 120  | 67  | <5 |     | 76   | 600   | <5   | 0.8  | 168 | 249  | 2.3 | <10 | <1 | 32 | <1   |
| 31  | 16 | 62 | <1 | <0.5 |   | 127  | 73  | <5 |     | 60   | 1280  | <5   | 0.9  | 181 | 373  | 2.6 | 10  | <1 | 35 | <1   |
| 24  | 11 | 65 | <1 | <0.5 |   | 61.4 | 64  | <5 |     | 82   | 1450  | <5   | <0.5 | 178 | 394  | 1.4 | 10  | <1 | 33 | <1   |
| 25  | 10 | 78 | <1 | <0.5 |   | 163  | 62  | <5 |     | 75   | 2110  | <5   | <0.5 | 196 | 383  | 2.3 | 20  | <1 | 35 | <1   |
| 42  | 14 | 73 | <1 | <0.5 |   | 127  | 73  | <5 |     | 45   | 3540  | 10   | 1.6  | 167 | 178  | 3.4 | 50  | <1 | 37 | <1   |
| 62  | 13 | 77 | <1 | <0.5 |   | 108  | 88  | <5 |     | 39   | 4940  | 13   | 1.7  | 177 | 204  | 4.7 | 80  | <1 | 35 | <1   |
| 13  | 17 | 54 | <1 | <0.5 |   | 30.6 | 47  |    | 44  | 177  | 1110  | 7    | 0.9  | 135 | 385  | 0.6 | 30  | <1 | 25 | <1   |
| 11  | 15 | 59 | <1 | <0.5 |   | 91.5 | 47  |    | 50  | 154  | 1750  | 9    | 0.8  | 138 | 366  | 0.6 | 60  | <1 | 26 | <1</ |

| Rb     | Sb     | Sc     | Sm     | Sn     | Sr      | Ta     | Tb     | Ta     | Th     | Ti     | Ti       | U      | W      | Y      | Yb     | Zn     | Zr     |     |
|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|-----|
| MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5  | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5   | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 | MMI-M5 |     |
| 5      | 1      | 5      | 1      | 1      | 10      | 1      | 1      | 10     | 0.5    | 3      | 0.5      | 1      | 1      | 1      | 5      | 20     | 5      |     |
| ppb    | ppb    | ppb    | ppb    | ppb    | ppb     | ppb    | ppb    | ppb    | ppb    | ppb    | ppb      | ppb    | ppb    | ppb    | ppb    | ppb    | ppb    |     |
| 82 <1  |        | 15     | 54 <1  |        | 1600 <1 |        |        | 10 <10 |        | 11.6   | 16 <0.5  |        | 20 <1  |        | 264    | 18     | 100    | 91  |
| 70 <1  |        | 9      | 33 <1  |        | 1650 <1 |        |        | 6 <10  |        | 5.2    | 18 <0.5  |        | 25 <1  |        | 154    | 11     | 180    | 84  |
| 150 <1 |        | 15     | 36 <1  |        | 1460 <1 |        |        | 7 <10  |        | 6.6    | 32 <0.5  |        | 16 <1  |        | 225    | 10     | 370    | 77  |
| 51 <1  |        | 6      | 4 <1   |        | 1500 <1 |        |        | 1 <10  |        | 2.3    | 10 <0.5  |        | 3 <1   |        | 47     | 4      | 40     | 18  |
| 92 <1  |        | 5      | 2 <1   |        | 3100 <1 |        | <1     | 6 <10  |        | 1.2    | 16 <0.5  |        | 2 <1   |        | 25     | 2      | 20     | 14  |
| 97 <1  |        | 13     | 31 <1  |        | 1940 <1 |        |        | 5 <10  |        | 7.8    | 19 <0.5  |        | 19 <1  |        | 136    | 9      | 380    | 114 |
| 84 <1  |        | 12     | 11 <1  |        | 2380 <1 |        |        | 3 <10  |        | 2.7    | 20 <0.5  |        | 21 <1  |        | 70     | 5      | 260    | 98  |
| 114 <1 |        | 13     | 35 <1  |        | 2210 <1 |        |        | 6 <10  |        | 8.6    | 29 <0.5  |        | 32 <1  |        | 143    | 10     | 280    | 219 |
| 115 <1 |        | 10     | 27 <1  |        | 2210 <1 |        |        | 5 <10  |        | 5.2    | 24 <0.5  |        | 14 <1  |        | 117    | 9      | 890    | 82  |
| 150 <1 |        | 9      | 17 <1  |        | 3470 <1 |        |        | 3 <10  |        | 4.5    | 14 <0.5  |        | 20 <1  |        | 76     | 6      | 260    | 64  |
| 50 <1  |        | 13     | 19 <1  |        | 1800 <1 |        |        | 4 <10  |        | 5.8    | 37 <0.5  |        | 20 <1  |        | 102    | 8      | 80     | 66  |
| 111 <1 |        | 8      | 19 <1  |        | 1340 <1 |        |        | 4 <10  |        | 3.4    | 27 <0.5  |        | 9 <1   |        | 95     | 7      | 740    | 47  |
| 129 <1 |        | 9      | 27 <1  |        | 1800 <1 |        |        | 5 <10  |        | 3.2    | 27 <0.5  |        | 13 <1  |        | 128    | 10     | 920    | 76  |
| 144 <1 |        | 13     | 21 <1  |        | 2200 <1 |        |        | 4 <10  |        | 6.7    | 29 <0.5  |        | 17 <1  |        | 99     | 8      | 870    | 97  |
| <5     |        | <5     | <1     |        | 3460 <1 |        | <1     | <10    |        | 0.5    | 11 <0.5  |        | 29 <1  |        | 6 <1   |        | 30     | 12  |
| 87 <1  |        | 10     | 29 <1  |        | 2040 <1 |        |        | 5 <10  |        | 5.9    | 31 <0.5  |        | 9 <1   |        | 122    | 10     | 410    | 80  |
| 133 <1 |        | 11     | 35 <1  |        | 2120 <1 |        |        | 6 <10  |        | 4.8    | 41 <0.5  |        | 16 <1  |        | 175    | 13     | 300    | 119 |
| 129 <1 |        | 11     | 32 <1  |        | 1550 <1 |        |        | 6 <10  |        | 5.9    | 31 <0.5  |        | 14 <1  |        | 155    | 11     | 480    | 114 |
| 87 <1  |        | 26     | 67 <1  |        | 2490 <1 |        |        | 14 <10 |        | 12.2   | 29 <0.5  |        | 62 <1  |        | 437    | 33     | 500    | 124 |
| 102 <1 |        | 60     | 58 <1  |        | 950 <1  |        |        | 12 <10 |        | 14.4   | 188 <0.5 |        | 17 <1  |        | 382    | 29     | 130    | 178 |
| 93 <1  |        | 8      | 9 <1   |        | 2900 <1 |        |        | 2 <10  |        | 2.3    | 26 <0.5  |        | 8 <1   |        | 52     | 4      | 800    | 28  |
| 183 <1 |        | 11     | 27 <1  |        | 1750 <1 |        |        | 5 <10  |        | 5.6    | 24 <0.5  |        | 18 <1  |        | 126    | 9      | 880    | 119 |
| 176 <1 |        | 18     | 32 <1  |        | 1670 <1 |        |        | 6 <10  |        | 9      | 61 <0.5  |        | 33 <1  |        | 152    | 13     | 920    | 264 |
| 126 <1 |        | 10     | 19 <1  |        | 2300 <1 |        |        | 3 <10  |        | 7.2    | 17 <0.5  |        | 20 <1  |        | 77     | 5      | 310    | 130 |
| 84 <1  |        | 6      | 6 <1   |        | 3590 <1 |        |        | 2 <10  |        | 1.4    | 11 <0.5  |        | 10 <1  |        | 43     | 3      | 40     | 27  |
| 56 <1  |        | 10     | 24 <1  |        | 4040 <1 |        |        | 5 <10  |        | 7.4    | 10 <0.5  |        | 15 <1  |        | 150    | 11     | 320    | 36  |
| 77 <1  |        | 21     | 78 <1  |        | 1530 <1 |        |        | 15 <10 |        | 15.8   | 17 <0.5  |        | 23 <1  |        | 435    | 30     | 30     | 108 |
| 106 <1 |        | 14     | 3 <1   |        | 1150 <1 |        |        | 2 <10  |        | 3      | 8 <0.5   |        | 16 <1  |        | 45     | 6      | 50     | 86  |
| 49 <1  |        | 22     | 39 <1  |        | 1570 <1 |        |        | 7 <10  |        | 7.7    | 18 <0.5  |        | 22 <1  |        | 202    | 16     | 110    | 79  |
| 51 <1  |        | 17     | 20 <1  |        | 2070 <1 |        |        | 4 <10  |        | 6      | 16 <0.5  |        | 34 <1  |        | 97     | 9      | 340    | 94  |
| 88 <1  |        | 36     | 24 <1  |        | 1600 <1 |        |        | 4 <10  |        | 21.6   | 96 <0.5  |        | 15 <1  |        | 107    | 8      | 180    | 182 |
| 21 <1  |        | 8      | 6 <1   |        | 2190 <1 |        |        | 1 <10  |        | 1.6    | 32 <0.5  |        | 21 <1  |        | 28     | 2      | 80     | 36  |
| 140 <1 |        | 55     | 57 <1  |        | 1480 <1 |        |        | 10 <10 |        | 27.7   | 124 <0.5 |        | 23 <1  |        | 263    | 21     | 140    | 217 |
| 54 <1  |        | 29     | 37 <1  |        | 1650 <1 |        |        | 6 <10  |        | 21.1   | 64 <0.5  |        | 21 <1  |        | 150    | 12     | 190    | 157 |
| 55 <1  |        | 46     | 70 <1  |        | 1190 <1 |        |        | 10 <10 |        | 29.9   | 206 <0.5 |        | 25     | 2      | 308    | 23     | 90     | 218 |
| 298 <1 |        | 19     | 11 <1  |        | 510 <1  |        |        | 2 <10  |        | 4.6    | 203 <0.5 |        | 9 <1   |        | 61     | 5      | 160    | 101 |
| 76 <1  |        | 18     | 40 <1  |        | 2910 <1 |        |        | 6 <10  |        | 19     | 29 <0.5  |        | 20 <1  |        | 155    | 10     | 190    | 107 |
| 115 <1 |        | 25     | 19 <1  |        | 990 <1  |        |        | 3 <10  |        | 18.7   | 354 <0.5 |        | 14     | 1      | 70     | 6      | 280    | 223 |
| 46 <1  |        | 13     | 16 <1  |        | 2260 <1 |        |        | 3 <10  |        | 7.9    | 35 <0.5  |        | 23 <1  |        | 76     | 5      | 110    | 66  |
| 181 <1 |        | 51     | 23 <1  |        | 500 <1  |        |        | 5 <10  |        | 9.4    | 202 <0.5 |        | 18 <1  |        | 165    | 15     | 110    | 166 |
| 107 <1 |        | 40     | 24 <1  |        | 520 <1  |        |        | 5 <10  |        | 9.4    | 251 <0.5 |        | 14 <1  |        | 184    | 14     | 230    | 144 |
| 176 <1 |        | 38     | 28 <1  |        | 920 <1  |        |        | 6 <10  |        | 9      | 156 <0.5 |        | 16 <1  |        | 222    | 19     | 890    | 195 |
| 72 <1  |        | 6      | 14 <1  |        | 1170 <1 |        |        | 2 <10  |        | 3.4    | 43 <0.5  |        | 19 <1  |        | 63     | 5      | 440    | 41  |
| 52 <1  |        | 26     | 45 <1  |        | 1220 <1 |        |        | 8 <10  |        | 5.8    | 34 <0.5  |        | 19 <1  |        | 257    | 18     | 100    | 85  |
| 61 <1  |        | 14     | 35 <1  |        | 1330 <1 |        |        | 6 <10  |        | 8.7    | 24 <0.5  |        | 19 <1  |        | 169    | 13     | 250    | 106 |
| 130 <1 |        | 14     | 33 <1  |        | 1850 <1 |        |        | 6 <10  |        | 8.7    | 25 <0.5  |        | 18 <1  |        | 151    | 10     | 210    | 111 |
| 112 <1 |        | 33     | 42 <1  |        | 630 <1  |        |        | 9 <10  |        | 8.1    | 111 <0.5 |        | 14 <1  |        | 279    | 21     | 760    | 173 |
| 85 <1  |        | 14     | 44 <1  |        | 1430 <1 |        |        | 8 <10  |        | 12.8   | 28 <0.5  |        | 22 <1  |        | 199    | 14     | 120    | 113 |
| 85 <1  |        | 37     | 27 <1  |        | 650 <1  |        |        | 6 <10  |        | 10     | 133 <0.5 |        | 12 <1  |        | 179    | 16     | 40     | 165 |
| 48 <1  |        | <5     | 6 <1   |        | 2950 <1 |        |        | 1 <10  |        | 2.2    | 14 <0.5  |        | 6 <1   |        | 41     | 3      | <20    | 19  |
| 60 <1  |        | 80     | 87 <1  |        | 970 <1  |        |        | 18 <10 |        | 20     | 168 <0.5 |        | 21 <1  |        | 579    | 48     | 30     | 281 |
| 124 <1 |        | 58     | 58 <1  |        | 870 <1  |        |        | 12 <10 |        | 12.2   | 239 <0.5 |        | 20 <1  |        | 388    | 28     | 110    | 220 |
| 115 <1 |        | 39     | 61 <1  |        | 1020 <1 |        |        | 11 <10 |        | 10.5   | 61 <0.5  |        | 20 <1  |        | 386    | 28     | 230    | 157 |
| 65 <1  |        | 15     | 36 <1  |        | 1140 <1 |        |        | 7 <10  |        | 5.4    | 28 <0.5  |        | 10 <1  |        | 202    | 16     | 520    | 110 |
| 122 <1 |        | 9      | 32 <1  |        | 2070 <1 |        |        | 5 <10  |        | 6.2    | 42 <0.5  |        | 20 <1  |        | 116    | 10     | 240    | 165 |
| 125 <1 |        | 8      | 26 <1  |        | 1630 <1 |        |        | 4 <10  |        | 4.8    | 23 <0.5  |        | 11 <1  |        | 103    | 8      | 660    | 73  |
| 147 <1 |        | 7      | 24 <1  |        | 2070 <1 |        |        | 4 <10  |        | 4.4    | 29 <0.5  |        | 9 <1   |        | 95     | 7      | 930    | 51  |
| 207 <1 |        | 7      | 23 <1  |        | 2490 <1 |        |        | 4 <10  |        | 3.2    | 29 <0.5  |        | 9 <1   |        | 102    | 8      | 990    | 49  |
| 123 <1 |        | 6      | 14 <1  |        | 2580 <1 |        |        | 3 <10  |        | 2.6    | 22 <0.5  |        | 10 <1  |        | 69     | 5      | 820    | 36  |
| 112 <1 |        | 7      | 16 <1  |        | 2250 <1 |        |        | 3 <10  |        | 1.8    | 24 <0.5  |        | 10 <1  |        | 83     | 7      | 1250   | 51  |
| 181 <1 |        | 6      | 22 <1  |        | 2010 <1 |        |        | 4 <10  |        | 3.3    | 24 <0.5  |        | 12 <1  |        | 101    | 8      | 750    | 63  |
| 117 <1 |        | 6      | 16 <1  |        | 1640 <1 |        |        | 3 <10  |        | 2.6    | 30 <0.5  |        | 10 <1  |        | 77     | 6      | 640    | 54  |



| Rb     | Sb | Sc | Sm    | Sn | Sr      | Ta | Tb     | Te | Th   | Ti       | Tl | U     | W | Y   | Yb | Zn    | Zr  |
|--------|----|----|-------|----|---------|----|--------|----|------|----------|----|-------|---|-----|----|-------|-----|
| 136 <1 |    | 13 | 42 <1 |    | 1530 <1 |    | 8 <10  |    | 4.6  | 24 <0.5  |    | 18 <1 |   | 213 | 16 | 690   | 96  |
| 127 <1 |    | 14 | 45 <1 |    | 1340 <1 |    | 8 <10  |    | 10   | 15 <0.5  |    | 28 <1 |   | 186 | 14 | 180   | 165 |
| 145 <1 |    | 11 | 29 <1 |    | 1400 <1 |    | 5 <10  |    | 8.7  | 12 <0.5  |    | 21 <1 |   | 119 | 9  | 340   | 81  |
| 55 <1  |    | 9  | 28 <1 |    | 1550 <1 |    | 6 <10  |    | 7.2  | 8 <0.5   |    | 13 <1 |   | 148 | 11 | 220   | 31  |
| 209 <1 |    | 9  | 34 <1 |    | 1100 <1 |    | 5 <10  |    | 4.4  | 38 <0.5  |    | 23 <1 |   | 128 | 10 | 10000 | 88  |
| 187 <1 |    | 34 | 31 <1 |    | 670 <1  |    | 7 <10  |    | 6.3  | 48 <0.5  |    | 16 <1 |   | 203 | 17 | 9720  | 147 |
| 114 <1 |    | 14 | 13 <1 |    | 1140 <1 |    | 2 <10  |    | 5.3  | 30 <0.5  |    | 31 <1 |   | 58  | 5  | 3380  | 54  |
| 39 <1  |    | 9  | 14 <1 |    | 2280 <1 |    | 3 <10  |    | 3.3  | 14 <0.5  |    | 22 <1 |   | 105 | 9  | 100   | 38  |
| 43 <1  |    | 13 | 37 <1 |    | 3090 <1 |    | 8 <10  |    | 8.4  | 7 <0.5   |    | 31 <1 |   | 209 | 13 | 90    | 52  |
| 65 <1  |    | 15 | 50 <1 |    | 4530 <1 |    | 11 <10 |    | 13.8 | 14 <0.5  |    | 46 <1 |   | 283 | 21 | 100   | 78  |
| 47 <1  |    | 14 | 41 <1 |    | 3410 <1 |    | 7 <10  |    | 16.4 | 12 <0.5  |    | 38 <1 |   | 194 | 15 | 30    | 125 |
| 55 <1  |    | 10 | 22 <1 |    | 1180 <1 |    | 4 <10  |    | 7.4  | 19 <0.5  |    | 11 <1 |   | 99  | 7  | 90    | 70  |
| 105 <1 |    | 11 | 42 <1 |    | 1230 <1 |    | 7 <10  |    | 6    | 19 <0.5  |    | 18 <1 |   | 203 | 16 | 150   | 125 |
| 133 <1 |    | 9  | 24 <1 |    | 1320 <1 |    | 4 <10  |    | 6.5  | 21 <0.5  |    | 22 <1 |   | 99  | 8  | 120   | 143 |
| 138 <1 |    | 8  | 27 <1 |    | 1530 <1 |    | 5 <10  |    | 4.6  | 20 <0.5  |    | 16 <1 |   | 114 | 9  | 230   | 98  |
| 86 <1  |    | 11 | 29 <1 |    | 1280 <1 |    | 5 <10  |    | 8.4  | 29 <0.5  |    | 17 <1 |   | 121 | 9  | 360   | 132 |
| 87 <1  |    | 8  | 32 <1 |    | 1290 <1 |    | 5 <10  |    | 8.7  | 20 <0.5  |    | 15 <1 |   | 132 | 9  | 20    | 94  |
| 128 <1 |    | 43 | 29 <1 |    | 570 <1  |    | 6 <10  |    | 9.1  | 270 <0.5 |    | 14 <1 |   | 182 | 15 | 1000  | 182 |
| 87 <1  |    | 56 | 37 <1 |    | 830 <1  |    | 7 <10  |    | 18.2 | 300 <0.5 |    | 13 <1 |   | 180 | 14 | 120   | 223 |
| 93 <1  |    | 29 | 20 <1 |    | 700 <1  |    | 4 <10  |    | 8.9  | 174 <0.5 |    | 7 <1  |   | 95  | 7  | 300   | 102 |
| 58 <1  |    | 18 | 56 <1 |    | 2040 <1 |    | 9 <10  |    | 8.8  | 44 <0.5  |    | 30 <1 |   | 264 | 19 | 80    | 113 |
| 56 <1  |    | 21 | 34 <1 |    | 1480 <1 |    | 5 <10  |    | 16.6 | 60 <0.5  |    | 17    |   | 128 | 10 | 180   | 127 |
| 32 <1  |    | 12 | 35 <1 |    | 1370 <1 |    | 5 <10  |    | 9.8  | 38 <0.5  |    | 23 <1 |   | 141 | 10 | 80    | 81  |
| 47 <1  |    | 15 | 42 <1 |    | 1630 <1 |    | 6 <10  |    | 14.6 | 38 <0.5  |    | 22 <1 |   | 165 | 11 | 60    | 111 |
| 77 <1  |    | 21 | 51 <1 |    | 1340 <1 |    | 8 <10  |    | 10   | 64 <0.5  |    | 17 <1 |   | 204 | 15 | 40    | 109 |
| 69 <1  |    | 42 | 42 <1 |    | 1080 <1 |    | 6 <10  |    | 14.3 | 120 <0.5 |    | 11 <1 |   | 184 | 15 | 280   | 147 |
| 91 <1  |    | 64 | 60 <1 |    | 1450 <1 |    | 10 <10 |    | 13.6 | 153 <0.5 |    | 22 <1 |   | 283 | 20 | 200   | 200 |
| 97 <1  |    | 88 | 53 <1 |    | 1330 <1 |    | 11 <10 |    | 22.2 | 507 <0.5 |    | 13 <1 |   | 356 | 25 | 530   | 310 |
| 132 <1 |    | 24 | 28 <1 |    | 1310 <1 |    | 5 <10  |    | 12.2 | 78 <0.5  |    | 17 <1 |   | 139 | 10 | 430   | 134 |
| 137 <1 |    | 40 | 28 <1 |    | 1280 <1 |    | 5 <10  |    | 14   | 172 <0.5 |    | 20 <1 |   | 139 | 11 | 360   | 175 |
| 65 <1  |    | 17 | 68 <1 |    | 1590 <1 |    | 11 <10 |    | 9.6  | 41 <0.5  |    | 14 <1 |   | 314 | 22 | 50    | 103 |
| 73 <1  |    | 20 | 51 <1 |    | 1720 <1 |    | 9 <10  |    | 9    | 45 <0.5  |    | 11 <1 |   | 260 | 17 | 40    | 85  |
| 88 <1  |    | 32 | 48 <1 |    | 1220 <1 |    | 8 <10  |    | 8.3  | 91 <0.5  |    | 16 <1 |   | 235 | 17 | <20   | 113 |
| 84 <1  |    | 42 | 52 <1 |    | 920 <1  |    | 9 <10  |    | 11.3 | 188 <0.5 |    | 13 <1 |   | 259 | 19 | 30    | 166 |
| 55 <1  |    | 8  | 28 <1 |    | 2340 <1 |    | 4 <10  |    | 4.6  | 33 <0.5  |    | 25 <1 |   | 126 | 8  | 20    | 49  |
| 71 <1  |    | 10 | 35 <1 |    | 2260 <1 |    | 5 <10  |    | 8.3  | 32 <0.5  |    | 20 <1 |   | 157 | 10 | 40    | 58  |
| 86 <1  |    | 21 | 42 <1 |    | 1800 <1 |    | 6 <10  |    | 17.7 | 53 <0.5  |    | 32 <1 |   | 170 | 13 | 50    | 129 |
| 106 <1 |    | 43 | 41 <1 |    | 1400 <1 |    | 7 <10  |    | 22.8 | 95 <0.5  |    | 26 <1 |   | 176 | 15 | 240   | 177 |
| 37 <1  |    | 11 | 40 <1 |    | 1570 <1 |    | 6 <10  |    | 9.3  | 36 <0.5  |    | 21 <1 |   | 167 | 11 | 40    | 76  |
| 61 <1  |    | 28 | 75 <1 |    | 1430 <1 |    | 13 <10 |    | 18.1 | 49 <0.5  |    | 22 <1 |   | 351 | 26 | 90    | 135 |
| 83 <1  |    | 8  | 19 <1 |    | 2330 <1 |    | 3 <10  |    | 3.4  | 29 <0.5  |    | 26 <1 |   | 103 | 7  | 50    | 40  |
| 122 <1 |    | 28 | 55 <1 |    | 1800 <1 |    | 10 <10 |    | 10.4 | 50 <0.5  |    | 29 <1 |   | 312 | 22 | 130   | 97  |
| 66 <1  |    | 14 | 52 <1 |    | 1940 <1 |    | 8 <10  |    | 12   | 36 <0.5  |    | 31 <1 |   | 176 | 12 | 70    | 132 |
| 30 <1  |    | 19 | 28 <1 |    | 1560 <1 |    | 4 <10  |    | 22.6 | 63 <0.5  |    | 15 <1 |   | 93  | 7  | 420   | 147 |
| 107 <1 |    | 29 | 47 <1 |    | 1490 <1 |    | 7 <10  |    | 11.1 | 52 <0.5  |    | 23 <1 |   | 203 | 17 | 160   | 121 |
| 102 <1 |    | 35 | 49 <1 |    | 1270 <1 |    | 7 <10  |    | 15.5 | 78 <0.5  |    | 25    |   | 198 | 17 | 120   | 170 |
| 17 <1  |    | 23 | 30 <1 |    | 1670 <1 |    | 5 <10  |    | 11.2 | 47 <0.5  |    | 28 <1 |   | 107 | 8  | 20    | 170 |
| 41 <1  |    | 38 | 28 <1 |    | 1210 <1 |    | 4 <10  |    | 26.9 | 198 <0.5 |    | 21    |   | 104 | 8  | 150   | 275 |
| 69 <1  |    | 30 | 34 <1 |    | 1560 <1 |    | 6 <10  |    | 17.7 | 47 <0.5  |    | 27 <1 |   | 149 | 11 | 110   | 163 |
| 91 <1  |    | 46 | 43 <1 |    | 1170 <1 |    | 7 <10  |    | 35.8 | 107 <0.5 |    | 21    |   | 185 | 14 | 170   | 195 |
| 47 <1  |    | 15 | 33 <1 |    | 1770 <1 |    | 5 <10  |    | 11.5 | 32 <0.5  |    | 30 <1 |   | 154 | 11 | 40    | 87  |
| 61 <1  |    | 31 | 49 <1 |    | 1550 <1 |    | 7 <10  |    | 29.7 | 38 <0.5  |    | 26 <1 |   | 207 | 17 | 70    | 146 |
| 65 <1  |    | 15 | 30 <1 |    | 1580 <1 |    | 5 <10  |    | 11.6 | 38 <0.5  |    | 25 <1 |   | 128 | 10 | 90    | 103 |
| 88 <1  |    | 13 | 26 <1 |    | 1300 <1 |    | 4 <10  |    | 13.5 | 38 <0.5  |    | 16 <1 |   | 111 | 8  | 170   | 95  |
| 53 <1  |    | 39 | 70 <1 |    | 1640 <1 |    | 11 <10 |    | 15.6 | 64 <0.5  |    | 38 <1 |   | 317 | 24 | 110   | 176 |
| 78 <1  |    | 69 | 37 <1 |    | 1130 <1 |    | 8 <10  |    | 21.7 | 219 <0.5 |    | 29    |   | 156 | 13 | 340   | 271 |
| 95 <1  |    | 32 | 79 <1 |    | 1730 <1 |    | 12 <10 |    | 23.6 | 54 <0.5  |    | 42 <1 |   | 287 | 21 | 50    | 183 |
| 91 <1  |    | 34 | 63 <1 |    | 1680 <1 |    | 10 <10 |    | 27.8 | 69 <0.5  |    | 40 <1 |   | 236 | 17 | 70    | 218 |
| 68 <1  |    | 10 | 31 <1 |    | 2220 <1 |    | 5 <10  |    | 18.6 | 36 <0.5  |    | 32 <1 |   | 137 | 11 | 190   | 95  |
| 75 <1  |    | 36 | 41 <1 |    | 1620 <1 |    | 7 <10  |    | 22   | 46 <0.5  |    | 20 <1 |   | 194 | 16 | 1040  | 144 |
| 71 <1  |    | 18 | 24 <1 |    | 1560 <1 |    | 4 <10  |    | 3.6  | 55 <0.5  |    | 29 <1 |   | 158 | 12 | 100   | 67  |
| 100 <1 |    | 33 | 38 <1 |    | 1150 <1 |    | 7 <10  |    | 9.2  | 96 <0.5  |    | 29 <1 |   | 217 | 17 | 370   | 147 |
| 82 <1  |    | 40 | 64 <1 |    | 2080 <1 |    | 10 <10 |    | 14.1 | 60 <0.5  |    | 46 <1 |   | 326 | 26 | 110   | 155 |
| 103 <1 |    | 69 | 49 <1 |    | 1310 <1 |    | 9 <10  |    | 18.2 | 102 <0.5 |    | 31 <1 |   | 273 | 23 | 330   | 203 |
| 80 <1  |    | 9  | 31 <1 |    | 2220 <1 |    | 5 <10  |    | 6.3  | 31 <0.5  |    | 27 <1 |   | 153 | 10 | 80    | 66  |
| 136 <1 |    | 13 | 32 <1 |    | 2090 <1 |    | 5 <10  |    | 11.3 | 39 <0.5  |    | 23 <1 |   | 160 | 11 | 710   | 99  |
| 81 <1  |    | 12 | 38 <1 |    | 1870 <1 |    | 7 <10  |    | 5    | 29 <0.5  |    | 21 <1 |   | 229 | 16 | 30    | 61  |
| 78 <1  |    | 46 | 88 <1 |    | 1400 <1 |    | 14 <10 |    | 9.3  | 61 <0.5  |    | 21 <1 |   | 484 | 30 | 80    | 131 |
| 67 <1  |    | 13 | 46 <1 |    | 1770 <1 |    | 8 <10  |    | 10.5 | 22 <0.5  |    | 27 <1 |   | 230 | 16 | 40    | 92  |
| 113 <1 |    | 14 | 50 <1 |    | 1600 <1 |    | 9 <10  |    | 10.7 | 43 <0.5  |    | 22 <1 |   | 262 | 19 | 130   | 98  |
| 112 <1 |    | 12 | 53 <1 |    | 1390 <1 |    | 9 <10  |    | 7.4  | 20 <0.5  |    | 14 <1 |   | 273 | 19 | 170   | 90  |
| 147 <1 |    | 14 | 61 <1 |    | 1190 <1 |    | 12 <10 |    | 6.3  | 28 <0.5  |    | 12 <1 |   | 341 | 25 | 280   | 102 |
| 58 <1  |    | 41 | 55 <1 |    | 1140 <1 |    | 12 <10 |    | 11.6 | 163 <0.5 |    | 25 <1 |   | 357 | 30 | 130   | 213 |
| 53 <1  |    | 60 | 56 <1 |    | 1050 <1 |    | 14 <10 |    | 15.1 | 172 <0.5 |    | 22 <1 |   | 443 | 36 | 160   | 196 |
| 38 <1  |    | 5  | 42 <1 |    | 3520 <1 |    | 7 <10  |    | 15.6 | 19 <0.5  |    | 68 <1 |   | 213 | 14 | <20   | 61  |
| 16 <1  | <5 |    | 45 <1 |    | 2960 <1 |    | 9 <10  |    | 8.7  | 13 <0.5  |    | 56 <1 |   | 265 | 10 | 20    | 44  |
| 53 <1  |    | 6  | 35 <1 |    | 2080 <1 |    | 6 <10  |    | 8.2  | 33 <0.5  |    | 44 <1 |   | 163 | 13 | 40    | 96  |
| 78 <1  |    | 13 | 51 <1 |    | 1540 <1 |    | 10 <10 |    | 8.8  | 39 <0.5  |    | 56 <1 |   | 273 | 24 | 40    | 143 |
| 63 <1  |    | 9  | 68 <1 |    | 1880 <1 |    | 12 <10 |    | 15   | 21 <0.5  |    | 59 <1 |   | 310 | 23 | 20    | 179 |
| 48 <1  |    | 27 | 94 <1 |    | 1140 <1 |    | 17 <10 |    | 16.1 | 69 <0.5  |    | 53 <1 |   | 481 | 42 | 50    | 258 |

## **APPENDIX B**

### **Total digestion soil sample results**

#### **Ketchan Property**

**SOIL SAMPLES**

|                                  |               | Au<br>ppb | Ag<br>ppm | Al<br>% | As<br>ppm | B<br>ppm | Ba<br>ppm | Be<br>ppm | Bi<br>ppm | Ca<br>% | Cd<br>ppm |
|----------------------------------|---------------|-----------|-----------|---------|-----------|----------|-----------|-----------|-----------|---------|-----------|
| <b>Ketchan Zone</b>              |               |           |           |         |           |          |           |           |           |         |           |
| G-94071                          | 76400E 16700N |           | 0.4       | 0.28    | 1.66      | 2.6 <10  | 124.5     | 0.29      | 0.1       | 0.32    | 0.08      |
| G-94072                          | 50NE          | <         |           | 0.16    | 1.49      | 2.2 <10  | 100.5     | 0.26      | 0.08      | 0.32    | 0.06      |
| G-94073                          | 100           |           | 0.2       | 0.23    | 1.68      | 2.2 <10  | 128.5     | 0.31      | 0.1       | 0.37    | 0.07      |
| G-94074                          | 150           |           | 1.9       | 0.24    | 1.71      | 3.3 <10  | 110       | 0.37      | 0.09      | 0.34    | 0.1       |
| G-94075                          | 200           |           | 79.4      | 0.21    | 1.48      | 2.9 <10  | 122       | 0.3       | 0.08      | 0.31    | 0.05      |
| G-94076                          | 250           | <         |           | 0.21    | 2.18      | 4.1 <10  | 172       | 0.41      | 0.09      | 0.3     | 0.07      |
| G-94077                          | 300           |           | 9.8       | 0.13    | 2.07      | 3.3 <10  | 183       | 0.43      | 0.11      | 0.38    | 0.05      |
| G-94078                          | 350           |           | 0.2       | 0.21    | 1.71      | 4.0 <10  | 130       | 0.32      | 0.07      | 0.29    | 0.06      |
| G-94079                          | 400           |           | 4.3       | 0.35    | 2.22      | 4.2 <10  | 97.3      | 0.46      | 0.09      | 0.71    | 0.11      |
| G-94080                          | 450NE         |           | 1.1       | 0.19    | 1.5       | 6.5 <10  | 91.3      | 0.24      | 0.07      | 0.27    | 0.08      |
| G-94081                          | 50SW          |           | 0.3       | 0.19    | 1.6       | 1.9 <10  | 113.5     | 0.33      | 0.09      | 0.32    | 0.07      |
| G-94082                          | 100           |           | 1.5       | 0.21    | 1.67      | 1.5 <10  | 109       | 0.33      | 0.08      | 0.36    | 0.07      |
| G-94083                          | 150           |           | 1.1       | 0.22    | 1.39      | 1.7 <10  | 102       | 0.27      | 0.07      | 0.37    | 0.06      |
| G-94084                          | 200           |           | 1.7       | 0.21    | 1.59      | 2.9 <10  | 109       | 0.34      | 0.06      | 0.44    | 0.07      |
| G-94085                          | 250           | <         |           | 0.11    | 1.57      | 3.1 <10  | 111       | 0.33      | 0.08      | 0.38    | 0.07      |
| G-94086                          | 300           |           | 0.6       | 0.15    | 1.45      | 2.2 <10  | 104       | 0.31      | 0.07      | 0.46    | 0.08      |
| G-94087                          | 350           |           | 0.2       | 0.11    | 1.48      | 2.7 <10  | 96.6      | 0.29      | 0.07      | 0.51    | 0.06      |
| G-94088                          | 400           | <         |           | 0.12    | 1.44      | 2.1 <10  | 100.5     | 0.29      | 0.06      | 0.4     | 0.07      |
| G-94089                          | 450           | <         |           | 0.10    | 1.39      | 2.6 <10  | 95.2      | 0.29      | 0.06      | 0.39    | 0.05      |
| G-94090                          | 500SW         |           | 0.4       | 0.14    | 1.49      | 3.4 <10  | 104       | 0.37      | 0.06      | 0.76    | 0.09      |
| <b>Ketchan NE<br/>Line 27000</b> |               |           |           |         |           |          |           |           |           |         |           |
| G-94111                          | 50W           | <         |           | 0.06    | 1.47      | 1.2 <10  | 95.8      | 0.26      | 0.07      | 0.25    | 0.04      |
| G-94112                          | 100           | <         |           | 0.05    | 1.43      | 1.6 <10  | 103.5     | 0.38      | 0.1       | 0.43    | 0.04      |
| G-94113                          | 150           | <         |           | 0.06    | 1.65      | 1.0 <10  | 124       | 0.32      | 0.08      | 0.25    | 0.03      |
| G-94114                          | 200           | <         |           | 0.02    | 1.32      | 0.8 <10  | 79.4      | 0.25      | 0.06      | 0.22    | 0.03      |
| G-94115                          | 250           |           | 0.4       | 0.03    | 2.32      | 2.5 <10  | 105.5     | 0.64      | 0.09      | 0.25    | 0.05      |
| G-94116                          | 300           | <         |           | 0.01    | 1.79      | 1.0 <10  | 123       | 0.4       | 0.07      | 0.21    | 0.03      |
| G-94117                          | 350           | <         |           | 0.05    | 1.48      | 0.9 <10  | 117.5     | 0.33      | 0.08      | 0.26    | 0.03      |
| G-94118                          | 400           |           | 14.2      | 0.05    | 1.18      | 1.2 <10  | 101       | 0.29      | 0.13      | 0.25    | 0.04      |
| G-94119                          | 450           |           | 0.2       | 0.03    | 1.66      | 1.5 <10  | 117.5     | 0.34      | 0.09      | 0.33    | 0.06      |
| G-94120                          | 500           | <         |           | 0.03    | 1.29      | 1.0 <10  | 106.5     | 0.24      | 0.08      | 0.27    | 0.04      |
| G-94121                          | 550           | <         |           | 0.09    | 1.35      | 1.3 <10  | 119.5     | 0.3       | 0.08      | 0.24    | 0.07      |
| G-94122                          | 600           |           | 1.7       | 0.05    | 1.23      | 1.7 <10  | 85.1      | 0.25      | 0.07      | 0.26    | 0.06      |
| G-94123                          | 650           |           | 0.2       | 0.06    | 1.26      | 1.8 <10  | 82.7      | 0.24      | 0.08      | 0.35    | 0.09      |
| G-94124                          | 700           | <         |           | 0.10    | 1.32      | 1.8 <10  | 88.5      | 0.23      | 0.08      | 0.27    | 0.09      |
| G-94125                          | 750           | <         |           | 0.05    | 1.19      | 1.4 <10  | 72.9      | 0.25      | 0.07      | 0.28    | 0.06      |
| G-94126                          | 800           | <         |           | 0.06    | 1.2       | 1.4 <10  | 76.4      | 0.23      | 0.08      | 0.31    | 0.06      |
| G-94127                          | 850           | <         |           | 0.08    | 1.36      | 2.2 <10  | 97        | 0.25      | 0.08      | 0.31    | 0.16      |
| G-94128                          | 900           | <         |           | 0.04    | 1.31      | 1.6 <10  | 68.3      | 0.23      | 0.08      | 0.37    | 0.1       |
| G-94129                          | 950           | <         |           | 0.07    | 1.49      | 2.2 <10  | 121       | 0.29      | 0.09      | 0.43    | 0.1       |
| G-94130                          | 1000          | <         |           | 0.07    | 1.38      | 2.6 <10  | 90.9      | 0.28      | 0.1       | 0.37    | 0.29      |
| G-94131                          | 1050          | <         |           | 0.10    | 1.66      | 2.6 <10  | 140       | 0.34      | 0.11      | 0.52    | 0.21      |
| G-94132                          | 1100          | <         |           | 0.04    | 1.58      | 1.5 <10  | 115.5     | 0.32      | 0.1       | 0.5     | 0.19      |
| G-94133                          | 1150          | <         |           | 0.08    | 2.02      | 1.9 <10  | 122       | 0.44      | 0.08      | 0.82    | 0.17      |
| G-94135                          | 0             | <         |           | 0.08    | 1.62      | 0.6 <10  | 125       | 0.29      | 0.1       | 0.22    | 0.04      |
| G-94136                          | 50E           | <         |           | 0.07    | 1.23      | 0.8 <10  | 117       | 0.22      | 0.09      | 0.27    | 0.03      |
| G-94137                          | 100           |           | 0.9       | 0.04    | 1.29      | 1.9 <10  | 99.5      | 0.33      | 0.11      | 0.41    | 0.05      |
| G-94138                          | 150           |           | 1.5       | 0.09    | 2.34      | 3.0 <10  | 147       | 0.64      | 0.14      | 0.59    | 0.07      |
| G-94139                          | 200           | <         |           | 0.04    | 1.2       | 0.8 <10  | 91.7      | 0.2       | 0.07      | 0.25    | 0.02      |
| G-94140                          | 250           |           | 0.2       | 0.04    | 1.36      | 0.8 <10  | 102       | 0.25      | 0.06      | 0.17    | 0.03      |
| G-94141                          | 300E          | <         |           | 0.04    | 1.77      | 0.8 <10  | 134.5     | 0.37      | 0.07      | 0.23    | 0.03      |

| Ce<br>ppm | Co<br>ppm | Cr<br>ppm | Cs<br>ppm | Cu<br>ppm | Fe<br>% | Ga<br>ppm | Ge<br>ppm | Hf<br>ppm | Hg<br>ppm | In<br>ppm | K<br>% | La<br>ppm | Li<br>ppm |      |
|-----------|-----------|-----------|-----------|-----------|---------|-----------|-----------|-----------|-----------|-----------|--------|-----------|-----------|------|
| 9.85      | 7.1       | 19.3      | 0.68      | 45.2      | 2.15    | 4.94      | <0.05     |           | 0.11      | <0.005    | 0.022  | 0.08      | 3.7       | 7.4  |
| 8.79      | 6.5       | 17.8      | 0.74      | 24.6      | 2.04    | 4.7       | <0.05     |           | 0.04      | <0.005    | 0.02   | 0.06      | 3.3       | 7.3  |
| 11.95     | 7.2       | 21        | 0.86      | 36.3      | 2.09    | 5.14      | <0.05     |           | 0.07      | 0.006     | 0.021  | 0.07      | 4.6       | 10.8 |
| 8.05      | 8.6       | 17.1      | 0.85      | 49.3      | 2.25    | 5.36      | <0.05     |           | 0.08      | <0.005    | 0.021  | 0.09      | 3.1       | 9.1  |
| 9.82      | 6.7       | 12.4      | 0.77      | 96        | 2.15    | 4.79      | <0.05     |           | 0.09      | <0.005    | 0.021  | 0.07      | 3.8       | 8.3  |
| 12.15     | 8.1       | 16.6      | 1.27      | 48.6      | 2.33    | 6.16      | <0.05     |           | 0.2       | <0.005    | 0.023  | 0.05      | 4.9       | 10.2 |
| 12.05     | 8.3       | 22.9      | 0.83      | 97        | 3.12    | 5.81      | <0.05     |           | 0.2       | <0.005    | 0.028  | 0.08      | 6.9       | 11.4 |
| 11.15     | 7.7       | 18.7      | 0.85      | 25.4      | 2.43    | 5.27      | <0.05     |           | 0.09      | 0.007     | 0.023  | 0.06      | 4.4       | 9.1  |
| 16.3      | 9.8       | 17.4      | 0.62      | 128.5     | 2.77    | 5.58      |           | 0.05      | 0.25      | 0.029     | 0.032  | 0.06      | 7.2       | 14.1 |
| 9.27      | 8.6       | 23.3      | 0.55      | 22.1      | 2.66    | 4.37      | <0.05     |           | 0.08      | <0.005    | 0.029  | 0.07      | 3.6       | 8    |
| 8.98      | 9.1       | 20.2      | 0.76      | 140.5     | 2.41    | 4.89      | <0.05     |           | 0.11      | <0.005    | 0.021  | 0.07      | 3.6       | 7.5  |
| 8.88      | 10        | 17.8      | 0.75      | 123.5     | 2.45    | 5.22      | <0.05     |           | 0.14      | <0.005    | 0.02   | 0.06      | 3.3       | 7.5  |
| 8.6       | 6.1       | 18.1      | 0.61      | 27.8      | 1.93    | 4.3       | <0.05     |           | 0.06      | <0.005    | 0.014  | 0.06      | 3.4       | 6.1  |
| 13        | 8         | 21.2      | 0.61      | 37.1      | 2.36    | 5.09      | <0.05     |           | 0.08      | <0.005    | 0.02   | 0.12      | 4.9       | 6.9  |
| 8.92      | 7.2       | 18.9      | 0.66      | 26.2      | 2.36    | 4.78      | <0.05     |           | 0.1       | 0.015     | 0.019  | 0.07      | 3.5       | 7.2  |
| 10.6      | 6.4       | 15.8      | 0.51      | 24        | 2.07    | 4.52      | <0.05     |           | 0.07      | <0.005    | 0.017  | 0.09      | 3.9       | 10.6 |
| 10.65     | 7.7       | 22.1      | 0.69      | 24.1      | 2.51    | 4.93      | <0.05     |           | 0.17      | <0.005    | 0.019  | 0.07      | 4.6       | 6.9  |
| 9.24      | 6.8       | 17.4      | 0.68      | 21.5      | 2.15    | 4.69      | <0.05     |           | 0.09      | <0.005    | 0.018  | 0.07      | 3.7       | 6.7  |
| 9.51      | 7         | 17.7      | 0.52      | 23.5      | 2.39    | 4.65      | <0.05     |           | 0.15      | <0.005    | 0.017  | 0.1       | 3.8       | 6.2  |
| 13.2      | 9.2       | 21.5      | 0.56      | 34.7      | 2.49    | 4.79      |           | 0.05      | 0.08      | 0.008     | 0.022  | 0.09      | 6.3       | 7.3  |
| 8.49      | 6         | 17.4      | 0.78      | 12.9      | 1.7     | 4.65      | <0.05     |           | 0.08      | <0.005    | 0.017  | 0.08      | 3.3       | 6.1  |
| 16.15     | 8         | 30.3      | 1.17      | 25        | 2.21    | 4.46      |           | 0.05      | 0.3       | <0.005    | 0.019  | 0.16      | 6.6       | 6.8  |
| 7.07      | 5.9       | 16.6      | 0.89      | 11.1      | 1.7     | 4.63      | <0.05     |           | 0.14      | <0.005    | 0.016  | 0.08      | 3         | 6.3  |
| 8.73      | 5.3       | 14.7      | 0.68      | 9.62      | 1.52    | 4.03      | <0.05     |           | 0.07      | <0.005    | 0.014  | 0.07      | 3.3       | 5.6  |
| 17.85     | 7.4       | 17.9      | 0.97      | 27.9      | 1.9     | 6.22      | <0.05     |           | 0.2       | 0.012     | 0.02   | 0.05      | 6.6       | 7.9  |
| 10.3      | 5.8       | 12.4      | 0.74      | 13.7      | 1.57    | 5.22      | <0.05     |           | 0.13      | <0.005    | 0.014  | 0.07      | 3.8       | 7    |
| 8.74      | 6.2       | 18.2      | 0.84      | 13.5      | 1.81    | 4.38      | <0.05     |           | 0.12      | <0.005    | 0.016  | 0.07      | 3.6       | 6.6  |
| 7.26      | 5.3       | 19        | 0.73      | 12.85     | 1.73    | 4.07      |           | 0.11      | 0.11      | 0.013     | 0.019  | 0.09      | 3.2       | 5.8  |
| 10.5      | 6.8       | 24.8      | 0.94      | 18.65     | 2.22    | 4.8       | <0.05     |           | 0.16      | <0.005    | 0.018  | 0.11      | 4.8       | 7.7  |
| 7.83      | 5.5       | 17.7      | 0.72      | 13.3      | 1.73    | 4.37      | <0.05     |           | 0.13      | 0.015     | 0.014  | 0.07      | 3.5       | 6.1  |
| 7.39      | 6.2       | 17        | 0.77      | 11.6      | 1.66    | 4.6       | <0.05     |           | 0.05      | 0.013     | 0.015  | 0.1       | 2.8       | 6.1  |
| 7.44      | 5.9       | 18        | 0.71      | 15.55     | 1.77    | 4.38      | <0.05     |           | 0.13      | 0.012     | 0.015  | 0.1       | 2.9       | 6.3  |
| 9.56      | 5.4       | 20.2      | 0.67      | 14.9      | 1.85    | 4.33      | <0.05     |           | 0.11      | 0.011     | 0.015  | 0.1       | 3.7       | 6.6  |
| 6.65      | 5.7       | 16.6      | 0.7       | 12.05     | 1.67    | 4.37      | <0.05     |           | 0.05      | 0.01      | 0.013  | 0.08      | 2.6       | 6.7  |
| 11        | 5.6       | 19        | 0.59      | 13.4      | 1.84    | 3.94      | <0.05     |           | 0.15      | 0.011     | 0.015  | 0.11      | 3.9       | 6    |
| 8.45      | 5         | 16.8      | 0.71      | 11.3      | 1.65    | 4.12      | <0.05     |           | 0.11      | 0.008     | 0.014  | 0.09      | 3.1       | 6.2  |
| 7.77      | 5.5       | 16.2      | 0.97      | 13.7      | 1.7     | 4.87      | <0.05     |           | 0.07      | 0.01      | 0.017  | 0.08      | 3.2       | 7.1  |
| 10.25     | 5.7       | 17        | 0.83      | 15.25     | 1.8     | 4.42      | <0.05     |           | 0.11      | 0.008     | 0.016  | 0.13      | 3.8       | 6.8  |
| 10.3      | 7.3       | 24.7      | 0.8       | 21.6      | 2.2     | 4.93      | <0.05     |           | 0.05      | 0.006     | 0.019  | 0.12      | 4.4       | 7.6  |
| 8.65      | 6.1       | 23.7      | 0.79      | 17.6      | 2.02    | 4.48      | <0.05     |           | 0.16      | 0.01      | 0.019  | 0.13      | 3.5       | 7.3  |
| 19.25     | 11.3      | 34.2      | 1.27      | 33.6      | 2.62    | 5.47      |           | 0.07      | 0.13      | 0.016     | 0.021  | 0.24      | 9.6       | 8    |
| 15.05     | 8.7       | 25.7      | 1.08      | 25.7      | 2.39    | 5.22      |           | 0.07      | 0.1       | 0.018     | 0.019  | 0.2       | 7.3       | 7.1  |
| 19.35     | 10.4      | 20.9      | 2.03      | 47.9      | 2.88    | 6.24      |           | 0.06      | 0.3       | 0.018     | 0.023  | 0.2       | 8.5       | 12.7 |
| 7.43      | 4.8       | 15.3      | 0.9       | 9.96      | 1.42    | 4.52      | <0.05     |           | 0.16      | 0.009     | 0.014  | 0.09      | 2.8       | 5.9  |
| 7.7       | 5.9       | 18.4      | 0.81      | 11.35     | 1.63    | 4.14      | <0.05     |           | 0.06      | 0.009     | 0.014  | 0.09      | 3.2       | 5.2  |
| 15.9      | 8.1       | 30.7      | 1.21      | 24.4      | 2.22    | 4.41      |           | 0.06      | 0.25      | 0.016     | 0.018  | 0.15      | 6.9       | 6.4  |
| 28.1      | 11.5      | 54        | 1.69      | 60.6      | 3.46    | 7.07      |           | 0.11      | 0.28      | 0.01      | 0.029  | 0.29      | 13.6      | 11   |
| 4.96      | 4.3       | 14.6      | 0.64      | 7.61      | 1.53    | 4.11      | <0.05     |           | 0.11      | <0.005    | 0.011  | 0.08      | 2.1       | 6.8  |
| 6.46      | 4         | 10.6      | 0.7       | 7.5       | 1.37    | 4.19      |           | 0.05      | 0.09      | 0.006     | 0.011  | 0.06      | 2.1       | 6.1  |
| 7.21      | 5.8       | 16.5      | 0.75      | 11        | 1.71    | 4.61      | <0.05     |           | 0.14      | <0.005    | 0.013  | 0.06      | 2.7       | 6.9  |



| Mg   | Mn  | Mo   | Na   | Nb   | Ni   | P    | Pb  | Rb   | Re     | S     | Sb   | Sc  | Se   |
|------|-----|------|------|------|------|------|-----|------|--------|-------|------|-----|------|
| %    | ppm | ppm  | %    | ppm  | ppm  | %    | ppm | ppm  | ppm    | %     | ppm  | ppm | ppm  |
| 0.29 | 363 | 0.61 | 0.02 | 0.99 | 12   | 0.10 | 4.0 | 7    | <0.001 | 0.01  | 0.16 | 3.1 | 0.3  |
| 0.29 | 270 | 0.57 | 0.02 | 0.98 | 10.3 | 0.05 | 3.9 | 8    | <0.001 | 0.01  | 0.17 | 2.7 | 0.3  |
| 0.29 | 267 | 0.47 | 0.02 | 1.11 | 12.6 | 0.05 | 4.2 | 8.5  | <0.001 | 0.01  | 0.16 | 3   | 0.5  |
| 0.32 | 379 | 0.54 | 0.02 | 1.05 | 11.2 | 0.09 | 4.5 | 7.4  | <0.001 | 0.01  | 0.17 | 2.9 | 0.2  |
| 0.25 | 259 | 0.37 | 0.02 | 0.96 | 6.8  | 0.04 | 4.2 | 9    | <0.001 | 0.01  | 0.14 | 2.7 | 0.2  |
| 0.36 | 688 | 0.52 | 0.02 | 1.11 | 12.1 | 0.15 | 4.8 | 5.8  | <0.001 | 0.01  | 0.18 | 4.1 | 0.3  |
| 0.5  | 360 | 0.59 | 0.02 | 0.75 | 12.1 | 0.05 | 4.6 | 7.6  | <0.001 | 0.01  | 0.28 | 4.9 | 0.4  |
| 0.36 | 499 | 0.54 | 0.02 | 0.89 | 11.3 | 0.08 | 3.9 | 6.5  | <0.001 | 0.01  | 0.21 | 3.9 | 0.3  |
| 0.92 | 630 | 0.3  | 0.03 | 0.95 | 12.6 | 0.03 | 4.5 | 5.2  | 0.001  | 0.01  | 0.38 | 7.8 | 0.7  |
| 0.43 | 356 | 0.61 | 0.01 | 0.78 | 14.5 | 0.03 | 3.3 | 6    | <0.001 | 0.01  | 0.32 | 4   | 0.3  |
| 0.34 | 343 | 0.7  | 0.01 | 0.98 | 14.4 | 0.06 | 3.8 | 8.7  | 0.001  | 0.01  | 0.17 | 3   | 0.3  |
| 0.34 | 435 | 0.7  | 0.02 | 0.87 | 11.9 | 0.07 | 3.6 | 6.5  | <0.001 | <0.01 | 0.13 | 3.1 | 0.2  |
| 0.24 | 346 | 0.53 | 0.02 | 0.91 | 10.5 | 0.09 | 3.7 | 5.5  | <0.001 | 0.01  | 0.14 | 2.5 | 0.2  |
| 0.31 | 389 | 0.62 | 0.02 | 1.08 | 12.5 | 0.13 | 4.2 | 5.7  | <0.001 | 0.01  | 0.17 | 3.7 | 0.2  |
| 0.31 | 412 | 0.55 | 0.02 | 0.86 | 12.1 | 0.10 | 4.2 | 5.6  | <0.001 | 0.01  | 0.17 | 3.2 | 0.2  |
| 0.24 | 389 | 0.51 | 0.03 | 0.91 | 8.8  | 0.05 | 4.4 | 5.6  | <0.001 | 0.01  | 0.14 | 2.9 | 0.2  |
| 0.37 | 317 | 0.47 | 0.02 | 0.74 | 12.6 | 0.06 | 4.8 | 6.7  | <0.001 | 0.01  | 0.22 | 3.9 | 0.4  |
| 0.29 | 358 | 0.5  | 0.02 | 0.99 | 9.9  | 0.08 | 4.7 | 6    | <0.001 | 0.01  | 0.17 | 3.2 | 0.2  |
| 0.31 | 282 | 0.44 | 0.02 | 0.64 | 10   | 0.08 | 4.5 | 4.6  | <0.001 | <0.01 | 0.18 | 3.4 | 0.2  |
| 0.39 | 408 | 0.53 | 0.02 | 1.1  | 13.2 | 0.07 | 6.0 | 6.4  | <0.001 | 0.01  | 0.20 | 4.2 | 0.5  |
| 0.22 | 266 | 0.49 | 0.02 | 1.04 | 11.4 | 0.09 | 3.1 | 5.9  | <0.001 | 0.01  | 0.15 | 2.1 | 0.2  |
| 0.46 | 221 | 0.66 | 0.02 | 0.5  | 16   | 0.03 | 3.7 | 12.7 | <0.001 | <0.01 | 0.21 | 4.6 | 0.3  |
| 0.23 | 198 | 0.39 | 0.02 | 0.89 | 11.2 | 0.10 | 3.6 | 6.4  | <0.001 | 0.01  | 0.11 | 2.1 | <0.1 |
| 0.18 | 276 | 0.51 | 0.02 | 0.86 | 9.5  | 0.06 | 3.0 | 6.9  | <0.001 | 0.01  | 0.12 | 1.6 | 0.1  |
| 0.27 | 255 | 0.59 | 0.03 | 1.63 | 15.9 | 0.16 | 3.8 | 5.8  | <0.001 | 0.01  | 0.14 | 3.1 | 0.5  |
| 0.17 | 216 | 0.36 | 0.03 | 0.95 | 10.7 | 0.06 | 2.8 | 6    | 0.001  | 0.01  | 0.10 | 1.8 | 0.3  |
| 0.25 | 166 | 0.37 | 0.02 | 0.82 | 10.4 | 0.03 | 3.5 | 9.1  | <0.001 | 0.01  | 0.14 | 2.4 | 0.2  |
| 0.25 | 197 | 0.48 | 0.02 | 0.69 | 9.7  | 0.02 | 3.0 | 11.3 | <0.001 | 0.01  | 0.31 | 2.8 | <0.1 |
| 0.35 | 261 | 0.41 | 0.02 | 0.79 | 13.6 | 0.04 | 3.6 | 10.7 | <0.001 | 0.01  | 0.18 | 3.3 | 0.2  |
| 0.29 | 256 | 0.49 | 0.02 | 0.82 | 10.7 | 0.03 | 3.2 | 6.9  | 0.001  | 0.01  | 0.15 | 2.4 | <0.1 |
| 0.22 | 262 | 0.53 | 0.02 | 0.99 | 11.1 | 0.12 | 3.2 | 8.2  | <0.001 | 0.01  | 0.13 | 2   | <0.1 |
| 0.23 | 216 | 0.38 | 0.03 | 0.9  | 11.6 | 0.08 | 2.6 | 7.4  | 0.001  | 0.01  | 0.15 | 2.3 | <0.1 |
| 0.26 | 294 | 0.34 | 0.03 | 0.89 | 10.8 | 0.04 | 2.9 | 8.5  | <0.001 | 0.01  | 0.18 | 2.4 | 0.2  |
| 0.21 | 203 | 0.27 | 0.02 | 0.88 | 9.8  | 0.10 | 2.7 | 7.1  | <0.001 | 0.01  | 0.13 | 1.7 | 0.1  |
| 0.22 | 207 | 0.32 | 0.03 | 0.91 | 10.5 | 0.04 | 2.8 | 8.5  | <0.001 | 0.01  | 0.16 | 2.6 | 0.1  |
| 0.23 | 208 | 0.26 | 0.02 | 0.81 | 9.5  | 0.09 | 3.0 | 6.9  | <0.001 | <0.01 | 0.13 | 2.1 | <0.1 |
| 0.23 | 429 | 0.52 | 0.02 | 0.98 | 9.4  | 0.08 | 3.5 | 5.8  | <0.001 | 0.01  | 0.15 | 2.1 | <0.1 |
| 0.23 | 232 | 0.4  | 0.03 | 0.89 | 9.3  | 0.03 | 3.1 | 8.6  | <0.001 | 0.01  | 0.14 | 2.6 | 0.2  |
| 0.4  | 232 | 0.43 | 0.03 | 0.93 | 14.3 | 0.05 | 3.5 | 9.9  | <0.001 | 0.01  | 0.19 | 3.2 | 0.2  |
| 0.36 | 220 | 0.71 | 0.03 | 0.77 | 13.8 | 0.08 | 3.7 | 11.9 | 0.001  | 0.01  | 0.26 | 2.8 | 0.3  |
| 0.54 | 531 | 0.57 | 0.03 | 1.08 | 21.3 | 0.04 | 3.9 | 14.3 | 0.001  | 0.01  | 0.26 | 5.4 | 0.3  |
| 0.42 | 549 | 0.69 | 0.03 | 0.95 | 15.4 | 0.03 | 3.5 | 18.1 | <0.001 | 0.01  | 0.20 | 4.4 | 0.2  |
| 0.5  | 589 | 0.49 | 0.03 | 0.9  | 14.7 | 0.03 | 4.1 | 9    | 0.001  | 0.01  | 0.28 | 5.6 | 0.4  |
| 0.21 | 191 | 0.29 | 0.03 | 0.38 | 12   | 0.03 | 4.2 | 10.5 | <0.001 | 0.01  | 0.09 | 1.8 | <0.1 |
| 0.25 | 277 | 0.65 | 0.02 | 0.74 | 10.8 | 0.03 | 3.3 | 18.7 | <0.001 | 0.01  | 0.13 | 2.1 | <0.1 |
| 0.47 | 233 | 0.45 | 0.02 | 0.67 | 16.3 | 0.03 | 3.9 | 16.3 | <0.001 | <0.01 | 0.33 | 4.6 | 0.2  |
| 0.88 | 401 | 0.72 | 0.02 | 0.86 | 29.9 | 0.05 | 3.8 | 20.4 | <0.001 | <0.01 | 0.35 | 9.1 | 0.4  |
| 0.18 | 272 | 0.37 | 0.02 | 0.71 | 7.2  | 0.06 | 3.0 | 6.6  | <0.001 | <0.01 | 0.13 | 1.5 | <0.1 |
| 0.14 | 349 | 0.61 | 0.02 | 0.89 | 7.8  | 0.09 | 2.9 | 6.5  | <0.001 | <0.01 | 0.11 | 1.2 | <0.1 |
| 0.18 | 201 | 0.37 | 0.02 | 0.92 | 13.5 | 0.04 | 3.1 | 5.7  | <0.001 | <0.01 | 0.10 | 1.6 | 0.1  |

| Sn<br>ppm | Sr<br>ppm | Ta<br>ppm | Te<br>ppm | Th<br>ppm | Ti<br>% | Tl<br>ppm | U<br>ppm | V<br>ppm | W<br>ppm | Y<br>ppm | Zn<br>ppm | Zr<br>ppm |
|-----------|-----------|-----------|-----------|-----------|---------|-----------|----------|----------|----------|----------|-----------|-----------|
| 0.4       |           | 25 <0.01  | 0.01      | 0.8       | 0.10    | 0.04      | 0.31     | 52       | 0.10     | 2.86     | 59.8      | 4.2       |
| 0.4       |           | 23 <0.01  | <0.01     | 0.5       | 0.10    | 0.04      | 0.29     | 51       | 0.37     | 2.6      | 42.1      | 1.7       |
| 0.4       |           | 26 <0.01  | 0.01      | 0.6       | 0.10    | 0.04      | 0.34     | 51       | 0.08     | 3.78     | 55.5      | 2.8       |
| 0.4       |           | 27 <0.01  | 0.04      | 0.7       | 0.10    | 0.03      | 0.28     | 58       | 0.09     | 2.32     | 71.5      | 3.6       |
| 0.4       |           | 25 <0.01  | 0.01      | 0.6       | 0.08    | 0.03      | 0.21     | 53       | 0.05     | 2.57     | 40        | 3.2       |
| 0.5       |           | 26 0.01   | 0.01      | 1.1       | 0.11    | 0.06      | 0.43     | 56       | 0.09     | 4.1      | 74.8      | 10.3      |
| 0.5       |           | 29 <0.01  | 0.01      | 1.1       | 0.11    | 0.04      | 0.35     | 80       | 0.07     | 5.07     | 88.6      | 7.6       |
| 0.4       |           | 23 <0.01  | <0.01     | 0.9       | 0.09    | 0.04      | 0.31     | 63       | 0.07     | 3.48     | 78        | 3.9       |
| 0.5       |           | 76 <0.01  | 0.01      | 1         | 0.09    | 0.04      | 0.15     | 61       | 0.06     | 9.21     | 71.3      | 10.4      |
| 0.4       |           | 19 <0.01  | 0.01      | 0.6       | 0.09    | 0.04      | 0.21     | 64       | 0.05     | 2.24     | 79.1      | 3.1       |
| 0.5       |           | 25 <0.01  | 0.01      | 1         | 0.12    | 0.03      | 0.3      | 66       | 0.12     | 2.71     | 52.2      | 4.6       |
| 0.5       |           | 29 <0.01  | <0.01     | 0.8       | 0.13    | 0.04      | 0.26     | 78       | 0.17     | 2.81     | 62.1      | 4.8       |
| 0.4       |           | 26 <0.01  | 0.01      | 0.6       | 0.10    | 0.03      | 0.26     | 52       | 0.07     | 2.49     | 36.5      | 2.6       |
| 0.4       |           | 30 <0.01  | 0.01      | 0.6       | 0.10    | 0.03      | 0.33     | 62       | 0.08     | 3.99     | 61        | 3.2       |
| 0.4       |           | 25 <0.01  | 0.01      | 0.8       | 0.11    | 0.04      | 0.29     | 63       | 0.08     | 2.66     | 59.6      | 3.9       |
| 0.4       |           | 26 <0.01  | <0.01     | 0.6       | 0.10    | 0.03      | 0.28     | 55       | 0.05     | 3.17     | 53.5      | 2.7       |
| 0.4       |           | 37 <0.01  | 0.01      | 1         | 0.14    | 0.04      | 0.35     | 74       | 0.06     | 3.72     | 48.7      | 6.5       |
| 0.7       |           | 29 <0.01  | <0.01     | 0.6       | 0.12    | 0.03      | 0.26     | 60       | 0.06     | 2.87     | 54.7      | 3.8       |
| 0.3       |           | 29 <0.01  | 0.01      | 0.8       | 0.11    | 0.03      | 0.29     | 68       | 0.05     | 3.1      | 47.4      | 5.7       |
| 0.4       |           | 41 <0.01  | 0.01      | 0.7       | 0.12    | 0.03      | 0.34     | 73       | 0.10     | 5.88     | 43.2      | 3.4       |
| 0.4       |           | 22 <0.01  | <0.01     | 0.7       | 0.10    | 0.04      | 0.25     | 41       | 0.07     | 2.04     | 48.5      | 3.7       |
| 0.4       |           | 40 <0.01  | 0.01      | 1.6       | 0.15    | 0.08      | 0.46     | 63       | 0.05     | 4.01     | 38.4      | 14.3      |
| 0.4       |           | 23 <0.01  | 0.01      | 0.9       | 0.10    | 0.04      | 0.27     | 37       | 0.06     | 1.66     | 54.5      | 5.5       |
| 0.4       |           | 23 <0.01  | 0.01      | 0.7       | 0.10    | 0.05      | 0.22     | 37       | 0.05     | 1.78     | 47.7      | 3.1       |
| 0.5       |           | 27 0.01   | 0.02      | 1.4       | 0.12    | 0.05      | 0.6      | 41       | 0.15     | 4.88     | 47.6      | 12.9      |
| 0.4       |           | 26 <0.01  | 0.01      | 0.8       | 0.10    | 0.05      | 0.28     | 33       | 0.08     | 2.27     | 52.6      | 6.3       |
| 0.4       |           | 26 <0.01  | <0.01     | 0.8       | 0.11    | 0.05      | 0.26     | 41       | 0.05     | 1.94     | 48.3      | 4.1       |
| 1         |           | 26 <0.01  | 0.01      | 1         | 0.11    | 0.05      | 0.26     | 42       | 0.06     | 1.87     | 40.4      | 3.8       |
| 0.4       |           | 33 <0.01  | 0.01      | 1.1       | 0.13    | 0.07      | 0.35     | 54       | 0.06     | 2.9      | 51.8      | 6.3       |
| 0.4       |           | 29 <0.01  | 0.02      | 0.9       | 0.11    | 0.04      | 0.21     | 43       | 0.05     | 1.87     | 49.5      | 5         |
| 0.4       |           | 27 <0.01  | 0.01      | 0.6       | 0.09    | 0.04      | 0.21     | 37       | 0.52     | 1.54     | 58.7      | 2.1       |
| 0.3       |           | 27 <0.01  | 0.01      | 0.8       | 0.10    | 0.03      | 0.21     | 42       | 0.06     | 1.71     | 46.2      | 5.3       |
| 0.3       |           | 30 <0.01  | <0.01     | 0.8       | 0.10    | 0.05      | 0.24     | 47       | 0.06     | 2.23     | 47.3      | 4.4       |
| 0.3       |           | 26 <0.01  | 0.01      | 0.5       | 0.08    | 0.04      | 0.2      | 39       | 0.06     | 1.4      | 52.2      | 2.1       |
| 0.3       |           | 26 <0.01  | 0.01      | 0.9       | 0.10    | 0.05      | 0.22     | 45       | 0.07     | 2.45     | 41.5      | 5.8       |
| 0.3       |           | 30 <0.01  | <0.01     | 0.7       | 0.09    | 0.04      | 0.23     | 39       | 0.05     | 1.76     | 47.6      | 3.9       |
| 0.4       |           | 27 <0.01  | <0.01     | 0.7       | 0.09    | 0.04      | 0.23     | 41       | 0.06     | 1.77     | 55.5      | 3         |
| 0.4       |           | 34 <0.01  | 0.01      | 0.7       | 0.10    | 0.05      | 0.23     | 45       | 0.05     | 2.56     | 47.1      | 4         |
| 0.4       |           | 41 <0.01  | 0.03      | 0.7       | 0.12    | 0.06      | 0.3      | 56       | 0.06     | 2.89     | 48.3      | 2.2       |
| 0.4       |           | 35 <0.01  | 0.01      | 1         | 0.12    | 0.12      | 0.31     | 55       | 0.07     | 2.21     | 77.6      | 5.9       |
| 0.4       |           | 48 <0.01  | 0.03      | 1.1       | 0.14    | 0.09      | 0.43     | 67       | 0.07     | 7.63     | 59.1      | 5.7       |
| 0.4       |           | 45 <0.01  | 0.02      | 1         | 0.13    | 0.08      | 0.31     | 58       | 0.06     | 6.39     | 66.9      | 4.1       |
| 0.4       |           | 50 <0.01  | 0.01      | 1.4       | 0.12    | 0.06      | 0.24     | 69       | 0.07     | 8.97     | 53        | 12.7      |
| 0.5       |           | 24 <0.01  | 0.02      | 0.8       | 0.11    | 0.06      | 0.21     | 30       | 0.05     | 1.43     | 58.9      | 5.8       |
| 0.4       |           | 30 <0.01  | 0.01      | 0.7       | 0.11    | 0.05      | 0.22     | 39       | 0.05     | 1.75     | 52        | 2.5       |
| 0.5       |           | 38 <0.01  | 0.02      | 1.8       | 0.19    | 0.09      | 0.48     | 61       | 0.08     | 3.62     | 40.3      | 10.4      |
| 0.5       |           | 61 <0.01  | 0.03      | 2.7       | 0.10    | 0.11      | 0.81     | 90       | 0.11     | 11.65    | 63.1      | 12.4      |
| 0.3       |           | 24 <0.01  | 0.01      | 0.7       | 0.09    | 0.04      | 0.18     | 35       | 0.05     | 1.21     | 46.9      | 3.3       |
| 0.3       |           | 18 <0.01  | 0.01      | 0.6       | 0.08    | 0.03      | 0.18     | 29       | 0.07     | 1.19     | 50.6      | 3.4       |
| 0.4       |           | 24 <0.01  | 0.01      | 0.7       | 0.11    | 0.03      | 0.2      | 38       | 0.09     | 1.63     | 44.1      | 5.2       |