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Open File 2006-7

Report on the Detailed Mineral Assessment of the Proposed Kusawa Natural Environment Park Special Management Area, Yukon

R. Hulstein

YUKON GEOLOGICAL SURVEY

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Published under the authority of the Minister of Energy, Mines and Resources, Government of Yukon
http://www.emr.gov.yk.ca
Printed in Whitehorse, Yukon, 2006.

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In referring to this publication, please use the following citation:
Hulstein, R., 2006. Report on the Detailed Mineral Assessment of the Proposed Kusawa Natural Environment Park Special Management Area, Yukon. Yukon Geological Survey, Open File 2006-7, 174 p. plus 19 maps.

Preface

This report summarizes the results of geological field work and a detailed mineral assessment in a region that includes the proposed Kusawa Lake Special Management Area. This assessment was done by the Department of Energy, Mines and Resources of the Government of Yukon (YTG).

The purpose of this mineral resource assessment was to determine the mineral potential of the region and thereby assist with proposed land planning in the area. The Yukon Geological Survey is pleased to release the results in this report.

The information is being released as originally prepared and may not conform to current Yukon Geological Survey publication standards. Please note that the report does not include information from any studies that may have been carried out in the area since the mineral assessment was conducted. Special Management Area name and boundaries may have changed since the study was completed. This report was not previously released to the public due to the confidential nature of the Land Claim negotiation processes.

Report on the

Detailed Mineral Assessment

of the

Proposed Kusawa Natural Environment Park Special Management Area

Confidential

February 27, 2003

Internal Report
Roger W. Hulstein
YTG, Energy Mines and Resources
Mineral Planning and Development

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Executive Summary

The proposed Kusawa Special Management Area (SMA) consists of 3118.6 km^2 in southwest Yukon on NTS 105D and 115A. A map notation in 1972 denoting Kusawa Lake and the surrounding area as a possible park planning area is included in the proposed Kusawa Special Management Area (SMA). This has discouraged mineral exploration programs in the area since then. The area was selected as a SMA by the Carcross Tagish First Nation, with Kwanlin Dun and Champagne and Aishihik First Nations being co-signers, with the intention of making the proposed Kusawa SMA a Natural Environment Park.

In 2001 the Yukon Department of Energy, Mines and Resources (EMR) carried out a regional mineral assessment, which reviewed the geologic data for SW Yukon and ranked the tracts. Of the seven partial tracts lying within the proposed SMA, five are ranked highest, one moderate and one is ranked lowest relative regional mineral potential with respect to phase IV (SW Yukon) of the Yukon regional mineral potential map.

Most of the proposed Kusawa SMA lies within the Nisling sub-terrane with eastern portions underlain by units of the Stikine terrane. Both terranes were affected by post accretion Cretaceous to Pliocene magmatism resulting in most of the area being underlain by unfoliated granitoids. Structurally the metamorphic rocks have a strong NW trending grain and are generally closely folded.

Prior to fieldwork a compilation and study of available data identified a total of 33 targets for follow-up of which all but nine were examined in 2002. Targets selected were anomalous Geological Survey of Canada regional geochemical survey samples, aeromagnetic features, geological structures and Yukon mineral (Minfile) occurrences. A total of 52 person days were spent investigating the selected targets. Fieldwork entailed the collection of rock, soil and stream sediment samples, in conjunction with geological mapping and examination of the seven mineral occurrences within the area. The mineral occurrences are intrusive related and consist of an auriferous quartz vein, lead-zinc skarns, a copper porphyry and two unknown occurrences.

In December EMR carried out a detailed mineral assessment, which reviewed the geologic data for the proposed SMA and surrounding area (the mineral assessment study area), and ranked the resulting 30 tracts. The eastern side of the study area, including the NW trending belt of Nisling Assemblage metamorphic rocks ranked the highest mineral potential. An oval aeromagnetic anomaly partially underlain by hypabyssal felsic porphyry rocks with anomalous geochemistry, located on the west side of the proposed SMA ranked also ranked relatively highest.

It is recommended that land use planners take into account the results of the mineral assessment of the proposed Kusawa SMA and use the mineral potential map in their planning. Ideally land use planners would avoid alienating tracts of highest mineral potential from exploration and development.

The following additional research is recommended to better constrain the mineral deposit types applicable to the proposed Kusawa SMA; follow-up unexplained geochemical anomalies and previously identified targets, further work on the known mineral occurrences, additional geological mapping and petrological mapping to define intrusive phases.

Introduction

This report, on the proposed Kusawa special management area, briefly describes the geology, known mineral occurrences, regional stream sediment geochemistry, regional geophysical data (magnetic and gravity) and the results of the 2002 fieldwork carried out by mineral assessment staff of the Yukon Department of Energy, Mines and Resources (EMR). This report presents the results of a mineral assessment panel that evaluated the above data and ranked geological tracts relative to one another according to their potential to host metallic mineral deposits.

Land Status

The outlined 3118.7 km^2 Kusawa Special Management Area (SMA) is proposed to be a Natural Environment Territorial Park, to be named Nask Ganux Kwan Auii Park, by the Carcross/Tagish First Nation (CTFN) in their March 31, 2002 Memorandum of Understanding (MOU) towards a final land claim agreement (Figure 1). Co-signatures required for park creation include the Champagne and Aishihik First Nations and Kwanlin Dun First Nation as well as the Yukon Territorial (YTG) and Federal Governments. The proposed park is to be established by the Yukon under the Parks and Land Certainty Act. It is proposed that the mines and minerals within the park will be withdrawn from disposal and entry for the purpose of locating, prospecting or mining will be prohibited. Further details on the proposed Kusawa SMA can be found in the proposed Schedule A of the draft CTFN Final Agreement.

No mineral potential studies were undertaken prior to drawing the current proposed SMA boundaries.

The Yukon Territorial Government placed a map notation over Kusawa Lake and surrounding area in 1972 as part of a government identification of areas where future land use planning could be expected. This has discouraged mineral exploration within that area since then. As of early November 2002, the area had no active quartz claims, placer claims, or crown grants and according to the records the last staking within the proposed SMA took place in 1991.

The SMA is located in the north-central portion of the Yukon Stikine Highlands ecoregion and the southwest portion of Yukon Southern Lakes. Twenty-three percent of the Yukon Stikine Highlands ecoregion is located in Kluane National Park (Figure 2).

Work carried out by EMR, YTG

In December 2001 a regional mineral assessment panel reviewed the geological, geochemical and geophysical data for SW Yukon and ranked the tracts relative to one another according to their estimated potential to host metallic mineral deposits (Figure 3).

Prior to the 2002 fieldwork all available geological, geochemical and geophysical data was compiled. The data was then evaluated and target areas for fieldwork determined (targets 'A' through to 'Q' and 'X') and ranked in order of priority (Table 1). This formed the basis of the areas that were investigated in the field.

During the summer of 2002, the mineral assessment team composed of geologists: Roger Hulstein, Farrell Andersen, Jo-Anne vanRanden and Robert Stroshein spent a total of 52 field days working in the proposed Kusawa SMA. Most work involved helicopter supported fly camps or direct flights out of Whitehorse. Fieldwork included 1:50,000 scale geological mapping, prospecting and collection of rock (74 samples), soil (102 samples) and stream sediment silt samples (170 samples) for geochemical analysis. All samples were analyzed for gold plus a suite of 34 elements by induced coupled plasma – mass spectrometer (ICP-MS) analysis.

A detailed mineral assessment panel was convened in December 2002 to review the publicly available data as well as the results of the 2002 fieldwork within the study area. The study area was divided into thirty tracts and includes the proposed Kusawa SMA and a perimeter around it. The panel then ranked the tracts relative to one another according to their estimated potential to host metallic mineral deposits.

Table 1. Proposed Kusawa SMA Target Evaluation List. *Continued on next page.*

Target Number	Target Priority	Minfile Number	Anomalous RGS elements	Underlying Rock Type(s)	Initial Target Description (prior to fieldwork)	2002 Significant Results
A	L		W, Au	ETN	On proposed SMA border, broader W anom with one Au anomaly.	Not visited in 2002.
B	H	105D 128 Kreft, 105D 171 Else	Regional Cu-W-As; small Pb,Zn,U,Ag,Sb	Margin of Nisling Assem. with ETN and mKW	On proposed SMA border, 105D-128 is a Pb skarn with tight Pb RGS. Most of anomaly outside SMA including 105D 171 with tight Sb RGS.	Occurrence 105D 171 not visited in 2002. Located well mineralized float by hand trenches (105D 128). Soil samples from NW trending fault zone in Skukum Suite porphyry returned anomalous Au, Bi, Sb values.
C	M		Broad W; small U & Pb	ETN	On Primrose Lake, Poss. NW linear.	Cliffs of massive granitoid cut by occasional dykes and structures. Soil samples returned anomalous Bi, stream sediment anomalous in Bi,Hg,Th.
D	H		Broad U, spot Sb and As	ETN	S end Kusawa Lake, adjacent to NE structure in lake?	Granitoid cliffs, not visited in 2002.
E area	M		Regional Cu; Small and spot anom.; Pb, Ag, W, U, Sb	Nisling Assem. and ETN	Defined by widespread Cu RGS anomaly over Nisling rocks in contact with ETN. Cu anomaly encompasses circular magnetic high. Rectangular shape bounded by NW and NE linears and bisected by NE linears. Targets E1-E5 on margin of Cu anomaly.	Aeromagnetic high caused by gabbro intrusion. 2002 Rock sample anomalous in Cu and Fe. 2002 Stream sediment samples anomalous in Cu, Co, Ni, one sample anomalous in Sb.
E1	M		Cu-Pb	Nisling Assem. and ETN	Margin of mag high-low (intrusive contact?). NW & NE linears.	Not visited in 2002.
E2	M		Cu,Pb,Ag, spot W,	Nisling Assem. and ETN	Margin of mag high-low (intrusive contact?). NNW linears.	Not visited in 2002.
E3	H		Spot U,SB,Ag,	Nisling Assem. and ETN	On shore of Kusawa Lake, Near NNE linear.	Anomalous U values (RGS) not duplicated (<32ppm). Intrusive dykes/sills cutting schist.
E4	H		Spot U, edge of regional Cu	ETN	Spot U anom draining ETN ridge, NE linear.	Not visited in 2002; NE of target area rock samples from dyke in fault structure has anomalous Ga values.
E5	H		Spot U	ETN	Spot U anom draining ETN ridge.	U values <7.4ppm in soils at head of creek.
F area	H	105D-140 Deb		Nisling Assem. and ETN	On or near margin of Nisling Assem. and ETN and assoc. aeromag anomalies, no RGS anomalies but has three Minfile occ. (105D-017, 018, 140).	Tightly folded marble beds (unit PPN2). Well mineralized rock float samples from 105D-140 anomalous in Ag,Bi,Cd,Pb,Sb,Zn. Intrusive mapped nearby and skarn extends into overburden covered area.
F1	H	105D-017 Primrose		Nisling Assem. and ETN	Pb-Zn skarn, near mag high.	Rock grab samples returned anomalous values for Ba, Cd, Co, Fe,Ga,Zn. Soil samples anomalous in Ag, Au, Ga. +10m thick marble unit dips towards granodiorite intrusion.
F2	H	105D-018 Rose	weak Au downstream	ETN and unmapped Skukum volc & intrusives	Minfile: quartz vein with Au,Ag, Pb.	Quartz vein float from 105D-018 anomalous in Ag, Au, Bi. Poor outcrop in area. Vein cuts granodiorite and is not obviously intimitely associated with Skukum Suite intrusives.

Table 1, Continued from previous page. Proposed Kusawa SMA Target Evaluation List.

Target Number	Target Priority	Minfile Number	Anomalous RGS elements	Underlying Rock Type(s)	Initial Target Description (prior to fieldwork)	2002 Significant Results
G	H		Pb,W,Ag,Sb, Au on SE side	ETN, Au downstream of Miles Canyon Basalt	Underlain by positive magnetic anomaly.	Stream sediment samples returned anomalous values for Ag, As, Bi, Ga, Mo, Pb, Th, V and Zn. Gossans noted on ridgetops. A variety of granites and felsic porphyries noted.
H	M		Broad Pb; smaller U,Ag, W,Au on border, outside SMA: As,U,Ag,Sb	Contact area between ETN and mKW	Defined by high Pb, on border of SMA. Area of mod-high positive magnetic anomaly.	Not visited in 2002.
I	H	115A-027 Cham-pagne	Broad Cu&W; smaller areas of Au with Sb on S side; Sb, spot As but no Au on N end.	Overburden, Takhini, ETN.	Defined by Cu and; 115A-027 is an 'unknown' located on margin of 250 positive nT magnetic anomaly.	Broad target and occurrence 115A-027 not visited. Sausseritized volcanics of Takhini Group upstream of anomalous RGS steam values. 2002 stream sediment samples anomalous in Co, Cu.
I1	H	115A-046 War	near Cu and W anomaly	ETN and Nisling Assem.	115A-046 is an unknown mineral occurrence. Trenching in granodiorite near Nisling pendant	Anomalous Au values in soil up to 81ppb. Trenches not located. Nisling Assemblage rocks intruded by dykes, porphyry bodies and, along with the granite, cut by faults.
I2	H	115A-026 Jo-Jo	No RGS anomaly	ETN	115A-026 is an unknown minfile occurrence.	Cut lines found at site, granite (ETgN) intruded by thin dykes.
J	M		spot U	ETN	Spot U RGS anomaly.	Grussy weathering granite, stream sediment sample draining area returned 124ppb Au, porphyry dykes cutting granited.
K	M		spot Ag and As	ETN		Various Nisling Suite porphyry bodies. Anomalous Mo and Th values in stream sediment.
L	M		spot U	ETN		Not visited in 2002.
L1	M		Spot Au	ETN	Au is in mod sized creek draining N anomaly.	The only stream sediment sample collected returned a background gold value.
M	M		3 sample U anomaly	ETN	On edge of Kusawa Lake, draining steep ETN ridge.	Not visited in 2002.
N	M		Cu, Ag		On SMA border, margin of Nisling Assemblage and ETN.	Stream sediment samples returned low values Ag, Cu. Weak gossans noted on ridgetops. A variety of granites and felsic porphyries noted.
O	H	115A-025 Kusawa (Awa)	No RGS	Overburden, ETN and near Nisling Assem.	115A-025 is a Cu skarn.	The occurrence is a small skarn developed in thin marble beds. Cu values in 4 soil samples ranged up to 328ppm. A stream sediment sample returned 65ppm Cu. Abundant Nisling Suite porphyries were noted in the area.
P area	H	115A-024 Dent (Devilhole)	none, but see P1-P4 on margin of positive magnetic anomaly with an annular magnetic low.	ETN	Defined by magnetic high feature with annular low, this belies homogeneous ETN unit as on geology map. Numerous RGS anomalies (P1 - P4) on SW margin of magnetic anomaly. 115A-024 is a porphyry occurrence with gossan over younger stock intruding older granodiorite. Arsenopyrite in quartz veinlets at occurrence. Au anomaly in large creek on west side of positive magnetic anomaly.	Aeromagnetic feature appears to be due to multiple, some high level, Nisling suite intrusives. Sample of quartz vein float yielded 14.4ppm Ag, 27pppb Au, 1603ppm Pb while soil samples form the area contained anomalous Ag, Au, As, Bi, Cd, Pb, Sb and U values. Talus fines from the Dent Occurrence (115A-024), better described as an epithermal vein target rather than a porphyry, have anomalous Ag, As, Sb values. At the Dent alteration is weak except in and near fault zones.

Table 1, Continued from previous page. Proposed Kusawa SMA Target Evaluation List.

Target Number	Target Priority	Minfile Number	Anomalous RGS elements	Underlying Rock Type(s)	Initial Target Description (prior to fieldwork)	2002 Significant Results
P1	L		Broad Pb anomaly with spot Sb	ETN	On margin of positive aeromagnetic anomaly.	Underlain by massive granodiorite, two stream sediment samples contained low to background values.
P2	M		Broad Pb anomaly with spot Sb	ETN	On margin of central portion of negative aeromagnetic anomaly (annular low).	Underlain by massive granodiorite, two stream sediment samples yielded anomalous Pb and U values.
P3	H		Broad Pb and As; spot U	ETN	On margin of magnetic anomaly, NW linear. Head of anomalous Au in larger creek.	NW trending valley separates differing intrusive lithologies; younger high level porphyries (and mafic dykes and breccias) to east, massive granodiorites to west that are intruded by dykes and sills to SW. Minor gossans to W and SW. Stream sediment samples anomalous for Ag, As, Bi.
P4	M		Broad As, upstream of Au anomaly.	ETN	On border of SMA, on margin of mag anomaly.	Not visited in 2002.
Q	H		Broad As; smaller Pb, Ag, W and detectable Au.	ETN	Broad As anomaly that includes P3, P4 and X1. On margin of magnetic high in area of mapped homogeneous ETN. NW linear and near N-S linear.	A broad area underlain by various granodiorites and lesser porphyries. Stream sediment samples returned up to 45ppm Pb, 2.6ppm Bi, 10.9ppm Mo and 24ppm As.
X1	L		Broad As anomaly	ETN	Intersection of possible NW and NS linears. As anomaly near headwaters of creek.	Underlain by mostly massive granodiorite. Minor dykes, local unexplained gossans. Stream sediment sample results had anomalous Ag, As, Ga, Hg, Mo values.
X2	L		Spot As anomaly	ETN	NW linears with As anomaly near headwaters of creek.	Not visited in 2002.

Location, access and physiography

The proposed Kusawa Special Management Area covers 3118.7 kilometers^2 in southwest Yukon adjacent to the British Columbia – Yukon border. Kusawa Lake, a large fjord like lake, at 140.3 kilometers^2, is the central feature of the proposed SMA. Approximately two thirds of the proposed area is on the Dezadeash map sheet (NTS 115A) and the other third of the area is on the Whitehorse map sheet (NTS 105D). The proposed Kusawa SMA boundary follows valleys, heights of land and straight lines that cut across topographic features. The British Columbia border forms the southern boundary of the proposed SMA.

Plate 1. Kusawa lake looking NW, note peneplain, Takhini River on the lower right.

Access is by helicopter from Whitehorse, approximately 60 kilometers to the east or from Haines Junction, approximately 70 kilometers to the west. A two-wheel drive access road leads to the Yukon Territorial campground and boat ramp on the north end of the lake. The lake is accessible by watercraft and float equipped or amphibious aircraft for its 70 kilometer length.

The Kusawa Lake area is located in a transitition zone separating two major physiographic subdivisions of the northern Cordillera; the Coast Mountains including the Boundary Ranges to the south and the Yukon Plateau located northwest of the lake (Bostock, 1948). Within the proposed SMA elevations range from approximately 670 meters to 2308 meters above sea level.

Much of the proposed SMA consists of rugged alpine terrain, particularly the southern portion of the area within the Boundary Ranges south of the Shakwak Trench which follows the northwest trending section of Kusawa Lake. Small alpine glaciers and patches of stagnant ice are common of these higher and steeper areas.

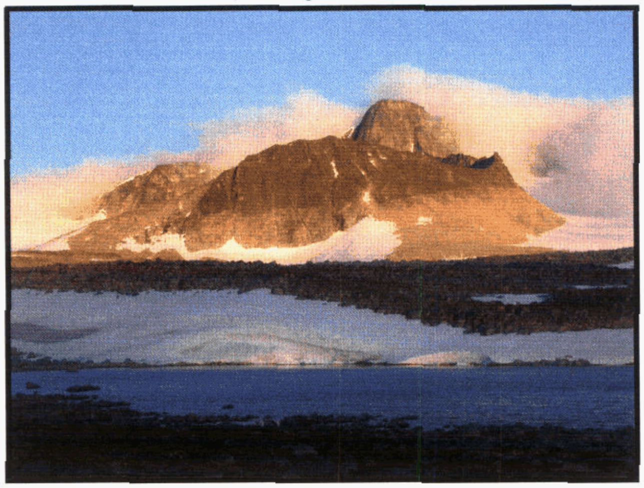

Plate 2. Coast Range Mountains at Target X1, looking south, near the British Columbia border

Areas of lower elevation adjacent to Kusawa Lake and river valleys are moderately to densely vegetated. Glacial drift cover in the area is extensive and features such as strand lines and melt-water channels are conspicuous, particularly in the northern portion of the proposed SMA.

Of special interest is the Kusawa Lake torrent system located upstream of the Kusawa Lake campground which was partially destroyed by floods in 1982 (Lowey, 2002).

Exploration History

Mineral exploration in the proposed Kusawa SMA is poorly documented with only sparse records in the Yukon Minfile (2001) database, the primary source of mineral occurrence data. The Geological Survey of Canada reports on the area (Kindle, 1953; Wheeler, 1961) noted that very little mineral exploration had taken place in the area of the proposed SMA.

The area was prospected during and after the gold rush but if any mineralization was located it was not reported. The earliest recorded claims in the proposed SMA date back to 1949 and covered the Rose occurrence, 105D 018 (Yukon Minfile, 2001), a gold bearing quartz vein. From the late 1960's to the mid 1980's various individuals as well as junior and major exploration companies explored the area and staked Quartz Claims over the Rose occurrence and nearby skarn occurrences (Figure 3). Other than the Rose occurrence most of the recorded work focused on the Dent porphyry occurrence (115A 024) and the Deb (105D 140), Primrose (105D 017) and Kusawa (115A 025) skarn occurrences (Yukon Minfile, 2001).

Kindle (1953) noted that small scale placer operations were known to been conducted on the Primrose River and Sandpiper Creek near where they empty into Kusawa Lake. No further record of placer operations in the area has been reported.

Geology

Regional Setting

The proposed Kusawa SMA lies within the Coast Mountain Belt near the eastern boundary with the Intermontane Belt. The geology of the area is dominated by crystalline rocks of the Coast Plutonic Complex and to a lesser extent the greenschist to amphibolite grade Nisling Assemblage metamorphic rocks (Figure 4).

Regional geological mapping was carried out by J.O. Wheeler (1961) at a scale of 1:250,000 on the Whitehorse map sheet and by Kindle (1953) on the Dezadeash map sheet. Gordey and Makepeace (2001) produced a digital compilation of the geology of the Yukon, which included more accurate ages for some geological units but otherwise differs little from the earlier work. The digital map provided the bases for the 2002 EMR fieldwork in the proposed Kusawa SMA and is shown, with minor modifications, in Figure 5.

Most of the proposed Kusawa SMA is located within the Nisling sub-terrrane of the larger enigmatic Yukon-Tanana Terrane (YTT) of Western Yukon. Rocks of the Nisling sub-terrane in the area of the SMA have been informally named the Aishihik assemblage by Erdmer (1991). The term Nisling Assemblage will be used in this report to avoid introducing a new name. The YTT is a pericratonic terrane composed of several subterranes with rocks possessing elements of passive margin sedimentation that are stratigraphically and structurally different than rocks of continental North America.

The easternmost portion of the proposed SMA lies within the Stikine Terrane. Stikine Terrane rocks are of North American cratonic origin that has been displaced northward to their present location. Stikine Terrane is composed of Devonian to Permian arc volcanics and platform carbonates, forming the basement, and are overlain by Triassic and Lower Jurassic arc volcanics, volcaniclastics, chert and arc-derived clastics that are intruded by co-magatic plutonic rocks.

Both the Nisling and Stikine Terranes were intruded by post-accretionary Cretaceous to Eocene (112-50 Ma) granitoids of the Coast Mountain Belt (Gordey and Makepeace, 2001). Volumetrically minor volcanic rocks of the Lower Eocene Skukum and Miocene to Pliocene Miles Canyon Basalts overlie and intrude the older rocks on the eastern side of the proposed SMA.

Geology of proposed Kusawa SMA

<u>Metamorphic Rocks</u>

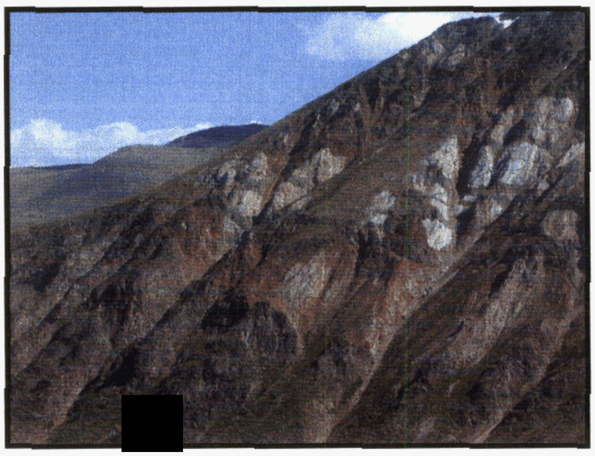

Plate 3. Nisling Assemblage schist and grey marble bands, approximately 8 km north of the Kreft 105D 128 occurrence.

The oldest rocks in the study area of the proposed SMA belong to the Late Proterozoic and Paleozoic Nisling Assemblage metamorphic rocks. They are found as pendants and large bodies surrounded by granitoid rocks. The Nisling Assemblage in this area is composed largely of dark grey to brown, biotite-muscovite-quartz-feldspar schist, quartzite and micaceous quartzite (PPN1). Locally, within the siliciclastic metamorphic rocks, thick beds of bleached white-weathering, white to grey, coarsely crystalline, flow banded, often fetid, marble are common (PPN2). The marble beds contain minor chert, metabasite, and calc-silicate lamina. In the central portion of the proposed SMA, Target area E, outcroppings of well foliated quartz-feldspar-hornblende-biotite orthogneiss were found.

Wheeler (1961) in his report on the Whitehorse map-area notes that the metamorphic rocks locally grade into foliated quartz diorite characterized by melanocratic lenses. The Nisling Assemblage metamorphics are commonly intruded by non-foliated granodiorite, granite porphyry plugs, and andesite, basalt, and rhyolite dykes.

Rock units of the Stikine Terrane are restricted to exposures in the northeastern corner of the area. Upper Paleozoic Takhini Assemblage rocks are the most common and are composed of variably sheared metabasite, amphibolite, amphibolite gneiss, tuff, wacke and marble with minor quartz mica schist and orthogneiss (uPT). Rare exposures of the Upper Triassic Povoas Assemblage (uTrP), and rocks suspected of belonging to the Povoas (uTrP?) are limited to a very small areas in the east and southeast side of the proposed SMA. These rocks were not encountered in the field. The Povoas is composed primarily of augite or feldspar phyric, andesitic flows as well as breccia, tuff, sandstone and argillite. Dacitic breccia and tuff with minor limestone, greenschist, chlorite schist, chlorite-augite-feldspar gneiss and amphibolite completes the Povoas Assemblage.

Igneous Rocks

All metamorphosed assemblages are intruded or surrounded by either the middle Cretaceous Whitehorse Suite (mKW) (predominantly granite) or the voluminous early Tertiary Nisling Range Suite (ETN) (predominantly intermediate to felsic granodiorite). Rocks of the Whitehorse Suite were not encountered in the field. Vestiges of lower Eocene Skukum volcanics (lES1) (predominantly felsic intrusives and flows) are found along and just outside the eastern boundary of the proposed SMA. As well, minor amounts of late Miocene to Pliocene Miles Canyon Basalt (MPMC) are exposed on both sides of the eastern border of the proposed SMA. The Nisling Suite and Whitehorse Suite are typical of the intrusives that make up the Coast Plutonic Complex.

Plate 4. Granodiorite with zenolith, banding and crosscut by cm scale aplite dyke.

The Nisling Suite is dominanted by a grey coloured, heterogranular, medium grained granodiorite with 5% to 10% hornblende and accessory biotite. The presence of varying amounts of quartz and orthoclase feldspar categorize the range of these intrusives from quartz diorite to granite. Plugs or small stocks of a porphyritiic felsic phase, containing 5%-10% smoky rounded quartz eyes were noted in the northwest portion of the SMA and at the Kreft lead-zinc skarn occurrence situated on the east margin of the proposed SMA. The following description of granitic intrusions (Nisling Suite) on the Dezadeash map sheet is taken from Kindle (1953, p.39):

> The granitic areas include several different varieties, the most common being grey biotite granodiorite and a grey to pink porphyritic granite. Grey, coarsely crystalline, biotite granodiorite forms the bulk of the intrusive rock in the eastern half of the map area (vicinity of Kusawa Lake). This rock is of variable composition, but usually contains from 5-10% of both biotite and hornblende, 10-20% quartz, 60-70% andesine feldspar and from 5-15% orthoclase. The rock is mottled by glistening black faces of biotite flakes. Outcrops are generally massive, but in places near its contact with older rocks the granodiorite has a gneissic structure.

Pyritized dykes of quartz-porphyry and granite-porphyry were reported by Kindle (1953) to outcrop 9.6 km south of the most westerly bend in Kusawa Lake. This corresponds to the location of the Dent occurrence (Yukon Minfile 115A 024). Kindle reports that these rocks contain variable amounts of oligoclase feldspar and quartz phenocrysts in a finely crystalline groundmass of quartz and feldspar and from 3-5% altered biotite.

Numerous outcroppings of felsic to intermediate porphyritic, phyric and aphanitic dike rocks were noted in all areas of the proposed SMA. It remains unknown if these intrusives are all part of the Nisling magmatic event or part of the later Skukum Suite. Exposures noted near the Awa occurrence (115A-025) (Yukon Minfile, 2001), the Dent (115A- 024), both located west of Kusawa Lake and in the area of Target G, fit the general group description for the Skukum Suite (Hart, 1997). There is some doubt as to exactly how extensive the hypabyssal rocks of the Skukum Suite actually are. There may be more hypabyssal Skukum Suite rocks occurring in the area which are mapped as the Nisling Suite on the present maps due to the similar appearances of the two suites.

Structural Geology

Structurally the metamorphic rocks have a strong NW trending grain that can commonly be extrapolated across intervening intrusive rocks. Kindle (1953) noted that although the predominant structural grain is NW there was some folding along northeasterly trending axes particularly in the area between Dezadeash and Kusawa Lakes and to the east of Kusawa Lake. As magmatism post-dated the penetrative deformation the intrusive and extrusive rocks are non-foliated.

The metamorphic rocks of the Nisling and Takhini Assemblages are generally closely folded and highly metamorphosed (Kindle, 1953). The following is taken from Kindle (1953):

> In most places the strike and dip of the schistosity lie parallel with those of remnants of the original bedding, as represented by intercalated beds of marble and bed of micaceous quartzites. In many cases the attitudes of the schists and highly altered sedimentary rocks are the same across a mountain top, whereas on a closely adjoining peak they may diverge by as much as 90 degrees. The original folds can be determined in places, but in most instances close folding, faulting, and intense metamorphism make this impossible.
>
> Many large faults in the southeast part of the map-area strike either northeast or northwest, and the zigzag shape of Kusawa Lake probably evolved through the erosive action of streams and valley glaciers that followed such prevalent faults. Northerly trending faults prevail about the north end of Kusawa Lake and Jo-Jo Lakes and about Moraine Lake. Many of the faults shown on the accompanying geological maps are clearly defined on the air photographs from which their positions have been plotted. Only a few have been examined in the field. The one on the east side of Jo-Jo Lake was seen from a distance to be marked by some iron stain towards its southern end.

An examination of a LANDSAT TM image (Figure 6) and the regional aeromagnetic data (Figure 15) reinforces the interpretation of numerous unrecognized large scale N-S, NW and NE trending faults. The aeromagnetic total field image in particular suggests that there are several through going regional structures, perhaps the most significant being a splay of the Denali Fault extending SE from Dezadeash Lake through the NW trending portion of Kusawa Lake. It is postulated that the Kusawa Lake area is part of a conjugate fault system marking the termination of the Denali Fault splay or perhaps reflecting crustal adjustments where the Denali's trend changes from N-S to NW.

Evidence of tight to isoclinal folding was noted at the Awa occurrence (115A 025)

Plate 5. Folded limestone bands of the Nisling Assemblage near the Deb occurrence.

and at the edge of the magnetic high forming Target E. Host geology at the Awa is limy biotite gneiss and feldspar schist with fold limbs trending 014/21SE and 164/42SW. At Target E the biotite gneiss, slates and quartzites show axial plane cleavage trending 032/45SE with rapid changes in limb orientation over a few hundred metres.

At the Kreft occurrence (105D 028) slickensides on fault planes indicate dextral strike slip movement on northwest trending faults and oblique dip-slip movement along a 70 degree south dip on northeast trending faults. The northwest structures appear to be the major structural control in the area of the proposed Kusawa SMA.

Extensive jointing at various orientations was seen throughout the intrusive rocks. Numerous other fault structures, dykes and occasionally breccias were also noted, commonly from a distance in cliff faces (Targets C, P, Q and X1). An approximately 5m wide, east trending, talus filled recessive linear or 'gap' was found on the northwest edge of Target P3. This linear is located at a phase change between two different intrusives of the Nisling Suite.

Mineralization

Currently, the Yukon Minfile (2001) lists seven mineral occurrences located within the proposed SMA and six more outside the boundary but within the study area assessed by the panel (Table 1 and Figure 3). All of the occurrences within the proposed SMA were visited in 2003. Of the seven occurrences within the proposed SMA, two are prospects, three are showings and two are 'unknown', indicating that not enough information is available to determine its status and/or deposit type. Of the six occurrences located outside the proposed SMA, within the assessed area, one is a drilled skarn prospect, one is vein showing and four are unknown. Descriptions of the mineral occurrences are included in Appendix A and short descriptions of the occurrences visited in 2002 are given below.

Table 2. Mineral Occurrences in or close to the proposed Kusawa SMA.

Minfile Number	Name	Status	Deposit Model Type	Commodity
105D – 017	Primrose	Showing	Skarn	Zn
105D – 018	Rose	Prospect	Vein	Ag,Pb,Au,
105D – 088*	Pendant	Unknown	Unknown	Unknown
105D – 128*	Kreft	Drilled Prospect	Skarn	Zn,Ag,Pb,W,Cu,Cd
105D – 140	Deb (Rose)	Prospect	Skarn	Zn,Ag,Pb
105D – 171*	Else	Unknown	Unknown	Unknown
105D – 182*	Radelet	Showing	Vein	Pb, Ag
115A – 024	Dent (Devilhole, Green Eagle, Joy)	Showing	Porphyry Cu (Porphyry Au?)	Mo,Cu, Pb, As
115A – 025	Awa (Kus, Kusawa)	Showing	Skarn	Copper
115A – 026	Arkel (Jo-Jo)	Unknown	Unknown	Unknown
115A – 027*	Champagne (Duke, Takhini)	Unknown	Unknown	Unknown
115A – 046	War	Unknown	Unknown	Unknown
115A – 047*	McCrory	Unknown	Unknown	Unknown

*Occurrence located outside the proposed Kusawa SMA but within the area assessed by the panel.

The Primrose (105D 017) is described in Yukon Minfile (2001) as a zinc skarn showing developed in a Nisling Assemblage carbonate unit near an early Tertiary granodiorite contact. The skarn zone is reported as being 12-15 meters wide and 90 meters long. A site examination in 2002 confirmed the approximate dimensions. Mineralized grab samples of sphalerite in actinolite skarn, collected approximately 100 meters from the intrusive contact, yielded 20.40% zinc. The skarn is developed along the contact between the limestone and quartz-biotite schist. There is excellent potential for significant mineralization at the intersection of the granodiorite contact with the downdip extension of the limestone-skarn unit.

Plate 6. Primrose occurrence, looking NW. Grey limestone on the right dipping towards granodiorite on the left. Skarn mineralization is located in the creek, in the center of the photo.

Table 3. Primrose Occurrence (105D 017) partial rock sample results.

Sample Number	Sample Type	Width meter	Sample Description	Mn ppm	Zn	Ag ppm	Bi ppm	Cd ppm	Pb ppm
343900	rock grab	subcrop	Sphalerite breccia along diopside skarn horizon. FW of crystalline limestone unit. Vuggy grey silt matrix.	4636	20.40%	3.70	9.80	1313.60	91.4
97695	rock grab	0.25	Manganese rich skarn zone at limestone contact	4646	301ppm	0.30	0.80	2.10	22.5
97742	rock grab	1.0	Green actinolite, rusty weathered skarnoid at lst contact. Rusty vugs, semi-massive shaphlerite. Mn oxide staining. Actinolite-sphalerite skarn	2586	14.86%	2.40	8.70	1215.70	107.3
97743	rock grab	0.4	Highgrade grab of skarn mineralization on HW of limestone, 40 cm thick skarn bed of massive sphalerite with green actinolite crystals and blebs; contact 130/44S.	999	>10%	0.50	3.60	2009.60	16.3

The Rose occurrence (105D 018) is described in Yukon Minfile (2001) as a vein prospect cutting pyritic rhyolite and dacite porphyry of the Eocene age Skukum Group. It has reportedly been traced for 610 meters, strikes approximately north and attains a width of up to 9.1 meters. A site examination in the 2002 field season found large angular blocks of weakly rusty weathering quartz vein material with trace to several percent sulfides consisting of pyrite, pyrrhotite and rare chalcopyrite (Hi Zone of Fekete and Nikolajevich, 1988). Samples of this float material collected in 2002 adjacent to partially filled hand trenches returned up to 3813 ppb Au, 105 ppm Ag and 71.9 ppm Bi. Fekete and Nikolajevich (1989) reported gold values up to 35 g/t from well mineralized (>2% galena) quartz vein float.

Plate 7, Above. Rose Occurrence, rusty weathering vein quartz with slickensides.

Plate 8, Left. Robert Stroshein in shallow trench at the Rose Occurrence.

The overall strike length of the vein was not confirmed in 2002 but it was noted that a likely extension cuts across a granodiorite outcrop – cliff to the southwest of the trenches. Outcrop is restricted to this cliff area. Andesite dykes also cut the granodiorite but the reported felsic Skukum rocks were limited to scattered pieces of float. This showing may be related to the Eocene Skukum mineralization event responsible for the gold+/-silver+/-antimony deposits found in the nearby Wheaton River Valley to the east.

The Kreft occurrence (105D 128) is a drilled prospect and is described in Yukon Minfile (2001) as a Pb-Zn skarn. The occurrence is developed in a Nisling Assemblage marble lens(s) near the contact with a Lower Eocene Skukum Suite porphyry pluton contact. Mineralization consists of zones of disseminated sphalerite and galena, up to 6 meter by 15 meters in area, in garnet-epidote-diorite-quartz skarn. Mineralization is best developed over a 185 meter by 275 meter area. The best results from trench sampling yielded 0.8% Pb, 0.9% Zn, 17g/t Ag over 8.2 meters while the best intersection from the one 53 meter long winkie drill hole, completed in 1980, returned 3.8% Zn, 3.7% Pb, 25 g/t Ag over 4.9 meters.

Plate 9. Looking west at the Kreft occurrence. Drill hole and trenches on the gentle slope on the left side. Gossans over Skukum Suite intrusives.

The Eocene Skukum intrusive porphyry rocks and volcanics have a number of gossans and clay rich areas that are weakly anomalous in Zn, Pb, Cu and Ag, in soil samples. Like the Rose occurrence above, this showing may be related to the Eocene mineralization event responsible for the gold+/-silver+/-antimony deposits found in the nearby Wheaton River Valley.

There is no record of further exploration on the NNW trending belt of metamorphic rocks hosting the Kreft skarn occurrence. Approximately 8 kilometers to the NNW of the Kreft occurrence, units of what appear to be rusty weathering schist and grey carbonate, were noted from the helicopter (Plate 3).

The Deb occurrence (105D 140), a lead zinc skarn prospect, is similar to the Primrose (105D-017) described above (Yukon Minfile, 2001). Previous work, including trenching, located two skarn zones about 30 meters apart. Sample results from the trenches included a 2.5 meter section that contained 18.9% Pb, 9.9% Zn and 322.3g/t Ag (Yukon Minfile, 2001). Table 4 below summarizes geochemical results from rock samples collected in 2002.

Table 4. Deb Occurrence (105D 140) partial rock sample results.

Sample Number	Sample Type	Width meter	Sample Description	Mn ppm	Zn	Ag ppm	Bi ppm	Cd ppm	Pb ppm
97607	rock chip	1.2	rusty staining fractures in fine grain intrusive with 1% patchy py.	107	58 ppm	0.3	0.1	0.2	61.5
97608	rock chip	0.7	silica replacement of limestone with mm chalcedony veinlets. Trace disseminated sphalerite and galena.	1207	5519 ppm	6.1	9.8	20.6	7242.2
97609	rock chip	0.5	black/brown mottled fine grained intrusive/limestone contact replaced by sphalerite and galena blobs, patches & veinlets.	1370	16.72%	170.6	449.7	1051.7	24730.6
97610	rock grab	n/a	diopside altered schist with calcite veinlets and mm scale chalcedony veinlets.	675	5947	2.9	6.5	34.5	4668.7
97611	rock grab	n/a	white quartz vein sweat in schist	37	363	0.8	1.9	2.1	702.6
97702	rock grab	n/a	highgrade grab in Showing A trench, skarn with <1% galena plus sphalerite, 5 % open space with rusty secondary quartz/calcite veinlets up to 3 mm wide lined with sulphides, sample is frothy, (Mag Sus. 0.2)	882	23562	26.9	25.9	150.1	24319.8
97703	rock grab	0.45	grab in trench (Deb Minfile), massive galena up to 8%, local euhedral crystals up to 3mm in diameter, mineralized structure bears 318 degrees, [MS reading 0.25]	858	15.38%	99.5	173.8	882.3	23517.6
97704	rock grab	0.15	intensely rusty fine grained intrusive with up to 2% fine grained disseminated pyrite, light yellow matrix and deep weathering rind	119	730	0.9	1.1	6.6	992.7
97705	rock grab	n/a	grey and white cryptocrystalline quartz vein material in trench, rusty fracture surfaces but no sulphides observered	56	508	0.9	1.3	3.9	921.5

Mapping in the area located a small Nisling suite felsic porphyry intrusive to the northeast of the occurrence. To the south of the Deb occurrence is an overburden covered plateau area that could mask extensions or mineralization similar to that already located. Favorable marble units were located in the hillside to the southeast of the occurrence.

The Dent occurrence (115A 024) is described in Yukon Minfile (2001) as a porphyry copper showing hosted by Nisling porphyritic rocks intruding older Nisling granodiorites. A prominent gossan caused by weathering of disseminated pyrite and pyrite on the well fractured younger plutonic rocks, and clay altered fault zones, highlights the occurrence.

The younger Nisling porphyritc rocks consist of quartz porphyry, granite porphyry, feldspar porphyry, and aplite. Quartz veining is not common and hydrothermal alteration, considering it is described as a porphyry type deposit, is weak. Argillic alteration is strongest in the prominent, light colored, fault(?) zones. Mineralization, in addition to pyrite, consists of rare disseminated chalcopyrite, molybdenite and galena and arsenopyrite in quartz veinlets (Yukon Minfile, 2001). Stibnite veins are reported to have been found on the south side of the Dent occurrence (R. Carne pers. comm., 2002).

Plate 10. Looking west from target E5 to the Dent occurrence, the gossanous area in the distance.

The Dent Occurrence is located on the east edge of an oval (8 kilometer by 13 kilometer) aeromagnetic high with an aeromagnetic low core (Target P). It is interpreted that the area is underlain by a high level felsic intrusion or batholith. The aeromagnetic signature, younger cross cutting porphyritic Nisling Suite rocks exposed at the Dent, in core of the aeromagnetic low and on the southwest side of the anomaly is evidence of this.

Rock grab samples collected in 2002 from the Dent occurrence yielded 21 ppb Au and 170 ppm Pb. Talus fine (soil) samples contained up to 1.8 ppm Ag, 80.1 ppm As, 6.8 ppm Bi, 35 ppm Cu, 734.9 ppm Pb and 13.5 ppm Sb. Kindle (1953) reported that a 2.2 kilogram sample of pyritized dyke rock collected 3.2 km west of where Devilhole Creek empties into Kusawa Lake assayed 162 ppb gold – likely the area of the Dent occurrence.

Plate 11. Looking SW at the gossanous Dent occurrence.

Plate 12. Dent occurrence showing white colored argillic alteration and gossanous weathering felsic porphyritic rocks.

The Awa copper skarn showing (115A 025) is in a pendant of Nisling Assemblage metamorphic schist with limy horizons surrounded by Nisling Suite granodiorite and younger Nisling Suite porphyritic, likely hypabyssal, rocks. Trace to minor amounts of chalcopyrite, pyrite and pyrrhotite are found in thin (meter scale or less) rusty weathering skarnified limy beds in a rock package consisting predominantly of interbedded quartz-biotite schist and white quartz-feldspar schist. Rock units are steeply dipping and tightly to isoclinally folded. Four soil samples or talus fines collected below the outcrop yielded between 130 ppm to 328 ppm Cu.

The Arkel (or Jo-Jo) occurrence (115A 026) is of unknown status and deposit model type although in 2002 evidence of previous work, consisting of cut grid lines, was found. It is underlain by massive grey Nisling Suite granodiorite and locally cut by younger Nisling dark grey mafic dykes (<20cm wide) and buff fine grained felsic dykelets (<10 centimeters wide), both trending $030^0/90^0$, and occupying pervasive fractures. No mineralization or alteration was noted in 2002 and four stream sediment silt samples yielded one moderately anomalous copper value at 71 ppm.

The War occurrence (115A – 046), of unknown status and deposit model type, is located on a steep and prominent hill. It is underlain by a roof pendant of Nisling Assemblage andesite and chlorite schist surrounded by Nisling Suite granodiorite. Kindle (1953) found stringers containing copper minerals in a roof pendant of andesite and chlorite schist on a mountaintop located 3.2 km east of the north end of Kusawa Lake – likely the area of the War occurrence. No evidence of previous work was found in 2002 although subsequent to the 2002 property visit; G. Bidwell (pers. comm., 2002) related how he had visited trenches, with Mr. I. Warrick the claim holder, containing traces of copper mineralization in the area of the occurrence.

Plate 13. Gossanous weathering 'felsic dykes'(?) at the War occurrence.

On the 2002 field visit to the hilltop, bedrock consisted of felsic to intermediate porphyritic rocks, likely of the Nisling suite, Nisling Suite biotite-hornblende granodiorite and Nisling Assemblage andesite and chlorite schists. Prominent red-stained patches, noticeable on the cliff faces overlooking Kusawa Lake, were attributed to the weathering of pyrite bearing dykes, cutting schist (?), as noted on the hilltop.

Placer gold occurrences noted by Kindle (1953) on Sandpiper Creek and Primrose River, near where they flow into Kusawa Lake, were not examined in 2002.

Geochemistry

A total of 396 regional stream sediment samples (RGS) have been collected by the GSC (Friske et. al., 1994; Hornbrook and Friske, 1985) within the study area (Figures 7). The study area includes an approximate 10 km zone around the proposed SMA designed to ensure that samples collected in creeks draining the SMA were captured in this study. The data from the Whitehorse and Dezadeash map-areas were merged and combined where different analytical techniques, predominantly Atomic Absorption Spectroscopy (AAS) for Whitehorse and Induced Neutron Activation (INA) for Dezadeash map areas, were used. Although the techniques are different for several elements (including As, Au, Ba, Sb, U, W), anomalous thresholds, calculated from histograms and cumulative frequency curves, first separately and then together, revealed similar results. Anomalies, for elements Au, Cu, Pb, Zn, U and As using the combined RGS surveys plus the results of the 2002 EMR work, are shown in the accompanying figures (Figures 7- 12).

A total of 74 rock, 102 soil and 170 stream sediment silt samples were collected by EMR Mineral Assessments in the course of 2002 fieldwork. The samples were submitted to Northern Analytical Laboratories Ltd. of Whitehorse where they were prepared and the pulp samples were shipped to Acme Analytical Laboratories in Vancouver for analysis. The samples were analyzed by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) following an Aqua Regia digestion. Sample descriptions and analytical results for rock, soil and stream sediment silt samples collected in 2002 are presented in Appendix E.

The GSC regional stream sediment geochemistry and the stream sediment, soil and rock samples collected by EMR in 2002 were subjected to statistical analysis using MS Excel and ESRI ArcView 3.2a. The samples were separated into populations of RGS stream sediment samples, 2002 stream sediment, 2002 soil and 2002 rock samples. Each population was assessed individually. The populations were divided into five categories that identified background, slightly above background, weakly anomalous, moderately anomalous and anomalous sample results for the elements of interest. The categories were defined by visually identifying slope changes in cumulative frequency histograms and/or natural breaks in the plots of the sample results. Occasionally where there were a large number of values below, at or near the detection limit, or obviously anomalous samples were observed, thresholds were adjusted visually, either in Arcview 3.2a or from histogram plots. Histograms and cumulative frequency plots for elements of interest (Au, Ag, As, Cu, Pb, Z, Sb, U, W) used in determining anomalous thresholds for stream sediment and soil samples are shown in Appendix B and Appendix D.

Quality control to ensure the integrity of the 2002 geochemical data was done all for all samples, from all projects, submitted by mineral assessments in 2002 as one data set for the 215 rock samples and one set for the 667 stream sediment and soil samples. Data pertaining to the proposed Kusawa SMA is included within these sample sets. Quality control analysis of the data showed that the 2002 analytical results are reliable (Hulstein et al., 2003). Analytical procedures and a summary of the geochemical statistics for quality control are included as Appendix C.

Stream Sediment Samples

The combined results, from the GSC - RGS samples and the samples collected by EMR, show in broad terms, for many elements, the terrane and lithologic provenance of the samples. The margin of Stikine Terrane in the NW area (Targets G and H) is marked by an increase in anomalous values for Ag, Cd, F, Ga, Hg, Mo, Pb, Sn, Th, V and W. The NW trending belt of Nisling Assemblage metamorphic rocks (Targets B, F area, E area, O and N) hosting the lead-zinc skarn occurrences, is denoted by an increase in weakly anomalous or high values for Cd, Co, Cu, Ni and Zn. The two prominent aeromagnetic residual anomalies, the circular magnetic high underlain by gabbro (Target E) and the oval high with 'tails' (Target P area and Q) cored by a residual low each have a unique stream sediment signature. The circular high is anomalous in Co, Cu and V with low to background values for many other elements while the oval high with a low centre,

Plate 14. Looking SW from the War occurrence, the campground is situated on the delta fan in the foreground, Target J and K, with the light colored grussy granite is in the background.

underlain by hypabyssal intrusives is weakly anomalous to anomalous in Cd, Ga, Pb and Th). Target K, underlain in part by grussy weathering granite, shares many of the anomalous features of Target P. A summary of 2002 significant geochemical results was presented in Table 1.

The highest gold value, 124 ppb, is located at Target J and is from a drainage that drains the north side of Target K, the area of grussy granite and hypabyssal felsic porphyries of the Nisling Suite.

Soil Samples

A total of 102 soils were collected by EMR in 2002 from within the proposed SMA. Soil development was poor and most samples consisted of talus fines. Sample collection was hindered by glacial drift filling the valleys and covering alpine plateaus.

Analytical results yielded weakly to anomalous Au, Bi and Sb values from area underlain by altered Skukum Suite porphyries, cut by fault(s), near the Kreft occurrence (Target B). Soil samples were anomalous in Ag, Au and Ga near the Primrose lead-zinc skarn occurrence. In the area of Target P at the Dent occurrence and within the aeromagnetic low, soil samples yielded anomalous Ag, As, Pb and Sb values, a typical signature suite for epithermal veins.

Eight soil samples collected from the headwaters of an anomalous RGS stream sediment uranium anomaly, target E5 (Plate 5), yielded low U values, the highest being 7.4ppm. Of seven samples collected on a very steep ridge, from the north end of target C, one sample contained 13.0 ppm U. At this second site, strong jointing and gossanous structures (dykes, faults or breccias?) were noted cutting the exposures of massive granitoid.

Three samples from a reconnaissance soil line of 11 samples over a portion of Target I1, the War occurrence (105A 046), described above under 'Mineralization', contained between 5 and 81 ppb Au. The 81 ppb Au number is the highest gold value from soil samples returned from the 2002 Kusawa fieldwork.

Rock Samples

A total of 74 bedrock samples were collected by EMR in 2002 and submitted for gold fire-assay and multi-element ICP analysis. Most samples consisted of mineralized, skarn or vein material.

High zinc values, up 20.4%, were reported from rock samples collected at the Deb (105D 140) and Primrose (105D 017) lead-zinc skarn occurrences. Although based on only a few rock samples the two skarns reported quite dissimilar silver and bismuth values (Tables 3 and 4). Perhaps due to the proximity of the Nisling porphyry at the Deb occurrence where the values were higher.

Significant rock sample results from the Rose (105D 018) and the aeromagnetic low SW of the Dent occurrences (115A 024) are described above under 'Mineralization'. A sample of quartz vein float with with < 2% pyrite and galena yielded 3813 ppb Au, the highest gold value from a rock sample in the Kusawa

Plate 15. Target P, area of aeromagnetic low.

study area in 2002.

A total of 14 samples were collected in 2002 for whole rock analysis (results included in Appendix F) and 12 samples where collected for petrographic examination (Figure 13). Six of the whole rock and petrographic samples overlap, being splits of the same sample.

Results from the petrographic study by Craig Leitch, Ph.D., of Vancouver Petrographics (entire report included in Appendix G), show that most samples are granitoids, ranging from diorites to true granites and rhyolites . Sample #176437, collected from a strong circular aeromagnetic high (Target E), is a gabbro (close in composition to a pyroxene diorite). Two samples (#RH2-125 and RH2-126) collected near each other from target J - K area, but from differing granites, as mapped by Kindle (1953) and with differing aeromagnetic signatures, are indeed quite different. Sample #RH2-125 being an 'unusual granite to quartz syenite' and sample RH2-126 a porphyritic hornblende biotite granodiorite. Sample #RH2-125 is located in the vicinity of extensive grussy weathering granites as noted by Kindle (1953).

Two other petrographic samples collected close together (FA02051 and FA02053) demonstrate the rapid change in rock type that appears to be common within the Nisling Range Suite. Sample FA02051 being a biotite-hornblende quartz monzodiorite and FA02053 biotite hornblende quartz monzonite.

Geophysics

Prior to the 2003 field season the GSC aeromagnetic and gravity data was purchased for the area and reprocessed by Aurora Geosciences Ltd. Regional aeromagnetic data, as a color thematic of the regional residual areomagnetics, is shown in Figure 14, the first vertical derivative of the total field in Figure 15 and the first vertical of the Bouger gravity map as Figure 16. Results of the aeromagnetic interpretation are incorporated in Table 1.

The total field and first vertical derivative aeromagnetic images highlight regional features such as the regional NW trending structural grain, outline of the metamorphic rocks, approximate contact of Stikine Terrane with the Nisling Terrane, and possible differentiation of intrusions, or intrusive suites, that are currently mapped as one homogenous unit (ex. Target A). Other features, such as an annular magnetic high (Target E), over a gabbro intrusion, located to the east of the middle of Kusawa Lake, show up very clearly. There is also a NW trending, oval shaped (8 kilometer by 13 kilometer), moderate high magnetic anomaly with an annular low located in the SW quadrant of the SMA area (Target P). Aeromagnetic high 'tails' extend several kilometers to the NW and SE of this feature. This feature, described previously, is likely a result of high-level Nisling Range Suite felsic intrusions intruding earlier granodiorite.

The GSC gravity station data points are, on average, approximately 10 kilometers apart and make up a grid that covers the entire Yukon. The map of first vertical derivative of the Bouger gravity data shows only the broadest picture and at this scale not even Yukon-Tanana Terrane can be differentiated from Stikine Terrrane. However it does have gravity lows in the area of Target P, the area of high level Nisling Suite granites and felsic porphyries and under Target K, underlain by grussy weathering granites with abundant mirolitic cavities. In addition the gabbro body underlying target E and the NW trending belt of Nisling Assemblage metamorphics in which it lies in are reflected as areas of gravity highs.

Discussion of 2002 Results

Fieldwork conducted in 2002 on the proposed Kusawa SMA was successful in identifying stratigraphy favourable for significant Zn-Pb skarn deposits in the NW trending belt of Nisling Assemblage metamorphic rocks. Thick limestone members of the Nisling Metamorphic Assemblage host lead-zinc bearing skarns plus geochemically anomalous areas identified in 2002 (Targets B, E, F, O and N). Vein potential was confirmed at the Rose occurrence (105D 018) and identified at and Target P and Target E where there are multiple stocks and or dykes of porphyritic granite.

Target P, an oval aeromagnetic anomaly, approximately 11km by 23km on the west side of Kusawa Lake, underlain by varied granitoid rocks, hypabyssal felsic porphyries and rare mafic dyke-breccia rocks that is both anomalous geochemically and on the aeromagnetic maps. This anomalous area includes the Dent occurrence on the west side and an aeromagnetic low area that returned anomalous pathfinder element values from rock and soil samples collected in 2002. The Dent occurrence may be better described as an epithermal vein type occurrence rather than a porphyry.

Grussy granite at Target K is underlain by Nisling Suite hypabyssal felsic rocks, drained by a creek with high Au in stream sediment samples.

The circular aeromagnetic high at Target E was determined to be a gabbro body.

Follow-up of RGS uranium anomalies (Targets E3, E5) was unsuccessful in determining the source or cause of the anomaly. Possibly the RGS uranium anomalies can be attributed to a specialized phase of the Nisling Range suite intrusive rich in radioactive minerals.

Stream sediment samples from the NE corner of the mineral assessment study area (Targets G and H), underlain in part by units of Stikinia Terrane, are anomalous in a number of elements, the cause of which remains unexplained. A number of unexplained gossanous areas were noted on ridge tops in this area.

Fieldwork in 2002, backed by the GSC regional aeromagnetic survey, indicates that the geology of the intrusives, in particular the Nisling Range Suite, is far more complex than the present map indicates. It also proved difficult in the field to differentiate between the Nisling Suite and the Skukum Suite.

Large-scale faults are suspected to occupy many of the valleys as part of a conjugate fault system related to the termination of a possible splay of the Denali Fault, the Chatam Strait or Coast Range Fault.

Regional Mineral Assessment

Regional context

In December 2001 a regional mineral assessment panel reviewed the geological, geochemical and geophsical data for SW Yukon and ranked the regional geological tracts. Each tract is approximately 1000 km^2 in area. The Kusawa mineral assessment study area covers a total of eight partial tracts evaluated for a total of 11 potential deposit types shown in Table 5. Of the eight tracts, six are ranked highest, one moderate and one is ranked lowest relative mineral potential (Figure 3). The mineral potential map displays the relative regional mineral potential within the proposed SMA. The inclusion of the uranium porphyry model, invariably results in a highest mineral potential rating. The most significant mineral deposit types applicable to the proposed Kusawa SMA are intrusion related. Examples of such deposit types include porphyry, plutonic related gold, skarns and epithermal deposits.

Table 5. Proposed Kusawa SMA, Regional Relative Mineral Potential Tract Results.

Deposit Model	Tract 27	Tract 94	Tract 95*	Tract 97*	Tract 98	Tract 100	Tract 101	Tract 102
Tract Rank	high	Mod	High	High	Low	High	High	High
Copper skarn	Yes	Yes	Yes	Yes			Yes	
Polymetallic Veins		Yes	Yes					
Plutonic Related Au	Yes		Yes	Yes				Yes
Lead-Zinc Skarn			Yes		Yes	Yes	Yes	
Uranium Prophyry			Yes			Yes	Yes	Yes
High – S Epithermal					Yes	Yes		
Cu-Mo Porphyry	Yes	Yes						Yes
Sb Veins	Yes							
Gabbroic Ni-Cu	Yes							
Sn-Ag Veins	Yes							
Au-quartz Veins	Yes							

*Tract is entirely, or almost entirely, restricted to the area adjacent to the proposed SMA.

Detailed Mineral Potential Map

A detailed mineral assessment of the proposed Kusawa SMA took place in Whitehorse, on December 11-12th, 2002. The mineral assessment study area, which includes the proposed SMA, was divided into 30 tracts, each representing a package of rocks that constitute a domain with unique lithological, geophysical or physiographic characteristics. The tract boundaries were drawn by the author along lithological contacts, on the margins of aeromagnetic features, especially in the regions where the geology map showed little variation, and in the large valleys and lakes which forms natural boundaries for the regional geochemistry data. Tract 17 was separated on the basis of overburden cover. The expert mineral assessment panel made minor alterations to the tract boundaries where they felt similar lithologies, etc. could be

Plate 16. Members of the mineral assessment panel L-R; G. Bidwell, R. Carne, R.A. Doherty.

better grouped together. Figure 17 shows the resulting detailed mineral potential map of the proposed Kusawa SMA area.

Methodology

Five panelists were chosen for their expertise in the geology and mineral deposits of the Yukon and the study area: Rob Carne (consultant), Gerald Bidwell (consultant), Al Doherty (consultant), Mark Baknes (consultant) and Anna Fonseca (consultant). After examining and discussing all the geoscientific information available for each of the 30 tracts the panelists decided upon a list of deposit models pertinent to the tract (Table 6) and filled in evaluation forms for the likelihood of new discoveries of the median tonnage for each deposit type in the tract. The forms were utilized to maintain the focus on mineral deposit models and explorability of the tract and to reduce personal biases. The forms are not used for a statistical analysis. At the end of the assessment, the panelists ranked the tracts relative to each other unanimously, from highest to lowest mineral potential.

Limitations

Mineral potential maps portray the best estimation at the time of the assessment. Since the expert panelists are assessing a hidden resource, it is important to realize that the geological knowledge base is in a constant state of growth, and mineral deposits may be found one day in rocks that were once thought to have lower relative mineral potential.

Table 6. Proposed Kusawa SMA, Detailed Mineral Potential Tract Results, Deposit models used and median tonnage of model deposit. Table continued on next page.

Tract Number	Rank	Cu-Skarn 0.323 MT	Pb-Zn Skarn 1.261MT	Placer Au	Sn_veins 0.144 MT	Sn_greisen(Ta)* 7.2 MT	Sn_greisen 7.2 MT	Epithermal Low S 1.08 MT	Polymetallic Veins 0.16 MT	Epithermal high S 0.7 MT	Fluorite Vein 0.1 MT	Gabbroic Ni-Cu 0.7 MT
4	1	Yes	Yes				Yes	Yes				
12	2	Yes	Yes				Yes					Yes
5	3		Yes				Yes	Yes		Yes		Yes
7	4	Yes	Yes									Yes
23	5		Yes					Yes				
28	6	Yes							Yes			Yes
16	7	Yes										Yes
2	8		Yes				Yes	Yes				
30	9		Yes					Yes	Yes		Yes	
14	10		Yes		Yes			Yes		Yes		Yes
1	11		Yes					Yes				
26	12						Yes					
24	13	Yes	Yes			Yes						
18	14											
25	15	Yes	Yes				Yes					
20	16	Yes	Yes					Yes				
22	17	Yes	Yes			Yes						
11	18	Yes						Yes				Yes
29	19	Yes	Yes									
17	20				Yes							
27	21		Yes									
6	22											
8	23											
10	24						Yes		Yes			
13	25								Yes			
21	26	Yes	Yes									
19	27			Yes								
3	28		Yes									
15	29											
9	30											

*Sn Greisen (Ta) is based on the Sn-greisen model with +/-Ta and +/-Sn as primary commodities.

Table 6, continued from previous page. Proposed Kusawa SMA, Detailed Mineral Potential Tract Results, Deposit models used and median tonnage of model deposit.

Tract Number	Rank	Au-Qtz Veins 0.29 MT	Plutonic related Au 16.5 MT	U vein 0.1 MT	Porphyry Cu-Mo-Au 115 MT	Porphyry Mo 76.7 MT	Porphyry U 40.25 MT	Porphyry W 162 MT	VMS Kuroko 1.987 MT	W vein 0.56 MT	Stibnite Veins 4,900 MT
4	1		Yes								
12	2				Yes		Yes				
5	3	Yes									
7	4								Yes		
23	5				Yes		Yes				Yes
28	6							Yes			
16	7							Yes			
2	8						Yes				
30	9										
14	10										
1	11					Yes	Yes				
26	12		Yes					Yes			
24	13										
18	14	Yes			Yes						
25	15										
20	16										
22	17										
11	18										
29	19					Yes					
17	20			Yes							
27	21					Yes					
6	22	Yes								Yes	
8	23							Yes		Yes	
10	24										
13	25										
21	26										
19	27			Yes							
3	28										
15	29			Yes							
9	30			Yes							

Results and Conclusions

The detailed mineral potential map (Figure 17) and the table of ranked tracts (Table 6) display the relative mineral potential within the mineral assessment study area of the proposed SMA. The mineral potential of the relative highest-ranking tract is due to the presence of known showings, lead-zinc skarn occurrences and the likelihood of additional mineralization. For the same reason the NW trending belt of Nisling Assemblage metamorphic rocks hosting the lead-zinc occurrences ranks highest. The anomalous geochemistry, Dent mineral occurrence and aeromagnetic signature of Target P (Tract 23) cause it to rank fifth in terms of relative mineral potential. The tracts of the eastern side of the mineral assessment study area ranked higher than those on the western side due to more anomalous geochemistry, presence of Stikine Terrane rocks and Skukum Suite rocks and inclusion of and proximity to Minfile occurrences.

As with the regional mineral potential assessment results, all of the significant mineral deposit types applicable to the proposed Kusawa SMA are intrusion related. Examples of this style of deposit are porphyry, plutonic related gold, polymetallic and gold-quartz veins, skarns and epithermal deposits.

Recommendations and future work

It is recommended that land use planners take into account the results of the mineral assessments of the proposed Kusawa SMA and use the mineral potential maps in their planning. Ideally land use planners would avoid alienating exploration and development in the areas identified as having highest mineral potential.

The following additional research is recommended to better constrain the mineral deposit types applicable to the proposed Kusawa SMA.

Numerous GSC-RGS stream sediment sample anomalies still require follow-up and now, following the 2002 fieldwork, EMR anomalies require follow-up. Nine of 32 original targets identified prior to the 2002 EMR fieldwork, not visited in 2002, require follow-up. Work on Target G and H is required to characterize possible mineral deposit models that can explain the anomalous stream geochemistry.

Further study is required on the Kreft, Deb and Primrose lead-zinc skarn occurrences to better determine their mode of occurrence (related to Skukum Suite intrusives?), their similarities and to account for their differences (ie. presence of bismuth in the Deb occurrence).

More geological mapping is required to match aeromagnetic features with geology. Numerous aeromagnetic features cut lithologic units or are found in units mapped as homogeneous. Petrological mapping of the intrusives, to define phases that have potential for hosting different deposit types, is also recommended.

Acknowledgements

Amy Stuart, Panya Lipovsky, and Gary Stonghill provided technical support preparing the data for the fieldwork and assessment panel as well as base data for the areas of interest. Rod Hill and Monique Shoniker performed the diplomatic and administrative services that allowed fieldwork to proceed. Capital Helicopters of Whitehorse provided safe, reliable and enjoyable transportation.

The fieldwork and report would not have been completed without the expertise support and help from my colleagues; Robert Stroshein, Jo-Anne vanRanden and Farrell Andersen. I recommend them for their companionship, perserverence and dedication to carrying out the best quality work that is possible.

Thank you to the expert panel; Mark Bakness, Gerald Bidwell, Rob Carne, Al Doherty and Anna Fonseca, for sharing and applying their expertise in Yukon geology and mineral deposits with diligence and good humor.

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Erdmer, P., 1991. Metamorphic terrane east of Denali Fault between Kluane Lake and Kusawa Lake: in Current Research, Part A, Geological Survey of Canada, Paper 91-1A, p. 37-42.

Fekete, M., and Nikolajevich, Alex, 1988. Geological – Geochemical – Geophysical Report, Rose 1-8 Claims. Assessment Report #092733, DIAND.

Friske, P.W.B., McCurdy, M.W., Day, S.L., Gross, H., Lynch, J.J., Balma, R.G., Durham, C.C., 1994. Regional stream Sediment and Water Geochemical Reconnaissance data, Southwestern Yukon (Parts of NTS 115A and 115B): Geological Survey of Canada, Open File 2859.

Gordey, S.P. and Makepeace, A.J. (comps), 2001. Bedrock geology, Yukon Territory. Geological Survey of Canada, Open File 3754 and Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 2000-1, 1:1,000,000 scale.

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Hornbrook, E.H.W. and Friske, P.W.B., 1985. Regional stream Sediment and Water Geochemical Reconnaissance data, Southwestern Yukon (NTS 105D): Geological Survey of Canada, Open File 1218.

Hulstein, R., vanRanden, J., Stroshein, R., Andersen, F., 2003. Report on Geochemical Procedures used during mineral resource assessments. Internal report for YTG, Energy Mines and Resources, Mineral Planning and Development.

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Lowey, G.W., 2002. Sedimentary processes of the Kusawa Lake torrent system, Yukon, Canada, as revealed by the September 16, 1982 flood event. Sedimentary Geology 151, p. 293-312.

Wheele, J.O., 1961. Whitehorse map-area, Yukon Territory. Geological Survey of Canada, Memoir 268, 68p.

Yukon MINFILE, 2001. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada.

Appendix A

Yukon Minfile Descriptions

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE # 105D 017
NAME: PRIMROSE
DEPOSIT TYPE: SKARN
STATUS: SHOWING
TECTONIC ELEMENT: NORTHERN STIKINE TERRANE

NTS MAP SHEET: 105D\5
LATITUDE: 60° 15' 53" N
LONGITUDE: 135° 57' 21" W

OTHER NAME(S):
MAJOR COMMODITIES: ZINC
MINOR COMMODITIES:
TRACE COMMODITIES:

CLAIMS (PREVIOUS & CURRENT)

WORK HISTORY

Staked as Rose cl (Y25865) in Aug/68 by a joint venture composed of Imperial OL, Ashland OL and Pacific Pet L. Restaked as Prim cl (Y60562) in Apr/71 by A. Nelson and G. Asuchak; as RIC cl (Y66236) in May/72 by H.R. Rand; and as Dall cl (YA62133) in Aug/81 by Westfort Pet L, which performed mapping, geochem and channel sampling later in the year.

GEOLOGY

The claims are underlain by Paleozoic? Nisling assemblage gneiss and schist intruded by Cretaceous granodiorite. Sphalerite occurs in a weakly developed skarn zone 12 to 15 m wide and 90 m long that has developed in a thin limestone horizon.

REFERENCES

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE # 105D 018
NAME: ROSE
DEPOSIT TYPE: VEIN
STATUS: PROSPECT
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET: 105D\5
LATITUDE: 60° 20' 42" N
LONGITUDE: 135° 51' 30" W

OTHER NAME(S):
MAJOR COMMODITIES: GOLD, LEAD, SILVER
MINOR COMMODITIES: LEAD
TRACE COMMODITIES:

CLAIMS (PREVIOUS & CURRENT)

ROSE

WORK HISTORY

Discovered in 1949 by T. Worbets and first staked in Jul/62 by W. Newmanishin. Restaked as Dot cl (Y20320) in Jul/67 by D. McLennan; and as Sheep in Oct/73 by T. Worbets and M. Nichiporuk, optioned in 1974 by Welcome North ML and sold in 1975 to Sicintine ML.

Restaked as Tipy & Bar cl (YA48194) in Sep/79 by M. Nichiporuk and T. Worbets and as Primrose cl (YA74504) in Mar/82 by Cominco, which performed mapping, geochem and rock sampling later in the year. J.P. Ross tied on the Narrow cl (YA96366) to the west and the Grant cl (YA96360) two miles southeast in Sep/86 and Worb cl (YA96974) to the south in Mar/87.

Restaked as Rose cl (YB13904) in Aug/88 by Total Erickson Res L, (later Total Energold Corp.) which performed soil and rock geochemistry, a VLF/EM survey and hand trenching in 1989.

GEOLOGY

Galena and pyrite occur in a slightly rusty quartz vein up to 9.1 m wide that has been traced for a length of 610 m. The vein cuts pyritic rhyolite and dacite porphyry related to the Eocene age Mt. Skukum Volcanic Complex. Worbets reported that assays from three selected specimens averaged 877.7 g/t Ag and 9.3 g/t Au, a sample of mineralized quartz assayed 528.0 g/t Ag, 8.6 g/t Au and 11.9% Pb, and that assays up to 15.5 g/t Au were obtained over 9.1 m widths.

In 1982, Cominco sampled an area of rusty, angular quartz blocks which contain patches of galena and pyrrhotite and occasional grains of chalcopyrite. The sulphides occur mostly along fault surfaces. Cominco's best reported assay was 99.4 g/t Ag and 2.74 g/t Au.

Two shallow hand trenches in 1989 exposed a north-trending galena vein 0.7-1 m thick. Samples assayed as high as 35.0 g/t Au, 201.6 g/t Ag and 2.59% Pb.

REFERENCES

COMINCO LTD, Feb/83. Assessment Report #091440 by L.J. Nagy.

MINERAL INDUSTRY REPORT 1974, p. 145.

TOTAL ERICKSON RESOURCES LTD, May/89. Assessment Report #092733 by M. Fekete and A. Nikolajevich.

WELCOME NORTH MINES LTD, 31 Dec/74. Statement.

YUKON EXPLORATION 1989, p. 28,29.

YUKON EXPLORATION AND GEOLOGY 1982, p. 112.

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE # 105D 088
NAME: PENDANT
DEPOSIT TYPE: UNKNOWN
STATUS: UNKNOWN
TECTONIC ELEMENT: NORTHERN STIKINE TERRANE

NTS MAP SHEET: 105D\12
LATITUDE: 60° 41' 8" N
LONGITUDE: 135° 52' 34" W

OTHER NAME(S):
MAJOR COMMODITIES:
MINOR COMMODITIES:
TRACE COMMODITIES:

CLAIMS (PREVIOUS & CURRENT)

WORK HISTORY

Staked as Ell cl (Y67281) in Oct/72 by Can. Occidental Pet. L. following reconnaissance prospecting and silt sampling.

GEOLOGY

Claims were staked over and around a large roof pendant of Lewes River Group metasedimentary rocks in Coast Range granodiorite.

REFERENCES

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE #: 105D 128 | **NTS MAP SHEET:** 105D\4
DEPOSIT TYPE: SKARN | **LATITUDE:** 60° 12" 21' N
STATUS: DRILLED PROSPECT | **LONGITUDE:** 135° 44" 23' W
TECTONIC ELEMENT: NISLING TERRANE

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
KREFT	ZINC	TUNGSTEN	
	SILVER	COPPER	
	LEAD	CADMIUM	

CLAIMS (PREVIOUS AND CURRENT)

WORK HISTORY

Staked as Ram cl (YA8188) in Sep/76 by E. Kreft, who performed geochem sampling and hand trenching in 1976, and optioned to United Keno E (Falconbridge and United Keno Hill ML), which explored with geochem sampling and mapping in 1977-78 and hand trenching and an IP survey in 1978 before dropping the option.

Inco optioned the property in 1980 and explored with one Winkie hole (53 m) in 1980, geochem sampling and mapping in 1981 and 1982 and trenching in 1982.

GEOLOGY

The claims are underlain by Nisling terrane metamorphic rocks and foliated Cretaceous granitic rocks intruded by an Eocene porphyry stock and associated volcanics. Mineralization consists of zones of disseminated sphalerite and galena up to 15 m by 6 m across, in garnet-epidote-diorite-quartz skarn. The skarn is developed in marble lenses in schist within a 275 by 185 m area near the margin of the stock.

Assays of specimens from the best showing averaged 4.4% Zn, 2.3% Pb, 59 g/t Ag, 0.5% Cu, 0.1% Cd and 0.02% WO3. The best trench sample assayed 0.8% Pb, 0.9% Zn and 17 g/t Ag across 8.2 m.

The 1980 drillhole, located near the trench, cut 3.8% Zn, 3.7% Pb and 25 g/t Ag across 4.9 m. The IP anomalies were attributed to graphite schist.

The 1982 work concentrated on four altered zones nearby, three in porphyry and one in rhyolite. They consist of yellow-brown gossans associated with shearing, brecciation, clay-sericite alteration and quartz stockwork. The zones contain traces of sphalerite, galena, malachite and tenorite and are anomalous in base metals and silver but not gold.

REFERENCES

INCO LTD, Oct/82. Assessment Report by W. Manson.

MINERAL INDUSTRY REPORT, 1978, p. 34-35.

UNITED KENO HILL MINES LTD, 1977. Assessment Report #061625 by P. Watson & R.J. Joy.

YUKON GEOLOGY AND EXPLORATION 1979-80, p. 123-127.

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE # 105D 140
NAME: DEB
DEPOSIT TYPE: SKARN
STATUS: PROSPECT
TECTONIC ELEMENT: NISLING TERRANE

NTS MAP SHEET: 105D\5
LATITUDE: 60° 17' 57" N
LONGITUDE: 135° 53' 25" W

OTHER NAME(S): ROSE
MAJOR COMMODITIES: ZINC, SILVER, LEAD
MINOR COMMODITIES:
TRACE COMMODITIES:

CLAIMS (PREVIOUS & CURRENT)

DEB

WORK HISTORY

Staked as Deb cl (YA23465) in Aug/78 by United Keno E (United Keno Hill ML, Falconbridge Nickel ML), which explored with mapping and geochem, mag and EM surveys in 1978 and 1979 and hand trenching in 1979. Restaked as Deb cl (YB21953) in Oct/88 by B. Thompson, who transferred the claims in Mar/89 to Total Energold Corp, which trenched later that year.

Restaked Aug/91 as Puppy 1-16 (YB36280) and Love 1-16 (YB36295) claims by J.P. Ross, who prospected and sampled in 1992.

GEOLOGY

Galena and sphalerite occur in two skarn zones (A and B) about 30 m apart in a limestone lens in Paleozoic? schist near its contact with the Coast Range Batholith. Showing A ranges from 0.5 to 1.8 m wide and has been exposed for a length of 21.3 m, with the best sample returning 11.4% Pb, 7.7% Zn and 99.4 g/t Ag across 1.8 m. Showing B was exposed in two trenches 12.2 m apart. The best trench returned 18.9% Pb, 9.9% Zn and 322.3 g/t Ag across 2.5 m.

Ross's detailed soil grid on the Love #1 and Puppy #2 claims was successful in extending United Keno's 1978 geochemical anomaly to the northwest, with values up to 231 ppm Pb and 397 ppm Zn.

REFERENCES

J.P. ROSS, Dec/92. Assessment Report #093058 by J.P. Ross.

MINERAL INDUSTRY REPORT 1978, p. 35.

YUKON GEOLOGY AND EXPLORATION 1979-80, p. 165.

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER: 105D 171
DEPOSIT TYPE: UNKNOWN
STATUS: UNKNOWN
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET(1:250000): 105D
NTS MAP SHEET(1:50000): 105D\4
LATITUDE: 60° 12' 06' N
LONGITUDE: 135° 39' 08' W

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
ELSE			

CLAIMS (PREVIOUS AND CURRENT):

WORK HISTORY:

Staked as Else cl (YA94251) in Feb/86 by R. Robertson and G. MacDonald. Restaked as Wat cl (YB6131) in Jul/87 by Pacific Trans-Ocean Res Inc. Island Mg & ECL and Skukum Gold Inc tied on Mag cl (YB6979) in Aug/87. Wat cl were transferred in Aug/88 to Island Mg & Skukum Gold, which mapped, prospected and sampled later that year and performed geochemical surveys and trenching in 1989.

GEOLOGY:

The claims are underlain by a small erosional remnant of Eocene intermediate and felsic volcanic flows and pyroclastic rocks of the Skukum Volcanic Complex which are in fault contact with Cretaceous granodiorite containing roof pendants of Paleozoic quartz-chlorite-mica schist.

REFERENCES:

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER: 105D 182
DEPOSIT TYPE: VEIN
STATUS: SHOWING
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET(1:250000): 105D
NTS MAP SHEET(1:50000): 105D\4
LATITUDE: 60° 04" 24' N
LONGITUDE: 135° 34" 02' W

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
RADELET	SILVER		TUNGSTEN
	LEAD		COPPER

CLAIMS (PREVIOUS AND CURRENT):

WORK HISTORY:

Staked as 350 WHE cl (YB6351) in Jul/87 by G. McLean, who conducted mapping and soil sampling in Jun/88 and then transferred the claims in Aug/88 to Island Mg & ECL and Skukum Gold Inc., which performed mapping and prospecting later that year.

GEOLOGY:

The claims cover pendants of Paleozoic? metasedimentary rocks within the Cretaceous Coast Plutonic Complex. The Cripple showing, discovered in 1988, is a gossanous galena-bearing quartz vein 0.4 m wide and 150 m long, which cuts schist and gneiss near a granodiorite contact. Samples taken from the Cripple vein contained up to 3.9% Pb and 76.8 g/t Ag.

Another zone of rusty quartz stringers 500 m north of the Cripple showing was anomalous in copper (605 ppm) and tungsten (368 ppm). Silt samples from the northwest corner of the claims near Primrose Lake contained anomalous levels of gold, lead, zinc and silver.

REFERENCES:

SKUKUM GOLD INC., Mar/89. Assessment Report #092695 by A.L. Wilkins and H.F. MacKinnon.

YUKON EXPLORATION 1989, p. 35.

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER 115A 024
DEPOSIT TYPE PORPHYRY
STATUS: SHOWING
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET(1:250000): 115A
NTS MAP SHEET(1:50000): 115A\8
LATITUDE: 60º 16" 19' N
LONGITUDE: 136º 21" 56' W

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
DENT	MOLYBDENUM	LEAD	
DEVILHOLE	COPPER		
GREEN EAGLE			
JOY			

CLAIMS (PREVIOUS AND CURRENT)

WORK HISTORY:

Staked as Green Eagle cl (Y38608) in Oct/69 by J.B. O'Neill on a geochemical anomaly and optioned to a private syndicate which allowed the claims to lapse. Restaked by O'Neill as Green Eagle cl (Y59265) in Oct/70 and optioned to A.E. Hooper, who formed a new company, Charta ML, to develop the property. Charta completed limited hand trenching in 1970 and a mapping, soil sampling and geophysical program in 1971.

Restaked as Dent cl (YA48219) in Sep/79 by R.C. Hilker.

GEOLOGY:

Claims cover a prominent gossan associated with a pyritic envelope around a young stock which intrudes older granodiorite. The younger pluton is composed of quartz porphyry, granite porphyry, feldspar porphyry and aplite that has been strongly fractured. Quartz veining is not common and hydrothermal alteration is very weak.

O'Neill obtained moderate geochemical response in copper and lead but only minor amounts of disseminated chalcopyrite and molybdenite. Galena and arsenopyrite occur in quartz veinlets. Surface leaching is minimal.

REFERENCES:

CHARTA MINES LTD, Mar/71. Prospectus Report by R.G. Hilker.

MINERAL INDUSTRY REPORT 1971-72, p. 47.

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER: 115A 025
DEPOSIT TYPE: SKARN
STATUS: SHOWING
TECTONIC ELEMENT: NISLING TERRANE

NTS MAP SHEET(1:250000): 115A
NTS MAP SHEET(1:50000): 115A\8
LATITUDE: 60° 26" 01' N
LONGITUDE: 136° 28" 07' W

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
AWA	COPPER		
KUS			
KUSAWA			

CLAIMS (PREVIOUS AND CURRENT):

WORK HISTORY:

Staked as Kus and Awa cl (Y58199) in Sep/70 by Phelps Dodge during a regional reconnaissance program. Soil sampling, mapping and a magnetic survey were conducted in 1971.

GEOLOGY:

Minor amounts of chalcopyrite, pyrite and pyrrhotite occur in a skarn which has developed in a limy horizon in Paleozoic? schist which forms a roof pendant in granodiorite. Weathering has produced a modest gossan.

REFERENCES:

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER: 115A 026
DEPOSIT TYPE: UNKNOWN
STATUS: UNKNOWN
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET(1:250000): 115A
NTS MAP SHEET(1:50000): 115A\9
LATITUDE: 60° 38" 10' N
LONGITUDE: 136° 09" 53' W

NAMES:	**MAJOR COMMODITIES:**	**MINOR COMMODITIES:**	**TRACE COMMODITIES:**
ARKEL			
JO-JO			

CLAIMS (PREVIOUS AND CURRENT):

WORK HISTORY:

Staked as Arkel cl (Y25818) in Aug/68 by A.C. Midgett. V. Szulinsky staked Takhini cl (YA78275) 2 km to the northeast in Aug/83 and C. Blackstock staked Nagy cl (YA85426) 4 km to the northeast in Sep/84, probably to protect surface rights. A. Stork tied on Rat cl (YA86842) to the south of Nagy cl in Jun/85.

GEOLOGY:

Claims cover an area mapped as granodiorite of the Coast Plutonic Complex.

REFERENCES:

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE NUMBER: 115A 027
DEPOSIT TYPE: UNKNOWN
STATUS: ANOMALY
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET(1:250000): 115A
NTS MAP SHEET(1:50000): 115A\9
LATITUDE: 60° 42' 01' N
LONGITUDE: 136° 02" 02' W

NAMES:	MAJOR COMMODITIES:	MINOR COMMODITIES:	TRACE COMMODITIES:
CHAMPAGNE			
DUKE			
TAKHINI			

CLAIMS (PREVIOUS AND CURRENT):

WORK HISTORY:

Staked as Duke and Takhini cl (Y60692) in Jun/71 by E. Kosmento.

GEOLOGY:

The claims overlie an area of extensive overburden on the bank of Takhini River, and cover the flank of a small 250 gamma aeromagnetic anomaly.

REFERENCES:

YUKON MINFILE
YUKON GEOLOGY PROGRAM
WHITEHORSE

MINFILE # 115A 046
NAME: WAR
DEPOSIT TYPE: UNKNOWN
STATUS: UNKNOWN
TECTONIC ELEMENT: COAST PLUTONIC COMPLEX

NTS MAP SHEET: 115A\9
LATITUDE: 60° 36' 43" N
LONGITUDE: 136° 3' 36" W

OTHER NAME(S):
MAJOR COMMODITIES:
MINOR COMMODITIES:
TRACE COMMODITIES:

CLAIMS (PREVIOUS & CURRENT)

WORK HISTORY

Staked as War cl (YA19838) in Sep/77 by I. Warrick, who trenched and added more claims in 1978.

GEOLOGY

The claims are underlain by Cretaceous granodiorite immediately north of a pendant of Nisling Terrane schist.

REFERENCES

Appendix B

GSC - Regional Geochemical Survey Statistics

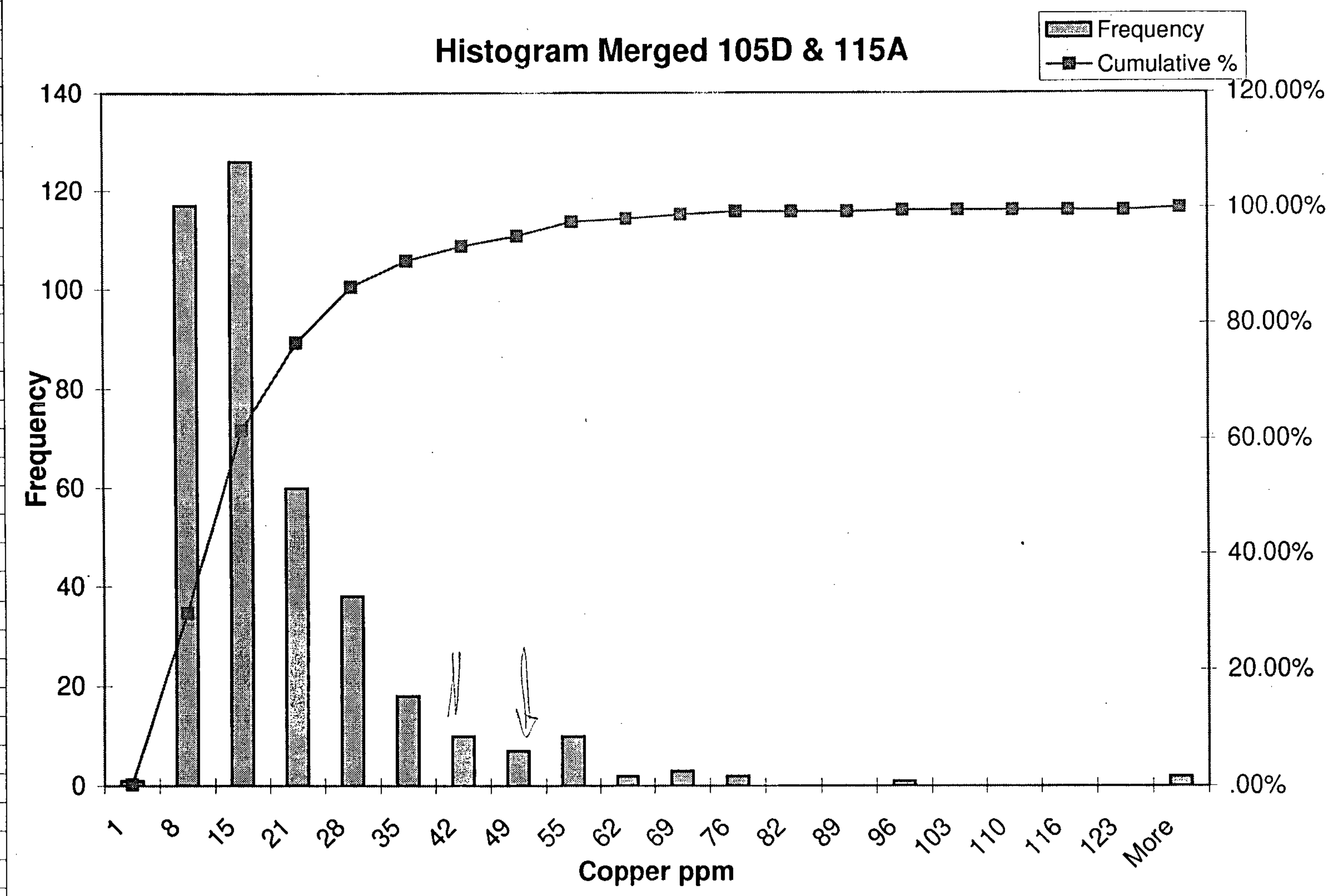
EM&R, Yukon Geology Program - Mineral Assessments
Proposed Kusawa SMA
GSC - NGRS Stream Sediment Samples

Descriptive Statistics	Ag ppm	As_ina_AA ppm	Au_ina_AA ppb	Ba_ina_AA ppm	Cd ppm	Co ppm	Cu ppm	F ppm	Fe%	Hg ppb
Mean	0.17	3.35	2.07	1236.44	0.34	6.85	16.39	418.77	2.26	23.98
Standard Error	0.01	0.31	0.25	32.99	0.02	0.21	0.79	6.88	0.06	1.06
Median	0.1	1.8	1	1200	0.2	6	11	403	2.01	18
Mode	0.10	0.90	1.00	1200.00	0.11	6.00	6.00	480.00	1.80	2.51
Standard Deviation	0.13	6.24	4.96	654.00	0.37	4.22	15.69	136.48	1.25	20.96
Sample Variance	0.02	38.90	24.61	427718.91	0.14	17.84	246.19	18625.52	1.57	439.35
Kurtosis	7.05	62.83	68.39	126.95	17.10	2.51	15.46	3.18	53.95	4.25
Skewness	2.62	6.95	7.42	8.78	3.45	1.44	3.16	1.12	5.41	1.87
Range	0.7	73.75	60.5	10740	3.09	24.99	129	1046	16.57001	116.49
Minimum	0.1	0.25	0.5	260	0.11	1.01	1	114	0.50999	2.51
Maximum	0.8	74	61	11000	3.2	26	130	1160	17.08	119
Sum	66.80	1315.00	814.00	485920.00	135.15	2691.12	6441.00	164576.00	889.49	9423.83
Count	393	393	393	393	393	393	393	393	393	393
Largest(1)	0.8	74	61	11000	3.2	26	130	1160	17.08	119
Smallest(1)	0.1	0.25	0.5	260	0.11	1.01	1	114	0.50999	2.51
Confidence Level(95.0%)	0.013	0.619	0.492	64.860	0.037	0.419	1.556	13.535	0.124	2.079

Descriptive Statistics	Loi %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Sb_ina_AA ppm	Sn ppm	U_ina_AA ppm	V ppm	W_ina_AA ppm
Mean	7.00	403.22	2.82	10.11	7.44	0.24	2.47	13.51	38.39	1.38
Standard Error	0.37	14.69	0.27	0.64	0.41	0.01	0.10	1.35	1.04	0.09
Median	4.72	334	2	6	5	0.2	2	6.9	34	1
Mode	0.51	250.00	2.00	1.01	4.00	0.10	0.51	4.40	25.00	0.50
Standard Deviation	7.41	291.27	5.35	12.59	8.22	0.25	2.07	26.68	20.62	1.77
Sample Variance	54.87	84840.22	28.64	158.53	67.63	0.06	4.28	712.01	425.23	3.13
Kurtosis	16.22	21.67	218.71	9.12	15.02	50.27	15.26	78.84	2.14	14.10
Skewness	3.08	3.82	13.40	2.77	3.42	5.63	2.68	7.78	1.25	3.51
Range	70.09	2847	93	82.99	64	3.04	19.49	348.7	138	11.5
Minimum	0.5	62	1	1.01	1	0.06	0.51	2.3	5	0.5
Maximum	70.59	2909	94	84	65	3.1	20	351	143	12
Sum	2752.30	158467.00	1108.99	3972.70	2923.00	92.72	969.00	5311.10	15089.00	542.50
Count	393	393	393	393	393	393	393	393	393	393
Largest(1)	70.59	2909	94	84	65	3.1	20	351	143	12
Smallest(1)	0.5	62	1	1.01	1	0.06	0.51	2.3	5	0.5
Confidence Level(95.0%)	0.735	28.887	0.531	1.249	0.816	0.025	0.205	2.646	2.045	0.175

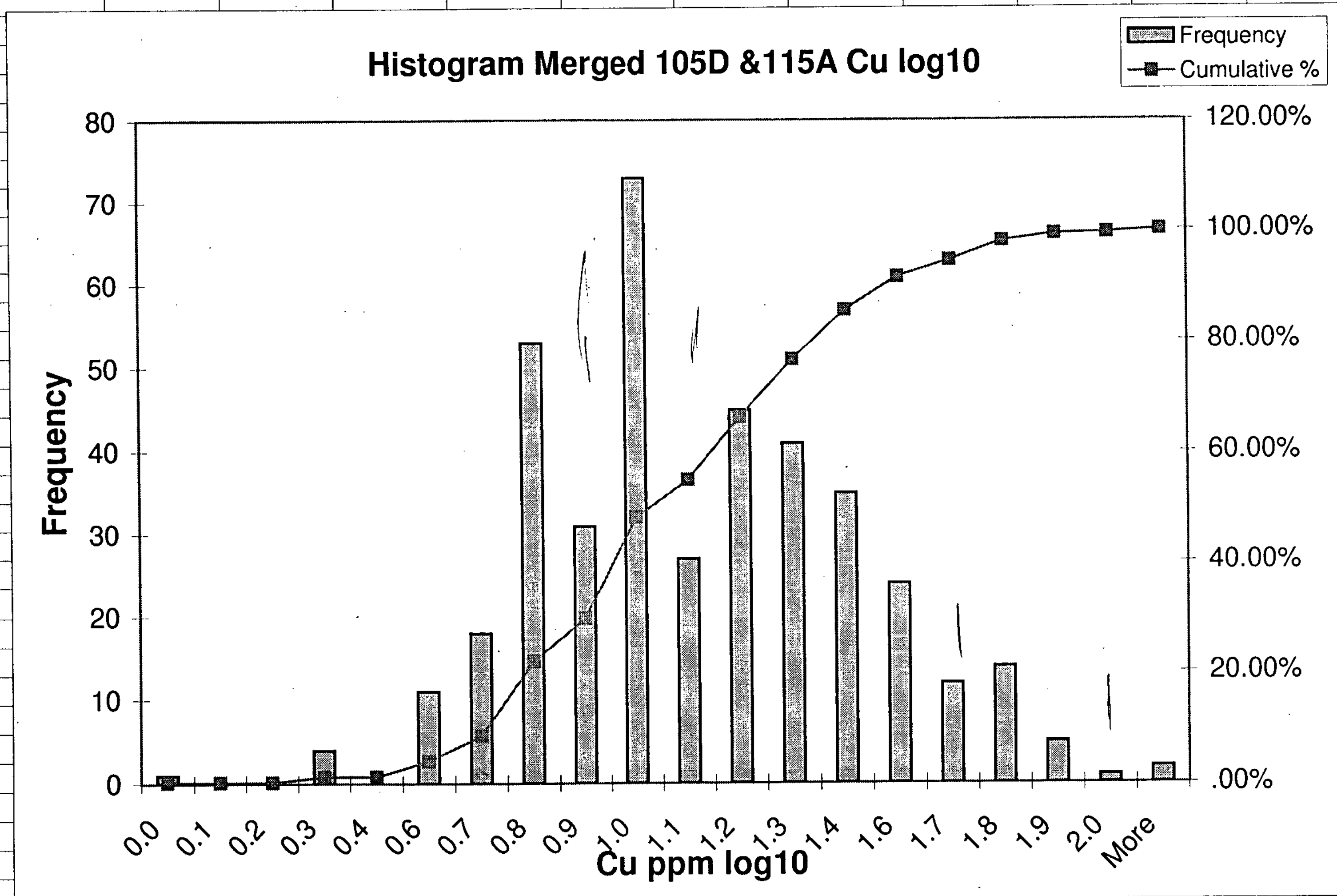
Descriptive Statistics	Zn ppm	Ph	F_w ppb	U_w ppb
Mean	80.78	6.91	119.49	0.42
Standard Error	2.62	0.03	8.00	0.15
Median	68	7	54	0.1
Mode	100.00	7.30	24.00	0.04
Standard Deviation	51.96	0.64	158.57	2.99
Sample Variance	2700.02	0.41	25144.51	8.95
Kurtosis	17.53	-0.17	9.69	352.65
Skewness	3.32	-0.63	2.85	18.37
Range	422	3.1	999.99	57.98001
Minimum	18	5.2	10.01	0.01999
Maximum	440	8.3	1010	58
Sum	31745.00	2716.60	46958.13	166.74
Count	393	393	393	393
Largest(1)	440	8.3	1010	58
Smallest(1)	18	5.2	10.01	0.01999
Confidence Level(95.0%)	5.153	0.064	15.726	0.297

merged 105D & 115A Copper		
Bin	*Frequency*	*umulative %*
1	1	.25%
8	117	29.72%
15	126	61.46%
21	60	76.57%
28	38	86.15%
35	18	90.68%
42	10	93.20%
49	7	94.96%
55	10	97.48%
62	2	97.98%
69	3	98.74%
76	2	99.24%
82	0	99.24%
89	0	99.24%
96	1	99.50%
103	0	99.50%
110	0	99.50%
116	0	99.50%
123	0	99.50%
More	2	100.00%



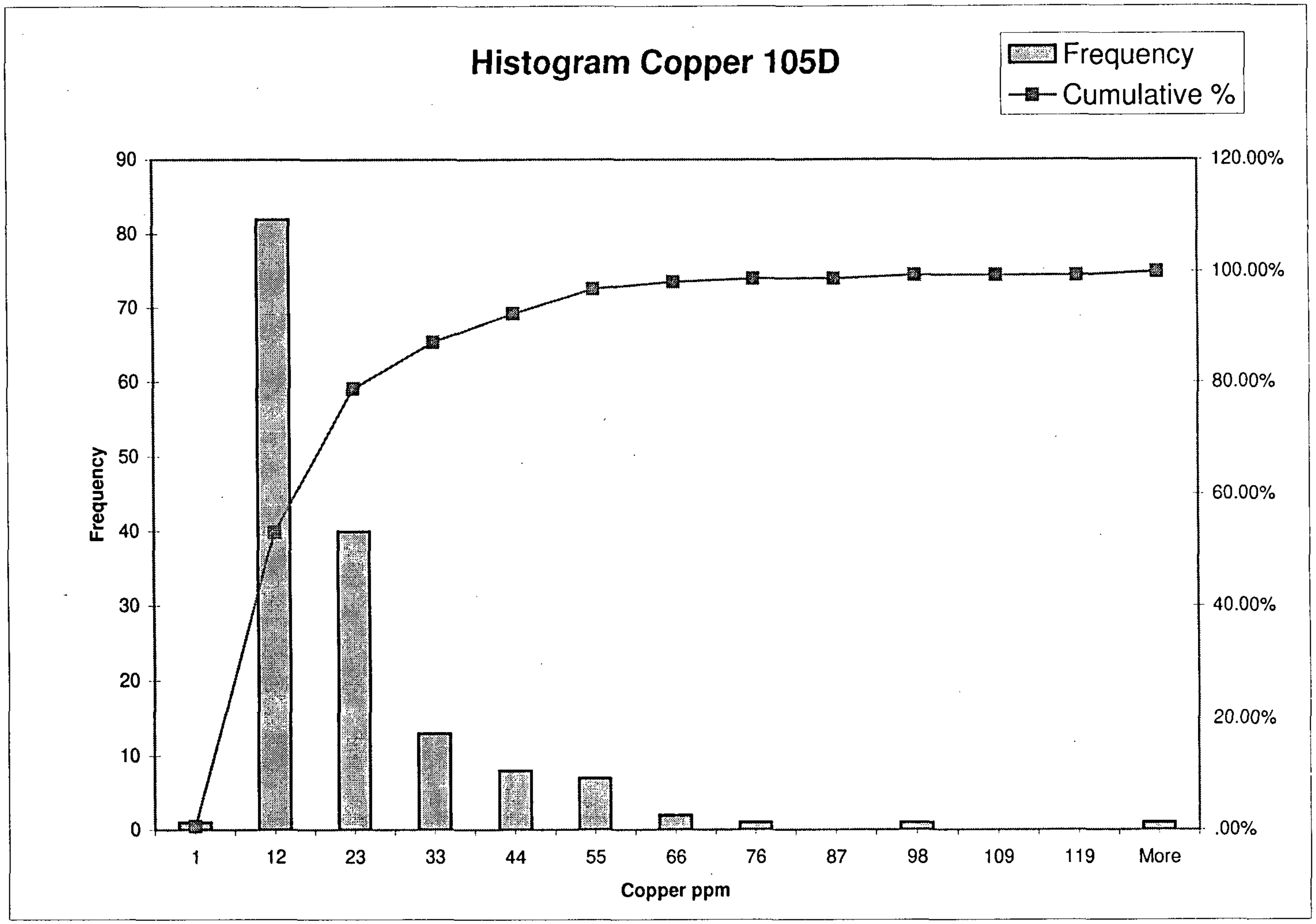
merged 105D & 115A Cu log 10

Bin	Frequency	Cumulative %
0.0	1	.25%
0.1	0	.25%
0.2	0	.25%
0.3	4	1.26%
0.4	0	1.26%
0.6	11	4.03%
0.7	18	8.56%
0.8	53	21.91%
0.9	31	29.72%
1.0	73	48.11%
1.1	27	54.91%
1.2	45	66.25%
1.3	41	76.57%
1.4	35	85.39%
1.6	24	91.44%
1.7	12	94.46%
1.8	14	97.98%
1.9	5	99.24%
2.0	1	99.50%
More	2	100.00%

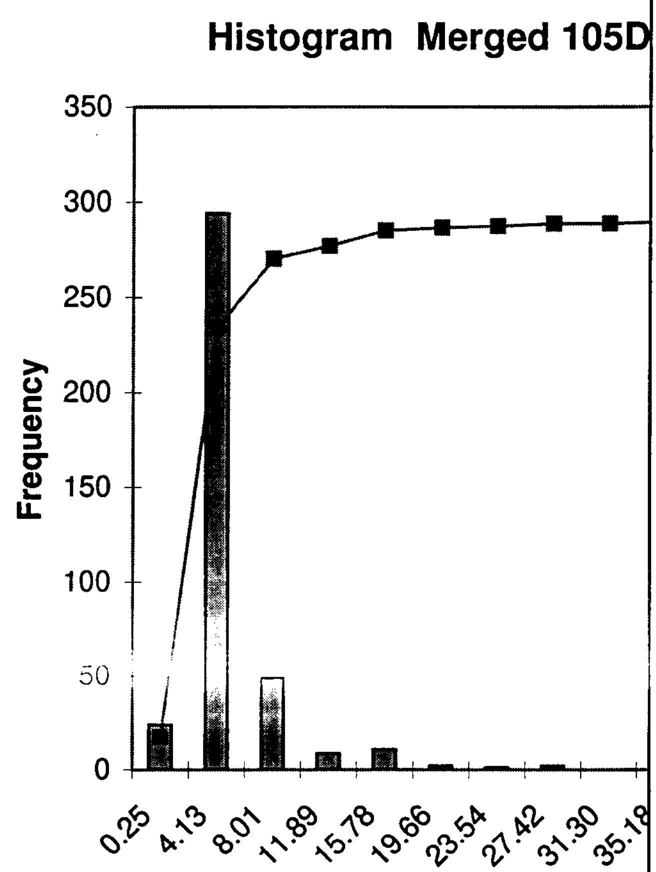


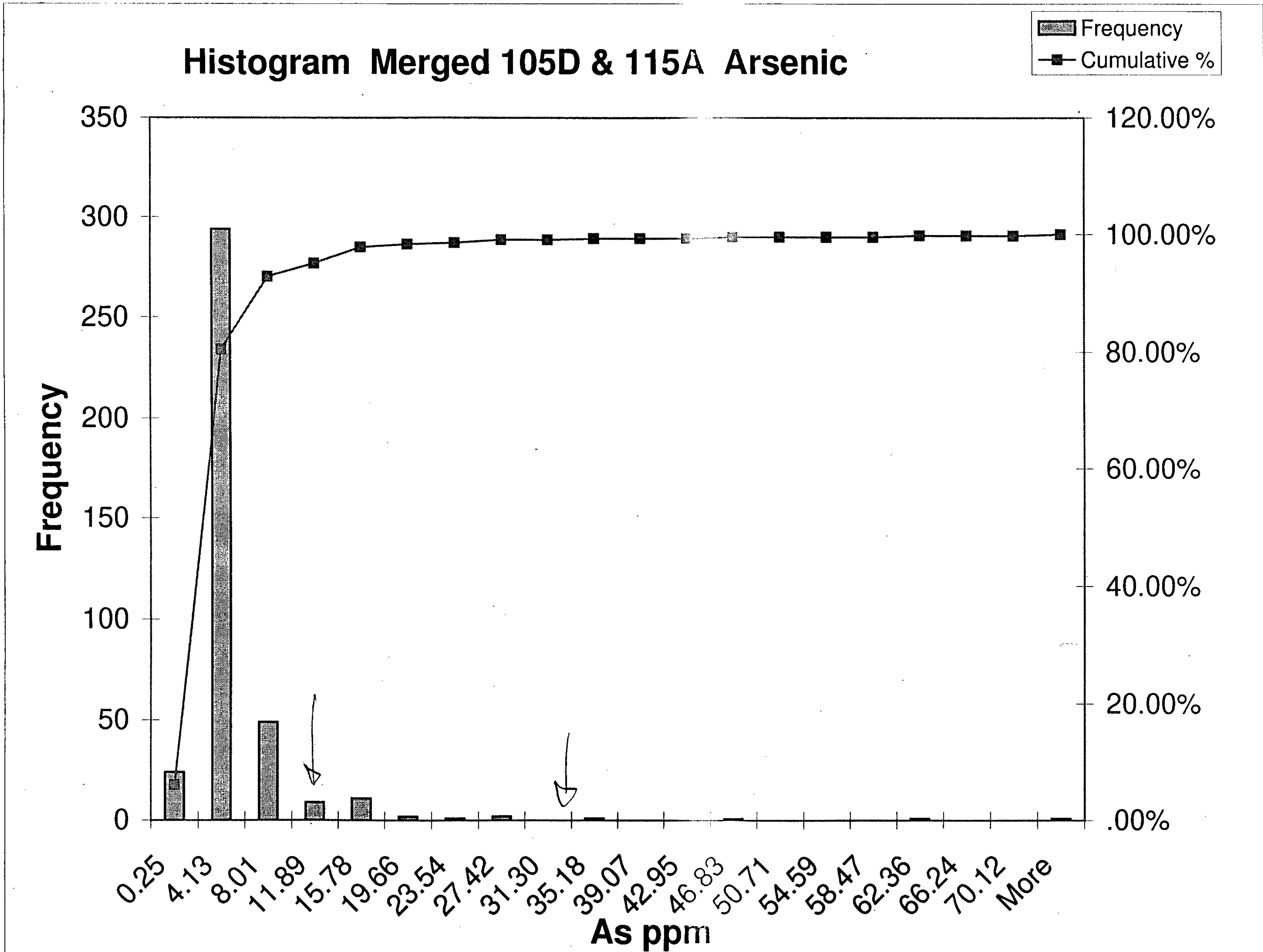
105D Copper

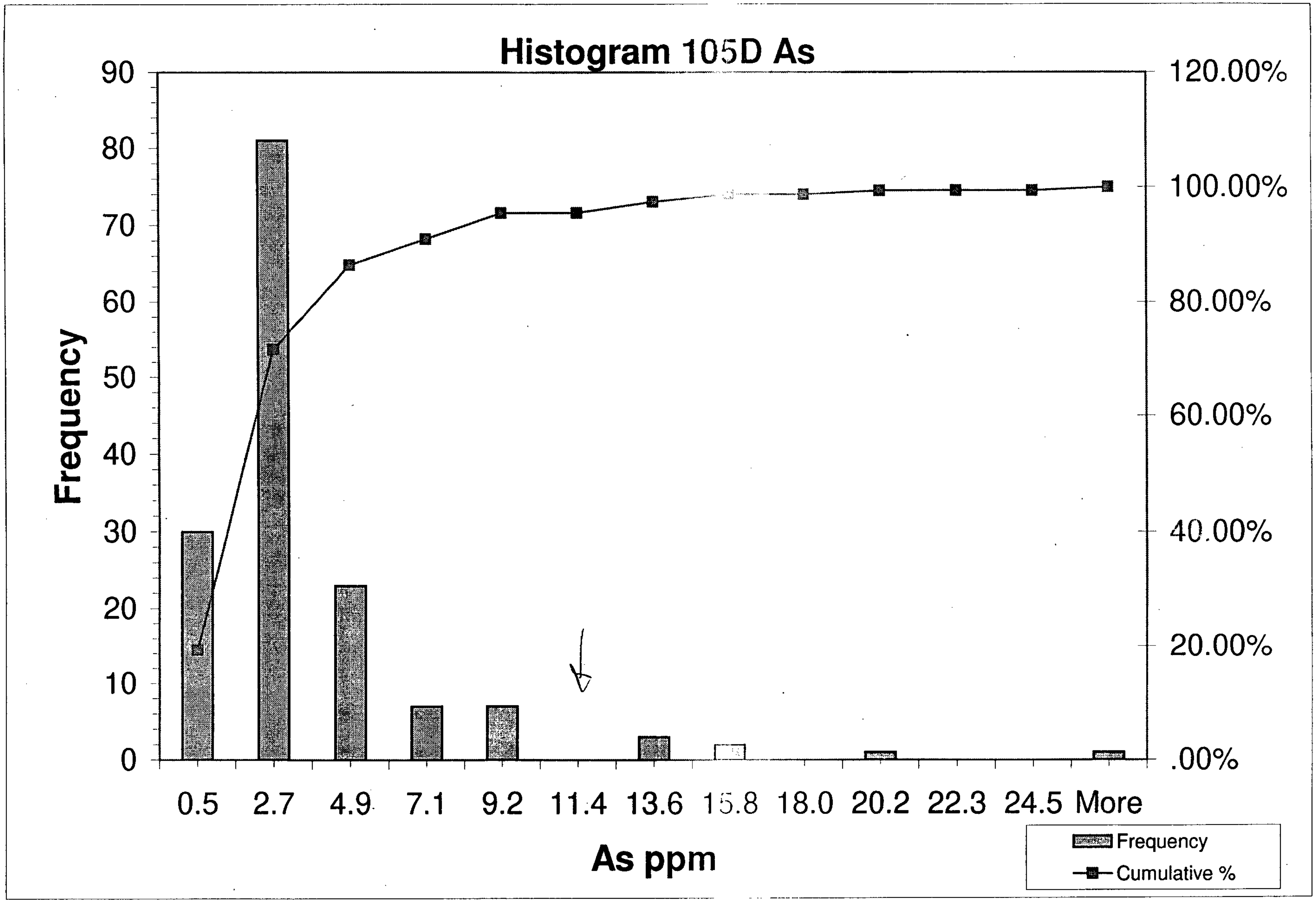
Bin	Frequency	Cumulative %
1	1	.64%
12	82	53.21%
23	40	78.85%
33	13	87.18%
44	8	92.31%
55	7	96.79%
66	2	98.08%
76	1	98.72%
87	0	98.72%
98	1	99.36%
109	0	99.36%
119	0	99.36%
More	1	100.00%



merged 105D and 115A arsenic		
Bin	*Frequency*	*Cumulative %*
0.25	24	6.06%
4.13	294	80.30%
8.01	49	92.68%
11.89	9	94.95%
15.78	11	97.73%
19.66	2	98.23%
23.54	1	98.48%
27.42	2	98.99%
31.30	0	98.99%
35.18	1	99.24%
39.07	0	99.24%
42.95	0	99.24%
46.83	1	99.49%
50.71	0	99.49%
54.59	0	99.49%
58.47	0	99.49%
62.36	1	99.75%
66.24	0	99.75%
70.12	0	99.75%
More	1	100.00%

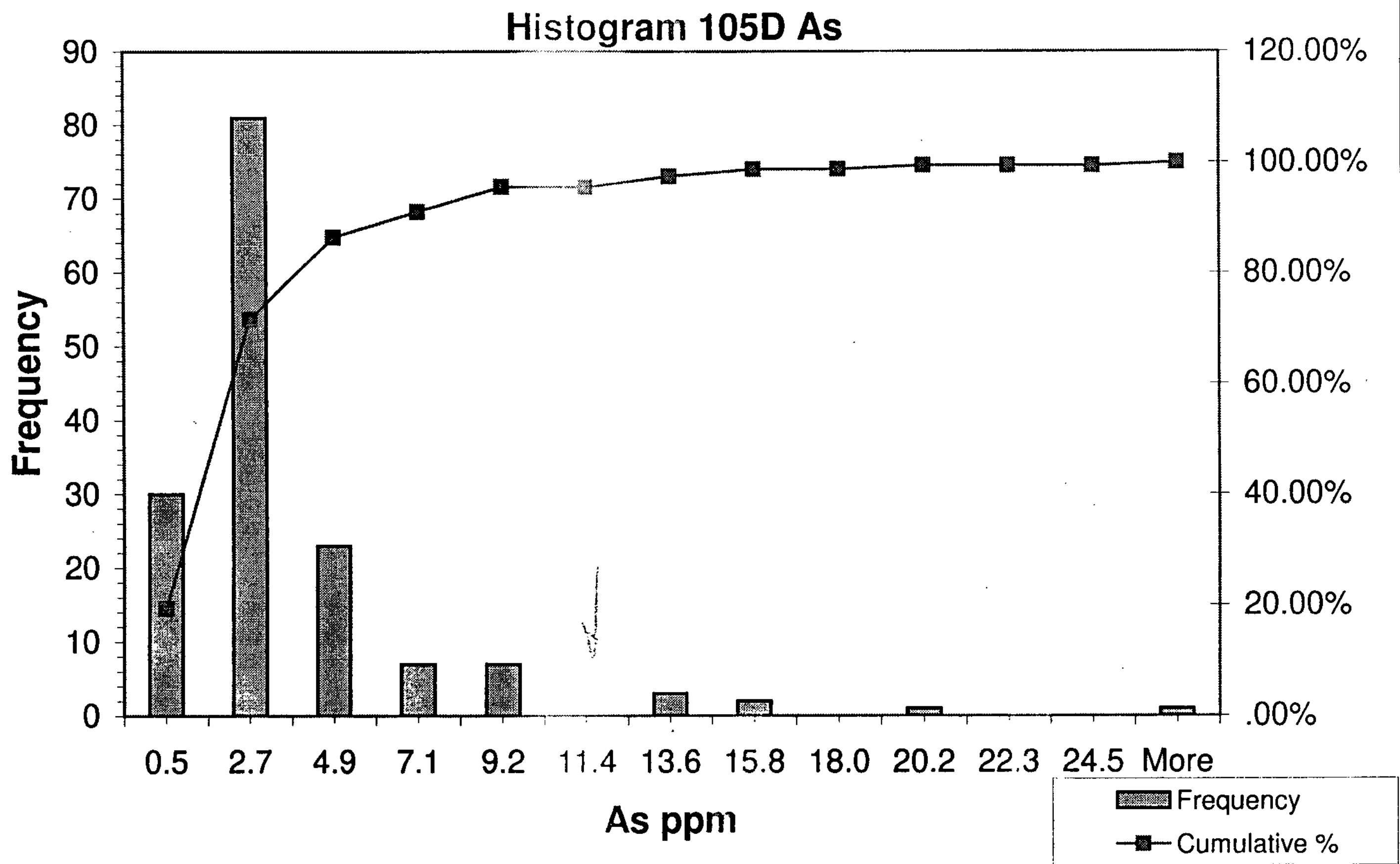



Histogram Merged 105D & 115A Arsenic
Frequency
Cumulative %
350
300
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
Frequency
0.25
4.13
8.01
11.89
15.78
19.66
23.54
27.42
31.30
35.18
39.07
42.95
46.83
50.71
54.59
58.47
62.36
66.24
70.12
More
As ppm

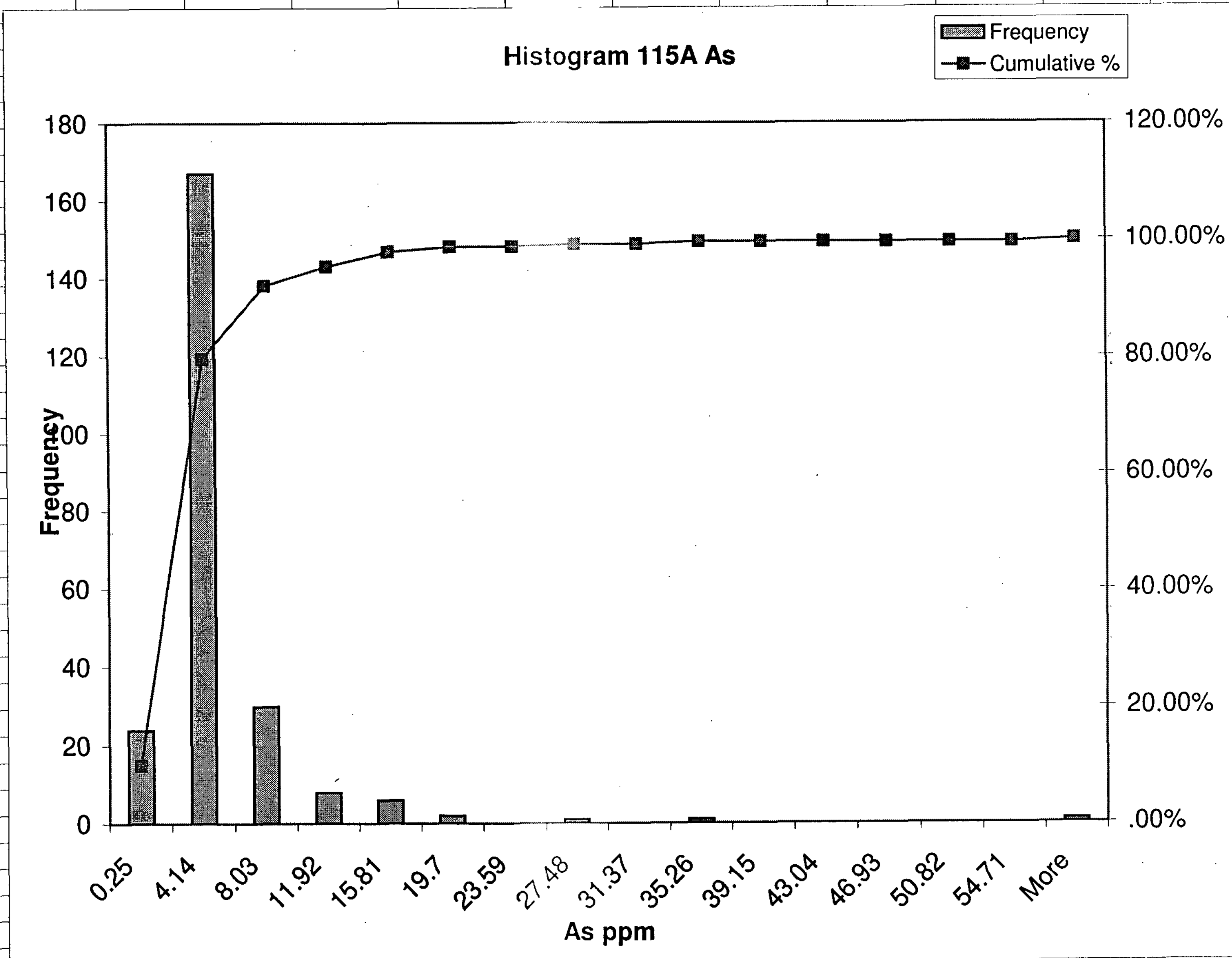


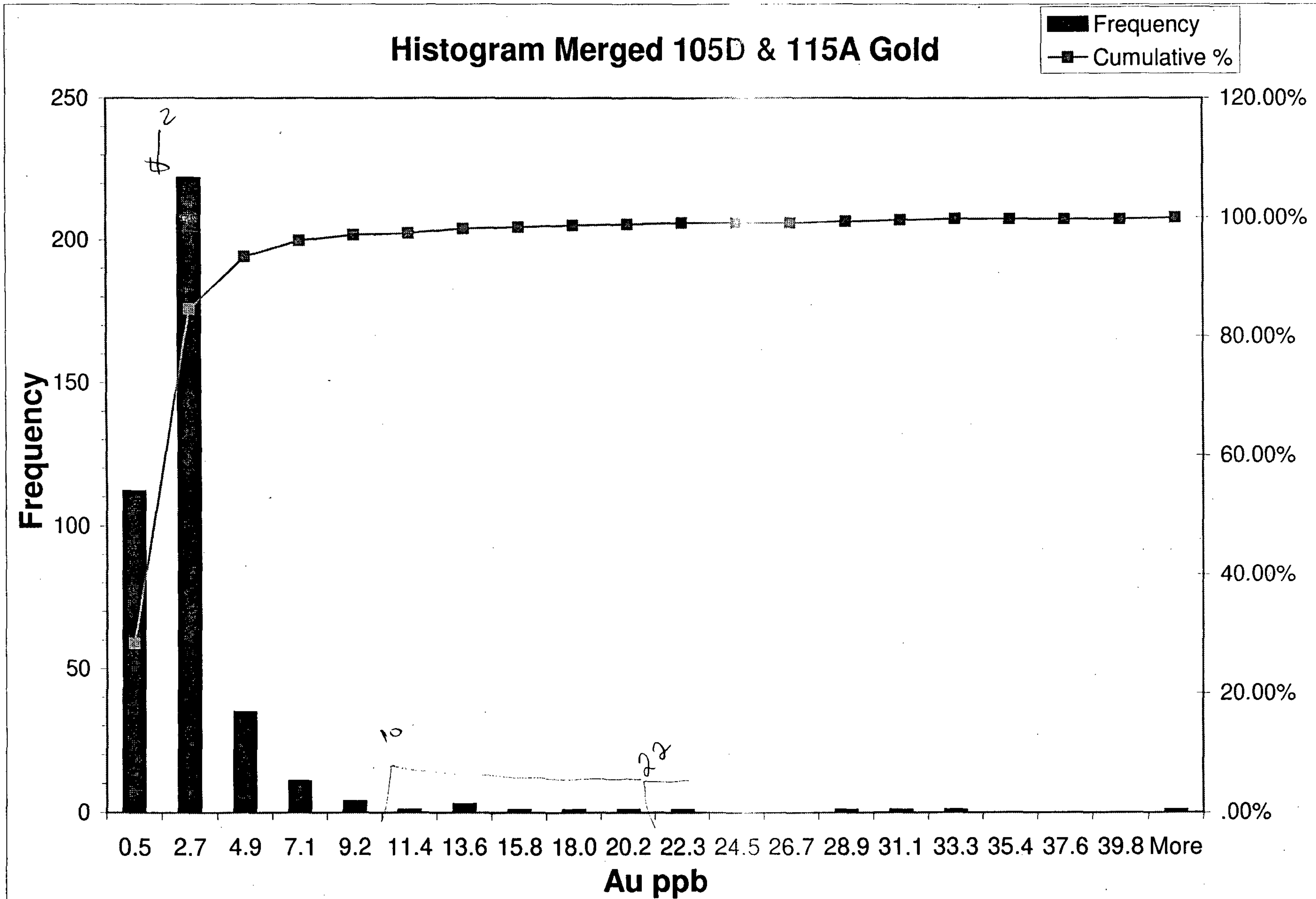
Histogram 105D As
Frequency
As ppm
0.5
2.7
4.9
7.1
9.2
11.4
13.6
15.8
18.0
20.2
22.3
24.5
More
0
10
20
30
40
50
60
70
80
90
.00%
20.00%
40.00%
60.00%
80.00%
100.00%
120.00%
Frequency
Cumulative %

105D As		
Bin	*Frequency*	*Cumulative %*
0.5	30	19.35%
2.7	81	71.61%
4.9	23	86.45%
7.1	7	90.97%
9.2	7	95.48%
11.4	0	95.48%
13.6	3	97.42%
15.8	2	98.71%
18.0	0	98.71%
20.2	1	99.35%
22.3	0	99.35%
24.5	0	99.35%
More	1	100.00%



115A As		
Bin	Frequency	Cumulative %
0.25	24	10.00%
4.14	167	79.58%
8.03	30	92.08%
11.92	8	95.42%
15.81	6	97.92%
19.7	2	98.75%
23.59	0	98.75%
27.48	1	99.17%
31.37	0	99.17%
35.26	1	99.58%
39.15	0	99.58%
43.04	0	99.58%
46.93	0	99.58%
50.82	0	99.58%
54.71	0	99.58%
More	1	100.00%

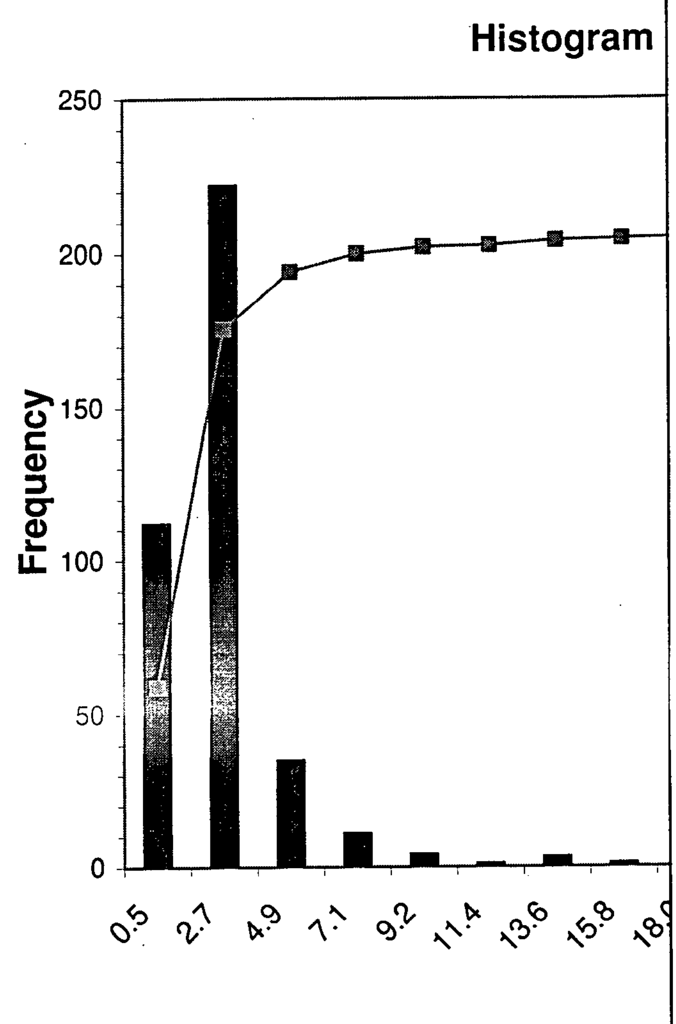


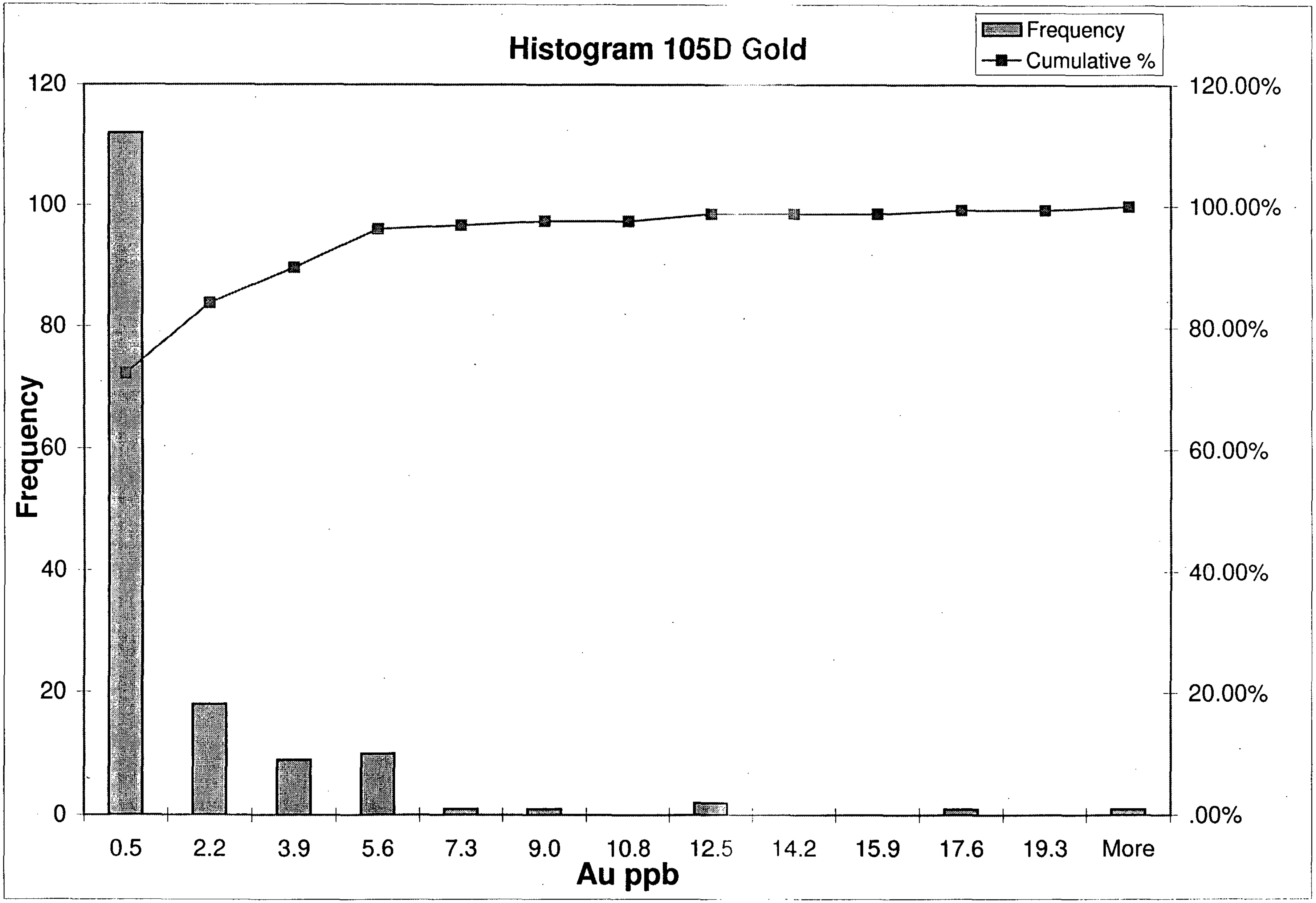


Histogram Merged 105D & 115A Gold
Frequency
Cumulative %
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
Frequency
0.5 2.7 4.9 7.1 9.2 11.4 13.6 15.8 18.0 20.2 22.3 24.5 26.7 28.9 31.1 33.3 35.4 37.6 39.8 More
Au ppb

merged 105D & 115A Gold

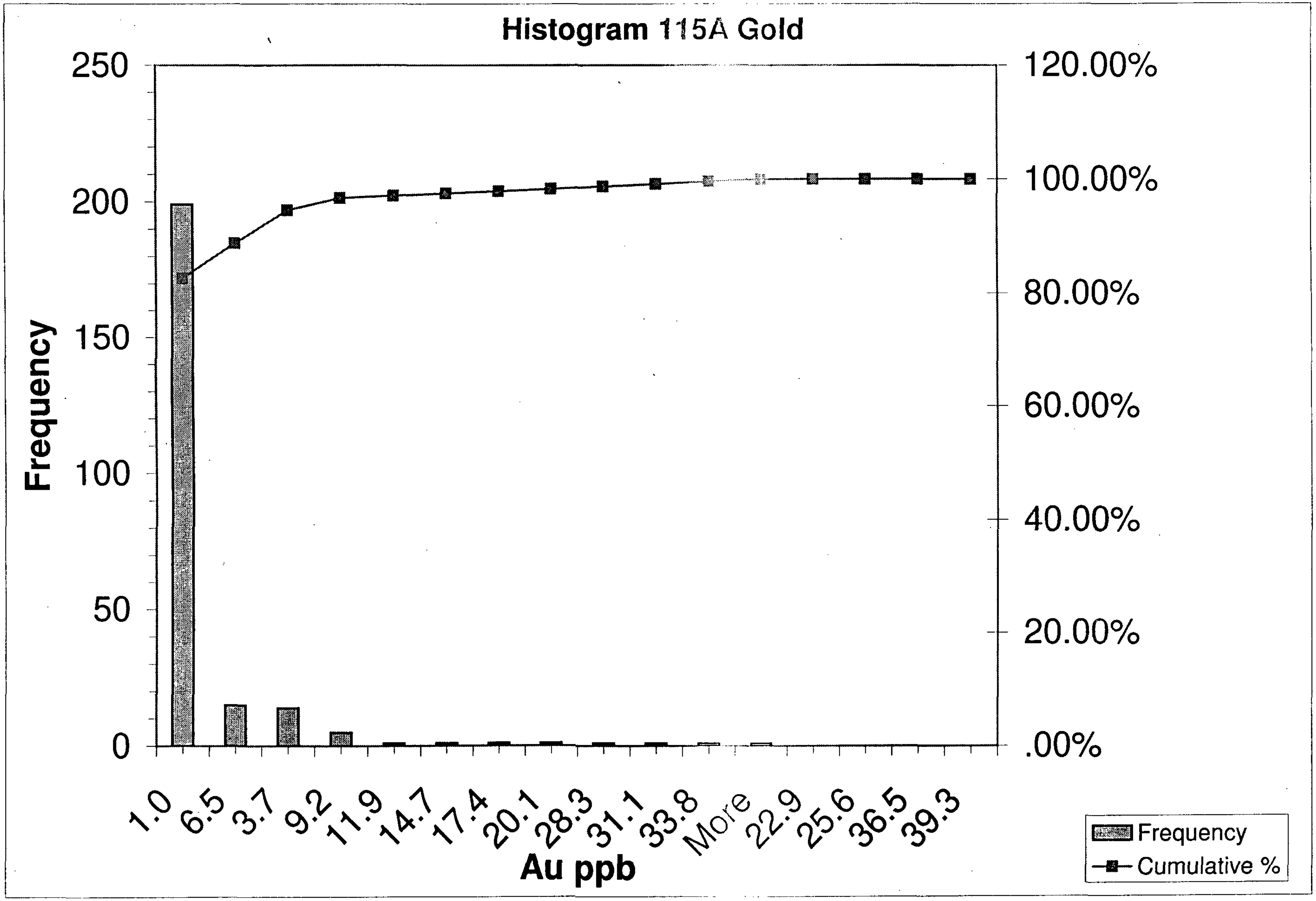
Bin	*Frequency*	*Cumulative %*
0.5	112	28.28%
2.7	222	84.34%
4.9	35	93.18%
7.1	11	95.96%
9.2	4	96.97%
11.4	1	97.22%
13.6	3	97.98%
15.8	1	98.23%
18.0	1	98.48%
20.2	1	98.74%
22.3	1	98.99%
24.5	0	98.99%
26.7	0	98.99%
28.9	1	99.24%
31.1	1	99.49%
33.3	1	99.75%
35.4	0	99.75%
37.6	0	99.75%
39.8	0	99.75%
More	1	100.00%





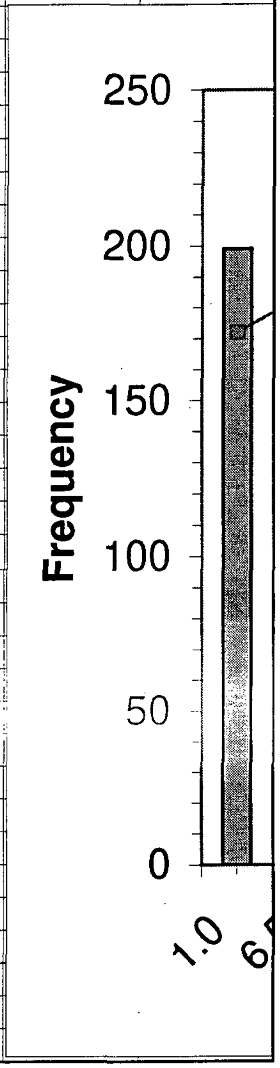
Histogram 105D Gold
Frequency
Cumulative %
120
100
80
60
40
20
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
0.5
2.2
3.9
5.6
7.3
9.0
10.8
12.5
14.2
15.9
17.6
19.3
More
Au ppb

105D Au		
Bin	*Frequency*	*Cumulative %*
0.5	112	72.26%
2.2	18	83.87%
3.9	9	89.68%
5.6	10	96.13%
7.3	1	96.77%
9.0	1	97.42%
10.8	0	97.42%
12.5	2	98.71%
14.2	0	98.71%
15.9	0	98.71%
17.6	1	99.35%
19.3	0	99.35%
More	1	100.00%



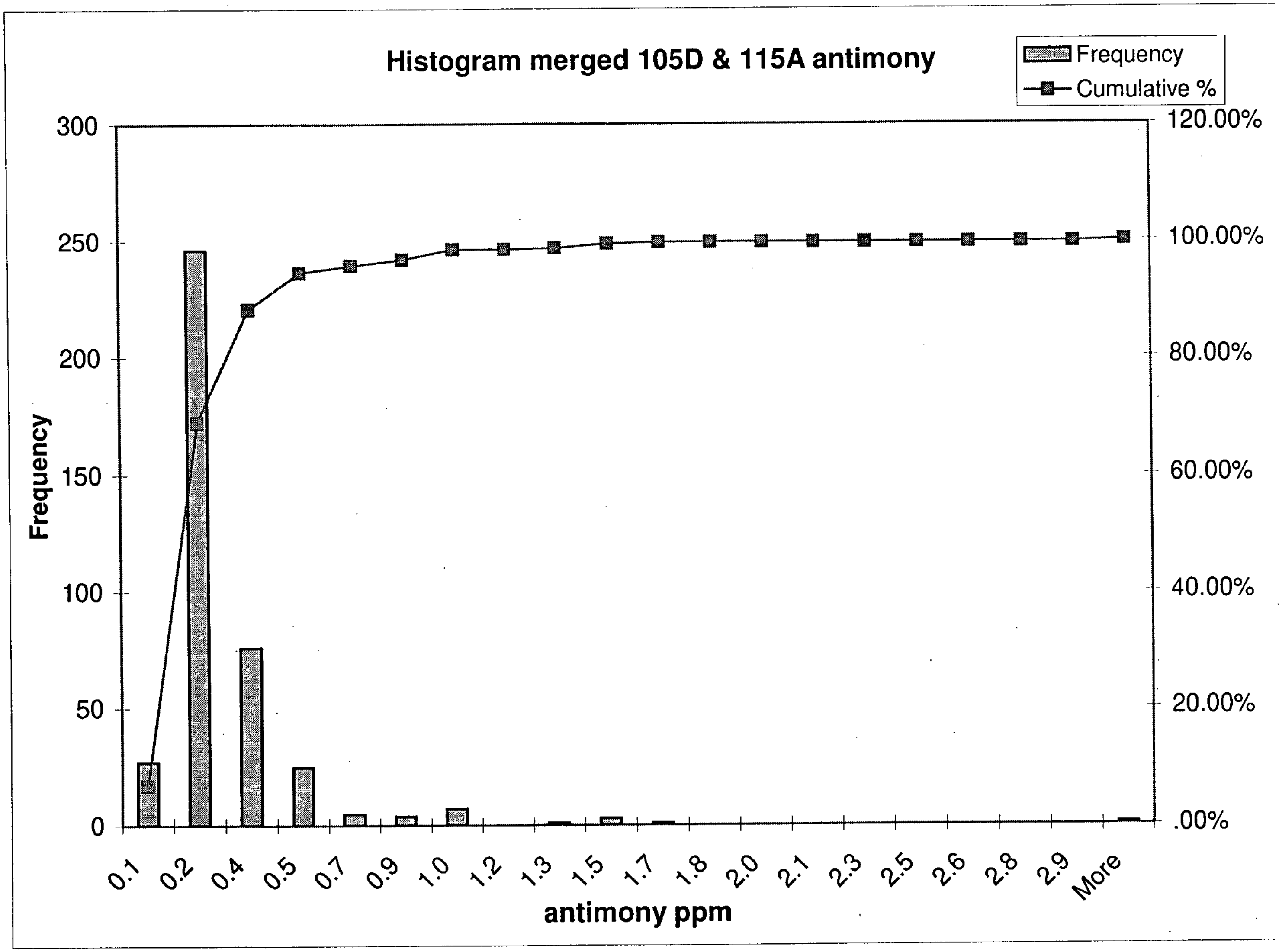
Histogram 115A Gold
Frequency
250
200
150
100
50
0
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
.00%
1.0
6.5
3.7
9.2
11.9
14.7
17.4
20.1
28.3
31.1
33.8
More
22.9
25.6
36.5
39.3
Au ppb
Frequency
Cumulative %

115A Au					
Bin	*Frequency*	*Cumulative %*	*Bin*	*Frequency*	*Cumulative %*
1.0	199	82.57%	1.0	199	82.57%
3.7	14	88.38%	6.5	15	88.80%
6.5	15	94.61%	3.7	14	94.61%
9.2	5	96.68%	9.2	5	96.68%
11.9	1	97.10%	11.9	1	97.10%
14.7	1	97.51%	14.7	1	97.51%
17.4	1	97.93%	17.4	1	97.93%
20.1	1	98.34%	20.1	1	98.34%
22.9	0	98.34%	28.3	1	98.76%
25.6	0	98.34%	31.1	1	99.17%
28.3	1	98.76%	33.8	1	99.59%
31.1	1	99.17%	More	1	100.00%
33.8	1	99.59%	22.9	0	100.00%
36.5	0	99.59%	25.6	0	100.00%
39.3	0	99.59%	36.5	0	100.00%
More	1	100.00%	39.3	0	100.00%



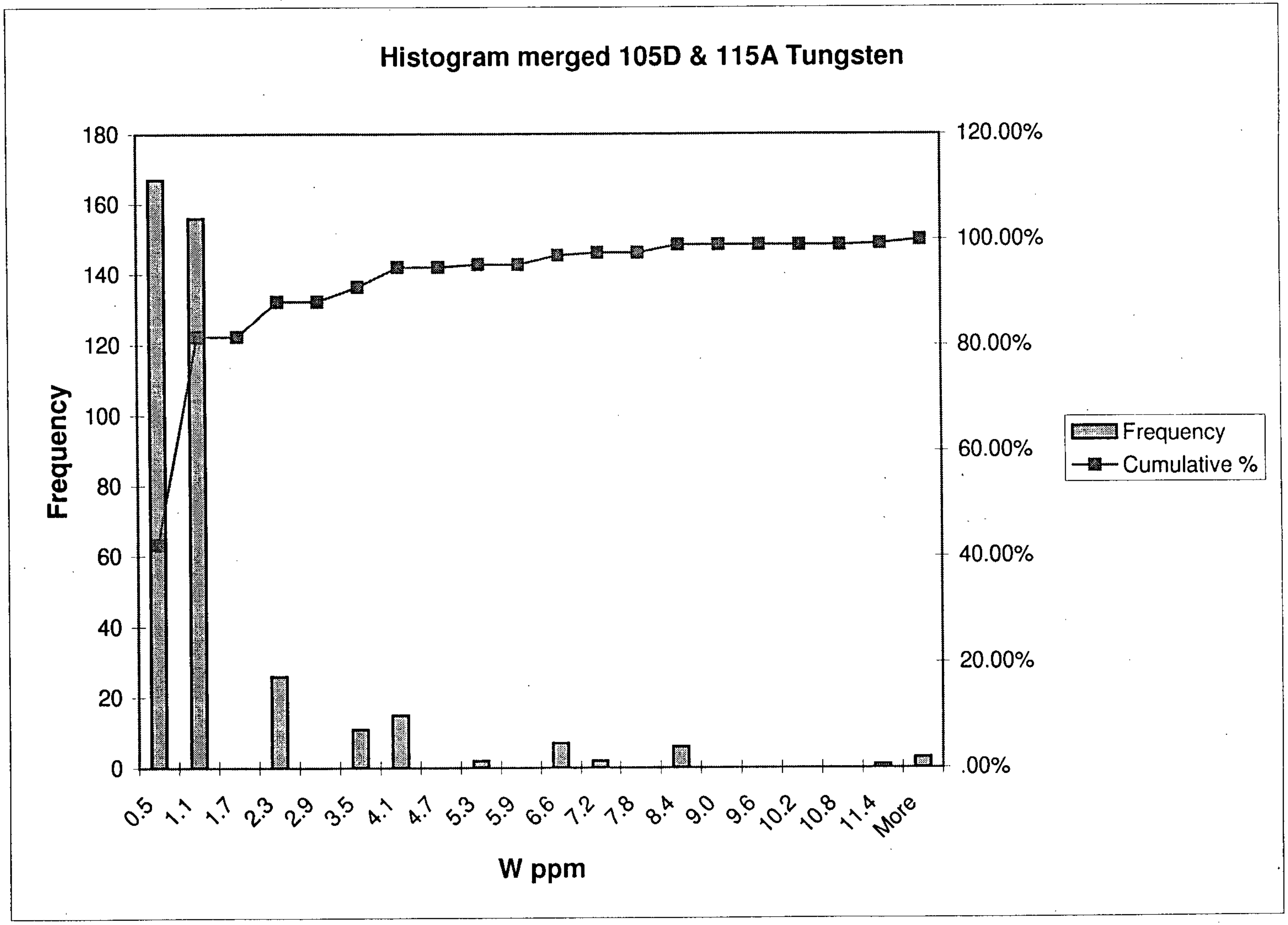
Merged 105D &115A Antimony

Bin	*Frequency*	*Cumulative %*
0.1	27	6.82%
0.2	246	68.94%
0.4	76	88.13%
0.5	25	94.44%
0.7	5	95.71%
0.9	4	96.72%
1.0	7	98.48%
1.2	0	98.48%
1.3	1	98.74%
1.5	3	99.49%
1.7	1	99.75%
1.8	0	99.75%
2.0	0	99.75%
2.1	0	99.75%
2.3	0	99.75%
2.5	0	99.75%
2.6	0	99.75%
2.8	0	99.75%
2.9	0	99.75%
More	1	100.00%



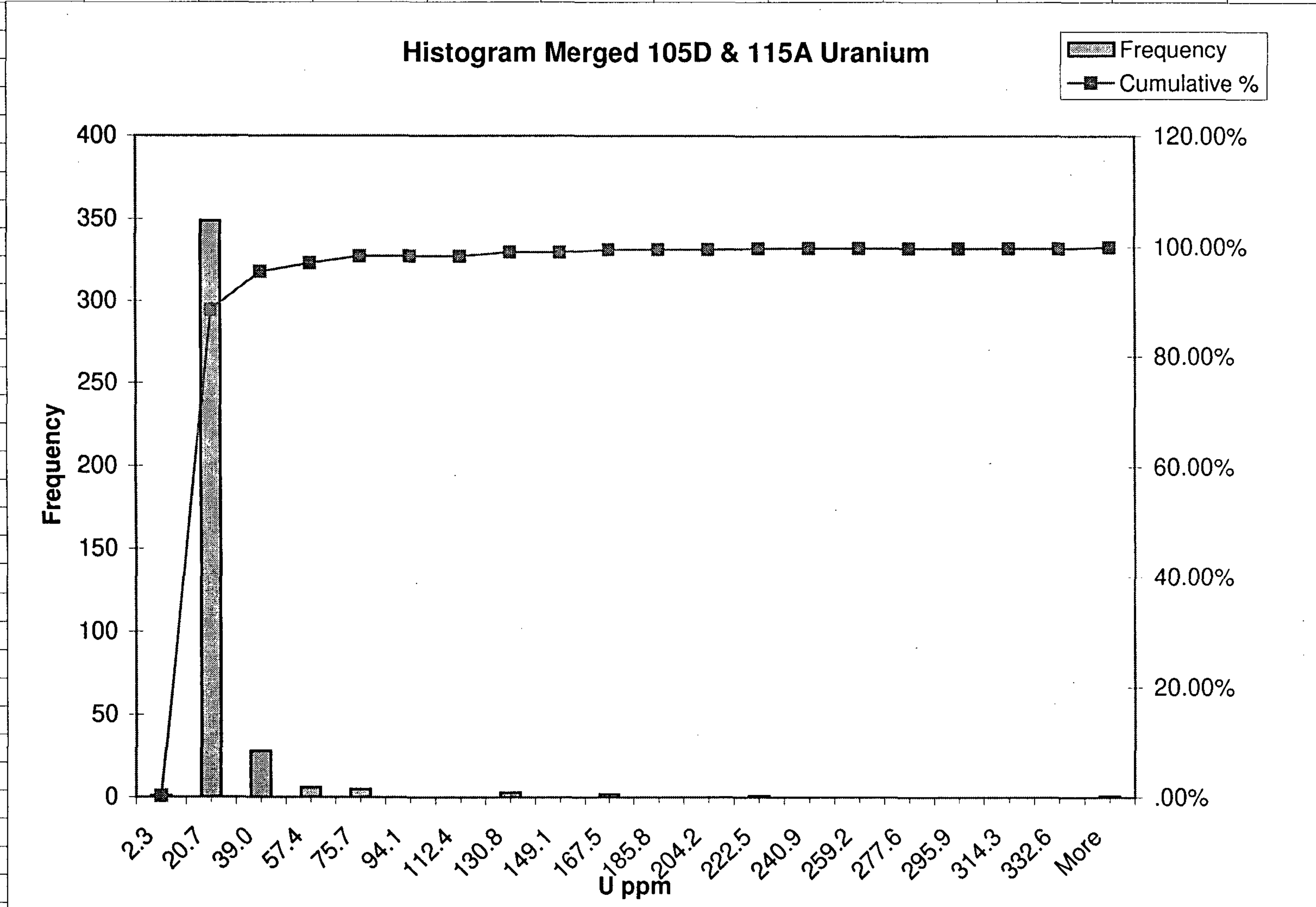
Merged 105D and 115A Tungsten

Bin	*Frequency*	*Cumulative %*
0.5	167	42.17%
1.1	156	81.57%
1.7	0	81.57%
2.3	26	88.13%
2.9	0	88.13%
3.5	11	90.91%
4.1	15	94.70%
4.7	0	94.70%
5.3	2	95.20%
5.9	0	95.20%
6.6	7	96.97%
7.2	2	97.47%
7.8	0	97.47%
8.4	6	98.99%
9.0	0	98.99%
9.6	0	98.99%
10.2	0	98.99%
10.8	0	98.99%
11.4	1	99.24%
More	3	100.00%



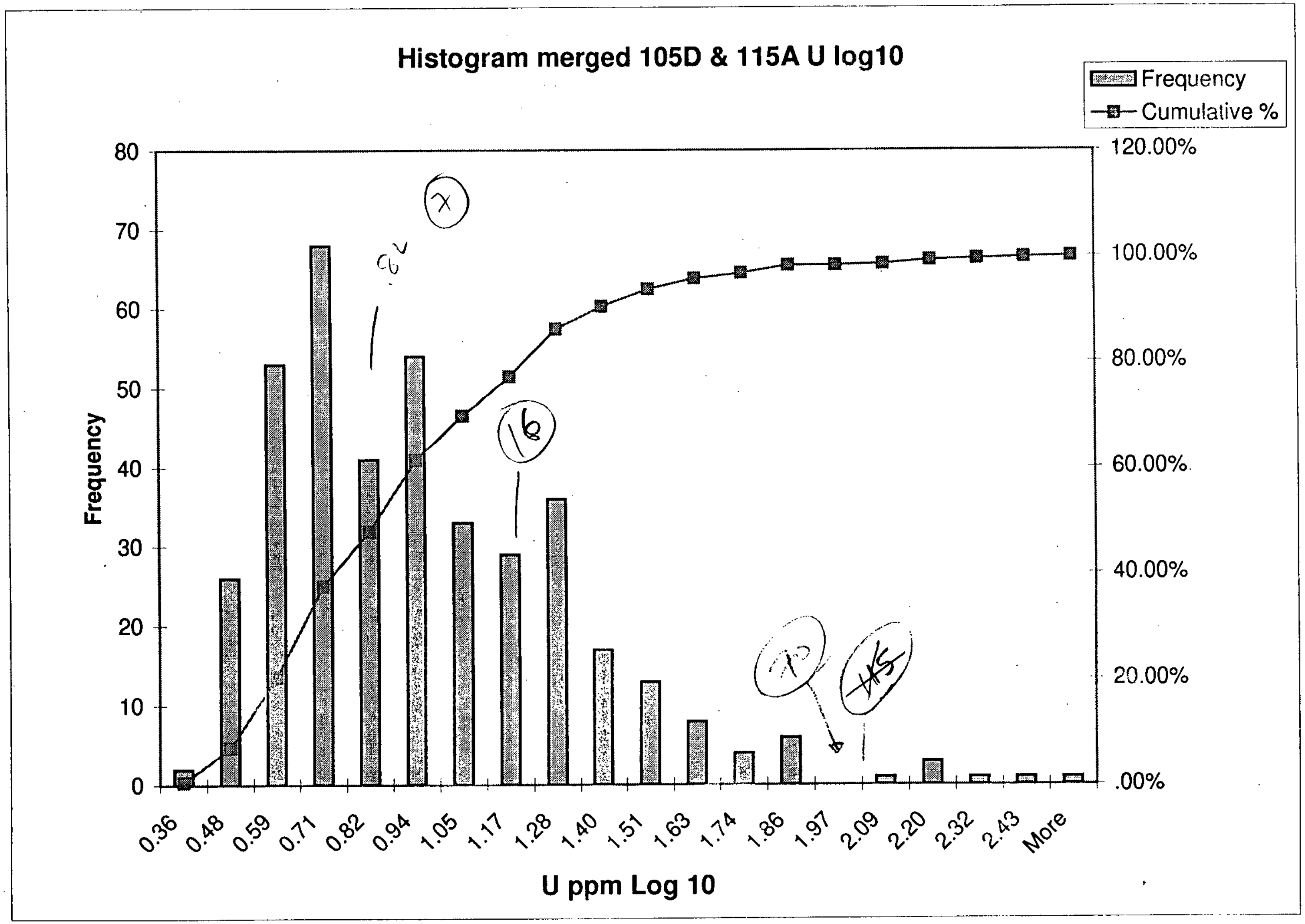
merged 105D & 115A Uranium

Bin	Frequency	Cumulative %
2.3	1	.25%
20.7	349	88.38%
39.0	28	95.45%
57.4	6	96.97%
75.7	5	98.23%
94.1	0	98.23%
112.4	0	98.23%
130.8	3	98.99%
149.1	0	98.99%
167.5	2	99.49%
185.8	0	99.49%
204.2	0	99.49%
222.5	1	99.75%
240.9	0	99.75%
259.2	0	99.75%
277.6	0	99.75%
295.9	0	99.75%
314.3	0	99.75%
332.6	0	99.75%
More	1	100.00%



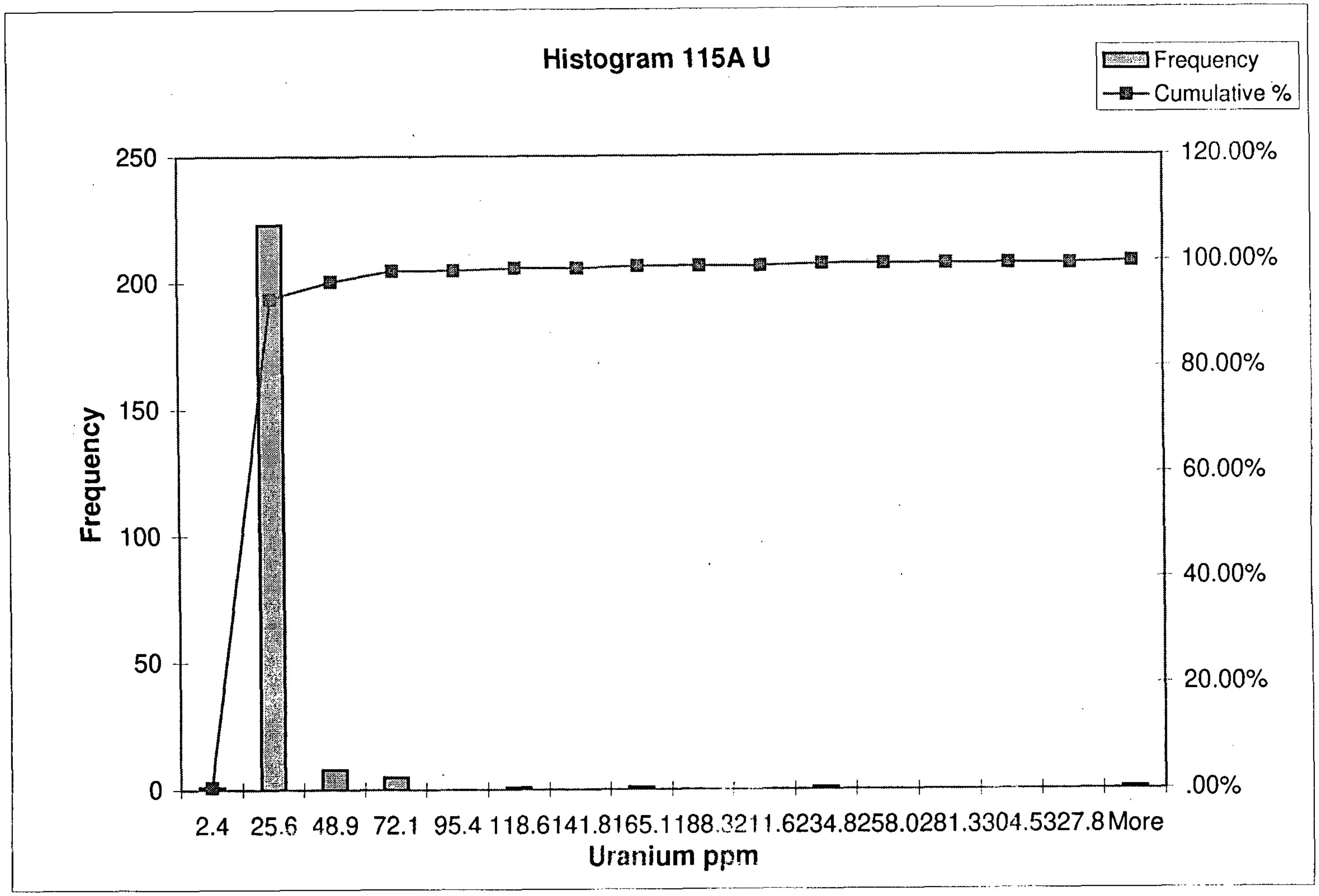
115A &105D U log10

Bin	*Frequency*	*Cumulative %*
0.36	2	.50%
0.48	26	7.05%
0.59	53	20.40%
0.71	68	37.53%
0.82	41	47.86%
0.94	54	61.46%
1.05	33	69.77%
1.17	29	77.08%
1.28	36	86.15%
1.40	17	90.43%
1.51	13	93.70%
1.63	8	95.72%
1.74	4	96.73%
1.86	6	98.24%
1.97	0	98.24%
2.09	1	98.49%
2.20	3	99.24%
2.32	1	99.50%
2.43	1	99.75%
More	1	100.00%

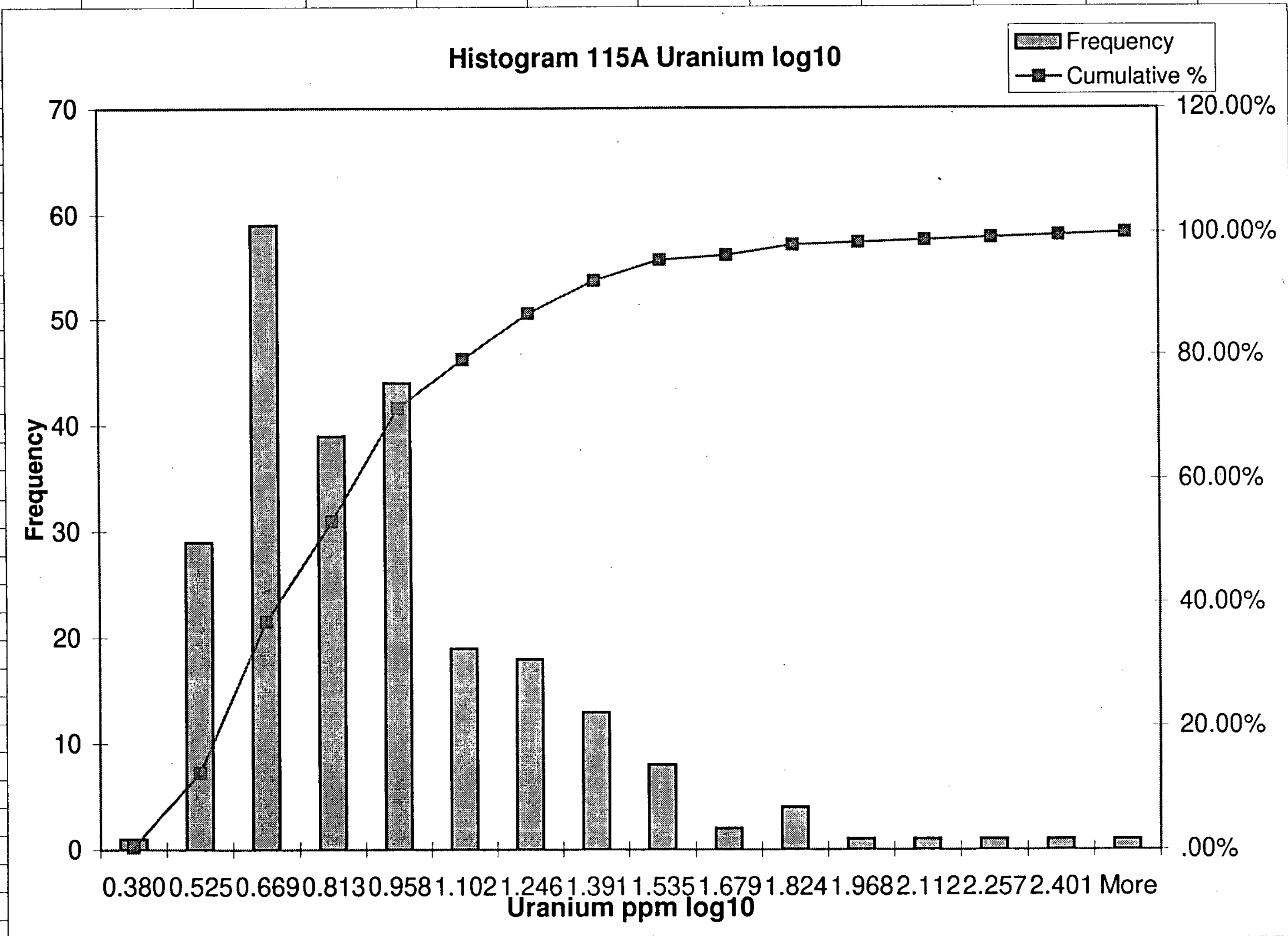


115A U

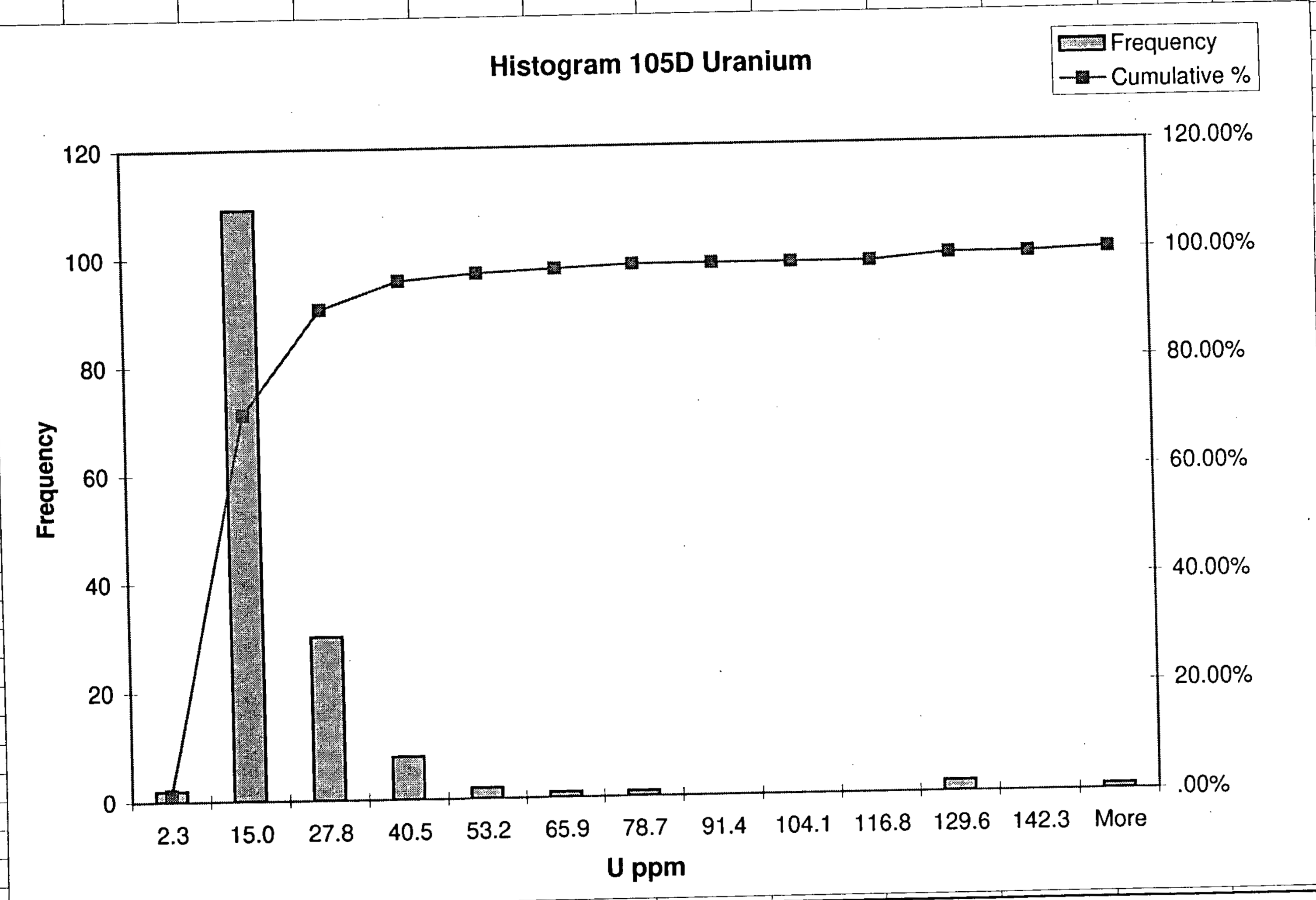
Bin	*Frequency*	*Cumulative %*
2.4	1	.41%
25.6	223	92.95%
48.9	8	96.27%
72.1	5	98.34%
95.4	0	98.34%
118.6	1	98.76%
141.8	0	98.76%
165.1	1	99.17%
188.3	0	99.17%
211.6	0	99.17%
234.8	1	99.59%
258.0	0	99.59%
281.3	0	99.59%
304.5	0	99.59%
327.8	0	99.59%
More	1	100.00%



115 A Uranium log10		
Bin	*Frequency*	*umulative %*
0.380	1	.41%
0.525	29	12.45%
0.669	59	36.93%
0.813	39	53.11%
0.958	44	71.37%
1.102	19	79.25%
1.246	18	86.72%
1.391	13	92.12%
1.535	8	95.44%
1.679	2	96.27%
1.824	4	97.93%
1.968	1	98.34%
2.112	1	98.76%
2.257	1	99.17%
2.401	1	99.59%
More	1	100.00%

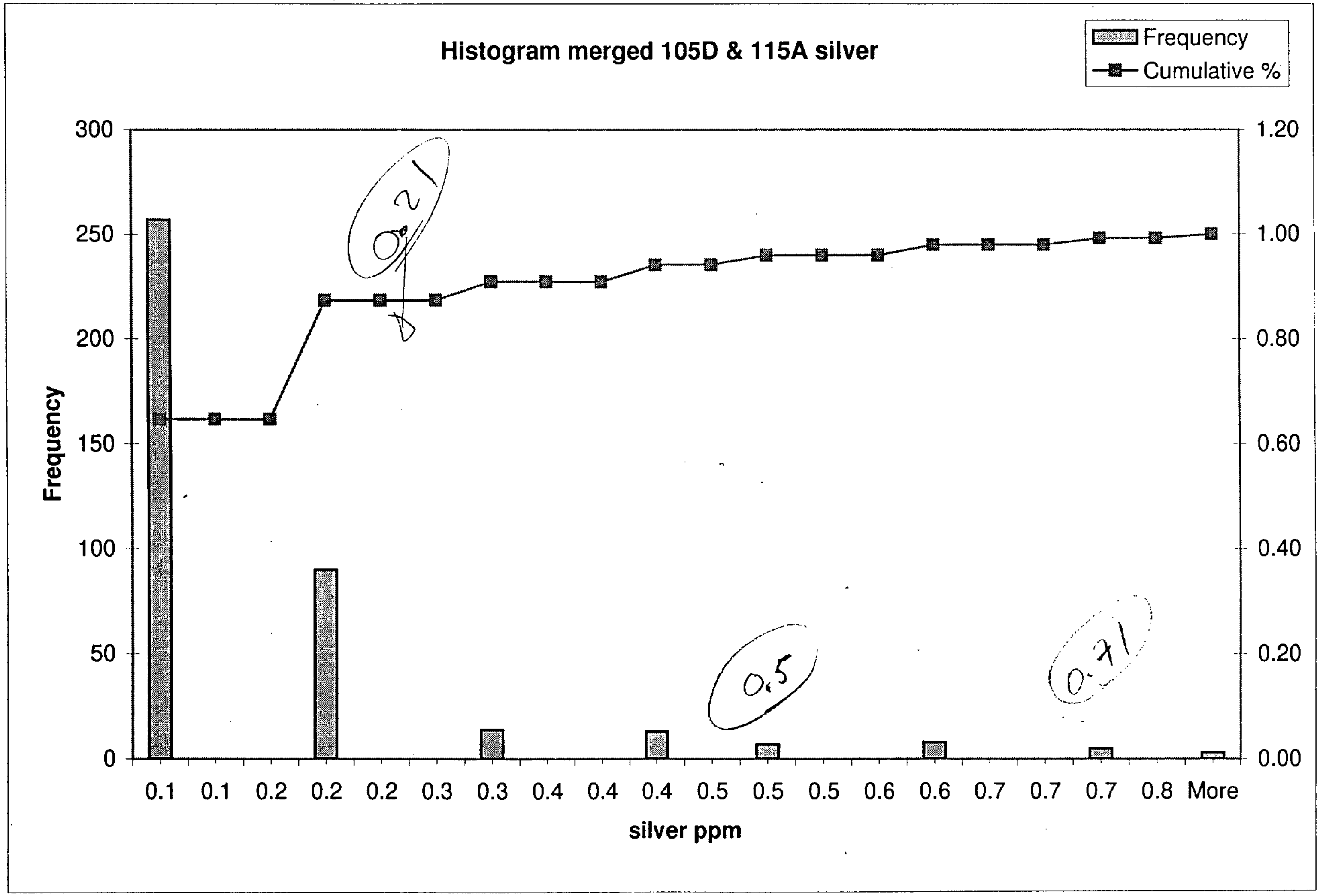


105D U		
Bin	Frequency	Cumulative %
2.3	2	1.28%
15.0	109	71.15%
27.8	30	90.38%
40.5	8	95.51%
53.2	2	96.79%
65.9	1	97.44%
78.7	1	98.08%
91.4	0	98.08%
104.1	0	98.08%
116.8	0	98.08%
129.6	2	99.36%
142.3	0	99.36%
More	1	100.00%



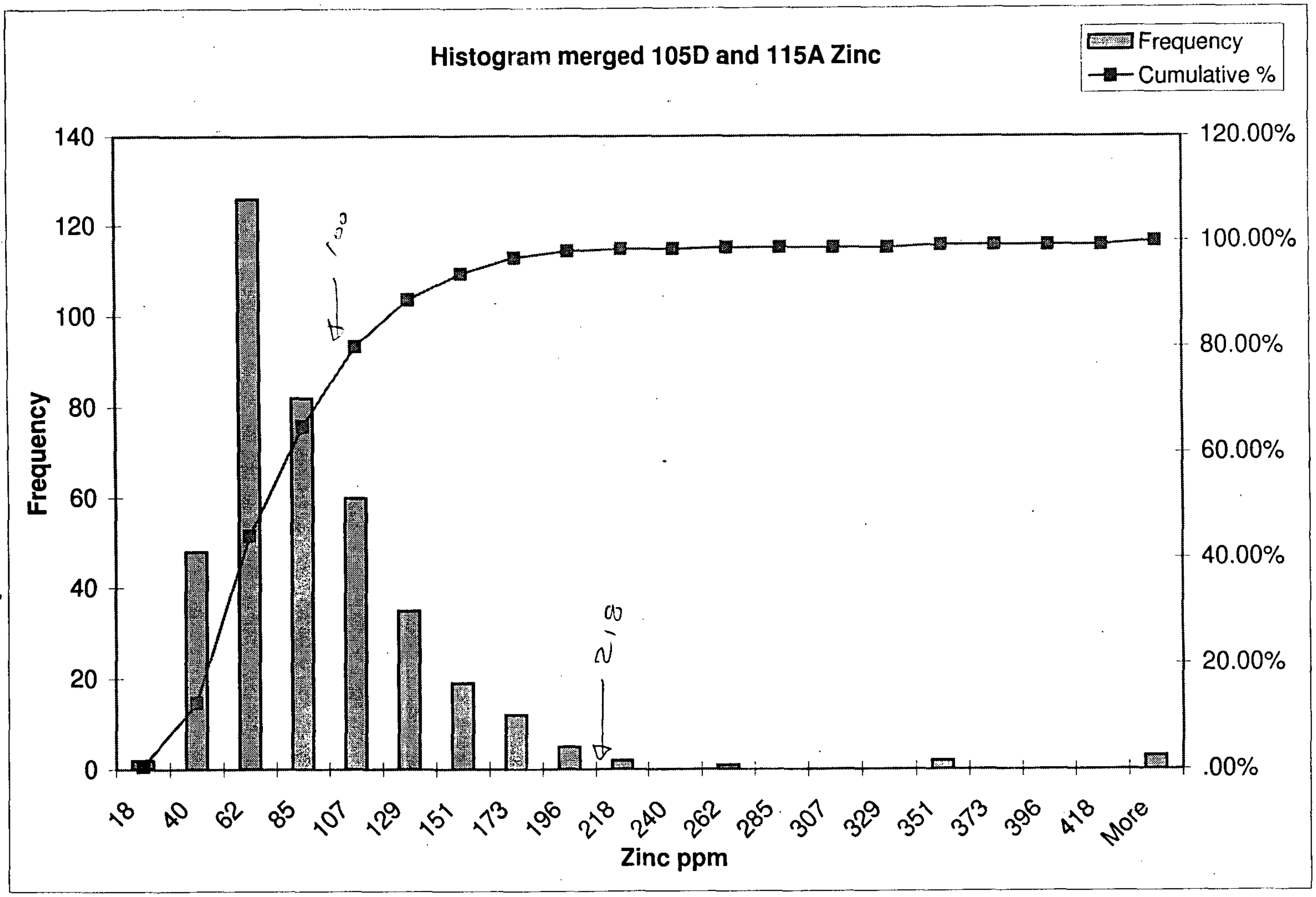
Merged 105D & 115A silver

Bin	*Frequency*	*Cumulative %*
0.1	257	64.74%
0.1	0	64.74%
0.2	0	64.74%
0.2	90	87.41%
0.2	0	87.41%
0.3	0	87.41%
0.3	14	90.93%
0.4	0	90.93%
0.4	0	90.93%
0.4	13	94.21%
0.5	0	94.21%
0.5	7	95.97%
0.5	0	95.97%
0.6	0	95.97%
0.6	8	97.98%
0.7	0	97.98%
0.7	0	97.98%
0.7	5	99.24%
0.8	0	99.24%
More	3	100.00%



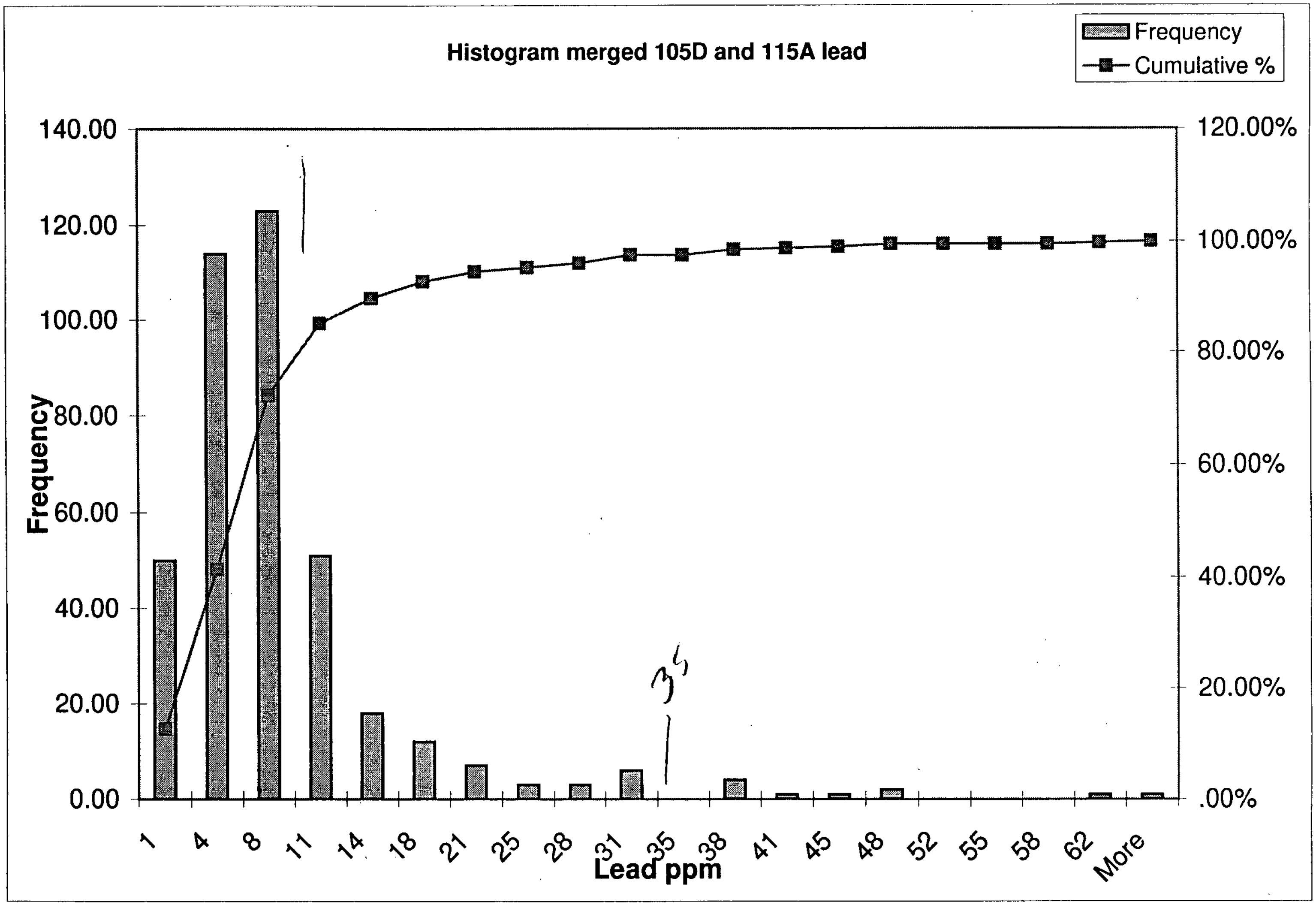
Merged 105D and 115A zinc

Bin	*Frequency*	*Cumulative %*
18	2	.50%
40	48	12.59%
62	126	44.33%
85	82	64.99%
107	60	80.10%
129	35	88.92%
151	19	93.70%
173	12	96.73%
196	5	97.98%
218	2	98.49%
240	0	98.49%
262	1	98.74%
285	0	98.74%
307	0	98.74%
329	0	98.74%
351	2	99.24%
373	0	99.24%
396	0	99.24%
418	0	99.24%
More	3	100.00%



Merged 105D and 115A lead

Bin	*Frequency*	*Cumulative %*
1	50	12.59%
4	114	41.31%
8	123	72.29%
11	51	85.14%
14	18	89.67%
18	12	92.70%
21	7	94.46%
25	3	95.21%
28	3	95.97%
31	6	97.48%
35	0	97.48%
38	4	98.49%
41	1	98.74%
45	1	98.99%
48	2	99.50%
52	0	99.50%
55	0	99.50%
58	0	99.50%
62	1	99.75%
More	1	100.00%



Appendix C

2002 Analytical Procedures and Quality Control

Energy Mines and Resources, Yukon Geology Program
2002 Mineral Assessment

Geochemical Analysis

Laboratory Procedures

Northern Analytical Laboratories Ltd., of Whitehorse, secured the 2002 contract to supply geochemical analysis to the Mineral Assessment branch of the Yukon Geology Program. Northern Analytical Laboratories Ltd. in turn subcontracted Analytical Laboratories Limited, of Vancouver, B.C. to carry out the geochemical determinations. All samples; rock, soil and steam sediment were submitted to Northern Analytical Laboratories Ltd. for sample preparation and then shipped to Acme Analytical Laboratories Limited for analysis by ICP-MS.

The attached sheets supplied by Acme Analytical Laboratories Limited and Northern Analytical Laboratories Ltd. summarizes the analytical methodology and sample preparation procedures respectively. Also shown are the elements analyzed for and their detection limits. Gold analysis was ideally done on 30gm pulps but where there was insufficient material Au analysis was done on a 15gm, 7.5gm or 5gm sample (as applicable). Analytical results were sent to the Yukon Geology Program in both digital and paper form. The digital results were merged with the digital sample location data and converted from MS Excel file to an MS Access database.

Quality Control

In addition to Acme Analytical Laboratories Limited's internal sample standards and duplicates Yukon Geology Program - Mineral Assessments inserted standards prepared by CANMET (Natural Resources Canada) and locally collected material as sample checks. The local material consisted of marble rock (used a blank) and mineralized copper-magnetite skarn used with rock sample submissions. Local material consisting of unlithified silt ('clay cliff') and tailings from the Whitehorse copper mine (milled copper-magnetite skarn rock) were inserted with the soil and stream sediment samples. Duplicates of the soil samples and occasionally the stream sediment samples were collected in the field or a sample was split later and inserted with the same number with a 'B' appended to the sample number denoting a duplicate. The result is that analysis were carried out on duplicate samples approximately every 20-25 samples. Check samples and standards inserted into the sample stream can be determined by the letters appended to the sample number as, where xxx is the sample number:

XXXa = Whitehorse 'clay cliff' check
XXXb = duplicate sample split
XXXc = Whitehorse copper mine tailings check
XXXd = marble rock, blank (collected at the Grafter occurrence)
XXXe = magnetite copper skarn rock (collected from Best Chance occurrence)
XXXf = Canmet standard STSD-3 (derived from stream sediment samples)

In addition Acme Analytical Laboratories Limited carried out their in house internal duplicate checks as; reXXX (re-assay of sample XXX) and inserted their own standard, standard DS4.

Rock Sample Quality Control Results

Marble Blanks

Results from 14 marble blanks show that values are mostly uniform and the variation could be due to the marble rock which had visible impurities (trace sulfides?) once it was crushed and homogenized (using cone on cone method). Variations are restricted to only a few (or one) element per sample. The highest gold value coincides with a high As and Pb value (sample 176535D). For almost all the samples and all elements the samples returned low ('blank') values. The variation in analytical results could be due to contamination or lack of analytical precision.

Magnetite Copper Skarn

Results from the 15 magnetite copper skarn samples show highly variable results for most elements. Following crushing, the sample was homogenized (cone on cone method) but homogeneity was not achieved. The samples do show that anomalous values were determined but precision and accuracy are very questionable due to the variably mineralized material. This results in a very high percent relative standard deviation and shown graphically by univariante scatterplots for 6 selected elements.

Acme Analytical Laboratories Limited – Duplicate Analysis

Most elements for all the splits correlated very closely (visually <10% difference).

Acme Analytical Laboratories Limited – In-house Standard DS4)

The 12 standards analyzed with the rock samples returned very consistent values, so consistent that descriptive statistics were not calculated.

Soil and Stream Sediment Quality Control Results

Over all the analytical results are acceptable although questions about the accuracy and precision of the data are raised by variations in the Canmet standards. The check samples of Whitehorse copper tailings and Whitehorse clay cliff material served their purpose and returned anomalous and low values respectively.

Canmet Standard STSD-4

Results for the Cannmet standards show an acceptable range of values. The univariate scattergrams for Au, Cu, Zn, Pb, Ni and As illustrate that it is the occasional and random (not restricted to one sample or sample batch) 'flyer' that results in the higher percent relative standard deviation values (values >10%). Results for Au analysis are disturbing as two samples returned values that could be considered anomalous at 18ppb and 29ppb. Analysis of the standard only tests the analytical techniques for accuracy and precision as the standard is received in a pulped form (<-200 mesh, -74um) it is not prepared (dried, sieved or split). The percent relative standard deviation was calculated for Au, Cu, As, Zn, Pb, Ni, and As. Values were below <10% for Z, Pb, Ni (acceptable) and <16% As and Cu (marginally acceptable) and a high 128% for Au due to the two high values mentioned above.

Whitehorse Copper Mine Tailings

A total of 20 copper mine tailing samples were inserted into the sample stream with two purposes in mind; one was to confirm that obviously anomalous samples (for Cu, Au, Ag, Bi) were being detected and secondly, to test for analytical precision and accuracy. As the samples were prepared at Northern Analytical they also test the preparation procedures. All the samples returned anomalous values for the above elements although the variation for Au exceeded the preferred 10% maximum (at 32%) for the percent relative standard deviation. Other elements where the percent relative standard deviation was calculated (Cu, Ag, As, Pb, Zn, Mo, Bi) returned a close to or less than a 10% percent relative standard deviation.

Whitehorse Clay Cliff Silt

A total of 25 clay cliff silt samples were inserted into the sample stream for two purposes; one was to ensure that material considered to have background values did indeed return background values and to test for analytical precision and accuracy. As the samples were prepared at Northern Analytical they also test the preparation procedures. All the samples exceeded the preferred 10% maximum for the percent relative standard deviation for Au (31%), Cu 11%, Pb (38%), Zn (13%), As (26%) and Ni (12%). The variations in the gold values are quite acceptable as the highest value was 4.7ppb. Most of the variation in the other samples is due to two samples that yielded inconsistent values. Variation in the 'clay cliff' material is expected and is likely responsible for the variation. Laboratory error is not suspected as other check samples and standards from the same batches did not produce similar errors.

EMR Duplicate Check Samples

A total of 29 duplicate pairs were submitted to check for reproducibility – accuracy. A visual scan reveals a close approximation. All of the seven elements (Au, Cu, As, Ni, Pb, Zn and U) display a linear trend on scatterplots. The only errant value was for gold in one stream sediment (silt) sample pair. This is not unexpected given gold's nugget effect.

Acme Analytical Laboratories Limited – In-house duplicate pairs

Acme Analytical analyzed 20 duplicate pairs. The scatter plot results are as close for Cu and Pb as for the duplicate pairs submitted by EMR. Gold values were less than 7.4ppb so significant variation for anomalous samples can't be determined. Interestingly, the Acme duplicates included 5 duplicate pairs of clay cliff material, presumably because there was abundant sample to split, but no Whitehorse copper tailing samples.

Acme Analytical Laboratories Limited – In-house Standard DS4)

The 27 standards analyzed with the stream sediment and soil samples returned very consistent values, so consistent that descriptive statistics were not calculated.

Statistical Analysis Procedures used in 2002

Following computer listing of the data, statistical parameters such as arithmetic mean, median and mode, standard deviation and sample variance were calculated using MS Excel. Histograms of selected elements from data subsets were generated by MS Excel for specific projects to aid in establishing five ranges for the results, ideally; background, slightly above background, weakly anomalous, moderately anomalous and anomalous.

The stream sediment data procured from the Geological Survey of Canada's, 'Regional Stream Sediment and Water Geochemical Data', open files were also statistically analyzed in a similar manner using MS Excel. Histograms and calculated thresholds for project areas, where applicable, are attached.

Where Histograms and statistical were not used in generating geochemical plots, ESRI Arview 3.2a was used utilizing natural breaks in the data. Occasionally where there was a large number of values below, at or near the detection limit, or obviously anomalous samples were observed, threshold were adjusted visually, either in Arcview 3.2a or from a MS Excel histogram that was not printed.

N.A.L.

B - IV. ROCKS & DRILL CORE

Review the information under the headings of "Notice" and "Safety" at the beginning of this "Sample Preparation" section of the manual!!

Ensure that the equipment is properly adjusted and lubricated as per the equipment maintenance instructions at the end of this sub-section.

1. Set out the samples on a mobile workbench, making sure they are all present in their proper order and the matching pulp bags are in the exact same order. Locate the workbench near the jaw crusher where the samples can be reached conveniently. However, if there are samples in open containers, make sure they are not located where they could be susceptible to contamination by stray rock chips that may be ejected from the crushers.

2. Ensure that you are wearing the required safety equipment. Ensure that the jaw crusher, cone crusher and riffle splitter and its 3 pans are thoroughly clean.

Start the dust extractor. Start the jaw crusher and run the first sample through it. The best procedure for feeding the sample into the crusher depends on the nature of the sample and you will develop a feel for this with experience. Generally, large samples consisting of relatively small fragments can be poured directly from the sample bag into the crusher, maintaining enough material on top of the jaws to prevent pieces from spitting out. Individual, hard rocks will require quickly covering the opening with a block of wood or a pan to prevent material from ejecting. Some rocks may not crush until they are forced down into the jaws with the block of wood. Large rocks will have to be broken with a sledgehammer before they will go into the jaws.

Try to avoid spilling any sample as you feed it into the crusher. With large samples, be careful that the pan collecting the crushed material does not overflow; frequently shaking the pan to level the contents will help.

3. Brush any loose chips from the crusher (particularly the pan channel) into the pan. Remove the pan and pour the sample into the hopper of the empty, clean cone crusher. Move the empty sample bag along the crushing line, next to the cone crusher to track the sample.

Thoroughly blow the jaw crusher and its pan clean with compressed air. Make sure no sample material remains in hidden nooks and crannies. If sample remains stuck to the jaws it must be brushed away or cleaned by crushing some barren rock and then cleaning with compressed air again. Replace the pan in its slot under the crusher.

4. After the sample has passed through the cone crusher, blow the head of this crusher clean with compressed air. Open the side flap and blow clean the inside of the crusher, paying particular attention to the peak of the slides at the centre of the machine, where material tends to accumulate.

Remove the receiving pan, shake to level the crushed rock in the pan and pour it into the splitter (with empty pans in place on each side). Be careful to hold the pan laterally level so that the sample pours out evenly along the entire width of the slot and through all the vanes of the splitter. Move the sample bag along the line to the splitting hood.

Blow the cone crusher pan clean with compressed air and, after ensuring that the cone crusher is thoroughly blown clean, replace the pan in it. If barren rock was needed to clean the jaw crusher, run it through the cone crusher to clean it too and again blow the unit clean. Be sure to dispose of the cleaning rock so it does not end up in a pulp bag in place of the next sample.

5. Remove one pan from under the splitter and replace it with the third pan. Level the sample in the removed pan and pour it out the wide side into the splitter, again making sure it is distributed evenly into all the vanes. This even distribution of sample through the riffles is critical to obtaining a sample split that is compositionally near identical to the original whole sample. Do not bang the pan against the top of the vanes or they will gradually become burred and splitting efficiency will be lost.

Repeat the splitting process as many times as necessary, resplitting the same side pan until it contains just enough sample to fill the pulp bag about _ full (about 250 grams). Make sure no sample material is stuck in the riffles; sharply rocking and banging the unit will help clear it.

Pour the sample split into the pulp bag without spilling any of it, making sure you have the right pulp bag labelled to match the original sample bag. If there is a sample tag, place it in the pulp bag. Fold over the top of the bag to prevent contaminants from getting into it and place on a cardboard tray. The bags are arranged in order on the tray in 4 rows of 5 samples (20 per full tray), beginning at the front left.

Pour the sample from the other pan (the reject) into the original sample bag; the splitting hood contains a chute to the floor to facilitate this for larger samples. Fold and staple the top of this bag, making sure the sample label remains visible, and place it in a rice sack that has been marked with the work order number and client name.

Blow the splitter and all three pans clean with compressed air and leave set up for the next sample.

NEVER add or remove sample by hand to adjust the size of a split. If it is too large, resplit the split until one pan contains the right amount. If you have riffled it down too small, resplit the reject to make up the requisite amount.

Note that if a sample is small enough that it will be all used for the pulp, it can be dumped directly from the crusher pan into a splitter pan and then transferred to the pulp bag. Place the empty sample bag in the rejects sack so no one searching through the rejects will think the sample is missing.

5. Continue crushing and splitting the remaining samples.

In practice, for efficient production, you will have consecutive samples in different stages of the process simultaneously and one person may be crushing while another splits and bags the samples. This makes it vital to be well organised and methodically consistent to prevent sample mix-ups. Always remember to double check that each piece of equipment is empty and clean just before you dump in a sample and always move each sample bag along the line with its corresponding sample. If there are sample tags, these also must accompany the samples throughout the process (but don't let them go through the crushers) and end up in the pulp bags as a further check.

When a tray of crushed sample splits is full or completes a work order, place it in a drying oven to ensure that the samples will be completely dry for pulverizing.

6. Turn on the dust extractor for the pulverizing station hood. Ensure that you are wearing the required safety equipment, including safety glasses and a dust mask.

Before starting to pulverize a work order, place a handful of cleaning gravel in each of two pulverizing pots containing their rings and puck. Position the lid on one pot and clamp it in place in the pulverizer, ensuring that it clamps securely with the lid centred so that it seals properly. Close the lid of the pulverizer box and press the start button to begin the pulverizing cycle.

When the machine stops at the end of the timed cycle, unclamp the pot and replace it with the other pot. While the pulverizer is cycling with the second pot, carefully dump the contents of the first pot (including rings and puck) onto a sheet of Kraft paper in the dust hood. Blow the bowl, rings, puck and lid clean with compressed air. Discard the pulverized cleaning gravel in the garbage and blow the sheet of paper clean.

Reassemble the rings and puck in the bowl and dump in the first crushed sample split to be pulverized, distributing it fairly evenly. Continue as above, always having one pot pulverizing while you clean out the other.

With the samples, be careful to minimize sample loss as light components will blow away more readily, changing sample composition. Pour the pulverized sample from the sheet of paper back into the correct pulp bag, replace the sample tag if there is one, fold the top and place it back on the cardboard tray. Blow the sheet of paper clean with compressed air.

Always pulverize the samples in order to facilitate keeping track so you do not put any pulps in the wrong bags.

It is important that the samples be pulverized to the consistency of flour. You should feel no grittiness when you rub some pulp between your thumb and a finger. For average samples, the standard pulverizing time of 80 seconds should be satisfactory. Very hard minerals require longer. If a pulverized sample remains gritty, pulverize it for part of another cycle until it is fine enough; this is a process of trial and error. The timer can be reset for a series of similar samples that require a non-standard pulverizing time.

Soft samples require reduced pulverizing time or they will cake and stick inside the pot. Sticking may still occur even with appropriately less pulverizing. Note that samples will stick if they are not perfectly dry so make sure this is not the problem. Adding a few drops of acetone or ethanol to the crushed sample in the pot just before pulverizing may reduce sticking of hygroscopic samples which always retain some moisture.

Brushing may help remove slightly stuck material. Otherwise, if the bowl, rings and puck do not blow clean they must be cleaned by pulverizing a load of cleaning gravel, the same as at the start of a work order.

Also use cleaning gravel after any sample that has been noted as "high grade" or any sample that has obvious mineralization, especially if the next sample to be pulverized in the same pot is not mineralized.

The friction of pulverizing will heat up the pots until eventually they are too hot to handle comfortably. Switch to another set of cleaned pots when that happens. Samples requiring critical analysis for mercury, arsenic or tellurium may be flagged to be pulverized only in cool pots because there could be significant losses of these elements in hot pots.

Samples that are very high in sulphide minerals also require cool pots and minimum pulverizing time or they may ignite. **DANGER!** Do not let such samples start a fire. Avoid breathing the toxic fumes, which smell like rotten eggs. Burning may not be apparent immediately, as oxidation begins slowly and accelerates, so after pulverizing sulphide-rich samples monitor the bags of pulp for increasing temperature and the smell. Sealing an oxidizing sample in a pulverizer pot may stop the process. However, the composition of the sample will have changed so a new split must be riffled from the crushed reject. Be very careful pulverizing the new split to avoid igniting it too; a series of very brief pulverizing cycles may be necessary. If there is no reject for a new split, notify the senior chemist. He may authorize analysis of an oxidized sample if it is quenched before the pulp shows any lightening of colour, but this must be noted to the client.

7. Occasionally, you may be instructed to "roll" pulps. This is done to ensure that the pulps are homogeneous, without stratification of light and heavy components.

Roll a sample when it is on the Kraft paper after emptying it from the pulverizer pot. Grasp one corner of the paper and pull it gently towards the opposite corner, keeping it low over the surface so that the pulp rolls rather than slides. Before sample spills off the sides of the sheet, return the lifted corner to flat, then roll the sample from the opposite corner but stop when the pulp is centred on the paper. Next, grasp an adjacent corner and repeat the rolling process along the other diagonal. Repeat at least five times in each direction before pouring the pulp into its bag.

8. When preparation of a tray of samples has been completed, take it into the lab. Place the trays in order on the "in" shelves or at a work station where you have been instructed to take them.

When the last tray of a work order is brought into the lab, write the date in the log book by the "X" under "Sample Prep" on the line for that work order. Make sure the work order copy and the Sample Sorting and Preparation form are brought in with the last tray.

9. Equipment Maintenance:

Jaw Crusher: The adjustment of the crusher should be checked before each use. The drive belts should be snug with minimal free play but should not be strung tight. Also check that they are in good condition, free of cracks. The jaws should have a maximum ½ inch gap at the widest opening and the moveable jaw should just contact the stationary plate at maximum closure. If adjustment is needed, it should be done by someone who is familiar with the procedure. Whenever adjustments are made, it should be ensured that the tension spring is adjusted for a gap of _ inch between the coils at maximum compression; if it is too tight the crusher may be damaged by the excessive force, but too little tension will result in inadequate crushing of hard rocks. The crusher must be greased using a grease gun at the three nipples about every two hours of use or whenever there is an apparent increase in noise or heat in the bearing area. Inject grease until it starts to ooze out between the parts, then wipe off the excess so it will not fall into any samples. Failure to inject grease when necessary will result in the bearing being destroyed.

Cone Crusher: Before each use, check the condition and tension of the drive belts. Verify that the machine runs smoothly and quietly when it is not crushing and that the head is not spinning violently and moves freely. If this does not appear to be in order, notify the general manager immediately and do not use the machine as a seized head bearing can lead to much more extensive damage. Ejection of rock chips from the head is another sign of a seized bearing. The crusher should produce a crush of at least 60% minus 10 mesh and a supervisory employee should verify this regularly, at least daily during full production, using cleaning rock for consistency. Run about a kilogram of the rock through the jaw crusher and the cone crusher, sieve it through a 10 mesh screen and weigh the plus and minus fractions. When the crusher needs to be adjusted, this is done by loosening the bolts securing the top plate and rotating the plate, which is threaded. Retighten the bolts and recheck the fineness of crush, repeating the procedure until 60% minus 10 mesh is achieved. Do not tighten the gap more than necessary or the crusher will be more susceptible to failure.

Pulverizer: The only routine maintenance required for the pulverizer is oiling of the joints in the clamping mechanism, daily during full production. Wear eventually will necessitate shimming to keep the mechanism clamping the pots tightly. The O-rings of the pot lids should be monitored closely and replaced if there is visible damage or evidence that any powdered sample is leaking during pulverizing. The components of the pots gradually will wear to the point that they no longer pulverize efficiently and have to be retired. Wear will be obvious as reduced size of the rings and puck and slight concave curvature of the bottom of the bowl and the lid. Pulverizing efficiency for each pot should be checked periodically by pulverizing 250 grams of cleaning gravel for the standard 80 seconds and sieving it thoroughly through a 100 mesh screen. The product should be at least 98% minus 100 mesh. A supervisor also should routinely spot check each employee's pulverizing by screening random pulps to verify they meet the specification of 98% minus 100 mesh, and should check pulps in every tray using the feel test for grittiness. Senior employees performing sample prep without direct supervision must do these tests on their own work.

Dust Collector System:

B - V. REVERSE DRILL CUTTINGS

Generally, these samples are treated the same as rocks and drill core, except they usually do not require jaw crushing. Cone crushing must be done unless they contain no fragments larger than 10 mesh. Drill cutting samples usually are large and most are received wet. You may be given special instructions regarding the recording of wet samples and overweight.

Review the section titled "Rocks & Drill Core".

B - VI. SOILS & SEDIMENTS

1. Set out the dried samples in order by the work location, which preferably should be in a dust hood. Have the corresponding pulp bags at hand in the same order.

Obtain a sheet of Kraft paper and a sieve of the required mesh size, which normally is 80 mesh unless otherwise specified. Inspect the screen to make sure it is in good condition with no tears, distortion or separation at the edge.

Ensure that you are wearing safety glasses and a dust mask.

2. Starting with the first sample, if it has dried into a hardened mass, pound it with a rubber mallet to break up the material, being careful to try to avoid rupturing the sample bag.

Empty the sample into the sieve, which should be sitting on the sheet of paper. Agitate the sieve in a side to side motion to shake the fine material through the screen. An occasional sharp rap may help clear the holes so the material passes through more efficiently. Agglomerated material should be broken up between the fingers or in a separate container such as a mortar and pestle, but do not break down stones or vegetation. Do not rub sample material against a fine screen as these screens are easily damaged; you can stack a 10 mesh screen on top and rub material through it to help break it up.

Do not let any of the sample escape out the top of the sieve onto the paper. If this happens and you cannot separate and remove 100 percent of the coarser material from the pulp, then the pulp has to be returned into the sieve and rescreened.

Fold the paper and pour the screened sample into its pulp bag.

3. Usually at least 30 grams of pulp is required unless you are told differently. A balance is available to check how much you have obtained. Tare the balance with an empty pulp bag before weighing the pulp.

If you cannot obtain enough pulp, first make sure all agglomerated material has been liberated including particles stuck to stones. If you still need more, then transfer the sample oversize from the 80 mesh sieve into a 40 mesh sieve and screen what will pass through that. Transfer this "-40 mesh" fraction into a separate pulp bag that you have marked with the sample number and "-40". Fold this bag tightly and place it inside the bag of -80 mesh pulp after first inspecting it to make sure it will not leak into the finer pulp.

4. Fold over the top of the pulp bag to prevent contaminants from getting into it and place on a cardboard tray. The bags are arranged in order on the tray in 4 rows of 5 samples (20 per full tray), beginning at the front left.

Dump the oversize material from the screen onto the paper and pour it back into the original sample bag. (If the bag is torn, patch or replace it.) Place the bags of oversize in a plastic sample bag and when this is full or the end of a work order is reached, seal the plastic bag with tape and place it in a rice sack that has been marked with the work order number and client name.

5. After each sample, clean the sieve(s) and the sheet of paper with compressed air. Be careful not to damage fine screens when blowing them clean; never contact the screen with the nozzle.

6. When preparation of a tray of samples has been completed, take it into the lab. Place the trays in order on the "in" shelves or at a work station where you have been instructed to take them.

When the last tray of a work order is brought into the lab, write the date in the log book by the "X" under "Sample Prep" on the line for that work order. Make sure the work order copy and the Sample Sorting and Preparation form are brought in with the last tray.

B - VII. CONCENTRATES

Various types of concentrates may be received and their preparation will vary somewhat depending on type. Generally, they require riffle splitting if they are much larger than 300 grams and most require pulverizing. Review these parts of the section titled "Rocks & Drill Core".

Pan concentrates usually are small. Extra care must be taken to avoid loss of sample, not only because there may be no surplus material to waste but also because light or heavy components of the sample may tend to be lost preferentially and this will alter the analysis. Recover all particles of the sample from the bag or other container in which it was received. For this purpose, a wet sample in a non-porous container can be washed into a beaker using a wash bottle and the sample can be dried in the beaker in a drying oven where it is safe from contamination or on a warm hotplate (being very careful not to overheat it). Pulverize cleaning gravel before and after each sample, even if no visible material sticks in the pots. Be sure the lid seal on the pot will not leak and take care to minimize loss of sample when cleaning out the pot.

Placer concentrates also must be thoroughly recovered from their sample containers or small, heavy gold particles may easily be left behind, especially in bag seams. Again, it is important to clean the pulverizing pots with cleaning gravel after every sample. The pulps should be rolled to ensure that the gold grains are distributed as homogeneously as possible.

Mine mill concentrates usually are extremely high grade so the greatest concern with these samples is to not contaminate other samples. They should be prepared away from any other samples and care should be taken to avoid raising dust from them. All equipment must be cleaned meticulously afterwards. These samples also require careful adherence to proper preparation procedures because the utmost accuracy of analytical results is demanded. Pulps should be rolled, especially in the case of gold concentrates.

ACME
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ISO 9002 REGISTERED

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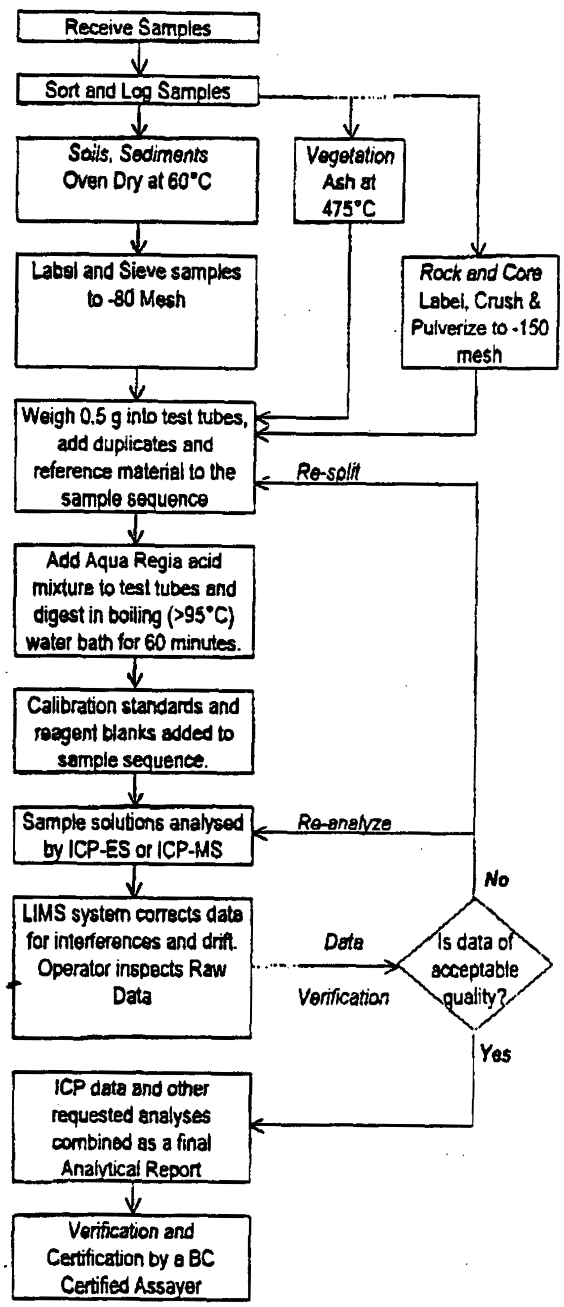
METHODS AND SPECIFICATIONS FOR ANALYTICAL PACKAGE
GROUP 1D & 1DX - ICP ANALYSIS – AQUA REGIA

Analytical Process



Comments

Sample Preparation

Soil or sediment is dried (60°C) and sieved to -80 mesh (-177 µm). Vegetation is dried (60°C) and pulverized or ashed (475°C). Moss-mats are dried (60°C), pounded and sieved to yield -80 mesh sediment. Rock and drill core is jaw crushed to 70% passing 10 mesh (2 mm), a 250 g aliquot is riffle split and pulverized to 95% passing 150 mesh (100 µm) in a mild-steel ring-and-puck mill. Aliquots of 0.5 g are weighed into test tubes. QA/QC protocol includes inserting a duplicate of pulp to measure analytical precision, a coarse (10 mesh) rejects duplicate to measure method precision (drill core samples only), two analytical blanks to measure background and an aliquot of in-house reference material STD DS3 to measure accuracy in each analytical batch of 34 samples.

Sample Digestion

Aqua Regia, a 2:2:2 mixture of ACS grade concentrated HCl, concentrated HNO_3 and de-mineralised H_2O, is added to each sample. Samples are digested for one hour in a hot water bath (>95°C). QA/QC protocol requires simultaneous digestion of two regent blanks randomly inserted in each batch.

Sample Analysis

Group 1D: sample solutions are aspirated into a Jarrel Ash AtomComp 800 or 975 ICP emission spectrograph to determine the following 30 elements: Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Group 1DX: sample solutions are aspirated into a Perkin Elmer Elan 6000 ICP mass spectrometer to determine the following 35 elements: Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, *Ga*, *Hg*, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, *S*, Sb, *Sc*, *Tl*, Sr, Th, Ti, U, V, W, Zn.

Data Evaluation

Raw and final data undergoes a final verification by a British Columbia Certified Assayer who then signs the Analytical Report before it is released to the client. Chief Assayer is Clarence Leong, other certified assayers are Dean Toye and Jacky Wang.

GEOCHEMICAL – ICP by Aqua Regia Digestion

GROUP 1C MERCURY BY COLD VAPOUR AA OR ICP-MS

Accurate, low level determination of Hg by Aqua Regia digestion followed by either cold vapour AA or ICP-MS analysis.

Element	Method	Detection	Cdn	U.S.
Hg	Cold Vapour AA or ICP-MS	10 ppb	$4.40	$3.30
Hg	Cetac Cold Vapour AA	1 ppb	$7.70	$5.80

Analysis is not suitable for high-grade Au, Pt or elevated Se samples (cold vapour method only). Acme retains the right to select the method of determination.

GROUP 1D, 1DX & 1DA: ICP & ICP-MS ANALYSIS – AQUA REGIA

NEW!

Now you can choose ICP-ES or **ICP-MS** analysis at very economical prices to complement your geochemical survey. You can also select a larger split size to ***get better Au values without a second, costly analysis***. A 0.5 g split is leached in hot (95°C) Aqua Regia then analysed by ICP-ES **(Group 1D)** or ICP-MS **(Group 1DX)**. **Group 1DA** offers a choice of 10 g, 20 g or 30 g splits.

Group 1D		Cdn	U.S.
Any 1 element		$3.85	$2.90
Any 5 elements		$5.20	$3.90
All 30 elements		$6.35	$4.75
‡Include Hg and Tl	add	$0.50	$0.40

Group 1DX	Cdn	U.S.
Any 1 element	$6.00	$4.50
Any 5 elements	$7.50	$5.60
All 35 elements	$9.00	$6.75

Group 1DA		Cdn	U.S.
10 gm split	add	$2.50	$1.90
20 gm split	add	$3.75	$2.80
30 gm split	add	$5.00	$3.75

See Page 6 for Group 1F-MS Aqua Regia / ICP Mass Spec analysis for ultratrace elements

	Group 1D Detection	Group 1DX & 1DA Detection	Upper Limit
Ag	0.3 ppm	0.1 ppm	100 ppm
Al*	0.01 %	0.01 %	10 %
As	2 ppm	0.5 ppm	10000 ppm
Au	2 ppm	0.5 ppb	100 ppm
B*	3 ppm	1 ppm	2000 ppm
Ba*	1 ppm	1 ppm	1000 ppm
Bi	3 ppm	0.1 ppm	2000 ppm
Ca*	0.01 %	0.01 %	40 %
Cd	0.5 ppm	0.1 ppm	2000 ppm
Co	1 ppm	0.1 ppm	2000 ppm
Cr*	1 ppm	1 ppm	10000 ppm
Cu	1 ppm	0.1 ppm	10000 ppm
Fe*	0.01 %	0.01 %	40 %
Ga*	-	1 ppm	1000 ppm
Hg‡	1 ppm	0.01 ppm	100 ppm
K*	0.01 %	0.01 %	10 %
La*	1 ppm	1 ppm	10000 ppm
Mg*	0.01 %	0.01 %	30 %
Mn*	2 ppm	1 ppm	10000 ppm
Mo	1 ppm	0.1 ppm	2000 ppm
Na*	0.01 %	0.001 %	10 %
Ni	1 ppm	0.1 ppm	10000 ppm
P*	0.001 %	0.001 %	5 %
Pb	3 ppm	0.1 ppm	10000 ppm
S	-	0.05 %	10 %
Sb	3 ppm	0.1 ppm	2000 ppm
Sc	-	0.1 ppm	100 ppm
Sr*	1 ppm	1 ppm	10000 ppm
Th*	2 ppm	0.1 ppm	2000 ppm
Ti*	0.01 %	0.001 %	10 %
Tl‡	5 ppm	0.1 ppm	1000 ppm
U*	8 ppm	0.1 ppm	2000 ppm
V*	1 ppm	1 ppm	10000 ppm
W*	2 ppm	0.1 ppm	100 ppm
Zn	1 ppm	1 ppm	10000 ppm

*Some elements are partially leached

Appendix D

2002 Geochemical Statistics

	EM&R, Yukon Geology Program - Mineral Assessments												
	Proposed Kusawa SMA												
	EMR 2002 - Stream Sediment Samples												
Descriptive Statistics	*Ba_ppm*	*Cr_ppm*	*Ga_ppm*	*La_ppm*	*Mn_ppm*	*Sr_ppm*	*V_ppm*	*Zn_ppm*	*Al__*	*Ag__ppm*	*As__ppm*	*Au__ppb*	*B__ppm*
Mean	186.18	21.43	5.67	21.99	467.94	42.54	46.01	99.51	1.47	0.20	6.53	2.01	1.51
Standard Error	10.26	1.22	0.21	0.99	30.05	2.11	1.90	5.84	0.05	0.01	0.70	0.75	0.08
Median	162	18.0	5	18.5	364.5	36	42	77.5	1.405	0.1	3.65	0.6	1
Mode	125	4.0	4	12	356	37	42	53	1.38	0.1	1.9	0.25	1
Standard Deviation	133.82	15.95	2.72	12.89	391.86	27.54	24.82	76.15	0.69	0.19	9.17	9.72	0.99
Sample Variance	17907.25	254.42	7.41	166.21	153554.98	758.31	615.87	5799.41	0.47	0.03	84.03	94.43	0.97
Kurtosis	16.55	5.48	15.10	4.68	35.61	2.61	4.54	8.26	2.90	5.25	16.41	150.87	2.82
Skewness	3.22	1.80	2.73	1.75	4.87	1.52	1.52	2.41	1.10	2.22	3.71	12.00	1.56
Range	1096	107.0	23	84	3765	152	166	502	4.56	1.05	66.7	124.05	5.5
Minimum	29	2.0	2	8	112	5	5	20	0.34	0.05	0.3	0.25	0.5
Maximum	1125	109.0	25	92	3877	157	171	522	4.9	1.1	67	124.3	6
Sum	31650	3643.0	964	3739	79550	7231	7822	16916	249.2	34.1	1110.8	341.4	257
Count	170	170.0	170	170	170	170	170	170	170	170	170	170	170
Largest(1)	1125	109.0	25	92	3877	157	171	522	4.9	1.1	67	124.3	6
Smallest(1)	29	2.0	2	8	112	5	5	20	0.34	0.05	0.3	0.25	0.5
Confidence Level(95.0%)	20.261	2.415	0.412	1.952	59.330	4.169	3.757	11.530	0.104	0.028	1.388	1.471	0.149

Descriptive Statistics	Bi__ppm	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm
Mean	0.32	0.52	0.45	8.60	22.98	2.34	0.13	0.25	0.58	2.02	0.02	13.64	0.11	14.47
Standard Error	0.03	0.03	0.04	0.40	1.30	0.09	0.02	0.02	0.03	0.21	0.00	1.08	0.00	1.27
Median	0.2	0.465	0.3	7.8	18.95	2.08	0.02	0.2	0.52	1	0.018	9.3	0.1	8.1
Mode	0.1	0.49	0.1	3.9	17.1	1.74	0.01	0.12	0.48	0.2	0.016	6.6	0.087	4.8
Standard Deviation	0.38	0.34	0.55	5.22	16.90	1.15	0.20	0.23	0.34	2.69	0.02	14.12	0.05	16.52
Sample Variance	0.15	0.12	0.30	27.20	285.64	1.32	0.04	0.05	0.11	7.23	0.00	199.36	0.00	272.90
Kurtosis	38.23	11.96	27.59	5.79	3.10	7.52	-0.33	36.09	8.15	10.66	13.37	7.06	0.57	7.54
Skewness	5.20	3.04	4.33	1.62	1.58	2.20	1.28	4.93	1.88	3.04	3.29	2.46	0.87	2.55
Range	3.55	2.13	4.85	37.5	95.2	8.04	0.49	2.2	2.58	15.9	0.147	79.8	0.242	96.3
Minimum	0.05	0.08	0.05	1.4	2.2	0.74	0.01	0.05	0.09	0.1	0.006	0.5	0.02	1.4
Maximum	3.6	2.21	4.9	38.9	97.4	8.78	0.5	2.25	2.67	16	0.153	80.3	0.262	97.7
Sum	54.05	88.51	77.3	1461.4	3907.1	398.06	22.22	41.81	98	344.1	4.197	2318.7	18.41	2460.2
Count	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Largest(1)	3.6	2.21	4.9	38.9	97.4	8.78	0.5	2.25	2.67	16	0.153	80.3	0.262	97.7
Smallest(1)	0.05	0.08	0.05	1.4	2.2	0.74	0.01	0.05	0.09	0.1	0.006	0.5	0.02	1.4
Confidence Level(95.0%)	0.058	0.052	0.083	0.790	2.559	0.174	0.031	0.035	0.051	0.407	0.003	2.138	0.007	2.501

Descriptive Statistics	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
Mean	0.03	0.13	2.92	9.64	0.12	0.20	6.28	0.45
Standard Error	0.00	0.01	0.11	0.67	0.01	0.01	0.62	0.04
Median	0.025	0.1	2.5	6.25	0.097	0.2	3.5	0.25
Mode	0.025	0.1	1.6	5.2	0.086	0.1	1.3	0.2
Standard Deviation	0.01	0.19	1.46	8.69	0.09	0.14	8.02	0.55
Sample Variance	0.00	0.04	2.13	75.45	0.01	0.02	64.34	0.30
Kurtosis	11.69	66.96	3.21	4.04	26.60	24.72	21.24	35.38
Skewness	3.51	7.33	1.44	1.98	4.37	3.81	3.70	4.70
Range	0.085	2.05	9.4	42.7	0.759	1.2	67.5	5.25
Minimum	0.025	0.05	0.7	0.9	0.035	0.1	0.4	0.05
Maximum	0.11	2.1	10.1	43.6	0.794	1.3	67.9	5.3
Sum	4.98	22.75	496	1639.1	19.612	33.3	1068.1	76
Count	170	170	170	170	170	170	170	170
Largest(1)	0.11	2.1	10.1	43.6	0.794	1.3	67.9	5.3
Smallest(1)	0.025	0.05	0.7	0.9	0.035	0.1	0.4	0.05
Confidence Level(95.0%)	0.002	0.029	0.221	1.315	0.013	0.021	1.214	0.083

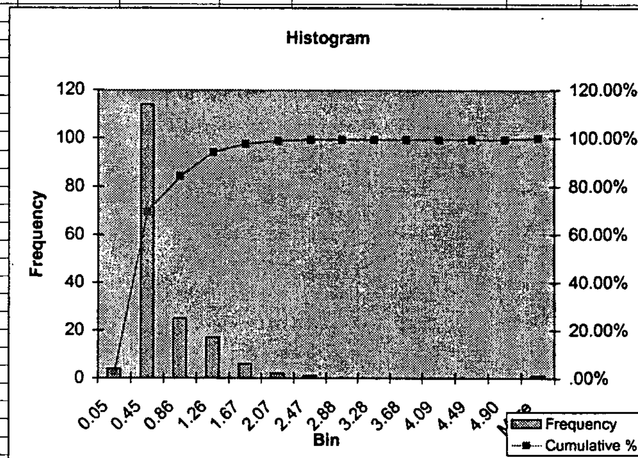
Kusawa Proposed SMA, 2002 EMR silt samples

W ppm

W_ppm	
Mean	0.447058824
Standard Error	0.042286514
Median	0.25
Mode	0.2
Standard Deviation	0.551348693
Sample Variance	0.303985381
Kurtosis	35.37951054
Skewness	4.696070881
Range	5.25
Minimum	0.05
Maximum	5.3
Sum	76
Count	170
Largest(1)	5.3
Smallest(1)	0.05
Confidence Level(95.0%)	0.083477773

Bin	*Frequency*	*Cumulative %*
0.05	4	2.35%
0.45	114	69.41%
0.86	25	84.12%
1.26	17	94.12%
1.67	6	97.65%
2.07	2	98.82%
2.47	1	99.41%
2.88	0	99.41%
3.28	0	99.41%
3.68	0	99.41%
4.09	0	99.41%
4.49	0	99.41%
4.90	0	99.41%
More	1	100.00%

Percentiles	Ws ppm
>99%	1.239
>98%	1.1
>95%	1
>90%	0.9
>80%	0.6
>75%	0.5
>50%	0.2
>25%	0.1



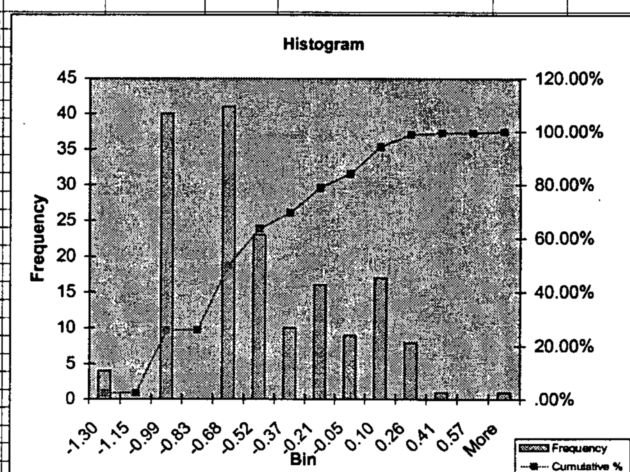
Log10 W ppm

W Log10	
Mean	-0.543869565
Standard Error	0.0303989
Median	-0.610924375
Mode	-0.698970004
Standard Deviation	0.396353163
Sample Variance	0.15709583
Kurtosis	-0.433706778
Skewness	0.395212784
Range	2.025305865
Minimum	-1.301029996
Maximum	0.72427587
Sum	-92.45782607
Count	170
Largest(1)	0.72427587
Smallest(1)	-1.301029996
Confidence Level(95.0%)	0.060010443

Bin	*Frequency*	*Cumulative %*	*W ppm*
-1.30	4	2.35%	0.1
-1.15	0	2.35%	0.1
-0.99	40	25.88%	0.1
-0.83	0	25.88%	0.1
-0.68	41	50.00%	0.2
-0.52	23	63.53%	0.3
-0.37	10	69.41%	0.4
-0.21	16	78.82%	0.6
-0.05	9	84.12%	0.9
0.10	17	94.12%	1.3
0.26	8	98.82%	1.8
0.41	1	99.41%	2.6
0.57	0	99.41%	3.7
More	1	100.00%	

Picked Thresholds

W ppm
<1.0
1.01-1.50
1.51-2.0
2.01-5.00
>5.01



Mineral Assessments
Proposed Kusawa SMA
Stream Sediment Samples (-80 mesh)

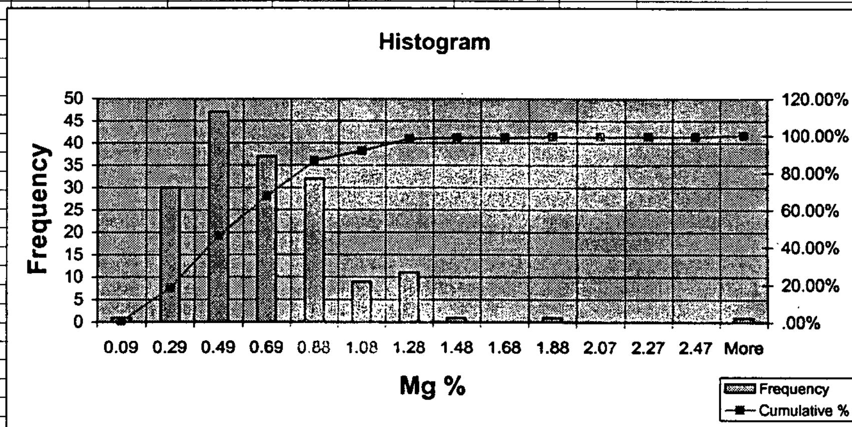
Kusawa Proposed SMA, 2002 EMR silt samples

Mg %

Mg %	
Mean	0.576470588
Standard Error	0.025866321
Median	0.52
Mode	0.78
Standard Deviation	0.337255564
Sample Variance	0.113741316
Kurtosis	8.149554783
Skewness	1.883841929
Range	2.58
Minimum	0.09
Maximum	2.67
Sum	98
Count	170
Largest(1)	2.67
Smallest(1)	0.09
Confidence Level(95.0%)	0.051062683

Bin	Frequency	Cumulative %
0.09	1	.59%
0.29	30	18.24%
0.49	47	45.88%
0.69	37	67.65%
0.88	32	86.47%
1.08	9	91.76%
1.28	11	98.24%
1.48	1	98.82%
1.68	0	98.82%
1.88	1	99.41%
2.07	0	99.41%
2.27	0	99.41%
2.47	0	99.41%
More	1	100.00%

Percentiles	Mg %
>99%	1.4638
>98%	1.2512
>95%	1.1495
>90%	0.999
>80%	0.81
>75%	0.78
>50%	0.54
>25%	0.37

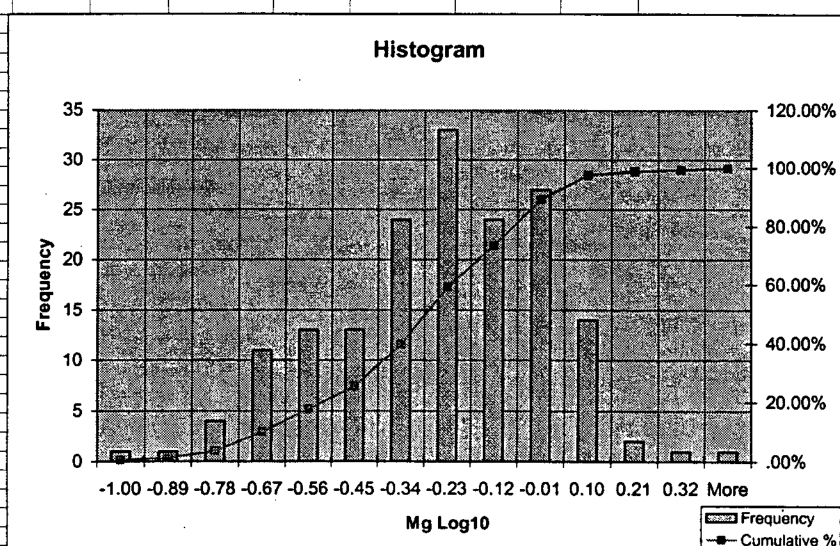


Log10 Mg %

Mg Log10	
Mean	-0.305681729
Standard Error	0.019415843
Median	-0.283996656
Mode	-0.107905397
Standard Deviation	0.252405958
Sample Variance	0.063708768
Kurtosis	-0.03498349
Skewness	-0.320862942
Range	1.426511261
Minimum	-1
Maximum	0.426511261
Sum	-51.66021227
Count	169
Largest(1)	0.426511261
Smallest(1)	-1
Confidence Level(95.0%)	0.038330477

Bin	Frequency	Cumulative %	Mg %
-1.00	1	.59%	0.1
-0.89	1	1.18%	0.1
-0.78	4	3.55%	0.2
-0.67	11	10.06%	0.2
-0.56	13	17.75%	0.3
-0.45	13	25.44%	0.4
-0.34	24	39.64%	0.5
-0.23	33	59.17%	0.6
-0.12	24	73.37%	0.8
-0.01	27	89.35%	1.0
0.10	14	97.63%	1.3
0.21	2	98.82%	1.6
0.32	1	99.41%	2.1
More	1	100.00%	

Picked Thresholds
Mg %
<0.25
0.26-0.40
0.41-1.10
1.11-2.00
>2.01



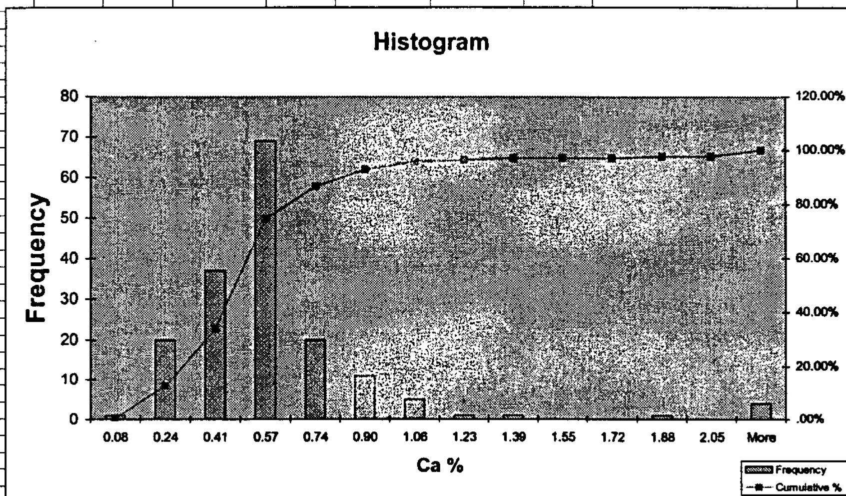
Kusawa Proposed SMA, 2002 EMR silt samples

Ca %

Ca %	
Mean	0.520647059
Standard Error	0.026394968
Median	0.465
Mode	0.33
Standard Deviation	0.344148283
Sample Variance	0.11843804
Kurtosis	11.95530691
Skewness	3.037980406
Range	2.13
Minimum	0.08
Maximum	2.21
Sum	88.51
Count	170
Largest(1)	2.21
Smallest(1)	0.08
Confidence Level(95.0%)	0.052106285

Bin	Frequency	Cumulative %
0.08	1	.59%
0.24	20	12.35%
0.41	37	34.12%
0.57	69	74.71%
0.74	20	86.47%
0.90	11	92.94%
1.06	5	95.88%
1.23	1	96.47%
1.39	1	97.06%
1.55	0	97.06%
1.72	0	97.06%
1.88	1	97.65%
2.05	0	97.65%
More	4	100.00%

Percentiles	Ca %
>99%	0.9639
>98%	0.8956
>95%	0.8575
>90%	0.7
>80%	0.59
>75%	0.5475
>50%	0.45
>25%	0.33

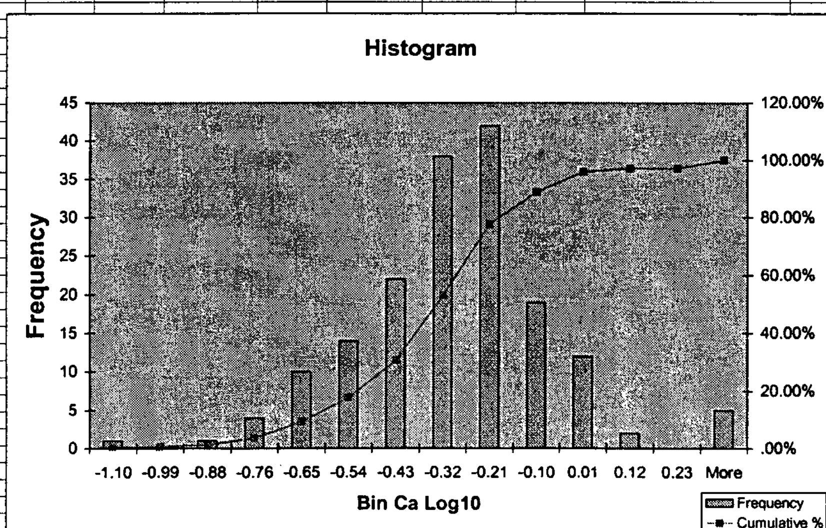


Log10 Ca %

Ca Log10	
Mean	-0.347912312
Standard Error	0.017623887
Median	-0.332572155
Mode	-0.48148606
Standard Deviation	0.229787376
Sample Variance	0.052802238
Kurtosis	1.463399382
Skewness	0.195305052
Range	1.441302287
Minimum	-1.096910013
Maximum	0.344392274
Sum	-59.14509311
Count	170
Largest(1)	0.344392274
Smallest(1)	-1.096910013
Confidence Level(95.0%)	0.034791301

Bin	Frequency	Cumulative %	Ca %
-1.10	1	.59%	0.1
-0.99	0	.59%	0.1
-0.88	1	1.18%	0.1
-0.76	4	3.53%	0.2
-0.65	10	9.41%	0.2
-0.54	14	17.65%	0.3
-0.43	22	30.59%	0.4
-0.32	38	52.94%	0.5
-0.21	42	77.65%	0.6
-0.10	19	88.82%	0.8
0.01	12	95.88%	1.0
0.12	2	97.06%	1.3
0.23	0	97.06%	1.7
More	5	100.00%	

Picked Thresholds
Ca %
<0.55
0.56-1.10
1.11-1.55
1.56-2.05
>2.06



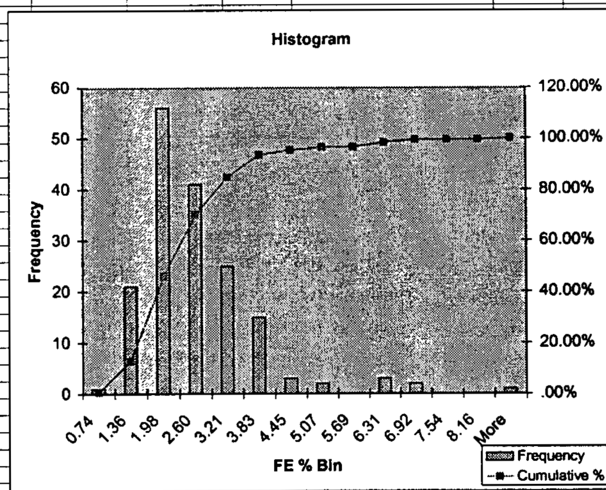
Kusawa Proposed SMA, 2002 EMR silt samples

Fe %

Fe	
Mean	2.341529412
Standard Error	0.088103466
Median	2.08
Mode	1.74
Standard Deviation	1.148728658
Sample Variance	1.319577529
Kurtosis	7.51590736
Skewness	2.195953696
Range	8.04
Minimum	0.74
Maximum	8.78
Sum	398.06
Count	170
Largest(1)	8.78
Smallest(1)	0.74
Confidence Level(95.0%)	0.17392498

Bin	Frequency	Cumulative %
0.74	1	.59%
1.36	21	12.94%
1.98	56	45.88%
2.60	41	70.00%
3.21	25	84.71%
3.83	15	93.53%
4.45	3	95.29%
5.07	2	96.47%
5.69	0	96.47%
6.31	3	98.24%
6.92	2	99.41%
7.54	0	99.41%
8.16	0	99.41%
More	1	100.00%

Percentiles	Fe %
>99%	4.2839
>98%	3.6824
>95%	3.4075
>90%	3.256
>80%	2.812
>75%	2.6325
>50%	2.025
>25%	1.645



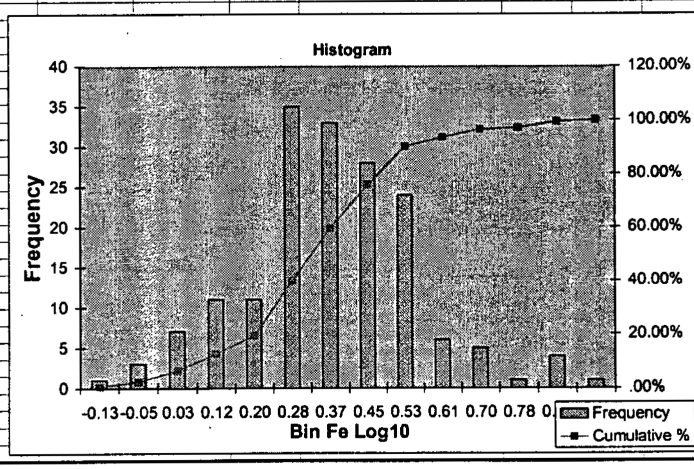
Log10 Fe ppm

Fe Log10	
Mean	0.328019902
Standard Error	0.014264118
Median	0.318063335
Mode	0.240549248
Standard Deviation	0.185981345
Sample Variance	0.034589061
Kurtosis	0.683344903
Skewness	0.268716122
Range	1.074262796
Minimum	-0.13076828
Maximum	0.943494516
Sum	55.76338332
Count	170
Largest(1)	0.943494516
Smallest(1)	-0.13076828
Confidence Level(95.0%)	0.028158784

Bin	Frequency	Cumulative %
-0.13	1	.59%
-0.05	3	2.35%
0.03	7	6.47%
0.12	11	12.94%
0.20	11	19.41%
0.28	35	40.00%
0.37	33	59.41%
0.45	28	75.88%
0.53	24	90.00%
0.61	6	93.53%
0.70	5	96.47%
0.78	1	97.06%
0.86	4	99.41%
More	1	100.00%

Picked Thresholds

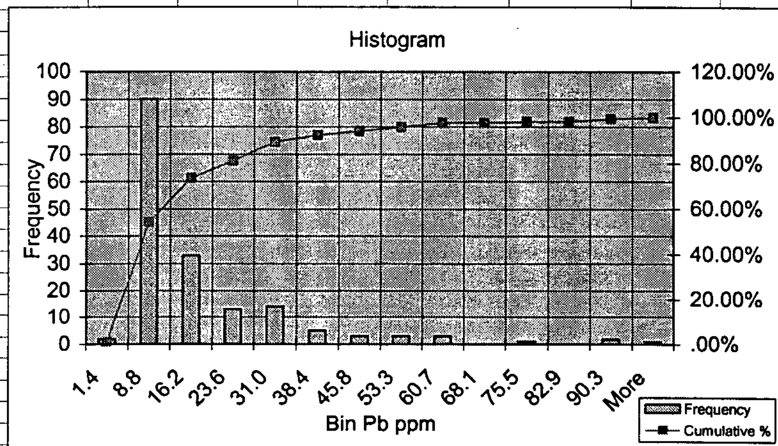
Fe ppm
<1.75
1.76-3.00
3.01-3.70
3.71-6.00
>6.00



Kusawa Proposed SMA, 2002 EMR silt samples

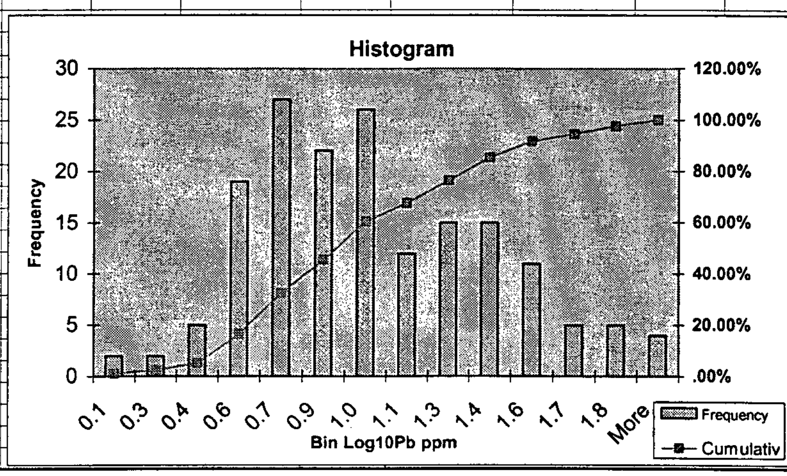
Pb ppm

Descriptive Statistics		Bin	Frequency	Cumulative %	Percentiles	Pb ppm
		1.4	2	1.18%	>99%	51.324
Mean	14.47176471	8.8	90	54.12%	>98%	45.478
Standard Error	1.267000982	16.2	33	73.53%	>95%	34.32
Median	8.1	23.6	13	81.18%	>90%	26.68
Mode	4.8	31.0	14	89.41%	>80%	19.22
Standard Deviation	16.5196717	38.4	5	92.35%	>75%	15.875
Sample Variance	272.8995531	45.8	3	94.12%	>50%	7.85
Kurtosis	7.53571279	53.3	3	95.88%	>25%	4.725
Skewness	2.554220101	60.7	3	97.65%		
Range	96.3	68.1	0	97.65%		
Minimum	1.4	75.5	1	98.24%		
Maximum	97.7	82.9	0	98.24%		
Sum	2460.2	90.3	2	99.41%		
Count	170	More	1	100.00%		
Largest(1)	97.7					
Smallest(1)	1.4					
Confidence Level(95.0%)	2.501185597					



Log10 Pb ppm

Descriptive Statistics		Bin	Frequency	Cumulative %	Pb ppm	Picked Thresholds
		0.1	2	1.18%	1.4	**Pb ppm**
Mean	0.963282279	0.3	2	2.35%	1.9	**<5.0**
Standard Error	0.030723405	0.4	5	5.29%	2.7	**5.1-20**
Median	0.908485019	0.6	19	16.47%	3.7	**20.1-45**
Mode	0.681241237	0.7	27	32.35%	5.2	**45.1-60**
Standard Deviation	0.400584188	0.9	22	45.29%	7.2	**>60.1**
Sample Variance	0.160467691	1.0	26	60.59%	9.9	
Kurtosis	-0.4096448	1.1	12	67.65%	13.8	
Skewness	0.406482383	1.3	15	76.47%	19.1	
Range	1.843766528	1.4	15	85.29%	26.5	
Minimum	0.146128036	1.6	11	91.76%	36.7	
Maximum	1.989894564	1.7	5	94.71%	50.8	
Sum	163.7579875	1.8	5	97.65%	70.5	
Count	170	More	4	100.00%		
Largest(1)	1.989894564					
Smallest(1)	0.146128036					
Confidence Level(95.0%)	0.060651048					



Mineral Assessment

Proposed Kusawa SMA

Stream Sediment Geochemistry (-80 mesh)

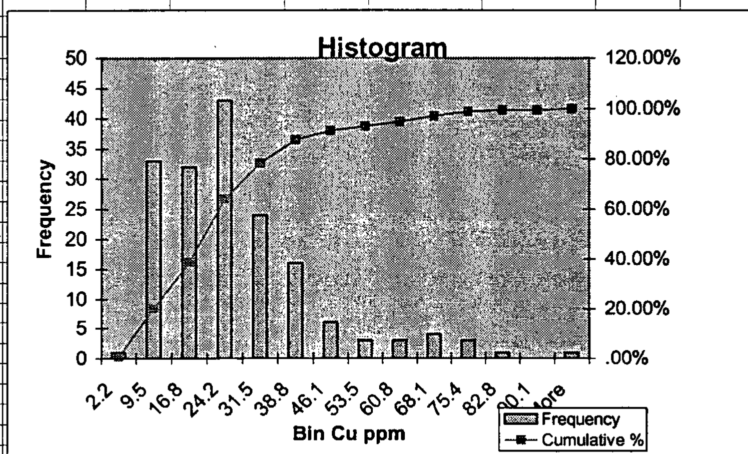
Kusawa Proposed SMA, 2002 EMR silt samples

Cu ppm

Cu ppm	
Mean	22.98294118
Standard Error	1.296230855
Median	18.95
Mode	16.4
Standard Deviation	16.90078261
Sample Variance	285.6364528
Kurtosis	3.102106082
Skewness	1.575937052
Range	95.2
Minimum	2.2
Maximum	97.4
Sum	3907.1
Count	170
Largest(1)	97.4
Smallest(1)	2.2
Confidence Level(95.0%)	2.558888264

Bin	*Frequency*	*Cumulative %*
2.2	1	.59%
9.5	33	20.00%
16.8	32	38.82%
24.2	43	64.12%
31.5	24	78.24%
38.8	16	87.65%
46.1	6	91.18%
53.5	3	92.94%
60.8	3	94.71%
68.1	4	97.06%
75.4	3	98.82%
82.8	1	99.41%
90.1	0	99.41%
More	1	100.00%

Percentiles	Cu ppm
>99%	62.021
>98%	54.378
>95%	42.585
>90%	37.3
>80%	30.54
>75%	27.875
>50%	18.75
>25%	12.3



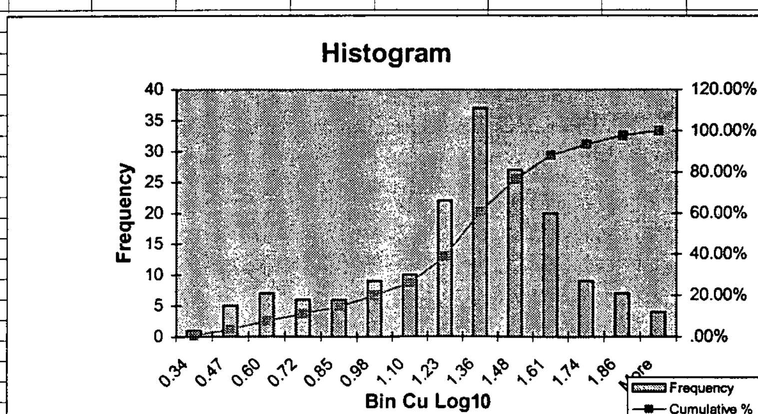
Log10 Cu ppm

Cu Log10	
Mean	1.239550275
Standard Error	0.027079197
Median	1.277607703
Mode	1.214843848
Standard Deviation	0.353069534
Sample Variance	0.124658096
Kurtosis	0.130672959
Skewness	-0.613256398
Range	1.646136276
Minimum	0.342422681
Maximum	1.988558957
Sum	210.7235467
Count	170
Largest(1)	1.988558957
Smallest(1)	0.342422681
Confidence Level(95.0%)	0.053457021

Bin	*Frequency*	*Cumulative %*	Cu ppm
0.34	1	.59%	2.2
0.47	5	3.53%	2.9
0.60	7	7.65%	3.9
0.72	6	11.18%	5.3
0.85	6	14.71%	7.1
0.98	9	20.00%	9.5
1.10	10	25.88%	12.7
1.23	22	38.82%	16.9
1.36	37	60.59%	22.7
1.48	27	76.47%	30.3
1.61	20	88.24%	40.6
1.74	9	93.53%	54.4
1.86	7	97.65%	72.8
More	4	100.00%	

Picked Thresholds

Cu ppm
<18
18.1-32
32.1-65
65.1-75
>75.1



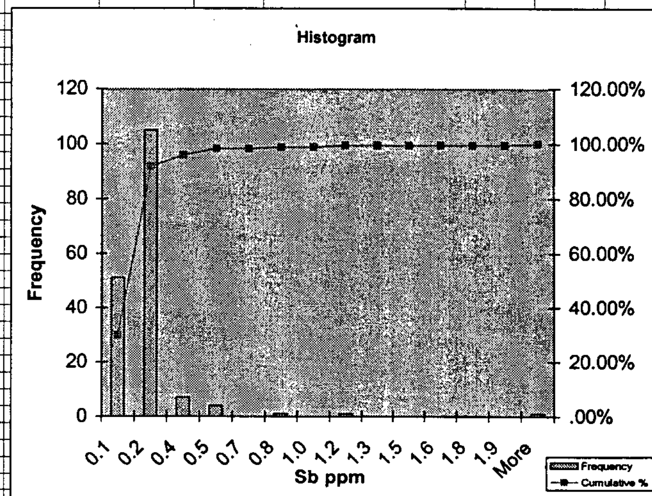
Kusawa Proposed SMA, 2002 EMR silt samples

Sb ppm

Sb ppm	
Mean	0.133823529
Standard Error	0.01483523
Median	0.1
Mode	0.1
Standard Deviation	0.193427734
Sample Variance	0.037414288
Kurtosis	66.96306721
Skewness	7.325851939
Range	2.05
Minimum	0.05
Maximum	2.1
Sum	22.75
Count	170
Largest(1)	2.1
Smallest(1)	0.05
Confidence Level(95.0%)	0.029286215

Bin	*Frequency*	*Cumulative %*
0.1	51	30.00%
0.2	105	91.76%
0.4	7	95.88%
0.5	4	98.24%
0.7	0	98.24%
0.8	1	98.82%
1.0	0	98.82%
1.2	1	99.41%
1.3	0	99.41%
1.5	0	99.41%
1.6	0	99.41%
1.8	0	99.41%
1.9	0	99.41%
More	1	100.00%

Percentiles	Bi ppm
>99%	0.3
>98%	0.3
>95%	0.2
>90%	0.2
>80%	0.1
>75%	0.1
>50%	0.1
>25%	0.05

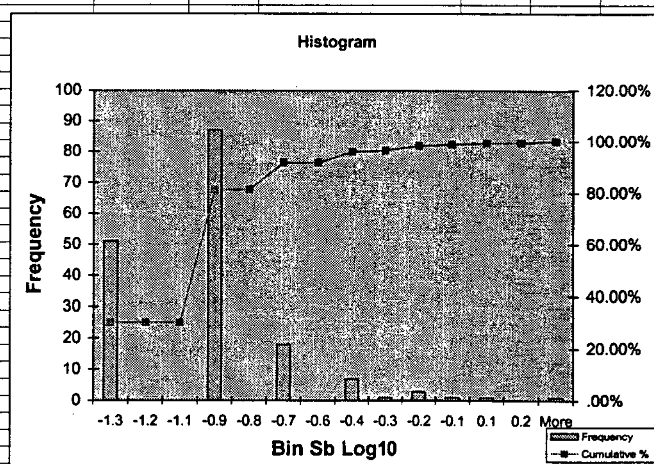


Log10 Sb ppm

Sb Log10	
Mean	-1.004038006
Standard Error	0.021449852
Median	-1
Mode	-1
Standard Deviation	0.279671856
Sample Variance	0.078216347
Kurtosis	3.564166386
Skewness	1.452760069
Range	1.62324929
Minimum	-1.301029996
Maximum	0.322219295
Sum	-170.686461
Count	170
Largest(1)	0.322219295
Smallest(1)	-1.301029996
Confidence Level(95.0%)	0.042344136

Bin	*Frequency*	*Cumulative %*	*Sb ppm*
-1.3	51	30.00%	0.1
-1.2	0	30.00%	0.1
-1.1	0	30.00%	0.1
-0.9	87	81.18%	0.1
-0.8	0	81.18%	0.2
-0.7	18	91.76%	0.2
-0.6	0	91.76%	0.3
-0.4	7	95.88%	0.4
-0.3	1	96.47%	0.5
-0.2	3	98.24%	0.7
-0.1	1	98.82%	0.9
0.1	1	99.41%	1.2
0.2	0	99.41%	1.6
More	1	100.00%	

Picked Thresholds
Sb ppm
<0.2
0.21-0.4
0.41-0.70
0.71-1.9
>1.91



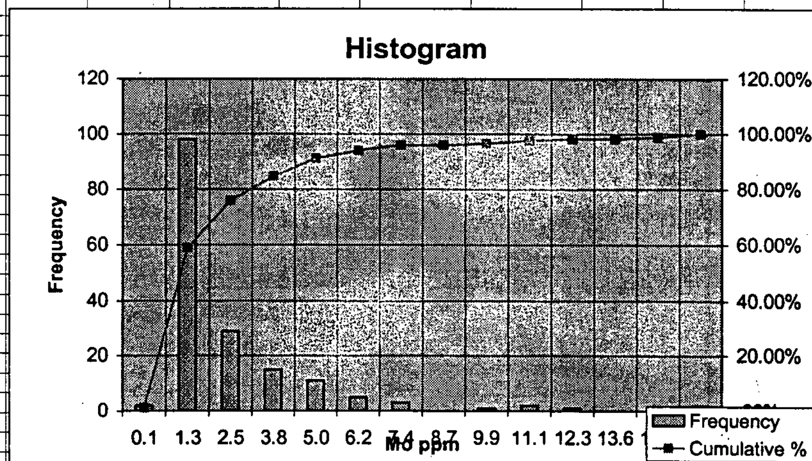
Kusawa Proposed SMA, 2002 EMR silt samples

Mo ppm

Mo ppm	
Mean	2.024117647
Standard Error	0.20618281
Median	1
Mode	0.2
Standard Deviation	2.688294941
Sample Variance	7.22692969
Kurtosis	10.66280674
Skewness	3.039328207
Range	15.9
Minimum	0.1
Maximum	16
Sum	344.1
Count	170
Largest(1)	16
Smallest(1)	0.1
Confidence Level(95.0%)	0.407025316

Bin	*Frequency*	*Cumulative %*
0.1	2	1.18%
1.3	98	58.82%
2.5	29	75.88%
3.8	15	84.71%
5.0	11	91.18%
6.2	5	94.12%
7.4	3	95.88%
8.7	0	95.88%
9.9	1	96.47%
11.1	2	97.65%
12.3	1	98.24%
13.6	0	98.24%
14.8	1	98.82%
More	2	100.00%

Percentiles	Mo ppm
>99%	6.178
>98%	5.456
>95%	4.695
>90%	3.8
>80%	2.58
>75%	2
>50%	1
>25%	0.5



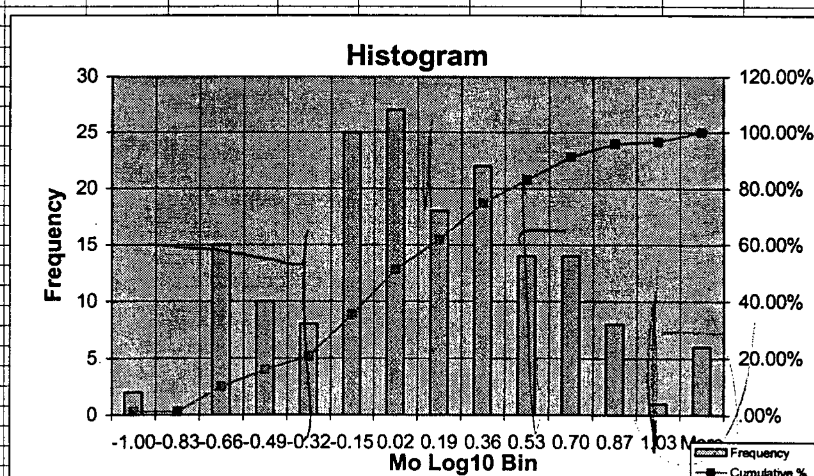
Log10 Au ppm

Mo Log10	
Mean	0.049438637
Standard Error	0.036079558
Median	0
Mode	-0.698970004
Standard Deviation	0.470419887
Sample Variance	0.221294871
Kurtosis	-0.382408679
Skewness	0.165490642
Range	2.204119983
Minimum	-1
Maximum	1.204119983
Sum	8.404568283
Count	170
Largest(1)	1.204119983
Smallest(1)	-1
Confidence Level(95.0%)	0.071224627

Bin	*Frequency*	*Cumulative %*	Mo ppm
-1.00	2	1.18%	
-0.83	0	1.18%	0.1
-0.66	15	10.00%	0.1
-0.49	10	15.88%	0.2
-0.32	8	20.59%	0.3
-0.15	25	35.29%	0.5
0.02	27	51.18%	0.7
0.19	18	61.76%	1.0
0.36	22	74.71%	1.5
0.53	14	82.94%	2.3
0.70	14	91.18%	3.4
0.87	8	95.88%	5.0
1.03	1	96.47%	7.3
More	6	100.00%	

Picked Thresholds

Mo ppm
<0.4
0.41-1.0
1.01-5.00
5.01-7.00
>7.01



Mineral Assessment

Proposed Kusawa SMA

Stream Sediment Geochemistry (-80 mesh)

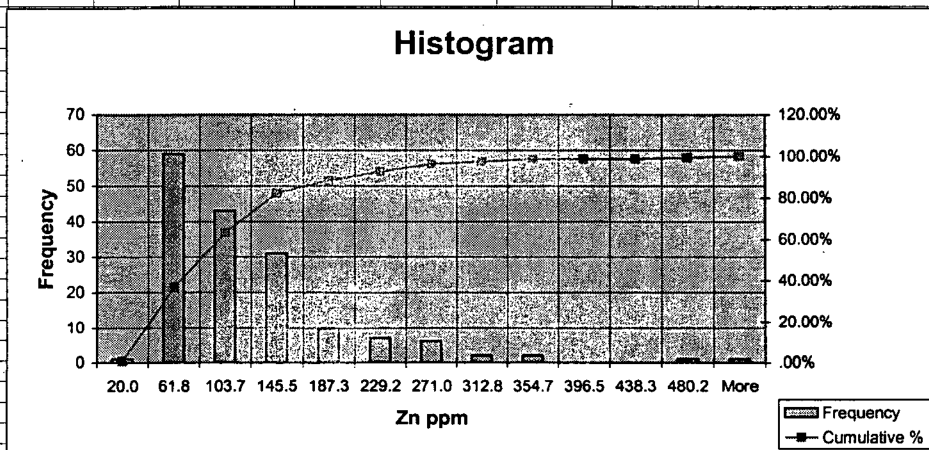
Kusawa Proposed SMA, 2002 EMR silt samples

Zn ppm

Descriptive Statistics	
Mean	99.50588235
Standard Error	5.840734849
Median	77.5
Mode	53
Standard Deviation	76.15386535
Sample Variance	5799.411208
Kurtosis	8.264110745
Skewness	2.411511893
Range	502
Minimum	20
Maximum	522
Sum	16916
Count	170
Largest(1)	522
Smallest(1)	20
Confidence Level(95.0%)	11.53018986

Bin	Frequency	Cumulative %
20.0	1	.61%
61.8	59	36.81%
103.7	43	63.19%
145.5	31	82.21%
187.3	10	88.34%
229.2	7	92.64%
271.0	6	96.32%
312.8	2	97.55%
354.7	2	98.77%
396.5	0	98.77%
438.3	0	98.77%
480.2	1	99.39%
More	1	100.00%

Percentiles	Zn ppm
>99%	386.92
>98%	312.48
>95%	234.95
>90%	198.3
>80%	133.4
>75%	123.75
>50%	80.5
>25%	53



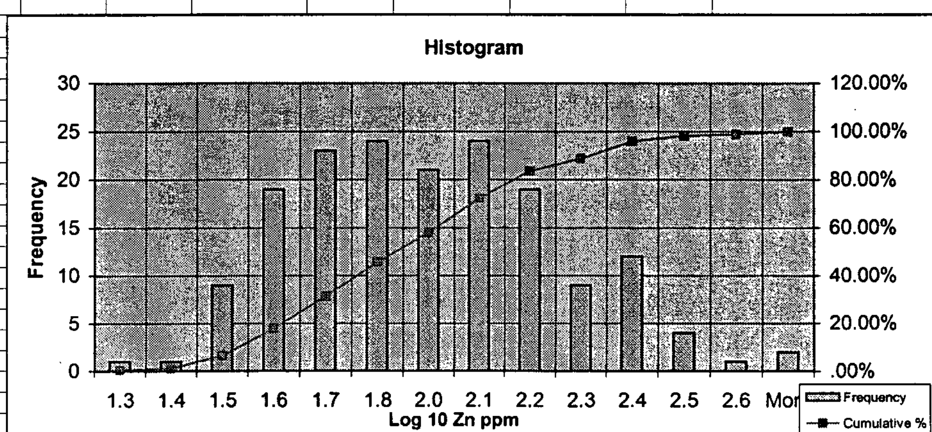
Log10 Zn ppm

Descriptive Statistics	
Mean	1.904130122
Standard Error	0.021193685
Median	1.889292664
Mode	1.72427587
Standard Deviation	0.276331848
Sample Variance	0.07635929
Kurtosis	-0.243904104
Skewness	0.407392599
Range	1.416640507
Minimum	1.301029996
Maximum	2.717670503
Sum	323.7021208
Count	170
Largest(1)	2.717670503
Smallest(1)	1.301029996
Confidence Level(95.0%)	0.041838437

Bin	Frequency	Cumulative %	Zn ppm
1.3	1	.59%	20.0
1.4	1	1.18%	25.7
1.5	9	6.51%	33.0
1.6	19	17.75%	42.5
1.7	23	31.36%	54.6
1.8	24	45.56%	70.1
2.0	21	57.99%	90.1
2.1	24	72.19%	115.8
2.2	19	83.43%	148.9
2.3	9	88.76%	191.3
2.4	12	95.86%	245.9
2.5	4	98.22%	316.0
2.6	1	98.82%	406.2
More	2	100.00%	

Picked Thresholds

Zn ppm
<30
31-140
141-225
226-330
>330



11/04/2002

Mineral Assessment
Proposed Kusawa SMA
Stream Sediment Geochemistry (-80 mesh)

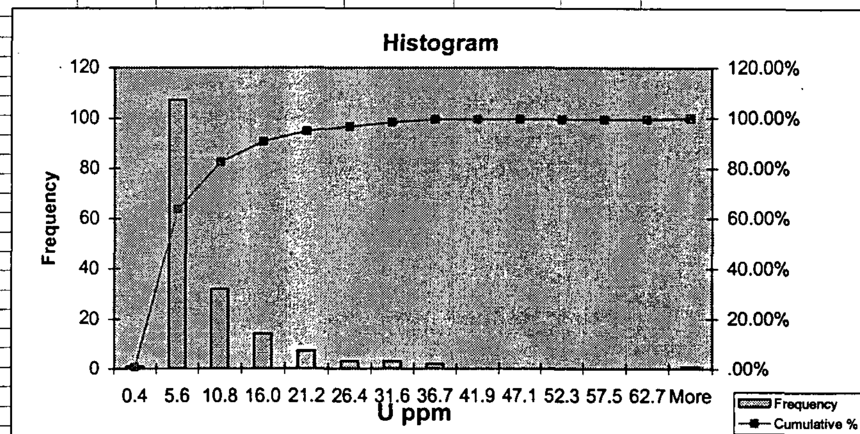
Kusawa Proposed SMA, 2002 EMR silt samples

U ppm

U ppm	
Mean	6.282941176
Standard Error	0.615214358
Median	3.5
Mode	1.3
Standard Deviation	8.021413844
Sample Variance	64.34308006
Kurtosis	21.24372696
Skewness	3.701074788
Range	67.5
Minimum	0.4
Maximum	67.9
Sum	1068.1
Count	170
Largest(1)	67.9
Smallest(1)	0.4
Confidence Level(95.0%)	1.214494158

Bin	Frequency	Cumulative %
0.4	1	.59%
5.6	107	63.53%
10.8	32	82.35%
16.0	14	90.59%
21.2	7	94.71%
26.4	3	96.47%
31.6	3	98.24%
36.7	2	99.41%
41.9	0	99.41%
47.1	0	99.41%
52.3	0	99.41%
57.5	0	99.41%
62.7	0	99.41%
More	1	100.00%

Percentiles	U ppm
>99%	17.817
>98%	17.012
>95%	15.585
>90%	11.97
>80%	7.66
>75%	6.875
>50%	3.05
>25%	1.5



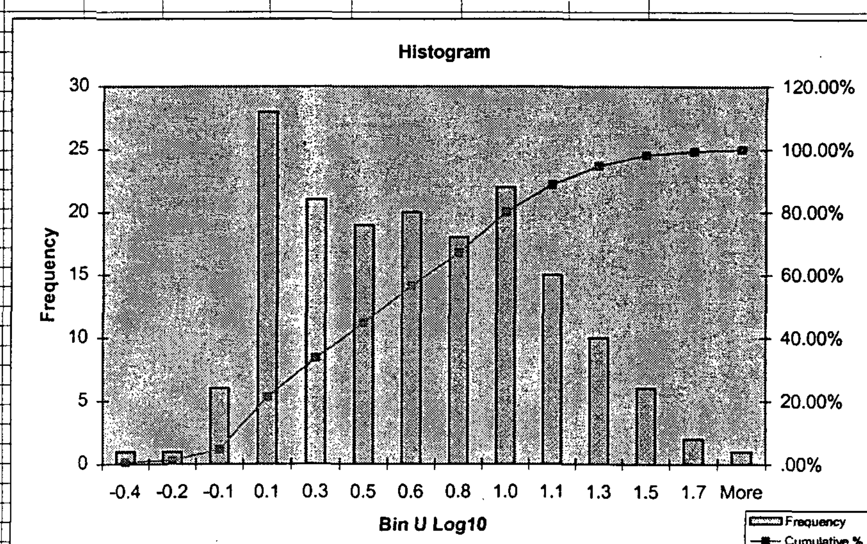
Log10 U ppm

U Log10	
Mean	0.517080632
Standard Error	0.031669605
Median	0.484241474
Mode	0.113943352
Standard Deviation	0.403088259
Sample Variance	0.162480145
Kurtosis	-0.975695084
Skewness	0.081170546
Range	1.736396502
Minimum	-0.397940009
Maximum	1.338456494
Sum	83.76706236
Count	162
Largest(1)	1.338456494
Smallest(1)	-0.397940009
Confidence Level(95.0%)	0.062541407

Bin	Frequency	Cumulative %	U ppm
-0.4	1	.59%	0.4
-0.2	1	1.18%	0.6
-0.1	6	4.71%	0.9
0.1	28	21.18%	1.3
0.3	21	33.53%	1.9
0.5	19	44.71%	2.9
0.6	20	56.47%	4.3
0.8	18	67.06%	6.3
1.0	22	80.00%	9.4
1.1	15	88.82%	14.0
1.3	10	94.71%	20.8
1.5	6	98.24%	30.8
1.7	2	99.41%	45.7
More	1	100.00%	

Picked Thresholds

U ppm
<2.0
2.1-10.0
10.1-15.0
15.1-32.0
>32.1



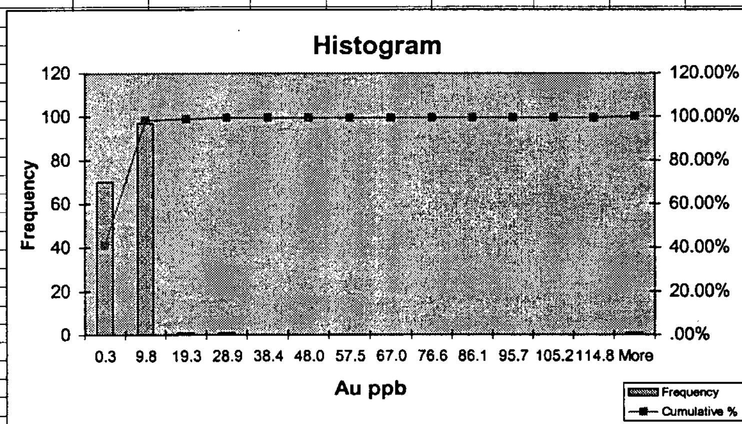
Kusawa Proposed SMA, 2002 EMR silt samples

Au ppm

Au ppb	
Mean	2.008235294
Standard Error	0.745304678
Median	0.6
Mode	0.25
Standard Deviation	9.717584096
Sample Variance	94.43144065
Kurtosis	150.8708241
Skewness	12.00457684
Range	124.05
Minimum	0.25
Maximum	124.3
Sum	341.4
Count	170
Largest(1)	124.3
Smallest(1)	0.25
Confidence Level(95.0%)	1.471305351

Bin	Frequency	Cumulative %
0.3	70	41.18%
9.8	97	98.24%
19.3	1	98.82%
28.9	1	99.41%
38.4	0	99.41%
48.0	0	99.41%
57.5	0	99.41%
67.0	0	99.41%
76.6	0	99.41%
86.1	0	99.41%
95.7	0	99.41%
105.2	0	99.41%
114.8	0	99.41%
More	1	100.00%

Percentiles	Au ppm
>99%	3.7
>98%	3.534
>95%	2.7
>90%	2.1
>80%	1.4
>75%	1.3
>50%	0.6
>25%	0.25



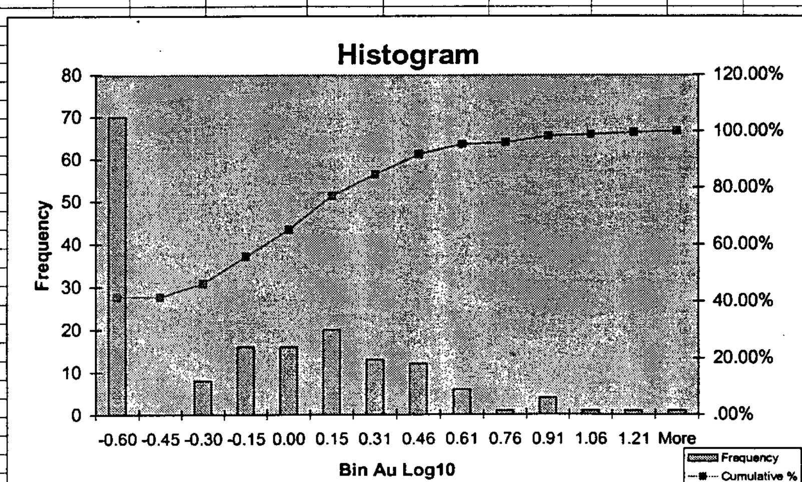
Log10 Au ppm

Au Log10	
Mean	-0.155142611
Standard Error	0.03652243
Median	-0.22184875
Mode	-0.602059991
Standard Deviation	0.476194232
Sample Variance	0.226760946
Kurtosis	2.22544438
Skewness	1.158540534
Range	2.69653112
Minimum	-0.602059991
Maximum	2.094471129
Sum	-26.3742439
Count	170
Largest(1)	2.094471129
Smallest(1)	-0.602059991
Confidence Level(95.0%)	0.0720989

Bin	Frequency	Cumulative %	Au ppm
-0.60	70	41.42%	#VALUE!
-0.45	0	41.42%	0.3
-0.30	8	46.15%	0.4
-0.15	16	55.62%	0.5
0.00	16	65.09%	0.7
0.15	20	76.92%	1.0
0.31	13	84.62%	1.4
0.46	12	91.72%	2.0
0.61	6	95.27%	2.9
0.76	1	95.86%	4.1
0.91	4	98.22%	5.7
1.06	1	98.82%	8.1
1.21	1	99.41%	11.5
More	1	100.00%	

Picked Thresholds

Au ppm
<1-2.5
2.6 - 5.0
5.1-10.0
10.1-25.0
>25.1



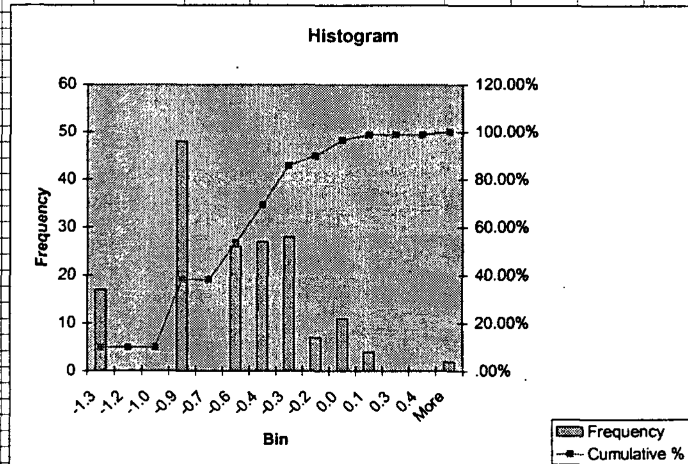
Kusawa Proposed SMA, 2002 EMR silt samples

Bi ppm

Bi ppm	
Mean	0.317941176
Standard Error	0.029367257
Median	0.2
Mode	0.1
Standard Deviation	0.38290218
Sample Variance	0.146614079
Kurtosis	38.2290199
Skewness	5.203024098
Range	3.55
Minimum	0.05
Maximum	3.6
Sum	54.05
Count	170
Largest(1)	3.6
Smallest(1)	0.05
Confidence Level(95.0%)	0.057973877

Bin	*Frequency*	*Cumulative %*
-1.3	17	10.00%
-1.2	0	10.00%
-1.0	0	10.00%
-0.9	48	38.24%
-0.7	0	38.24%
-0.6	26	53.53%
-0.4	27	69.41%
-0.3	28	85.88%
-0.2	7	90.00%
0.0	11	96.47%
0.1	4	98.82%
0.3	0	98.82%
0.4	0	98.82%
More	2	100.00%

Percentiles	Bi ppm
>99%	0.7
>98%	0.7
>95%	0.695
>90%	0.5
>80%	0.4
>75%	0.4
>50%	0.2
>25%	0.1

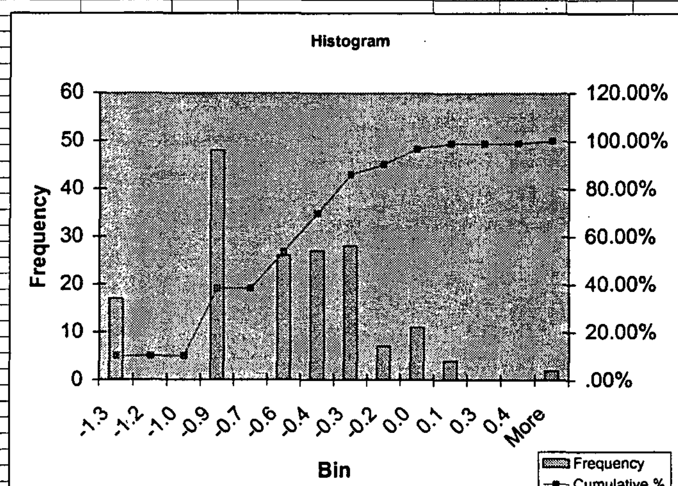


Log10 Bi ppm

Bi Log10	
Mean	-0.671913745
Standard Error	0.029256314
Median	-0.698970004
Mode	-1
Standard Deviation	0.381455663
Sample Variance	0.145508423
Kurtosis	-0.366787931
Skewness	0.201215781
Range	1.857332496
Minimum	-1.301029996
Maximum	0.556302501
Sum	-114.2253366
Count	170
Largest(1)	0.556302501
Smallest(1)	-1.301029996
Confidence Level(95.0%)	0.057754865

Bin	*Frequency*	*Cumulative %*	*Bi ppm*
-1.3	17	10.00%	0.1
-1.2	0	10.00%	0.1
-1.0	0	10.00%	0.1
-0.9	48	38.24%	0.1
-0.7	0	38.24%	0.2
-0.6	26	53.53%	0.3
-0.4	27	69.41%	0.4
-0.3	28	85.88%	0.5
-0.2	7	90.00%	0.7
0.0	11	96.47%	1.0
0.1	4	98.82%	1.3
0.3	0	98.82%	1.9
0.4	0	98.82%	2.6
More	2	100.00%	

Picked Thresholds
Bi ppm
<.3
.31-.07
.071-1.0
1.01-2.6
>2.61



Mineral Assessment
Proposed Kusawa SMA
Stream Sediment Geochemistry(-80 mesh)

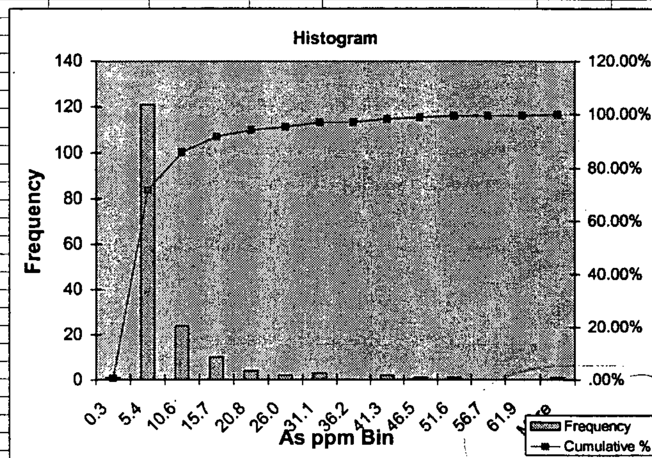
Kusawa Proposed SMA, 2002 EMR silt samples

As ppm

As ppm	
Mean	6.534117647
Standard Error	0.703044003
Median	3.65
Mode	1.9
Standard Deviation	9.166572316
Sample Variance	84.02604803
Kurtosis	16.41200824
Skewness	3.709352576
Range	66.7
Minimum	0.3
Maximum	67
Sum	1110.8
Count	170
Largest(1)	67
Smallest(1)	0.3
Confidence Level(95.0%)	1.387878589

Bin	*Frequency*	*Cumulative %*
0.3	1	.59%
5.4	121	71.76%
10.6	24	85.88%
15.7	10	91.76%
20.8	4	94.12%
26.0	2	95.29%
31.1	3	97.06%
36.2	0	97.06%
41.3	2	98.24%
46.5	1	98.82%
51.6	1	99.41%
56.7	0	99.41%
61.9	0	99.41%
More	1	100.00%

Percentiles	As ppm
>99%	21.87
>98%	18.802
>95%	14.75
>90%	10.26
>80%	6.3
>75%	5.35
>50%	3.4
>25%	2.125

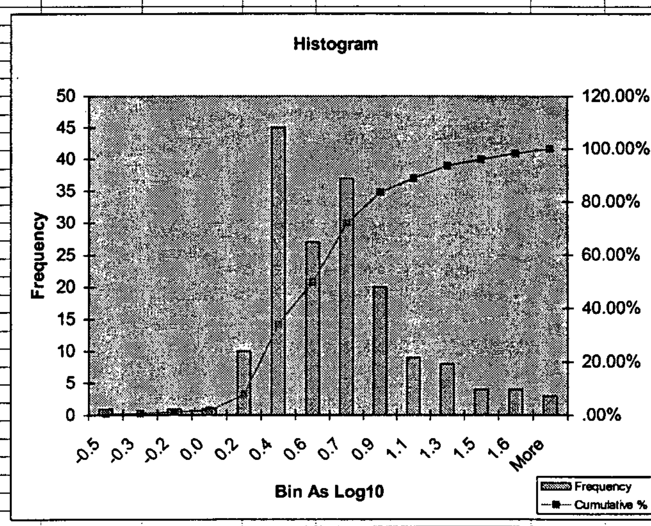


Log10 As ppm

U Log10	
Mean	0.608407627
Standard Error	0.029314293
Median	0.562252112
Mode	0.278753601
Standard Deviation	0.382211625
Sample Variance	0.146085726
Kurtosis	0.982633032
Skewness	0.751153763
Range	2.348953548
Minimum	-0.522878745
Maximum	1.826074803
Sum	103.4292965
Count	170
Largest(1)	1.826074803
Smallest(1)	-0.522878745
Confidence Level(95.0%)	0.057869323

Bin	*Frequency*	*Cumulative %*
-0.5	1	.59%
-0.3	0	.59%
-0.2	1	1.18%
0.0	1	1.76%
0.2	10	7.65%
0.4	45	34.12%
0.6	27	50.00%
0.7	37	71.76%
0.9	20	83.53%
1.1	9	88.82%
1.3	8	93.53%
1.5	4	95.88%
1.6	4	98.24%
More	3	100.00%

Picked Thresholds
As ppm
<3.2
3.3-10.0
10.1-15.0
15.1-40.0
>40.1



	EM&R, Yukon Geology Program - Mineral Assessments											
	Proposed Kusawa SMA											
	EMR 2002 - Soil Samples											
Descriptive Statistics	*Ba_ppm*	*Cr_ppm*	*Ga_ppm*	*La_ppm*	*Mn_ppm*	*Sr_ppm*	*V_ppm*	*Zn_ppm*	*Al__*	*Ag__ppm*	*As__ppm*	*Au__ppb*
Mean	210.82	25.36	6.09	27.05	563.13	50.47	45.90	112.30	1.56	0.43	10.21	2.93
Standard Error	16.66	2.70	0.24	2.03	44.45	6.27	3.34	8.54	0.08	0.10	1.83	0.87
Median	161	18.5	6	21	450	32.5	38	86.5	1.33	0.1	4.65	1.2
Mode	143	10	5	15	575	26	36	78	1.41	0.1	1.8	0.25
Standard Deviation	168.24	27.27	2.41	20.54	448.89	63.37	33.76	86.22	0.76	0.98	18.44	8.81
Sample Variance	28304.60	743.68	5.82	421.97	201504.19	4015.18	1139.67	7434.43	0.58	0.97	339.88	77.63
Kurtosis	5.99	9.74	0.98	11.96	17.53	27.09	5.19	10.15	2.66	53.02	15.03	65.48
Skewness	2.14	2.76	0.87	2.92	3.49	4.58	1.80	2.71	1.45	6.58	3.79	7.63
Range	935	164	12	138	3390	496	208	557	4.21	8.75	104.1	81.55
Minimum	20	1	2	5	53	4	1	37	0.41	0.05	1	0.25
Maximum	955	165	14	143	3443	500	209	594	4.62	8.8	105.1	81.8
Sum	21504	2587	621	2759	57439	5148	4682	11455	159.32	43.4	1041.4	298.7
Count	102	102	102	102	102	102	102	102	102	102	102	102
Largest(1)	955	165	14	143	3443	500	209	594	4.62	8.8	105.1	81.8
Smallest(1)	20	1	2	5	53	4	1	37	0.41	0.05	1	0.25
Confidence Level(95.0%)	33.045	5.356	0.474	4.035	88.171	12.446	6.631	16.936	0.150	0.193	3.621	1.731

Descriptive Statistics	*B__ppm*	*Bi__ppm*	*Ca__*	*Cd__ppm*	*Co__ppm*	*Cu__ppm*	*Fe__*	*Hg__ppm*	*K__*	*Mg__*	*Mo__ppm*	*Na__*
Mean	1.13	0.51	0.57	0.45	9.86	38.20	2.84	0.08	0.26	0.60	4.66	0.02
Standard Error	0.07	0.09	0.12	0.05	0.78	5.16	0.17	0.02	0.02	0.04	1.97	0.00
Median	1	0.2	0.38	0.3	7.25	20.75	2.355	0.02	0.22	0.555	1	0.017
Mode	1	0.1	0.38	0.2	6.9	3.5	2.36	0.01	0.14	0.34	0.5	0.012
Standard Deviation	0.76	0.89	1.19	0.46	7.92	52.13	1.68	0.16	0.20	0.42	19.94	0.03
Sample Variance	0.57	0.80	1.42	0.21	62.75	2717.74	2.82	0.03	0.04	0.18	397.41	0.00
Kurtosis	5.02	25.77	82.85	6.62	6.75	11.42	6.21	3.13	3.60	4.56	86.79	10.47
Skewness	2.14	4.49	8.74	2.31	2.20	3.13	2.23	2.24	1.81	1.79	9.05	3.00
Range	3.5	6.75	11.79	2.45	49.2	326.3	10.1	0.49	1	2.26	196.2	0.15
Minimum	0.5	0.05	0.09	0.05	0.7	2.2	0.74	0.01	0.06	0.06	0.1	0.003
Maximum	4	6.8	11.88	2.5	49.9	328.5	10.84	0.5	1.06	2.32	196.3	0.153
Sum	115	51.6	57.89	46.35	1005.8	3896.7	289.2	8.35	26.83	61.06	475.3	2.465
Count	102	102	102	102	102	102	102	102	102	102	102	102
Largest(1)	4	6.8	11.88	2.5	49.9	328.5	10.84	0.5	1.06	2.32	196.3	0.153
Smallest(1)	0.5	0.05	0.09	0.05	0.7	2.2	0.74	0.01	0.06	0.06	0.1	0.003
Confidence Level(95.0%)	0.149	0.176	0.234	0.091	1.556	10.240	0.330	0.032	0.039	0.083	3.916	0.005

Descriptive Statistics	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
Mean	17.50	0.10	56.73	0.05	0.46	3.59	9.72	0.10	0.23	3.78	0.40
Standard Error	2.34	0.01	26.71	0.01	0.15	0.26	1.03	0.01	0.02	0.32	0.07
Median	9.65	0.086	12.2	0.025	0.1	3.1	6.85	0.0935	0.2	2.55	0.2
Mode	1.1	0.095	5.4	0.025	0.1	2.3	3.9	0.067	0.1	1.3	0.2
Standard Deviation	23.61	0.06	269.77	0.07	1.52	2.65	10.38	0.07	0.17	3.24	0.71
Sample Variance	557.51	0.00	72775.60	0.01	2.31	7.01	107.81	0.00	0.03	10.53	0.50
Kurtosis	9.47	6.20	85.62	21.25	55.37	33.35	21.58	0.39	7.98	2.58	59.08
Skewness	2.93	1.76	9.02	4.33	6.93	4.77	4.09	0.68	2.49	1.48	7.01
Range	134.1	0.416	2636.3	0.505	13.45	22.8	75.5	0.297	0.9	16.6	6.55
Minimum	0.8	0.008	3.3	0.025	0.05	1	0.4	0.001	0.1	0.6	0.05
Maximum	134.9	0.424	2639.6	0.53	13.5	23.8	75.9	0.298	1	17.2	6.6
Sum	1784.8	10.122	5786	5.115	46.45	366.4	991.3	10.007	23.1	385.7	40.35
Count	102	102	102	102	102	102	102	102	102	102	102
Largest(1)	134.9	0.424	2639.6	0.53	13.5	23.8	75.9	0.298	1	17.2	6.6
Smallest(1)	0.8	0.008	3.3	0.025	0.05	1	0.4	0.001	0.1	0.6	0.05
Confidence Level(95.0%)	4.638	0.012	52.988	0.015	0.298	0.520	2.039	0.013	0.034	0.637	0.139

Mineral Assessments
Proposed Kusawa SMA
Soil Geochemistry (-80 mesh)

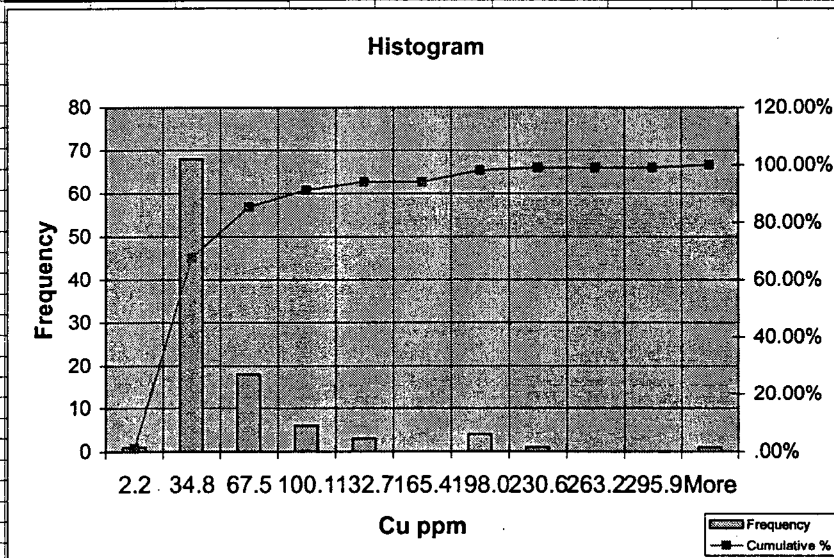
Kusawa Proposed SMA, 2002 EMR Soil Samples

Cu ppm

Cu ppm	
Mean	38.20294118
Standard Error	5.161829849
Median	20.75
Mode	3.5
Standard Deviation	52.13192605
Sample Variance	2717.737714
Kurtosis	11.41799146
Skewness	3.126500989
Range	326.3
Minimum	2.2
Maximum	328.5
Sum	3896.7
Count	102
Largest(1)	328.5
Smallest(1)	2.2
Confidence Level(95.0%)	10.23968048

Bin	*Frequency*	*Cumulative %*
2.2	1	.98%
34.8	68	67.65%
67.5	18	85.29%
100.1	6	91.18%
132.7	3	94.12%
165.4	0	94.12%
198.0	4	98.04%
230.6	1	99.02%
263.2	0	99.02%
295.9	0	99.02%
More	1	100.00%

Percentiles	Cu ppm
>99%	212.389
>98%	191.426
>95%	182.16
>90%	79.51
>80%	44.26
>75%	39.975
>50%	20.75
>25%	11.575

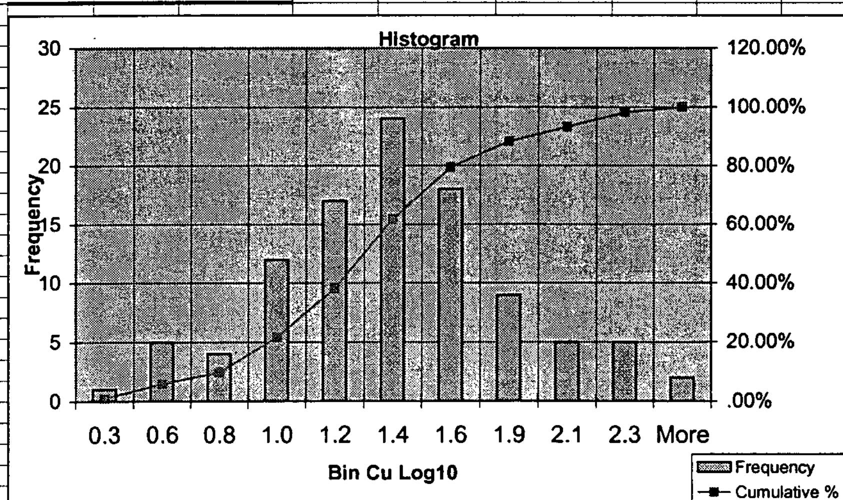


Log10 Cu ppm

Cu Log10	
Mean	1.335187048
Standard Error	0.044727427
Median	1.317006753
Mode	0.544068044
Standard Deviation	0.451724869
Sample Variance	0.204055357
Kurtosis	0.043592479
Skewness	0.240940631
Range	2.174112693
Minimum	0.342422681
Maximum	2.516535374
Sum	136.1890789
Count	102
Largest(1)	2.516535374
Smallest(1)	0.342422681
Confidence Level(95.0%)	0.088727171

Bin	*Frequency*	*Cumulative %*	Cu ppm
0.3	1	.98%	#VALUE!
0.6	5	5.88%	2.2
0.8	4	9.80%	3.6
1.0	12	21.57%	6.0
1.2	17	38.24%	9.9
1.4	24	61.76%	16.3
1.6	18	79.41%	26.9
1.9	9	88.24%	44.3
2.1	5	93.14%	73.2
2.3	5	98.04%	120.7
More	2	100.00%	199.1

Picked Thresholds
Cu ppm
<8
8.1 - 40.0
40.1 - 100.0
100.1 - 200.0
>200.1



11/05/2002

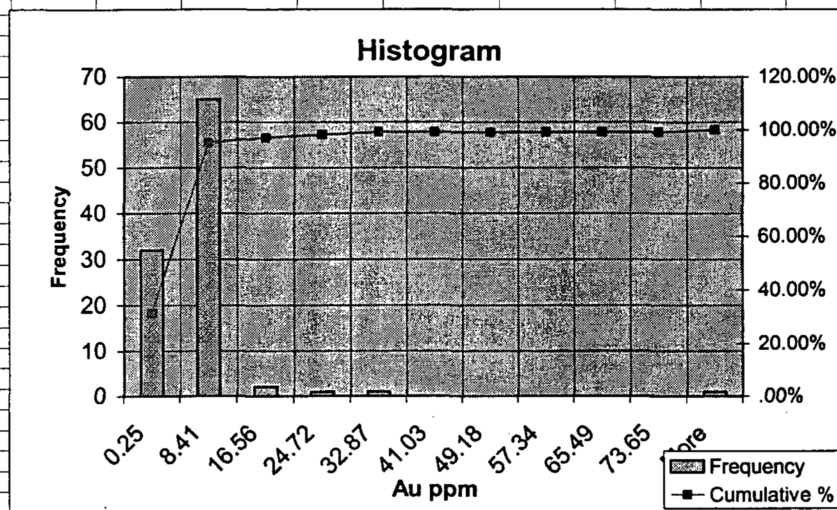
Kusawa Proposed SMA, 2002 EMR Soil Samples

Au ppb

Au ppb	
Mean	2.928431373
Standard Error	0.872410195
Median	1.2
Mode	0.25
Standard Deviation	8.810911074
Sample Variance	77.63215395
Kurtosis	65.47940162
Skewness	7.629226046
Range	81.55
Minimum	0.25
Maximum	81.8
Sum	298.7
Count	102
Largest(1)	81.8
Smallest(1)	0.25
Confidence Level(95.0%)	1.73062691

Bin	*Frequency*	*Cumulative %*
0.25	32	31.37%
8.41	65	95.10%
16.56	2	97.06%
24.72	1	98.04%
32.87	1	99.02%
41.03	0	99.02%
49.18	0	99.02%
57.34	0	99.02%
65.49	0	99.02%
73.65	0	99.02%
More	1	100.00%

Percentiles	Au ppb
>99%	29.036
>98%	22.472
>95%	7.475
>90%	3.6
>80%	2.8
>75%	2.475
>50%	1.2
>25%	0.25

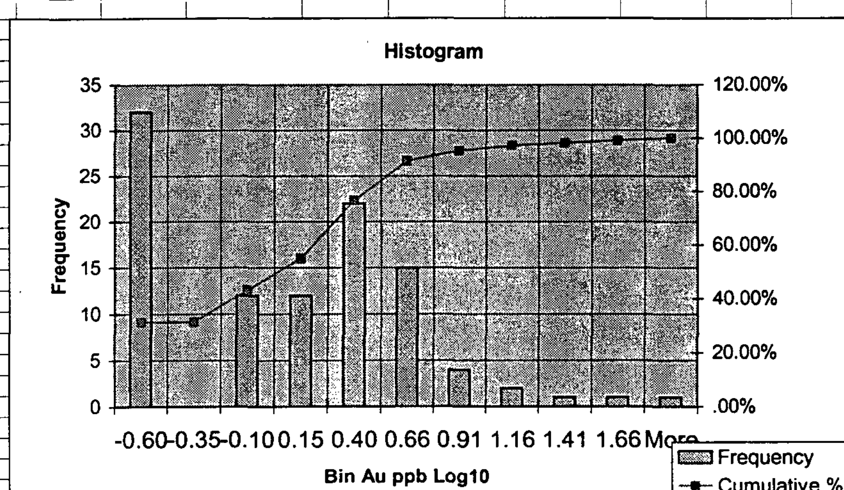


Log10 Au ppm

Au Log10	
Mean	0.020049115
Standard Error	0.054087615
Median	0.079181246
Mode	-0.602059991
Standard Deviation	0.546258137
Sample Variance	0.298397953
Kurtosis	0.431275832
Skewness	0.642542572
Range	2.514813295
Minimum	-0.602059991
Maximum	1.912753304
Sum	2.045009694
Count	102
Largest(1)	1.912753304
Smallest(1)	-0.602059991
Confidence Level(95.0%)	0.107295264

Bin	*Frequency*	*Cumulative %*	**Au ppb**
-0.60	32	31.37%	#VALUE!
-0.35	0	31.37%	0.3
-0.10	12	43.14%	0.4
0.15	12	54.90%	0.8
0.40	22	76.47%	1.4
0.66	15	91.18%	2.5
0.91	4	95.10%	4.5
1.16	2	97.06%	8.1
1.41	1	98.04%	14.4
1.66	1	99.02%	25.7
More	1	100.00%	45.8

Picked Thresholds	
	Au ppb
	<0.4
	0.41-5.0
	5.1-10.0
	10.1-30.0
	>30.1



Mineral Assessments
Proposed Kusawa SMA
Soil Geochemistry (-80 mesh)

Soil

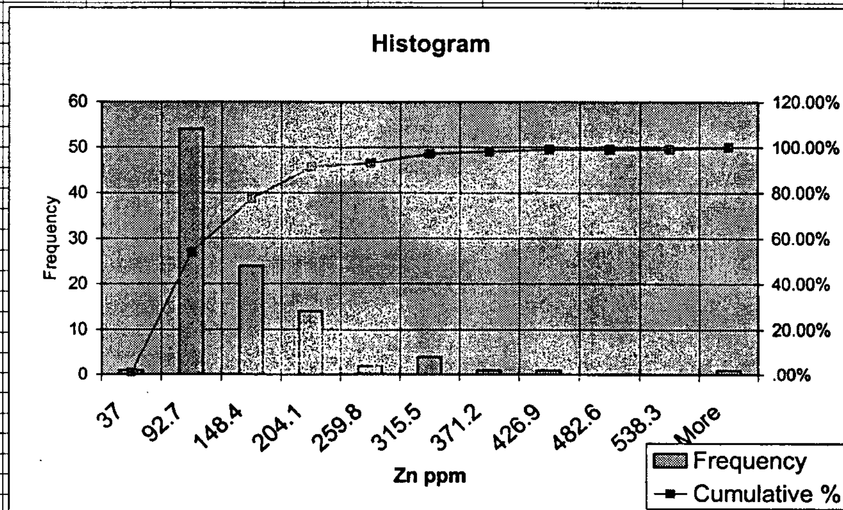
Kusawa Proposed SMA, 2002 EMR Soil Samples

Zn ppm

Zn_ppm	
Mean	112.3039216
Standard Error	8.537363939
Median	86.5
Mode	78
Standard Deviation	86.22314927
Sample Variance	7434.43147
Kurtosis	10.14889766
Skewness	2.713602655
Range	557
Minimum	37
Maximum	594
Sum	11455
Count	102
Largest(1)	594
Smallest(1)	37
Confidence Level(95.0%)	16.93583117

Bin	*Frequency*	*Cumulative %*
37	1	.98%
92.7	54	53.92%
148.4	24	77.45%
204.1	14	91.18%
259.8	2	93.14%
315.5	4	97.06%
371.2	1	98.04%
426.9	1	99.02%
482.6	0	99.02%
538.3	0	99.02%
More	1	100.00%

Percentiles	Zn ppm
>99%	384.7
>98%	354.16
>95%	301.9
>90%	184.6
>80%	151.8
>75%	142.5
>50%	86.5
>25%	56.25

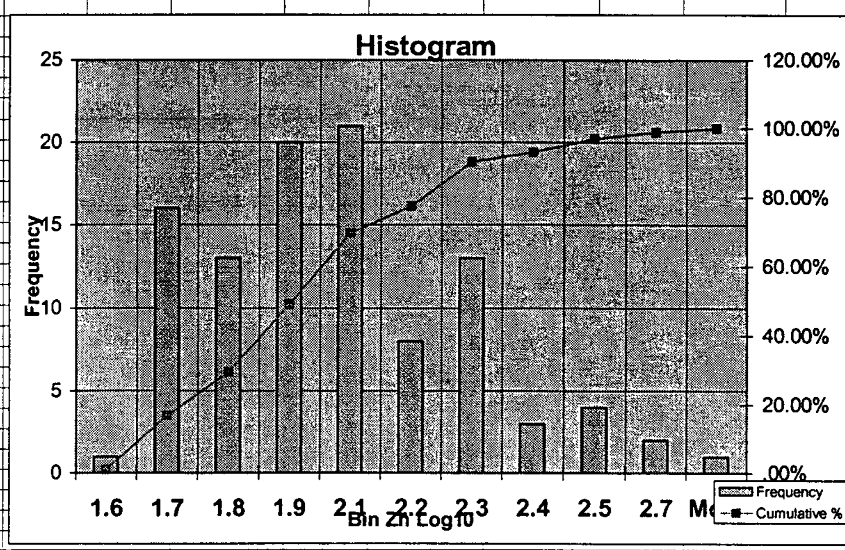


Log10 Zn ppm

Zn Log10	
Mean	1.964579837
Standard Error	0.025622293
Median	1.937008852
Mode	1.892094603
Standard Deviation	0.258772475
Sample Variance	0.066963194
Kurtosis	0.158274463
Skewness	0.64987458
Range	1.205584721
Minimum	1.568201724
Maximum	2.773786445
Sum	200.3871434
Count	102
Largest(1)	2.773786445
Smallest(1)	1.568201724
Confidence Level(95.0%)	0.05082773

Bin	*Frequency*	*Cumulative %*	Zn ppm
1.6	1	.98%	#VALUE!
1.7	16	16.67%	37.0
1.8	13	29.41%	48.8
1.9	20	49.02%	64.5
2.1	21	69.61%	85.1
2.2	8	77.45%	112.3
2.3	13	90.20%	148.2
2.4	3	93.14%	195.7
2.5	4	97.06%	258.3
2.7	2	99.02%	340.9
More	1	100.00%	450.0

Picked Thresholds
Zn ppm
<70
70.1 - 140.0
140.1 - 220.0
220.1 - 300.0
>300.1



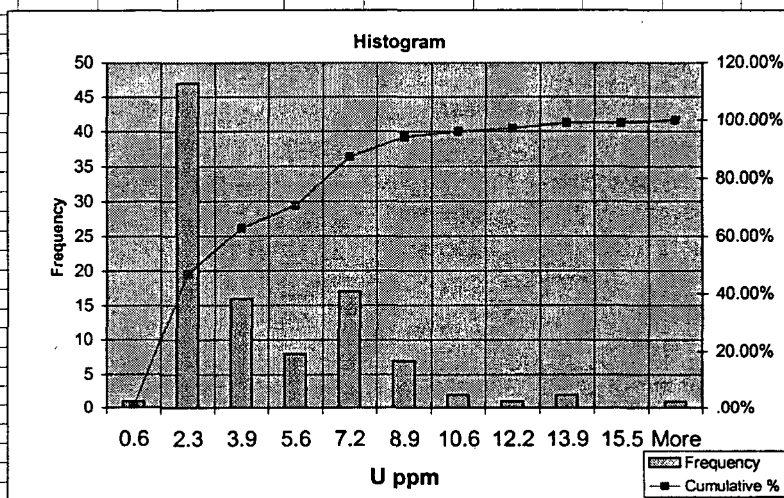
Kusawa Proposed SMA, 2002 EMR Soil Samples

U ppb

U ppm	
Mean	3.781372549
Standard Error	0.321236722
Median	2.55
Mode	0.9
Standard Deviation	3.244331855
Sample Variance	10.52568919
Kurtosis	2.583787122
Skewness	1.484668037
Range	16.6
Minimum	0.6
Maximum	17.2
Sum	385.7
Count	102
Largest(1)	17.2
Smallest(1)	0.6
Confidence Level(95.0%)	0.637247155

Bin	*Frequency*	*Cumulative %*
0.6	1	.98%
2.3	47	47.06%
3.9	16	62.75%
5.6	8	70.59%
7.2	17	87.25%
8.9	7	94.12%
10.6	2	96.08%
12.2	1	97.06%
13.9	2	99.02%
15.5	0	99.02%
More	1	100.00%

Percentiles	U ppm
>99%	13.396
>98%	12.972
>95%	9.18
>90%	7.69
>80%	6.34
>75%	5.8
>50%	2.55
>25%	1.3

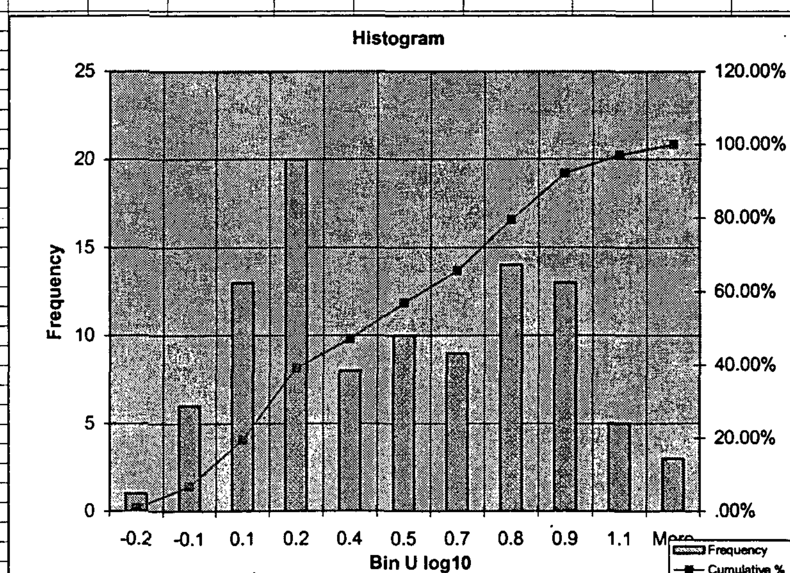


Log10 Au ppm

U Log10	
Mean	0.425449589
Standard Error	0.036645205
Median	0.406456678
Mode	-0.045757491
Standard Deviation	0.370098426
Sample Variance	0.136972845
Kurtosis	-1.213169575
Skewness	0.160707977
Range	1.457377197
Minimum	-0.22184875
Maximum	1.235528447
Sum	43.39585812
Count	102
Largest(1)	1.235528447
Smallest(1)	-0.22184875
Confidence Level(95.0%)	0.072694218

Bin	*Frequency*	*Cumulative %*	U ppm
-0.2	1	.98%	#VALUE!
-0.1	6	6.86%	0.6
0.1	13	19.61%	0.8
0.2	20	39.22%	1.2
0.4	8	47.06%	1.6
0.5	10	56.86%	2.3
0.7	9	65.69%	3.2
0.8	14	79.41%	4.5
0.9	13	92.16%	6.3
1.1	5	97.06%	8.8
More	3	100.00%	12.3

Picked Thresholds
U ppm
<2.0
2.1-6.0
6.1-11.0
11.1-16.0
>16.1



Appendix E

2002 Geochemistry Results

	2002 Mineral Assessments - Proposed Kusawa SMA																		
	EMR Rock Geochemistry																		
Number	Albers_x	Albers_y	Sample_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
56407	302653.75	650729.0614	rock	Kusawa	20	79	4	6	85	167	18	18	1.66	0.1	7.9	4.9	1	0.1
56409	302641.345	650370.9198	rock	Kusawa	57	76	5	10	427	155	32	28	1.41	0.1	3.7	2.3	1	0.1
56411	302905.772	649244.9866	rock	Kusawa	26	74	8	12	374	579	31	24	2.71	0.1	2	1.1	1	0.1
56412	303082.354	649169.3151	rock	Kusawa	57	58	4	8	745	146	49	55	0.94	0.1	3.9	1.2	1	0.2
56417	302142.323	651501.2229	rock	Kusawa	12	40	5	9	408	562	10	10	2.04	0.05	2.1	0.7	1	0.1
56418	295717.317	655825.6105	rock	Kusawa	24	112	1	4	194	4	4	13	0.22	0.05	1.6	0.5	0.5	1.6
56419	295682.772	655859.951	rock	Kusawa	10	102	1	1	73	2	2	10	0.18	0.1	1.2	0.25	0.5	0.8
56420	296094.695	656817.8908	rock	Kusawa	24	99	4	9	336	14	29	31	0.85	0.1	2.5	0.25	0.5	0.1
56501	300886.565	650884.7495	rock	Kusawa	51	167	4	9	121	38	139	91	0.65	0.5	1.2	1.1	0.5	0.2
56509	301826.357	653196.3281	rock	Kusawa	85	67	5	8	137	175	27	17	2.48	0.1	4.9	1.3	1	0.05
56510	301793.976	653260.5706	rock	Kusawa	12	88	1	8	326	50	3	10	0.32	0.05	1.7	1.1	0.5	0.05
56516	302124.5	651539.0058	rock	Kusawa	26	58	11	7	3001	239	10	585	1.92	11.4	1.3	0.25	1	5.4
56552	281022.512	639592.7457	rock	Kusawa	556	61	10	19	827	54	80	198	2.02	0.2	1.2	0.25	0.5	0.3
56554	280115.856	641649.0681	rock	Kusawa	142	56	4	19	299	24	23	71	0.76	0.1	1.4	0.25	1	0.3
56556	284705.938	638454.6435	rock	Kusawa	22	78	2	11	26	2	1	9	0.17	0.4	1.3	0.25	0.5	0.4
56562	280840.167	664993.2235	rock	Kusawa	9	67	5	2	178	58	47	22	1.7	0.3	0.6	1.9	1	0.1
56569	279968.98	666041.5332	rock	Kusawa	45	70	7	15	381	21	14	84	0.82	0.3	1.3	1.2	0.5	0.5
97178	314375.241	654311.5938	rock	Kusawa	10	238	0	0	38	10	1	1066	0.02	105	2	3813.4	0.5	71.9
97179	285868.001	647649.3859	rock	Kusawa	722	160	1	22	36	5	1	29	0.28	1.4	13.4	21	1	0.5

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
56407	1.48	0.1	33.1	97.3	2.29	0.01	0.04	0.29	0.8	0.167	66.6	0.038	12	1.02	0.4	1.4	2.3	0.088	0.1	1.2
56409	3.01	0.1	14	61.3	1.81	0.01	0.13	0.48	0.5	0.098	16	0.095	5.9	0.26	0.3	2.9	3.9	0.103	0.1	0.6
56411	12.53	0.1	8	18.6	1.81	0.01	0.22	0.54	0.5	0.16	22.1	0.048	8.8	0.22	0.2	2.9	5.9	0.111	0.1	0.8
56412	2.83	0.1	12.4	47.9	2.2	0.01	0.02	0.21	2.8	0.057	20.5	0.456	4.7	0.14	0.3	1.2	2.9	0.054	0.1	3.5
56417	15.67	0.05	5.4	8.5	0.62	0.01	0.03	0.14	0.2	0.112	15.2	0.033	7	0.025	0.2	1.2	4.7	0.056	0.1	0.6
56418	0.09	0.05	0.8	12.5	0.45	0.01	0.12	0.04	0.7	0.045	2.2	0.012	5.9	0.025	0.1	0.8	2.6	0.006	0.1	4.5
56419	0.04	0.1	0.4	7.6	0.28	0.5	0.13	0.02	0.5	0.029	1.8	0.011	8.5	0.025	0.1	0.5	0.6	0.001	0.1	1.9
56420	0.26	0.1	5.4	15.5	1.58	0.01	0.05	0.5	1.1	0.038	13.5	0.007	5.9	0.025	0.2	3.3	4.4	0.106	0.1	1.2
56501	0.66	0.6	1.6	24.6	1.45	0.5	0.14	0.31	9.9	0.039	12.7	0.146	4	0.15	0.2	2	2.3	0.075	0.1	1.6
56509	3.84	0.1	8.8	21.2	0.93	0.01	0.04	0.12	0.5	0.209	4	0.143	5.3	0.025	0.3	1.5	2.9	0.101	0.1	1.2
56510	12.73	0.4	0.9	8.8	0.26	0.5	0.02	0.09	0.4	0.007	4.6	0.041	48.7	0.025	9.5	0.5	2.7	0.027	0.1	1.2
56516	2.55	2.9	49.5	2934.6	6.59	0.01	0.01	0.57	0.3	0.0005	20.2	0.032	131.2	0.31	0.4	1.3	8.9	0.011	0.1	7.4
56552	1.25	0.7	15	27.1	4.63	0.5	0.76	1.54	1.2	0.093	19.9	0.295	12.9	0.025	0.3	2.6	0.8	0.22	0.2	0.3
56554	0.31	0.3	3.7	14.3	1.61	0.5	0.29	0.29	1.4	0.055	2.2	0.06	15	0.025	0.2	2.2	8.2	0.088	0.2	1.8
56556	0.03	0.1	0.4	7.2	1	0.5	0.09	0.01	4	0.032	1.4	0.004	10	0.09	0.1	0.8	8.4	0.006	0.1	0.4
56562	1.54	0.1	21.7	132.5	2.33	0.5	0.02	0.41	1	0.26	65.2	0.071	2.3	0.95	0.3	3.5	0.2	0.173	0.1	0.1
56569	0.51	0.3	5.3	84	3.08	0.5	0.18	0.19	2.4	0.077	1.7	0.081	7.1	1.22	0.2	7	3.2	0.148	0.1	0.6
97178	0.01	40.4	0.7	24.3	0.65	1.04	0.01	0.01	0.9	0.0005	3.8	0.001	25602.7	0.72	16.2	0.1	0.05	0.001	0.1	0.4
97179	0.02	0.1	0.7	7.4	1.06	0.01	0.18	0.01	5.3	0.006	3.1	0.013	170.6	0.17	0.4	0.3	9.1	0.0005	0.1	1.6

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Description	Duplicate	Width_m_	Attitude	Modifier
56407	0.7	08V	441055	6685963	NAD83	20020708	RS		rusty weathere green qz-diopside skarnoid. 2 - 5 % py (tr po?) Boulder train on slope with grey limestone		float		grab
56409	1	08V	441057	6685604	NAD83	20020708	RS		Contact zone thin bedded grey lst w/platy argillite. Argillaceous lst bands skarnified 2 - 20 cm. Diss py and fine grained dark sulphide (sphalerite?)		7.0 m		grab
56411	0.4	08V	441366	6684488	NAD83	20020708	RS		wkly skarnified lst. Light green w/ local rusty weathering. Diss py w/f.g. black diss grains. White surface oxide (hydrozincite?)		0.5 m		grab
56412	0.9	08V	441545	6684420	NAD83	20020708	RS		Wk diopside skarnoid with Mn wad. Trace diss py		0.3 m		grab
56417	0.2	08V	440514	6686714	NAD83	20020709	RS		Wk green skarnoid zone with tr diss py.		0.5 m		grab
56418	0.2	08V	433932	6690781	NAD83	20020709	RS		Qz veining in meta-sst. Qz-biotie w/ gneissic texture. Large boulder talus. F.g. felic dykes w/ qz vns up to 20 cm		float		grab
56419	0.1	08V	433896	6690814	NAD83	20020709	RS		Massive white qz veins. Patchy rown weathering.		0.5 m	100/21s	grab
56420	0.2	08V	434269	6691789	NAD83	20020709	RS		Mass white qz on qfp dyke contact.		1.0 m		grab
56501	0.5	08V	439286	6686047	NAD83	20020707	JvR		metasediment subcrop, intensely rusty, thinly laminated biotite rich schist with local but rare fine grained pyrite				grab
56509	0.1	08V	440131	6688397	NAD83	20020708	JvR		garnet diopside skarn with blebs of ?sphalerite on FW of limestone unit up to 15 cm wide, garnets best developed at contact with limestone up to 4mm across; [MS readings on metaseds 30.9, 27.6, 40.2]				grab
56510	0.1	08V	440096	6688460	NAD83	20020708	JvR		grab across thinly laminated skarn that is 1.7 meters thick with more competent garnet/diopside skarn on HW side, no sx seen; limestone oriented @ 139/72E [MS readings on skarn 0.16, 0.21, 0.16]			139/72E	grab
56516	0.5	08V	440495	6686751	NAD83	20020709	JvR		float sample in steep limestone o/c talus slope, intensely rusty weathering boulder with deep weathering rind of iron oxide with pyritic clots and dissiminated throughout, rare chalcopyrite grains, lots of open space, dustin,,float,,grab				
56552	0.2	08V	419926	6673952	NAD83	20020707	FA		Po bearing, dark grey aphanitic dike. Hardness of 6, sbconchoidal breaking..				float
56554	0.4	08V	418939	6675972	NAD83	20020707	FA		tan weathering miarolitic fine grained intrusive & sucrosic textured white intrusive + dark grey coloured feldspar porphyry.		talus		grab
56556	0.1	08V	423645	6672962	NAD83	20020707	FA		hem/lim stained fine grained felsic intrusive. Argillic altered feldspar, <2% diss py (oxidized). Hbl going to chlorite.				grab
56562	0.2	08V	418723	6699350	NAD83	20020708	FA		diss blebs and patchy pyrrhotite in felsic band within rusty biotite orthogneiss.		talus		grab
56569	0.4	08V	417812	6700364	NAD83	20020708	FA		or-br weathering hornfelsed grey porphyry with 2% po blebs & trace diss py.		6		grab
97178	0.05	08V	452604	6690016	NAD83	20020624	RH		White quartz vein ,.3m across, with band of rusty wea sulfide rich band, dis sx in rusty section, <5%gn, 1-2% py, cpy? Similar to 97668 but higher grade.				float
97179	0.1	08V	424435	6682206	NAD83	20020624	RH		Vuggy coxcomb qtz veining & breccia filling cutting argillic-phylic alt grd, scorodite stained. H.S.				float

Number	Albers_x	Albers_y	Sample_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
97180	309676.027	686325.6811	rock	Kusawa	254	97	9	2	460	60	111	54	3.99	0.4	2.5	12	1	0.1
97181	310727.888	687942.5135	rock	Kusawa	23	51	2	6	197	18	98	31	0.41	0.8	2.5	4	0.5	0.5
97183	279779.998	623209.5822	rock	Kusawa	197	178	5	12	319	16	34	67	0.85	2.1	3.8	2.4	0.5	0.2
97184	281804.871	643503.3628	rock	Kusawa	153	153	1	3	42	5	1	258	0.15	14.4	189.8	27.6	0.5	1.2
97185	279139.162	667167.7703	rock	Kusawa	16	205	1	0	1070	5	8	38	0.25	0.1	7.6	4.5	13	0.2
97607	312081.013	649391.917	rock	Kusawa	49	88	4	16	107	75	28	58	1.31	0.3	1	2.2	0.5	0.1
97608	312081.013	649391.917	rock	Kusawa	13	138	4	18	1207	185	19	5519	1.38	6.1	2.2	3.4	1	9.8
97609	312081.013	649391.917	rock	Kusawa	17	66	3	5	1370	50	9	99999	0.64	170.6	2	22.1	0.5	449.7
97610	312081.013	649391.917	rock	Kusawa	12	81	3	8	675	74	15	5947	0.81	2.9	1.7	2.1	0.5	6.5
97611	312005.511	649504.0462	rock	Kusawa	8	239	0	1	37	1	2	363	0.07	0.8	0.9	1.2	1	1.9
97613	319351.161	679388.432	rock	Kusawa	254	55	12	9	396	412	131	185	4.87	0.3	0.9	3.1	1	0.3
97614	319397.035	679361.5284	rock	Kusawa	10	147	2	23	51	4	3	55	0.25	0.2	1.2	0.25	0.5	0.3
97615	319448.653	679349.9305	rock	Kusawa	147	86	9	9	441	122	150	93	2.55	0.4	10.3	4	1	0.2
97616	319428.744	679347.6211	rock	Kusawa	176	82	8	7	361	72	184	113	2.06	0.4	1.8	4.8	1	0.2
97633	279153.566	624593.8404	rock	Kusawa	516	47	10	18	576	32	75	111	1.71	0.2	5.4	2	0.5	0.6
97668	314247.82	654487.7217	rock	Kusawa	118	114	1	13	37	17	4	123	0.25	3.3	15.2	56.2	1	0.7
97669	314117.518	654640.6084	rock	Kusawa	218	61	3	9	64	76	9	17	0.27	0.6	32.9	7.1	1	0.4
97670	314266.541	654026.5353	rock	Kusawa	121	137	7	22	485	24	43	138	1.01	2.5	12.1	20.5	1	1.4
97671	285940.338	647306.1122	rock	Kusawa	185	78	8	17	315	15	36	127	1.08	1.8	6.2	2	0.5	2.4
97694	307745.545	646569.3924	rock	Kusawa	264	155	9	11	660	26	104	91	2.6	0.3	1.8	2.2	0.5	0.2
97695	307872.622	647014.8249	rock	Kusawa	30	18	1	2	4646	51	5	301	0.18	0.3	0.8	0.25	0.5	0.8
97702	312141.853	649378.6281	rock	Kusawa	8	135	2	5	882	20	11	23562	0.65	26.9	7.1	14.3	0.5	25.9

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
97180	2.17	0.1	13.5	331.1	3.76	0.5	1.34	1.12	0.6	0.387	5.5	0.15	52	0.025	3.2	9.8	1	0.249	0.3	0.3
97181	0.61	0.4	2.5	85.2	2.1	0.5	0.06	0.28	4	0.094	2.3	0.087	20.9	0.15	0.5	4.1	1.2	0.179	0.1	1.8
97183	0.26	0.7	11.4	645.2	2.42	0.5	0.56	0.48	3.7	0.074	11.3	0.051	14.8	0.49	0.2	4.4	3.3	0.146	0.2	2
97184	0.02	1.6	1.2	68.5	1.48	0.07	0.14	0.01	12.1	0.002	3	0.004	1603.6	0.38	2.7	0.2	1.6	0.001	0.1	0.5
97185	0.08	0.1	100.6	8.3	5.4	0.5	0.05	19.13	0.5	0.009	1859.3	0.003	11.9	0.07	0.1	4.2	0.3	0.006	0.1	0.2
97607	0.58	0.2	1.6	56.6	2.12	0.5	0.11	0.61	4.5	0.124	5.9	0.077	61.5	0.16	0.1	1.9	4.8	0.077	0.1	0.6
97608	5.12	20.6	11.7	23.7	1.9	0.5	0.04	1.48	1.4	0.0005	15.8	0.061	7242.2	0.025	0.7	3	3.1	0.029	0.1	0.6
97609	0.45	1051.7	128.9	28.8	3.67	0.15	0.04	0.62	2.7	0.003	12.8	0.042	24730.6	5.38	6.8	1.5	1.5	0.007	0.6	0.7
97610	1.66	34.5	11.9	24.4	1.17	0.5	0.03	0.47	14.3	0.003	10.6	0.04	4668.7	0.06	0.3	1.4	4.4	0.109	0.1	0.6
97611	0.02	2.1	1.3	4.7	0.31	0.5	0.02	0.03	1	0.002	4.5	0.004	702.6	0.025	0.3	0.2	0.4	0.001	0.1	0.05
97613	2.78	1.4	21.9	167.7	3.95	0.5	0.77	1.36	74.2	0.648	12.5	0.076	98.3	1.06	0.1	3.9	3.3	0.245	0.6	1
97614	0.03	0.2	1.2	27.9	1.13	0.5	0.03	0.01	1.4	0.087	3	0.001	41.5	0.025	0.1	0.6	6.6	0.009	0.1	1.2
97615	1.26	0.5	17.9	81.4	4.02	0.01	0.57	0.95	23.3	0.27	22.6	0.131	23.6	1.36	0.3	8.9	3.6	0.155	0.6	1.2
97616	0.79	0.6	15.2	119.9	4.06	0.01	0.85	1.05	6.4	0.198	20.6	0.101	30.1	1.48	0.6	9.3	3.1	0.192	0.8	1.5
97633	0.68	0.2	4.8	18.1	4.38	0.5	1.25	0.72	2.6	0.115	0.7	0.18	20.5	0.025	0.2	6.4	3.9	0.351	0.5	0.9
97668	0.11	2.2	0.8	8.7	1.01	0.02	0.17	0.07	1.3	0.002	2.4	0.054	584.2	0.2	0.1	0.6	5.5	0.002	0.1	3.3
97669	0.03	0.1	1.5	17.6	2.48	0.01	0.1	0.05	3.7	0.058	2.5	0.036	39.8	0.27	0.1	1.3	3.1	0.02	0.1	1.2
97670	0.22	2.7	9.2	5.8	3.76	0.01	0.26	0.59	2.1	0.005	8.2	0.07	241.7	0.025	0.2	2	12.3	0.004	0.1	13.4
97671	0.24	1.1	5.3	18.8	3.31	0.01	0.41	0.7	2.2	0.07	2.6	0.079	204.6	0.86	0.2	6.4	10.3	0.118	0.3	2.3
97694	0.45	0.3	7	45.4	3.16	0.5	0.89	1.25	3.5	0.039	26	0.071	11.2	0.09	0.1	6.6	4.9	0.204	0.3	1.3
97695	2.08	2.1	20.7	4	3	0.5	0.01	0.33	0.1	0.014	9.8	0.047	22.5	0.025	0.1	1.8	0.6	0.005	0.1	1.5
97702	0.43	150.1	30.7	20.4	2.17	0.05	0.02	0.5	6.3	0.001	12.5	0.038	24319.8	0.65	5.4	2.3	1.7	0.021	0.1	0.7

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Description	Duplicate	Width_m_	Attitude	Modifier
97180	0.6	08V	446640	6721842	NAD83	20020625	RH		epidote-qtx veined basalt, <10% veining and <5% qtz overall.				float
97181	0.4	08V	447625	6723500	NAD83	20020625	RH		across rusty wea dk green-grey fine grained aphanitic bas-and/, <2-5% dis fine grained py and poo.		8m		chip
97183	0.1	08V	419345	6657511	NAD83	20020704	RH		Limonite stained quartz vein cutting foliated granodiorite with biotite band. Tr diss pyy.				float
97184	0.2	08V	420549	6677895	NAD83	20020705	RH		White crystalline quartz vein float (15X20cm) cut by vuggy coxcomb lined fractures. 0.5% bright fine grained pyy. Rusty lim-hem weathering. Surrounding float of sericite alt, bleached fine grained qtz porphyry. H.S.				float
97185	0.2	08V	416939	6701457	NAD83	20020707	RH		Fine grained dark green skarn. Tr dis pyrrhotite. Unit ~2m wide and traced 25m on surface.				grab
97607	0.1	08V	450512	6685003	NAD83	20020624	FA		rusty staining fractures in fine grain intrusive with 1% patchy py.		1.2		chip
97608	0.4	08V	450512	6685003	NAD83	20020624	FA		silica replacement of limestone with mm chalcedony veinlets. Trace disseminated sphalerite and galena.		0.7		chip
97609	0.4	08V	450512	6685003	NAD83	20020624	FA		black/brown mottled fine grained intrusive/limestone contact replaced by sphalerite and galena blobs, patches & veinlets.		0.5		chip
97610	0.4	08V	450512	6685003	NAD83	20020624	FA		diopside altered schist with calcite veinlets andmm scale chalcedony veinlets.				grab
97611	0.05	08V	450432	6685112	NAD83	20020624	FA		white quartz sweat in schist				
97613	2.8	08V	456570	6715292	NAD83	20020625	FA		rusty hbl-grdr with 2% fine grained dissem po in groundmass & secondary mm scale quartz veinlets.				float
97614	0.2	08V	456617	6715267	NAD83	20020625	FA		weathered med grained grdr with sub-cm scale qv. Episodic filling for qv.				float
97615	1.6	08V	456669	6715257	NAD83	20020625	FA		rusty orange weathering, dark grey fresh aphanitic groundmass, hard, with 2% po dissem in groundmass and irregular lenses.				grab
97616	1.6	08V	456649	6715254	NAD83	20020625	FA		same as above but collected at base of gossan fan.				grab
97633	0.2	08V	418665	6658870	NAD83	20020704	FA		small chips of hard, very fine grained rusty dike. No sulfides. Plag rich.				grab
97668	0.2	08V	452470	6690187	NAD83	20020624	RS		Rusty weathered narrow qz vnlet (2 - 5 cm) cross cutting massive white qz vein. Trace pyrite, galena and limonite grains in narrow vnlet.		float -		grab
97669	0.4	08V	452334	6690334	NAD83	20020624	RS		Boulder train of rusty weathered second stage qz vein with trace pyrite, vugs and limonite grains. Granodiorite boulders.		0.1		grab
97670	0.6	08V	452507	6689726	NAD83	20020624	RS		Sample of rusty qz seams and stringers in 70 cm wide white massive quartz vein. HW contact has rusty weathering patches. FW "cold" unaltered.		0.2	155/60e	grab
97671	0.2	08V	424521	6681866	NAD83	20020624	RH		Rusty weathered siltstone, diss py. Dent occurrence.		1.0 m		grab
97694	0.2	08V	446300	6682007	NAD83	20020706	RS		Rusty weathered weakly pyritic biotite hornfels zone.		2		grab
97695	0.1	08V	446409	6682457	NAD83	20020706	RS		Manganese rich skarn zone at lmst contact		0.25		grab
97702	0.6	08V	450573	6684993	NAD83	20020624	JvR		highgrade grab in Showing A trench on Deb Minfile Occurrence, skarn with <1% galena plus sphalerite, 5 % open space with rusty secondary quartz/calcite veinlets up to 3 mm wide lined with sulphides, sample is frothy, [Mag Su,,0.2,,grab				

Number	Albers_x	Albers_y	Sample_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
97703	312148.624	649370.4656	rock	Kusawa	5	90	1	3	858	37	5	99999	0.35	99.5	0.9	17.2	0.5	173.8
97704	312151.865	649379.2058	rock	Kusawa	133	83	5	8	119	72	36	730	1.61	0.9	0.9	0.9	0.5	1.1
97705	312167.687	649395.0716	rock	Kusawa	3	287	0	0	56	2	2	508	0.05	0.9	0.3	0.25	0.5	1.3
97718	308394.695	629058.678	rock	Kusawa	447	117	5	21	460	47	24	118	0.89	0.1	1.4	1	0.5	0.5
97725	309345.317	631371.0814	rock	Kusawa	435	97	5	17	401	38	17	146	0.79	0.2	0.6	0.7	0.5	0.7
97726	308814.367	646016.262	rock	Kusawa	548	76	1	11	49	25	7	48	0.42	1.1	3.9	3.2	2	0.8
97734	308491.989	645428.8062	rock	Kusawa	221	79	4	8	191	21	3	40	0.54	0.1	0.6	1.4	0.5	0.2
97735	307460.956	646915.9385	rock	Kusawa	327	203	7	5	237	38	63	96	2.12	0.5	0.8	103.6	1	1.1
97742	307792.868	647048.1648	rock	Kusawa	18	42	2	2	2586	15	4	99999	0.16	2.4	0.6	7.1	1	8.7
97743	307873.004	646991.4042	rock	Kusawa	8	34	0	2	999	17	2	99999	0.08	0.5	0.5	2.1	0.5	3.6
140395	299222.043	687783.6412	rock	Kusawa	158	57	3	20	396	10	10	743	0.7	0.1	0.5	2.1	0.5	0.1
176370	296119.769	656915.6299	rock	Kusawa	41	144	7	9	595	48	70	172	1.98	0.1	0.3	1.6	0.5	0.1
176371	296142.551	656926.5629	rock	Kusawa	5	70	1	2	94	38	6	93	0.32	0.4	1.2	1.4	0.5	0.3
176372	296162.373	656972.2215	rock	Kusawa	11	170	1	1	86	7	3	36	0.21	0.05	0.3	1	0.5	0.05
176373	296197.065	656988.034	rock	Kusawa	43	58	6	2	441	58	68	77	1.74	0.1	0.5	1.3	0.5	0.1
176374	296236.166	657022.5383	rock	Kusawa	112	92	13	8	464	99	123	122	3.6	0.1	0.3	0.8	0.5	0.1
176376	296617.253	657216.5944	rock	Kusawa	68	162	16	20	573	50	105	76	3.12	0.1	0.3	2.3	0.5	0.1
176378	300152.068	655403.4692	rock	Kusawa	11	76	2	10	68	68	14	21	0.97	0.2	0.7	3.3	0.5	0.1
176384	298459.987	654995.6152	rock	Kusawa	2	183	0	0	27	1	1	18	0.02	0.05	0.3	0.25	0.5	0.05
176386	297836.306	653642.8579	rock	Kusawa	56	122	8	16	340	4	43	53	1.5	0.1	0.3	0.6	1	0.2

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
97703	0.45	882.3	103.5	22.7	2.79	0.19	0.01	0.3	0.9	0.0005	11.7	0.028	23517.6	4.25	11.6	1.6	1.1	0.012	0.5	0.5
97704	0.67	6.6	5.8	78.1	2.43	0.5	0.37	0.66	1.7	0.165	2.5	0.058	992.7	0.79	0.1	3.9	2.2	0.075	0.1	0.4
97705	0.09	3.9	1.9	7.6	0.44	0.5	0.01	0.01	1.1	0.002	5.6	0.001	921.5	0.025	0.2	0.1	0.1	0.001	0.1	0.05
97718	0.21	0.4	3.8	13.2	2.01	0.5	0.61	0.42	10.6	0.088	2.8	0.048	80.6	0.025	0.1	4.3	12.8	0.18	0.4	4
97725	0.21	0.7	3.2	6.9	1.88	0.01	0.56	0.32	3.8	0.068	2.2	0.043	149.5	0.025	0.1	3.6	13.4	0.166	0.4	5.9
97726	0.36	0.5	6	24	2	0.01	0.11	0.07	3.6	0.074	8.2	0.081	135.2	0.52	0.7	1.8	13	0.064	0.1	4.9
97734	0.13	0.3	1.1	33.3	1.69	0.5	0.1	0.12	2.9	0.041	1.7	0.021	55	0.32	0.2	2.4	5.6	0.037	0.1	1
97735	0.69	0.6	11	86.7	2.91	0.5	0.71	0.96	1.9	0.055	42.6	0.048	30.8	0.69	0.1	6.8	2.5	0.146	0.2	0.4
97742	1.84	1215.7	121.7	12.1	2.8	0.03	0.01	0.21	0.4	0.002	8.3	0.074	107.3	5.77	0.3	2.1	0.6	0.008	0.1	0.6
97743	0.8	2009.6	150.2	7.6	1.45	0.01	0.01	0.03	0.2	0.0005	1	0.024	16.3	4.05	0.2	1.1	1.2	0.017	0.1	0.5
140395	0.28	6.9	4.5	87.6	2.22	0.5	0.2	0.13	1.8	0.033	1.6	0.045	13.5	0.025	0.1	1.6	15.7	0.006	0.1	6
176370	1.59	1.2	16.1	52.6	2.94	0.01	0.15	1.78	0.9	0.014	32.8	0.043	7.7	0.1	0.05	6.7	6.9	0.11	0.1	0.8
176371	0.61	0.8	15.5	77.7	2.84	0.5	0.01	0.09	0.5	0.004	27.5	0.015	8.6	1.98	0.1	1.3	0.9	0.045	0.1	0.4
176372	0.14	0.2	1.8	14.8	0.35	0.5	0.09	0.08	0.7	0.029	3.6	0.008	10.2	0.025	0.05	1.1	0.9	0.007	0.1	1.5
176373	1.23	0.1	15.1	27.6	3.79	0.5	0.13	1.3	0.3	0.097	3.2	0.2	9.6	0.91	0.05	5.2	0.6	0.121	0.1	0.2
176374	1.54	0.5	16.5	35.7	4.81	0.5	0.26	1.79	0.9	0.244	12.7	0.167	8	0.68	0.05	9.1	4.3	0.167	0.1	0.3
176376	1.05	0.2	16.3	45.2	5.02	0.5	0.58	1.6	1.2	0.169	29.4	0.09	7.1	0.78	0.05	12	8.9	0.27	0.2	0.8
176378	1.22	0.1	35.4	126.1	2.38	0.01	0.03	0.12	0.7	0.12	37.4	0.206	5	1.04	0.1	2.7	4	0.051	0.1	1
176384	0.01	0.2	0.7	4	0.26	0.5	0.01	0.01	0.6	0.001	2.9	0.001	3.9	0.025	0.05	0.1	0.1	0.002	0.1	0.1
176386	0.22	0.05	7.4	16.7	2.79	0.01	0.27	0.83	0.4	0.022	15	0.027	8	0.025	0.1	4	13.1	0.174	0.1	1.5

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Description	Duplicate	Width_m_	Attitude	Modifier
97703	0.3	08V	450580	6684984	NAD83	20020624	JvR		grab in trench (Deb Minfile), massive galena up to 8%, local euhedral crystatls up to 3mm in diameter, mineralized structure bears 318 degrees, [MS reading 0.25]		0.45		grab
97704	0.05	08V	450583	6684993	NAD83	20020624	JvR		intensely rusty fine grained intrusive with up to 2% fine grained disseminated pyrite, light yellow matrix and deep weathering rind		0.15		grab
97705	0.1	08V	450598	6685010	NAD83	20020624	JvR		grey and white crytocrystalline quartz vein material in trench, rusty fracture surfaces but no sulphides observered				grab
97718	1.3	08V	447646	6664516	NAD83	20020704	JvR		pyritic fracture in granodiorite boulder field, parallel sets of rusty fractures with < 1% fine grained pyrite giving an orange weathering rind				grab
97725	3.9	08V	448502	6666867	NAD83	20020705	JvR		granodiorite float in large boulder train, rusty fractures and envelopes around biotite and rare fine grained pyrite blebs and specs, boulder is angular (not moved far)				grab
97726	0.7	08V	447388	6681496	NAD83	20020705	JvR		rusty metasediments with crystalized granular texture, layered, orange dark maroon weathering skarn, <1% disseminated pyrite and black non magnetic mineral				grab
97734	0.2	08V	447090	6680896	NAD83	20020705	JvR		rusty weathering rhyolite dyke with ,1% silvery pyrite in blebs up to 5mm wide in intrusive talus slope				grab
97735	0.1	08V	446002	6682342	NAD83	20020706	JvR		sample near intrusive contact with siliceous medasediments containing 2% fine grained pyrite and abundant biotite, limonite coats fracture surfaces, trace chalcopyrite?				grab
97742	0.5	08V	446328	6682487	NAD83	20020706	RS		Green actinolite, rusty weathered skarnoid at lst contact. Rusty vugs, semi-massive shaphlerite. Mn oxide staining. Actinolite-sphalerite skarn.		1.0 m		grab
97743	0.3	08V	446410	6682434	NAD83	20020706	JvR		highgrade grab of skarn mineralization on HW of limestone, 40 cm thick skarn bed of massive sphalerite with green actinolite crystals and blebs; contact 130/44S		0.4	130/44S	grab
140395	0.9	08V	436150	6722880	NAD83	20020730	JvR		chip sample across 1.5m orange weathering shear zone trending 017/19East at base of white weathering granodiorite cliff, sample is unconsolidated with a 10 cm gougy section, phenocrysts altered to white clay with local maroo,,1.5,017/19E,chip				
176370	0.2	08V	434290	6691888	NAD83	20020814	RS		pale green epidote skarn, thin well bedded. Tr diss py. Arg grey bnds w/ qz. And rare garnet. Chloritic bands		1.5	043/28e	grab
176371	0.2	08V	434312	6691900	NAD83	20020814	RS		Rusty weathered bldr train up to 0.5 m dia. 7 - 10 % py diss. Epidote skarn w/chlorite.		float		grab
176372	0.1	08V	434330	6691946	NAD83	20020814	RS		White qz lens with xcutting veinlets. Cross cutting hbld-qz gneiss		0.4	043/37w	grab
176373	0.1	08V	434364	6691963	NAD83	20020814	RS		rusty weathered discontinuous llenses, stratabound in thick skarn sequence. Diss py 3-5 % in Qz-hbld-bio skarn.		0.25	015/15e	grab
176374	0.1	08V	434402	6691999	NAD83	20020814	RS		Rusty weathered sub crop of qz-hbld-bio-epi-garn skarn		0.3		grab
176376	0.2	08V	434774	6692209	NAD83	20020814	RS		Rusty weathered skarn with tr-5 % diss py. Qz-hbld.		2	040/26e	grab
176378	0.1	08V	438373	6690538	NAD83	20020814	RS		Rusty weathered bldr train. 3 % diss py in qz-hbld gneiss		float		grab
176384	0.05	08V	436701	6690061	NAD83	20020815	RS		Irregular massive white qz lens w/ orange gossanous patches in deformed hbld diorite.		2		grab
176386	0.2	08V	436133	6688684	NAD83	20020815	RS		Rusty weathering well bedded meta-seds above granodiorite contact		1	082/70s	grab

Number	Albers_x	Albers_y	Sample_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
176406	311694.689	649849.4316	rock	Kusawa	41	37	6	3	281	20	62	38	0.66	0.6	1.1	2.7	0.5	0.6
176409	308680.245	646926.1162	rock	Kusawa	15	16	0	2	1924	139	1	66172	0.05	0.1	0.5	2.8	3	1.3
176438	304607.133	654275.9618	rock	Kusawa	10	88	6	3	257	93	51	155	3.04	0.05	0.6	0.25	1	0.05
176439	305437.037	654737.9148	rock	Kusawa	75	93	3	5	1019	105	216	350	0.76	1.4	0.7	0.7	1	0.1
176447	307866.582	650124.0385	rock	Kusawa	9	98	1	5	104	5	2	38	0.15	0.1	0.3	0.9	1	1.7
343895	318504.487	631178.1702	rock	Kusawa	18	32	4	35	1216	483	0	1023	0.65	0.1	0.6	0.25	3	1.1
343899	307987.06	647067.6157	rock	Kusawa	81	124	8	14	288	191	57	144	2.41	0.2	1.6	2.2	2	0.2
343900	307723.878	647075.3454	rock	Kusawa	13	9	1	1	4636	14	7	99999	0.15	3.7	0.3	23.8	1	9.8
344232	320719.339	637252.4371	rock	Kusawa	15	99	1	10	58	5	3	145	0.2	1.1	1.7	9.9	1	0.7
344233	320623.474	637216.1085	rock	Kusawa	17	108	2	18	60	7	2	279	0.32	0.4	8.5	4.3	1	0.3
344234	320623.474	637216.1085	rock	Kusawa	18	106	2	27	83	7	4	100	0.36	0.6	9.1	4.4	0.5	0.4
344235	320596.638	637235.2999	rock	Kusawa	11	128	1	34	140	5	0	201	0.21	0.9	3.6	1.7	0.5	0.4
344237	307686.504	646950.3666	rock	Kusawa	172	36	5	1	3867	82	15	2894	0.66	3.6	1.7	0.25	2	3.1

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
176406	0.52	0.1	5.1	134	11.45	0.01	0.04	0.44	2.4	0.027	6.7	0.11	4.3	0.29	0.1	1.5	1.4	0.101	0.1	0.3
176409	13.18	642.8	46.9	3.8	3.29	0.5	0.02	4.66	0.1	0.003	2.6	0.02	5.5	2.49	0.2	1	0.3	0.003	0.1	0.4
176438	3.31	1.3	9.7	5.4	1.43	0.01	0.01	0.92	0.2	0.005	10.5	0.05	2.8	0.025	0.05	2.6	0.2	0.08	0.1	0.1
176439	8.07	7	3.4	52	1.51	0.02	0.04	2.51	4.7	0.001	74	0.325	17.3	0.15	7.1	1.3	1.5	0.031	0.1	2.8
176447	0.07	0.3	0.5	4	0.42	0.5	0.08	0.02	0.4	0.032	1.6	0.004	10	0.025	0.05	0.8	6.8	0.002	0.1	8.4
343895	6.83	10.4	0.2	2.8	3.48	0.02	0.39	0.02	0.7	0.004	0.2	0.002	23.4	0.025	0.2	1.3	23.3	0.003	0.2	7.8
343899	1.6	1.3	12	50.1	3.64	0.5	1.07	1.21	0.4	0.043	24.8	0.026	8.3	0.08	0.2	7.4	7.1	0.266	0.5	0.8
343900	1.3	1313.6	164.4	27.9	5.88	1.37	0.02	0.16	1.1	0.002	11.9	0.13	91.4	5.22	0.3	0.5	0.3	0.006	0.1	1.1
344232	0.11	0.5	2	134.7	1.54	0.01	0.11	0.04	6.8	0.038	1.8	0.005	77.9	0.07	0.5	0.5	9.9	0.004	0.1	1.3
344233	0.09	1.7	0.7	45.5	0.95	0.02	0.11	0.04	4.8	0.036	2.2	0.005	37.2	0.06	0.9	1	21.5	0.002	0.1	2.8
344234	0.07	0.4	0.7	52.1	1.02	0.01	0.11	0.05	4	0.033	2.4	0.006	50.6	0.07	0.9	0.9	22.6	0.002	0.1	3.1
344235	0.05	1.2	0.6	50.3	0.7	0.01	0.08	0.01	1.8	0.041	2.5	0.002	60.4	0.025	0.6	0.5	16.3	0.001	0.1	2.9
344237	2.41	29.6	29.6	658.8	6.65	0.01	0.11	0.21	0.4	0.004	4.4	0.021	53.2	0.83	0.3	0.9	0.5	0.004	0.3	0.8

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Description	Duplicate	Width_m_	Attitude	Modifier
176406	0.2	08V	450108	6685445	NAD83	20020802	JvR		sample of pyrite rich lens of brown/orange weathering skarny metasediments in the contact of the white weathering crystalline limestone and grey weathering intrusive; skarn is rich in hornblende, qtz, chlorite, ?actinolite w,,,,grab				
176409	0.1	08V	447218	6682401	NAD83	20020802	JvR		skarn material at HW of lmst pod in creek, dark brown & tan weathering actinolite, chlorite, qtz rich skarn with disseminated pyrite, local sphalerite and black purple weathering magnetite on weathering surface				grab
176438	0.1	08V	442862	6689589	NAD83	20020814	JvR		subcrop of green weathering quartz with chloritic matrix, open space infilled with quartz veinlets				grab
176439	0.5	08V	443671	6690084	NAD83	20020814	JvR		sample of black graphitic shear in metaseds, <2% quartz and rest of matrix is shot through with graphite, all fractures have slickensides, abundant fine grained disseminated pyrite (<2%); in gully trending 115 degrees (paral,,,115,				
176447	0.1	08V	446279	6685567	NAD83	20020815	JvR		grab of 0.5m square block of rusty weathering dark green chlorite rich mafic intrusive [MS readings of 0.23, 0.48, 0.69]		float		grab
343895	5.4	08V	457644	6667041	NAD83	20020802	RS		10 cm qz dykelet in strongly weather hbld-bio diorite. Grauzy granite.		0.1	025/78e	grab
343899	0.8	08V	446521	6682514	NAD83	20020802	RS		Diopside - biotite skarn w/possible f.g. sphalerite. Within a 10 m skarn horizon in banded limestone below contact with meta-seds.		1		grab
343900	1	08V	446258	6682512	NAD83	20020802	RS		Sphalerite breccia along diopside skarn horizon. FW of crystalline limestone unit. Vuggy grey silt matrix.		subcrop		grab
344232	0.2	08V	459611	6673206	NAD83	20020802	FA		yellow bleached QFP		3		chip
344233	0.1	08V	459517	6673166	NAD83	20020802	FA		channel grabs of orange talus and soil in altered QFP		6		chip
344234	0.1	08V	459517	6673166	NAD83	20020802	FA		channel grabs of orange talus and soil in altered QFP		6		chip
344235	0.1	08V	459489	6673184	NAD83	20020802	FA		select pieces of brecciated, altered QFP				talus
344237	0.8	08V	446226	6682385	NAD83	20020802	FA		actinolite skarn with trace diss. Py				grab

2002 Mineral Assessments - Proposed Kusawa SMA
EMR Stream Sediment Geochemistry

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
56351	314379.047	654310.2777	silt	Kusawa	101	13	5	22	592	51	41	61	1.28	0.1	3.2	0.25	0.5	0.3	0.66
56357	284080.9854	631381.209	silt	Kusawa	287	11	8	12	409	29	31	115	1.56	0.3	18.1	0.25	0.5	0.1	0.42
56358	309437.355	685487.0952	silt	Kusawa	197	44	8	9	550	35	101	81	2.91	0.2	5.8	8.2	1	0.1	0.52
56359	309574.1214	685908.7733	silt	Kusawa	260	41	8	8	1009	41	98	87	2.77	0.4	6	1.2	2	0.1	0.64
56360	309677.1208	686325.6211	silt	Kusawa	125	19	4	10	466	28	55	38	1.32	0.1	3.2	0.5	1	0.1	0.48
56361	310924.3879	686405.6737	silt	Kusawa	29	6	4	39	318	5	13	78	0.78	0.1	6.2	0.25	1	0.5	0.08
56362	310918.2479	686756.0434	silt	Kusawa	35	6	4	45	483	7	16	101	0.56	0.1	6.6	0.5	1	0.3	0.11
56363	310737.752	687691.1494	silt	Kusawa	53	16	4	28	320	13	35	70	0.84	0.1	4.3	0.6	3	0.3	0.21
56364	310636.7436	687990.9669	silt	Kusawa	58	13	4	29	356	15	29	79	0.98	0.1	4.4	1	1	0.5	0.23
56365	308363.9272	688916.2976	silt	Kusawa	105	12	3	13	312	24	25	36	0.79	0.05	2.3	0.25	1	0.2	0.32
56377	290068.917	633662.6889	silt	Kusawa	228	7	10	38	627	46	27	137	1.98	0.8	24.3	3.7	4	2.6	0.57
56381	280306.0441	623647.1075	silt	Kusawa	1125	43	25	15	3877	63	151	316	4.9	0.3	29.6	1.6	3	0.2	0.68
56382	280693.3787	624175.7856	silt	Kusawa	616	22	16	22	1417	64	91	218	3.55	0.3	26.5	0.25	1	0.2	0.57
56383	282463.489	625085.9632	silt	Kusawa	452	16	10	23	549	23	57	114	2.36	0.1	12	0.7	2	0.1	0.42
56384	282692.9773	624982.6763	silt	Kusawa	150	3	2	28	202	12	15	30	0.49	0.05	4.2	0.25	0.5	0.05	0.41
56385	282885.626	624734.5705	silt	Kusawa	180	4	3	30	194	15	16	34	0.56	0.05	4.2	0.25	0.5	0.05	0.53
56386	283287.9003	624786.7465	silt	Kusawa	243	4	3	38	231	17	21	41	0.64	0.05	5	0.25	1	0.05	0.59
56389	281894.7538	643419.7512	silt	Kusawa	162	14	7	27	573	31	30	139	2.12	0.5	16.9	2.7	2	0.5	0.33
56391	278631.6583	641986.3942	silt	Kusawa	287	23	7	24	491	39	51	116	1.87	0.5	13.8	0.7	1	0.4	0.49
56392	278375.4929	641250.1066	silt	Kusawa	278	16	6	22	429	33	46	84	1.28	0.2	7.3	3.3	1	0.2	0.42
56393	278462.0149	641236.8476	silt	Kusawa	260	20	7	19	835	56	57	171	1.99	0.4	40.9	3	2	0.5	0.47
56394	278040.4157	641019.3293	silt	Kusawa	281	20	8	21	721	67	57	175	2.02	0.6	38	23.1	2	0.4	0.55
56395	277724.9221	640562.1692	silt	Kusawa	472	27	9	25	1181	93	78	235	2.43	0.7	48.3	5.8	1	0.7	0.78
56396	277579.4941	640506.7159	silt	Kusawa	216	16	5	21	582	55	48	126	1.3	0.2	23.7	1.3	1	0.3	0.5
56398	279677.4574	639491.7517	silt	Kusawa	114	14	4	20	398	16	31	66	0.97	0.2	5.8	0.25	1	0.5	0.22
56399	279722.4769	639028.5744	silt	Kusawa	92	22	6	22	290	14	38	73	1.45	0.1	7.3	0.25	1	0.3	0.16
56400	277363.5238	642736.4998	silt	Kusawa	462	26	10	19	847	39	71	124	2.49	0.2	5.2	0.8	2	0.5	0.41
56406	297463.7371	650388.8109	silt	Kusawa	86	3	3	29	174	31	9	30	0.64	0.1	4.4	0.25	1	0.05	0.17
56408	302704.4241	650368.4826	silt	Kusawa	113	43	7	12	351	105	52	55	2.1	0.1	2.4	0.25	1	0.3	1.09
56410	302494.8736	649395.1523	silt	Kusawa	176	40	6	8	278	51	67	118	1.67	0.1	1.9	0.25	1	0.2	0.55
56413	303187.2119	648912.6915	silt	Kusawa	91	48	6	10	232	157	47	73	2.01	0.1	1.8	0.25	1	0.3	1.73
56414	303102.1232	649580.5277	silt	Kusawa	122	27	5	10	195	62	42	44	1.56	0.1	1.2	0.25	1	0.1	0.76
56415	302892.6384	649662.5073	silt	Kusawa	194	39	7	11	291	80	61	91	1.93	0.1	2.4	0.25	2	0.2	0.88
56416	303312.2	650803.4832	silt	Kusawa	86	14	3	11	147	25	42	20	0.81	0.05	1.4	1.5	1	0.1	0.43
56465	307998.3384	647020.1989	silt	Kusawa	261	50	8	14	448	66	95	522	2.24	0.6	5.1	1.5	1	0.6	0.88
56485	293149.1485	660081.8575	silt	Kusawa	123	15	2	40	143	35	23	41	0.85	0.4	4	0.8	2	0.05	0.98

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
56351	0.2	8	10.6	1.93	0.02	0.12	0.54	0.3	0.018	6.6	0.216	6.6	0.025	0.05	1.7	6.9	0.062	0.1	1.9	0.2
56357	0.3	6.8	7.4	2.69	0.01	0.39	0.63	1	0.02	6.6	0.132	8.1	0.025	0.1	2.9	3.7	0.239	0.2	3.1	0.2
56358	0.3	20.1	76.2	3.2	0.04	0.3	1.22	1.1	0.021	29.2	0.11	10.5	0.025	0.5	5	2.6	0.144	0.2	1.2	0.9
56359	0.4	21	64.4	3.41	0.08	0.28	1.2	1	0.022	26.9	0.118	12.7	0.07	0.5	4.8	1.9	0.114	0.3	1.3	0.8
56360	0.2	10.2	21.8	1.7	0.02	0.17	0.52	0.3	0.017	11.4	0.077	6.8	0.025	0.3	2.9	2.7	0.102	0.1	0.7	0.8
56361	0.1	1.8	6	1.54	0.01	0.08	0.09	2.7	0.007	2.9	0.02	7.8	0.025	0.1	1.1	25.9	0.044	0.1	9.9	1
56362	0.3	2.7	6.2	1.61	0.01	0.08	0.11	2	0.006	4.5	0.031	15.8	0.025	0.1	1.2	22.7	0.057	0.1	4.2	0.6
56363	0.3	4.1	16.4	2.31	0.01	0.11	0.21	2.1	0.011	6.3	0.048	7.6	0.025	0.1	1.5	21.4	0.052	0.1	7.2	1.5
56364	0.3	3.9	17.9	1.76	0.01	0.11	0.21	1.8	0.014	6.6	0.048	11	0.025	0.1	1.6	17.6	0.058	0.1	9	0.9
56365	0.1	4.7	17.7	1.3	0.01	0.15	0.36	0.4	0.011	7	0.062	4.8	0.025	0.1	1.9	8.5	0.076	0.1	1.8	0.5
56377	0.6	5.7	28.1	2.77	0.01	0.46	0.46	10.9	0.026	4	0.059	45.4	0.025	0.1	4.4	28.9	0.186	0.4	25	5.3
56381	1.1	38.9	34.4	8.78	0.02	2.25	2.67	16	0.069	15.6	0.129	28.5	0.025	0.2	10.1	3.9	0.794	1.3	10.5	0.2
56382	0.4	17.1	31.4	5.87	0.02	1.29	1.72	3.9	0.034	8.9	0.175	12.6	0.025	0.1	7.9	6.5	0.554	0.7	5.7	0.2
56383	0.2	9.4	12.4	3.31	0.01	0.86	0.97	2.7	0.027	6.6	0.165	5.7	0.025	0.1	4.9	6.3	0.347	0.4	3	0.1
56384	0.1	2.5	2.3	0.87	0.01	0.26	0.26	0.5	0.016	0.9	0.165	1.4	0.025	0.05	1.4	7.8	0.105	0.1	2	0.1
56385	0.1	2.9	2.6	1.02	0.5	0.32	0.31	0.3	0.02	1.3	0.217	1.4	0.025	0.05	1.9	8.4	0.121	0.1	2.4	0.1
56386	0.1	3.6	3	1.22	0.5	0.42	0.38	0.3	0.026	1.2	0.233	1.5	0.025	0.05	1.9	10.4	0.151	0.1	4.1	0.1
56389	0.7	6.7	21.4	2.08	0.03	0.2	0.44	2.1	0.035	7.8	0.104	55.6	0.025	0.2	3	10	0.083	0.2	11.6	0.3
56391	0.3	9.1	18.7	2.92	0.03	0.3	0.7	3.4	0.024	9.7	0.105	26.7	0.025	0.2	4.5	15.7	0.174	0.3	31.6	0.6
56392	0.3	7.8	13.1	2.35	0.02	0.29	0.62	1.3	0.025	6.3	0.102	14.2	0.025	0.1	2.8	12.6	0.163	0.3	12.3	0.3
56393	0.7	12.6	25.2	3.2	0.03	0.24	0.74	4.7	0.022	8.5	0.089	58.9	0.025	0.3	4.8	8.7	0.121	0.3	15.3	0.3
56394	0.7	12.3	26.3	3.26	0.03	0.25	0.79	4.4	0.024	8	0.093	59.8	0.025	0.2	5.1	7.9	0.118	0.3	28.9	0.2
56395	1.3	18.5	37.8	4.38	0.05	0.45	1.11	4.8	0.036	10.9	0.124	85.1	0.025	0.4	7.1	9.3	0.18	0.5	13.1	0.4
56396	0.8	10.1	20.1	2.61	0.02	0.27	0.65	2	0.027	6	0.125	36.9	0.025	0.2	3.5	7.4	0.132	0.3	4.7	0.3
56398	0.3	5.6	20.3	1.63	0.01	0.14	0.37	2	0.01	7.6	0.07	15.9	0.025	0.1	2.6	14.5	0.086	0.2	8	0.6
56399	0.2	6	16.1	1.97	0.02	0.12	0.4	6.3	0.012	10.7	0.066	17.8	0.025	0.2	3.3	16.3	0.092	0.2	7.3	0.5
56400	0.4	13.3	23.6	3.7	0.04	0.39	0.89	2.6	0.019	12.6	0.106	21	0.025	0.2	4.8	13.7	0.173	0.3	7.2	0.1
56406	0.05	1.5	2.2	1.57	0.02	0.11	0.14	0.3	0.009	1.2	0.041	5.8	0.025	0.05	1.2	9.3	0.036	0.1	0.9	0.1
56408	0.1	17.2	30	2.84	0.02	0.4	0.81	0.2	0.073	35.3	0.152	8.6	0.025	0.05	3.7	5.6	0.132	0.2	1.1	0.3
56410	0.8	16.8	42.6	2.33	0.01	0.33	0.73	1.1	0.033	43.4	0.083	5	0.025	0.05	3.6	2.3	0.117	0.2	1.1	0.3
56413	0.4	17.9	39.9	2.11	0.01	0.16	0.83	0.2	0.115	58.4	0.107	8.6	0.025	0.05	2.3	4.1	0.094	0.2	0.8	0.5
56414	0.1	10.6	20	1.8	0.5	0.19	0.6	0.2	0.059	22.4	0.089	4.3	0.025	0.05	2.5	4.3	0.086	0.1	0.9	0.6
56415	0.6	13.7	30.3	2.61	0.01	0.54	0.81	0.5	0.052	32.4	0.11	8.5	0.025	0.1	3.9	4.2	0.131	0.3	1.3	0.3
56416	0.1	4.6	6.7	1.17	0.01	0.08	0.3	0.3	0.025	6.2	0.093	2.1	0.025	0.05	1.6	5.3	0.057	0.1	1.1	0.4
56465	4.9	19.1	66.8	2.99	0.02	0.28	1.02	1.7	0.023	63.1	0.16	52.3	0.06	0.2	4.5	4.9	0.112	0.3	2.9	0.4
56485	0.3	4.3	73.1	1.09	0.03	0.15	0.27	0.9	0.025	16.4	0.093	2.7	0.08	0.1	3.3	4.7	0.051	0.2	28.3	0.1

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
56351	08V	452608	6690015	NAD83	20020624	RH	fair	mostly sandy decomposed grussy granodiorite.	
56357	08V	423306	6665861	NAD83	20020624	RH	poor	More 'soil' than silt sample, centre of pond-gully area.	
56358	08V	446435	6720994	NAD83	20020625	RH	good	mixed volcanic float- mostly bas-and.	
56359	08V	446555	6721421	NAD83	20020625	RH	good	mixed volcanic float- mostly bas-and.	
56360	08V	446641	6721842	NAD83	20020625	RH	good	mixed volcanic float- mostly bas-and.	
56361	08V	447882	6721972	NAD83	20020625	RH	good	mostly granodiorite float. Sample of sandy grd gruss.	
56362	08V	447862	6722322	NAD83	20020625	RH	good	Trib sample. mostly granodiorite float. Sample of sandy grd gruss.	
56363	08V	447645	6723250	NAD83	20020625	RH	good	Grd and volc float,	
56364	08V	447532	6723545	NAD83	20020625	RH	good	Grd and volc float, below rk sample 97181.	
56365	08V	445227	6724379	NAD83	20020625	RH	good	Grd and volc float,	
56377	08V	429186	6668385	NAD83	20020703	RH	good	qtz-feld sand. Grd boulders.	
56381	08V	419852	6657970	NAD83	20020704	RH	fair	Cross between a till and a silt sample. Muddy sample. Weakly fol granodio boulders.	
56382	08V	420217	6658515	NAD83	20020704	RH	fair	similar to 56381, overbank deposit. Dry.	
56383	08V	421946	6659497	NAD83	20020705	RH	poor	reworked glacial till, muddy sample. Grey-green color.	
56384	08V	422179	6659403	NAD83	20020705	RH	good	collected just below granodiorite moraine rock pile. Sandy silt.	
56385	08V	422381	6659162	NAD83	20020705	RH	good	silty sand from bank below moraine creek outlet. Boulders of crse grained fol grdr with aplite dykes. Rusty chl joints.	
56386	08V	422780	6659231	NAD83	20020705	RH	good	dry wide creek bed . Silty sand . Granodiorite boulders.	
56389	08V	420642	6677815	NAD83	20020705	RH	good	dry overbank deposit.	
56391	08V	417445	6676249	NAD83	20020706	RH	good	Near site of anomalous RGS sample. Float of light grey wea non fol bio-hbl granodiorite.	
56392	08V	417219	6675502	NAD83	20020706	RH	good	silty sand in granodiorite boulder filled creek.	
56393	08V	417306	6675493	NAD83	20020706	RH	good	silty sand	
56394	08V	416894	6675258	NAD83	20020706	RH	good	silty sand	
56395	08V	416598	6674788	NAD83	20020706	RH	poor	head of creek, muddy sample.	
56396	08V	416455	6674727	NAD83	20020706	RH	fair	silt from between granodiorite boulders.	
56398	08V	418588	6673796	NAD83	20020706	RH	good	steep creek, sandy silt, granodio float.	
56399	08V	418652	6673335	NAD83	20020706	RH	fair	muddy-sandy-grussy sample, very slow creek.	
56400	08V	416150	6676948	NAD83	20020707	RH	good	sandy granodiorite	
56406	08V	435892	6685414	NAD83	20020707	RS	fair	rusty brown ssepage, grano boulders	
56408	08V	441120	6685604	NAD83	20020708	RS	good	lt grey lst boulders, well foliated rusty sch and rusty skarnoid with trace py.	
56410	08V	440950	6684622	NAD83	20020708	RS	fair	dry stream bed, lst and schist	
56413	08V	441660	6684167	NAD83	20020708	RS	good	lt grey lst, well foliated rusty sch, rusty weathered quartzite and white qz bldrs.	
56414	08V	441548	6684832	NAD83	20020708	RS	good	zinc moss, meta-schist, lst, qztite	
56415	08V	441336	6684906	NAD83	20020708	RS	good	qztite, lst, sch & gneiss	
56416	08V	441709	6686063	NAD83	20020708	RS	fair	rusty weathered grano bldrs	
56465	08V	446534	6682467	NAD83	20020802	RH	good	small seep with poss zinc moss on bank. Below lst beds, pebbles of lst, calc-sil, metased.	
56485	08V	431200	6694935	NAD83	20020814	RH	poor	very small, <0.25m wide sluggish creek, 10-20% organics, fine silt and sand, angular float boulders of grd, felsic porphyry, schist.Schist with grd sills.	

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
56486	292755.7387	659837.6318	silt	Kusawa	129	22	3	22	190	34	35	84	1.07	0.2	2.4	1.1	1	0.05	0.7
56487	292430.6083	660306.1587	silt	Kusawa	125	30	3	23	179	37	30	53	0.92	0.2	2.3	1.4	1	0.05	0.88
56488	292385.769	661338.8371	silt	Kusawa	83	25	2	15	116	24	23	37	0.74	0.1	1.2	0.25	2	0.05	0.51
56492	295693.2089	679205.9193	silt	Kusawa	354	20	9	40	2233	69	47	202	2.5	0.2	6.2	0.6	5	0.4	0.58
56500	313474.8834	681994.9966	silt	Kusawa	40	10	7	51	436	9	28	268	0.78	0.2	7	0.25	3	0.4	0.15
56502	300976.5747	650663.4343	silt	Kusawa	153	32	6	14	320	47	46	95	1.59	0.1	1.8	0.25	1	0.1	0.51
56503	300521.6676	650494.2708	silt	Kusawa	146	31	6	13	349	61	62	81	1.92	0.1	2.3	0.25	0.5	0.2	0.71
56504	300578.3248	650203.5199	silt	Kusawa	146	26	6	12	330	80	66	105	1.84	0.1	4.1	0.25	1	0.3	0.96
56505	299385.701	650529.0235	silt	Kusawa	183	45	9	17	389	37	60	115	2.32	0.3	4.4	0.7	1	0.7	0.36
56506	299182.2485	651130.2329	silt	Kusawa	209	39	8	17	492	68	70	126	2.41	0.2	3.5	0.25	2	0.4	0.75
56507	302473.0818	652520.0975	silt	Kusawa	107	32	4	12	196	57	69	35	1.21	0.1	2.3	0.25	1	0.1	0.54
56508	302396.4475	652762.9113	silt	Kusawa	172	44	4	12	216	84	104	39	1.68	0.1	2.2	0.25	2	0.1	0.8
56512	302644.2471	653374.143	silt	Kusawa	169	32	6	12	330	76	80	49	1.92	0.1	2.8	0.25	3	0.1	0.69
56513	303274.108	653125.8433	silt	Kusawa	93	41	4	11	192	52	95	32	1.04	0.05	1.5	0.25	1	0.05	0.47
56514	303330.8288	653070.279	silt	Kusawa	100	30	3	12	198	58	68	31	1.1	0.05	2.1	0.5	0.5	0.05	0.49
56515	303020.7556	652758.9472	silt	Kusawa	110	41	4	11	203	56	81	33	1.23	0.1	1.7	0.25	2	0.05	0.51
56517	302087.7795	651487.5871	silt	Kusawa	105	64	10	30	591	80	62	107	2.68	0.1	4.6	4.8	1	0.5	0.86
56518	301648.1508	651232.7245	silt	Kusawa	99	53	8	15	370	86	44	61	2.33	0.1	1.8	1.7	1	0.2	0.9
56519	301821.85	651735.5371	silt	Kusawa	127	60	8	16	423	87	53	66	2.47	0.1	1.9	1.1	2	0.1	0.79
56551	281022.5117	639592.7457	silt	Kusawa	268	20	8	19	594	37	42	155	1.76	0.3	4.3	2.2	3	1	0.54
56553	280992.5213	640013.7215	silt	Kusawa	179	17	6	23	555	39	35	123	1.29	0.2	4.7	2.1	1	0.7	0.47
56555	277468.7445	643729.7752	silt	Kusawa	171	11	5	26	539	23	26	81	1.05	0.1	4.6	1.7	1	0.3	0.26
56558	278841.7284	652590.4802	silt	Kusawa	160	19	7	21	1046	37	50	74	1.52	0.2	9.6	1.2	3	0.2	0.43
56560	281349.0319	664991.4114	silt	Kusawa	354	32	8	14	584	70	82	99	2.08	0.2	2.9	1.2	2	0.1	0.88
56561	280745.3225	665207.6877	silt	Kusawa	239	109	8	9	203	108	75	58	2.44	0.1	1.2	0.25	4	0.05	1.29
56570	286058.9024	671912.1776	silt	Kusawa	65	5	2	29	159	16	12	32	0.45	0.1	2.9	0.25	1	0.2	0.31
56571	296751.4306	674435.7603	silt	Kusawa	138	6	4	37	880	49	24	61	0.86	0.1	5.2	0.9	3	0.3	0.53
56572	296685.2352	674226.6913	silt	Kusawa	44	2	2	43	178	9	5	30	0.34	0.05	3.3	0.25	2	0.1	0.15
56573	296408.4484	673327.585	silt	Kusawa	77	5	4	33	266	12	14	50	0.69	0.2	4	0.6	1	0.4	0.2

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
56486	0.5	6.9	32.2	1.39	0.01	0.16	0.44	0.9	0.033	18.1	0.089	3.3	0.025	0.05	2.9	3.9	0.099	0.2	9.3	0.2
56487	0.5	6.8	54.4	1.22	0.02	0.11	0.41	1	0.03	19.3	0.09	3.4	0.07	0.1	2.3	4	0.074	0.2	16	0.2
56488	0.2	4.8	27	0.94	0.01	0.11	0.35	0.4	0.029	13.8	0.05	2.7	0.025	0.05	1.5	3.6	0.079	0.2	6.2	0.1
56492	1.2	10.6	17.1	4.28	0.1	0.29	0.46	5.5	0.027	10.3	0.109	23.3	0.11	0.1	4.4	14	0.164	0.4	21.8	0.3
56500	0.8	3	10.8	3.35	0.01	0.09	0.15	7.1	0.008	5.4	0.047	31.5	0.025	0.1	1.4	43.3	0.077	0.2	10.5	0.9
56502	0.6	10.6	24.2	2.19	0.01	0.4	0.64	0.2	0.027	24.5	0.063	7	0.025	0.1	3.2	5.1	0.132	0.2	1	0.3
56503	0.4	13.5	30	2.56	0.5	0.37	0.8	0.4	0.038	23.5	0.117	9.5	0.025	0.1	3.2	4.2	0.139	0.2	1.3	0.3
56504	0.7	14.3	34.1	2.29	0.5	0.25	0.84	0.6	0.063	19.5	0.145	9.7	0.025	0.1	3.1	4.1	0.122	0.2	2	0.3
56505	0.4	13.2	52.8	2.78	0.03	0.23	0.78	4.1	0.025	36.5	0.077	26	0.025	0.2	3.8	4.4	0.129	0.3	8	0.6
56506	0.8	17.1	34.3	3.14	0.02	0.35	1.02	0.6	0.047	29.6	0.119	18.9	0.025	0.1	4.1	5.2	0.167	0.3	4.2	0.3
56507	0.1	7.8	16.4	1.82	0.01	0.07	0.5	0.2	0.038	10	0.135	4.3	0.025	0.1	1.6	4	0.077	0.1	0.9	0.1
56508	0.2	12	31.2	2.34	0.02	0.14	0.6	0.3	0.055	14	0.154	4.2	0.025	0.1	2.2	2.2	0.087	0.1	1	0.1
56512	0.1	11.3	25	2.38	0.01	0.08	0.82	0.5	0.046	15.2	0.122	3.4	0.07	0.1	2.5	1.3	0.086	0.1	1	0.2
56513	0.1	8.8	16.5	2.22	0.5	0.06	0.48	0.2	0.036	10.6	0.11	2.9	0.025	0.05	1.3	3.9	0.072	0.1	0.7	0.1
56514	0.1	7.9	15.6	1.82	0.01	0.07	0.48	0.2	0.035	10.6	0.127	3	0.025	0.1	1.4	4.3	0.073	0.1	0.8	0.1
56515	0.1	9.4	18.9	2.08	0.01	0.07	0.55	0.2	0.034	11.5	0.111	3.3	0.025	0.1	1.7	3.7	0.079	0.1	0.9	0.2
56517	0.1	20.2	97.4	4.59	0.5	0.66	1.13	0.9	0.058	49.1	0.079	19.3	0.08	0.1	6.2	11.3	0.219	0.4	3.9	0.3
56518	0.1	14.9	37.6	2.84	0.5	0.43	0.78	0.2	0.067	37.3	0.087	12.4	0.025	0.1	4	6.5	0.153	0.3	1.3	0.2
56519	0.1	16.1	32.6	3.17	0.5	0.61	0.93	0.4	0.056	40.3	0.087	7	0.025	0.1	4.8	7.3	0.185	0.3	1.5	0.2
56551	0.8	8.8	17.5	3.22	0.02	0.45	0.75	1.2	0.019	6.5	0.125	24.9	0.025	0.1	4.3	6.1	0.22	0.3	5.2	0.2
56553	1	8.4	23.7	2.45	0.02	0.25	0.57	2.8	0.019	8.5	0.127	16.9	0.025	0.1	3.4	5.6	0.144	0.2	5	0.2
56555	0.5	5.3	14.2	1.95	0.02	0.17	0.32	1.6	0.012	6.7	0.075	26.5	0.025	0.1	2.9	10.8	0.081	0.2	4.1	0.4
56558	0.3	7.9	16.7	2.58	0.04	0.12	0.35	12.3	0.019	9.8	0.149	24.8	0.07	0.2	2.8	2.8	0.063	0.1	6.5	0.8
56560	0.6	16.6	65.6	3.32	0.02	0.47	0.99	1.6	0.047	23	0.171	5.5	0.025	0.1	5	2.9	0.209	0.3	1.4	0.1
56561	0.2	14.4	20.8	2.41	0.5	0.28	1	1	0.153	19.1	0.188	4.9	0.025	0.05	2.5	1.5	0.129	0.1	0.4	0.05
56570	0.05	2.1	40.9	0.84	0.5	0.12	0.18	0.6	0.017	2.4	0.069	2	0.025	0.05	1.4	10.8	0.065	0.1	1.1	0.2
56571	0.4	5.6	17.5	3.27	0.03	0.16	0.18	11	0.016	2.6	0.065	5	0.025	0.05	2.3	10.3	0.063	0.2	27.2	0.4
56572	0.2	1.4	10.4	0.74	0.01	0.07	0.1	0.6	0.007	1.5	0.033	5.1	0.025	0.05	0.7	14	0.04	0.1	1.5	0.1
56573	0.1	2.4	6.9	1.17	0.01	0.13	0.17	3.8	0.011	2.6	0.048	9.4	0.025	0.05	1.5	10.6	0.073	0.1	3.7	0.4

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
56486	08V	430817	6694675	NAD83	20020814	RH	fair	sandy silt, <5-10% organics, <0.5m wide, mod slope, angular grd float, qtz veining and wk slc in grd.	
56487	08V	430474	6695130	NAD83	20020814	RH	poor	sandy silty, mixed float, Till on banks	
56488	08V	430388	6696161	NAD83	20020814	RH	good	sandy, steep creek , till banks	
56492	08V	432972	6714162	NAD83	20020814	RH	good	coarse sample, some slime and moss, kgd boulder filled creek.	
56500	08V	450603	6717664	NAD83	20020815	RH	fair	Main creek, sandy and grd gruss. Grd float.	
56502	08V	439385	6685830	NAD83	20020707	JvR	fair	on SW facing slope just below some Zinc moss on low velocity 1 meter wide creek with abundant schist boulders	
56503	08V	438938	6685642	NAD83	20020707	JvR	poor	left branch of creek that goes u/g periodically;mixed boulders of medaseds and intrusive; low velocity 40cm stream	
56504	08V	439006	6685354	NAD83	20020707	JvR	good	2 meter wide moderately flowing creek; 70% intrusive boulders. Rest are medasediment cobbles	
56505	08V	437803	6685631	NAD83	20020707	JvR	poor	silt in dry creek bed which drains southern cirque; light brown silt behind a large granodiorite boulder; intrusive rocks abound	
56506	08V	437576	6686225	NAD83	20020707	JvR	good	widening of now rusty creek below o/c described at JvR02033 station	
56507	08V	440803	6687747	NAD83	20020708	JvR	fair	west draining creek not sampled during RGS survey, hornblende granodiorite boulders (5% metasediments) in creek of moderate velocity 1 meter wide	
56508	08V	440717	6687987	NAD83	20020708	JvR	poor	dry creek bed below o/c described in JvR02034 station; intrusive o/c and cobbles and 5% rusty metaseds in creek bed	
56512	08V	440940	6688608	NAD83	20020708	JvR	poor	sample in dry creek bed (entire creek is dry); intrusive boulders in creek [MS readings 34.6, 29.5, 42.7, 33.6]	
56513	08V	441578	6688385	NAD83	20020709	JvR	good	NW fork of creek above glacier, intrusive float in 40cm wide moderate velocity stream	
56514	08V	441637	6688332	NAD83	20020709	JvR	fair	eastern fork above glacier; 1meter wide stream of low velocity; intrusive boulders & talus on both sides, glacier still sitting in creek	
56515	08V	441340	6688008	NAD83	20020708	JvR	good	silt on same creek below intrusive o/c on eastern side of creek (also below the glacier)	
56517	08V	440460	6686699	NAD83	20020709	JvR	good	silt on steep sidehill draining the o/c that Robert is taking measurements on; seep is 20cm wide with active silt build ups	
56518	08V	440032	6686426	NAD83	20020709	JvR	good	1.5 meter wide creek drains to north in argillaceous and quartzite scree slope; moderate velocity stream with glaciers still in half the creek bed	
56519	08V	440185	6686936	NAD83	20020709	JvR	good	same creek as 56518 only lower (not sampled during RGS survey),; metasediment boulders abound	
56551	08V	419926	6673952	NAD83	20020706	FA	good	coarse to fine sand from behind boulder.Steep grade, moderate flow. Intermed volcanic & gneiss float.	
56553	08V	419879	6674372	NAD83	20020707	FA	fair	muddy silt, possibly some loess.Low water flow and steep grade. Coarse grained grdr float.	
56555	08V	416215	6677946	NAD83	20020707	FA	good	gravelly material collected from 4 channels. Steep grade & low flow. Various calc-alkalic intrusives.	
56558	08V	417228	6686865	NAD83	20020707	FA	fair	mix of coarse sand and clayey loess. Low grade & moderate flow.	
56560	08V	419231	6699369	NAD83	20020708	FA	fair	trickle at contact between metaseds & intrusives.	
56561	08V	418620	6699561	NAD83	20020708	FA	good	coarse to fine sand from grdr	
56570	08V	423652	6706481	NAD83	20020709	FA	good	felsic granite gravel and green dike granules from inside of meander.Rock type is lineated grdr.	
56571	08V	434219	6709434	NAD83	20020709	FA	poor	coarse granitic gravel and organic slime from swamp.	
56572	08V	434161	6709223	NAD83	20020709	FA	good	fine granite sand from onside meander. Low grade & moderate flow.	
56573	08V	433921	6708313	NAD83	20020709	FA	good	fine to coarse granitic gravel. Low grade, low flow.	

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
56574	289824.265	634167.6186	silt	Kusawa	359	11	11	22	594	39	37	128	2.47	0.3	9.9	2.7	2	1.1	0.47
56577	279188.6384	624645.1408	silt	Kusawa	242	13	9	24	539	27	47	115	1.73	0.7	13.7	0.6	1	0.2	0.54
97201	284968.1747	638800.8295	silt	Kusawa	247	27	11	18	669	72	60	199	2.64	0.5	4.8	3.6	1	0.5	0.59
97202	279363.687	651657.8731	silt	Kusawa	253	16	7	28	404	31	40	112	1.71	0.3	6.6	2.2	1	0.2	0.33
97203	277760.6531	647143.7267	silt	Kusawa	178	4	5	37	541	66	18	97	1.14	0.1	6.3	0.25	2	0.3	0.39
97204	277678.2231	647157.8684	silt	Kusawa	245	12	8	50	1414	86	29	234	1.99	0.8	9.9	2.1	2	1	0.54
97205	279953.7791	666886.5816	silt	Kusawa	131	21	6	13	370	44	42	53	1.4	0.1	2.8	1.5	1	0.1	0.39
97206	280145.1381	666531.0813	silt	Kusawa	187	33	6	12	411	43	45	59	1.68	0.1	2.2	0.7	1	0.1	0.43
97207	280085.3961	666372.0506	silt	Kusawa	160	28	7	11	379	31	60	79	1.88	0.1	3.6	0.5	1	0.2	0.33
97208	281310.9939	667231.6296	silt	Kusawa	112	26	4	12	322	46	42	58	1.19	0.1	3.3	0.8	1	0.1	0.43
97209	281619.866	668979.6101	silt	Kusawa	106	23	7	13	447	37	45	69	1.86	0.1	4.4	0.9	2	0.2	0.39
97210	279722.9366	669980.997	silt	Kusawa	184	72	7	12	654	68	54	62	2.18	0.1	3.2	0.7	2	0.1	0.6
97211	279976.218	671046.6462	silt	Kusawa	240	44	6	10	519	28	57	69	1.86	0.2	1.9	0.8	1	0.1	0.38
97212	281954.6917	669222.917	silt	Kusawa	162	32	7	15	988	25	57	84	2.45	0.2	5.8	1.6	1	0.2	0.3
97213	282491.5233	667228.0559	silt	Kusawa	285	65	8	12	678	47	80	131	2.8	0.2	3.7	1.9	2	0.1	0.54
97214	282456.384	666770.8652	silt	Kusawa	167	21	4	11	559	28	41	53	1.38	0.1	2	0.9	3	0.1	0.42
97612	292235.8538	635162.2589	silt	Kusawa	207	5	5	16	289	21	17	61	1.03	0.1	1.9	0.25	1	0.05	0.27
97618	318301.7943	679030.7512	silt	Kusawa	74	10	3	19	123	14	22	53	0.77	0.1	3.2	0.25	0.5	0.6	0.23
97620	317567.0435	677726.2117	silt	Kusawa	155	21	6	23	576	41	50	231	1.79	0.5	7.9	1	1	0.7	0.42
97621	317390.5442	677768.9121	silt	Kusawa	147	18	5	15	617	32	41	222	1.47	0.5	3.3	2.4	1	0.7	0.32
97622	316096.9417	677705.5687	silt	Kusawa	100	19	5	20	333	38	37	129	1.93	0.5	4.2	0.5	1	0.4	0.41
97623	315683.1778	677681.7785	silt	Kusawa	77	28	4	21	435	24	88	105	0.94	0.2	3.3	0.25	2	0.3	0.33
97634	279137.003	624570.3584	silt	Kusawa	313	15	12	21	711	37	68	148	2.23	0.3	15.4	0.25	2	0.5	0.63
97635	279055.3778	624391.5795	silt	Kusawa	319	31	13	18	1048	42	80	167	3.23	0.6	30.8	1	2	0.2	0.48
97636	280591.5166	624461.8359	silt	Kusawa	299	15	10	25	656	51	51	118	2.22	0.4	67	1.9	6	0.3	0.63
97637	280774.2063	624388.0794	silt	Kusawa	340	10	8	35	490	43	42	91	1.79	0.4	46.3	1.4	3	0.3	0.63
97638	282919.6125	625895.9157	silt	Kusawa	328	7	5	25	322	20	30	58	0.93	0.05	5	0.25	1	0.05	0.59
97639	283314.6648	626442.2142	silt	Kusawa	195	7	4	14	174	19	20	41	1.02	0.2	11.8	0.25	0.5	0.1	0.31
97640	283794.9764	627169.4344	silt	Kusawa	146	4	2	9	112	18	12	24	0.54	0.1	12.4	0.25	1	0.1	0.21
97644	282691.8124	643164.1242	silt	Kusawa	155	23	7	36	446	32	44	125	1.86	0.3	10.3	1.6	1	0.6	0.29
97645	283679.3419	646330.1211	silt	Kusawa	104	7	3	14	213	15	20	37	0.63	0.1	3.8	0.6	1	0.1	0.2
97649	277446.876	640521.7996	silt	Kusawa	210	15	5	18	478	44	43	90	1.1	0.2	12	1.3	1	0.3	0.46
97650	280488.2729	639514.5985	silt	Kusawa	121	13	5	19	594	18	28	77	0.99	0.1	5.4	1	4	0.2	0.23
97672	284173.728	632557.9855	silt	Kusawa	295	7	6	9	362	29	23	73	1.17	0.2	7.4	0.25	1	0.1	0.35
97690	308328.7817	629046.6642	silt	Kusawa	236	4	4	38	283	55	23	48	0.94	0.05	3	0.25	0.5	0.7	0.41
97691	307730.5669	627752.4445	silt	Kusawa	232	4	4	43	301	21	21	44	0.75	0.05	2.5	0.25	1	0.1	0.23
97692	309179.0759	631944.8959	silt	Kusawa	166	2	3	36	221	28	15	33	0.62	0.05	3	0.25	1	0.6	0.27
97693	308863.1059	631801.6016	silt	Kusawa	183	4	4	60	246	26	29	35	0.61	0.05	4.3	0.25	0.5	0.6	0.29

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
56574	0.2	6.6	13.8	2.82	0.03	0.51	0.53	5.2	0.035	5.2	0.085	24.1	0.025	0.1	3.9	15.8	0.207	0.5	9.6	1.6
56577	0.2	8.9	20.9	3.07	0.03	0.61	0.88	0.7	0.017	7.1	0.197	8.9	0.025	0.7	3.2	6.5	0.305	0.5	2.2	0.2
97201	1.7	12.5	19.3	3.62	0.03	0.35	0.95	2.8	0.025	12.2	0.146	32.8	0.025	0.1	4.7	4.3	0.184	0.3	2.8	0.1
97202	0.5	8	16.4	2.46	0.03	0.2	0.48	3.2	0.017	11	0.115	30.9	0.025	0.3	3.8	9.5	0.105	0.2	7.7	0.4
97203	0.7	4.6	10	1.96	0.01	0.16	0.24	2.9	0.014	2.9	0.051	36.1	0.025	0.1	2.8	14.9	0.043	0.2	18	0.3
97204	2.5	8.2	25.2	2.68	0.08	0.24	0.43	13.9	0.026	8.4	0.081	97.7	0.025	0.2	4.8	21.7	0.069	0.3	67.9	0.6
97205	0.3	7.5	19	1.77	0.01	0.15	0.54	0.8	0.015	12.5	0.082	6.1	0.025	0.1	2.6	5.4	0.088	0.1	2.4	0.2
97206	0.3	9.1	27.8	1.97	0.01	0.26	0.71	0.8	0.017	14.8	0.08	6.1	0.025	0.1	2.8	3.9	0.104	0.2	2.5	0.2
97207	0.2	9.3	21.7	2.45	0.01	0.25	0.62	1.3	0.016	15.6	0.088	7.7	0.025	0.1	4.9	3.2	0.115	0.2	3	0.2
97208	0.4	6.9	19	1.88	0.01	0.18	0.44	0.4	0.018	12.9	0.12	4.5	0.025	0.1	3.1	3.5	0.102	0.1	1.3	0.1
97209	0.2	8.1	17.6	2.19	0.03	0.12	0.46	0.7	0.019	13.9	0.101	8.1	0.025	0.1	3.4	3.5	0.084	0.1	3.5	0.1
97210	0.2	13.8	20.6	2.54	0.04	0.15	1.18	0.8	0.023	80.3	0.098	6	0.025	0.1	4.1	3.7	0.096	0.2	2.4	0.1
97211	0.2	11.1	20.2	2.48	0.03	0.29	0.77	0.6	0.019	34.6	0.107	4.1	0.025	0.1	5.4	3	0.114	0.2	1.3	0.2
97212	0.4	14.8	22.9	2.64	0.02	0.17	0.52	1.9	0.017	17.1	0.123	9.6	0.025	0.1	5.1	5.2	0.105	0.2	4.8	0.2
97213	1.3	20.2	27	2.9	0.05	0.22	0.78	2.4	0.039	23	0.129	9.7	0.1	0.1	5	3.3	0.124	0.3	4.7	0.3
97214	0.3	9.1	18.8	1.92	0.03	0.22	0.38	1	0.016	11.4	0.143	3.1	0.025	0.05	2.6	2.7	0.078	0.2	1.3	0.1
97612	0.1	3.6	3	1.44	0.01	0.23	0.35	1.3	0.013	2.6	0.087	5.1	0.025	0.05	1.4	4.9	0.139	0.2	2.1	0.1
97618	0.2	2.9	9.2	0.99	0.01	0.05	0.21	0.7	0.01	5.8	0.07	12.1	0.025	0.1	1.6	10.4	0.05	0.1	2.7	1.7
97620	1.1	7.9	25.8	2.34	0.05	0.12	0.57	5.3	0.025	12.3	0.102	41.1	0.025	0.1	2.5	7.1	0.064	0.3	13	1.6
97621	1.1	8	21.8	2.05	0.03	0.11	0.52	0.8	0.015	11	0.099	50.7	0.025	0.1	2.1	6.6	0.068	0.2	4.3	0.9
97622	0.5	7	18	1.84	0.05	0.08	0.49	2.2	0.021	11.3	0.098	15.7	0.025	0.1	2.1	5.2	0.069	0.2	17.1	0.9
97623	0.4	6.3	12.3	3.31	0.02	0.08	0.36	3.3	0.015	9.5	0.092	14.7	0.025	0.1	1.4	29.3	0.062	0.1	12	1.7
97634	0.2	11.9	30	4.29	0.03	0.94	1.26	1.5	0.018	7.8	0.222	6.6	0.025	0.2	4.8	5.5	0.468	0.6	2.7	0.2
97635	0.3	17	35	4.73	0.04	0.66	1.3	1.9	0.024	19.8	0.176	17.6	0.025	0.5	6.5	5.3	0.341	0.5	3.8	0.2
97636	0.3	9.6	35.5	3.2	0.04	0.57	0.87	3.4	0.018	9.1	0.171	9.2	0.07	0.3	4.8	7.4	0.264	0.4	5.1	0.2
97637	0.2	7.4	42.3	2.69	0.02	0.57	0.75	2.1	0.014	4.3	0.207	6	0.025	0.1	4.6	10.5	0.241	0.3	3.4	0.1
97638	0.1	4.7	3.4	1.72	0.5	0.56	0.54	0.5	0.028	2.1	0.239	1.9	0.025	0.05	2.4	7.5	0.212	0.2	2.3	0.1
97639	0.1	3.4	6.6	1.19	0.01	0.14	0.32	2.7	0.016	2.5	0.093	4.8	0.025	0.1	1.5	2.8	0.114	0.1	3.5	1.2
97640	0.1	2.1	4	0.76	0.5	0.1	0.2	0.6	0.015	1.2	0.065	3.3	0.025	0.05	0.9	2.2	0.071	0.1	1.8	0.3
97644	0.5	9.1	20.9	2.5	0.02	0.13	0.57	1.4	0.019	15	0.09	53.2	0.025	0.3	3.9	9.8	0.096	0.2	5.6	0.2
97645	0.3	3.4	7.1	1.24	0.01	0.09	0.23	1.3	0.008	4	0.057	8.1	0.025	0.05	1.6	5.8	0.065	0.1	3.2	0.2
97649	0.3	8.9	16.4	2.44	0.01	0.26	0.58	2	0.025	5.1	0.125	22	0.025	0.2	3.2	6.7	0.136	0.2	3.8	0.3
97650	0.2	5.7	10.9	2.15	0.01	0.19	0.39	2.7	0.015	6.3	0.073	12.7	0.025	0.1	2.8	23.7	0.086	0.2	7.5	0.6
97672	0.2	5	18.8	1.87	0.01	0.36	0.48	0.8	0.018	4	0.097	6.3	0.025	0.1	2	2.7	0.193	0.2	1.8	0.1
97690	0.1	3	3.6	1.61	0.5	0.31	0.33	1.1	0.016	1.3	0.079	4.8	0.025	0.05	1.7	23.4	0.133	0.2	8.3	1.3
97691	0.2	2.7	3.7	1.74	0.5	0.27	0.25	1.2	0.012	1.1	0.053	4.6	0.025	0.05	1.6	31.5	0.113	0.2	12.3	1
97692	0.1	1.7	3.6	1.22	0.5	0.21	0.18	0.5	0.013	0.7	0.047	4	0.025	0.05	1.4	24.6	0.088	0.1	6.5	0.7
97693	0.1	2	4	1.82	0.01	0.22	0.19	0.7	0.013	0.6	0.057	4.8	0.025	0.05	1.5	43.6	0.099	0.2	10.9	1

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
56574	08V	428922	6668880	NAD83	20020703	FA	good	mud from mouth of creek. Rocks are grdr and latite.	
56577	08V	418698	6658923	NAD83	20020704	FA	good	trickle flowing over granitic face and thru swampy meadow.	
97201	08V	423893	6673319	NAD83	20020707	RH	good	intrusive float	
97202	08V	417786	6685953	NAD83	20020707	RH	good	silt and clay with mossmat, granodiorite float.	
97203	08V	416369	6681373	NAD83	20020707	RH	good	sandy, minor silt	
97204	08V	416286	6681384	NAD83	20020707	RH	good	silty muddy sample, granodiorite float	
97205	08V	417763	6701208	NAD83	20020708	RH	good	silty	
97206	08V	417968	6700860	NAD83	20020708	RH	fair	coarse sample, white weathering granodiorite float	
97207	08V	417915	6700699	NAD83	20020708	RH	good	sandy silt, float of fine to med grained bio grd with smoky qtz x-tals, grey grd, granitic - metased bx.	
97208	08V	419103	6701608	NAD83	20020708	RH	good	dry silt sample, float of mixed grey intermediate feldspar phyric porphyries.	
97209	08V	419341	6703369	NAD83	20020708	RH	good	silt, some moss and root mat, float of grd and lesser amounts of felsic porphyries.	
97210	08V	417408	6704293	NAD83	20020708	RH	good	Good silt, grd (Nisling) float, rare bio schist	
97211	08V	417618	6705370	NAD83	20020708	RH	good	good silt, mixed float, banded gneiss, grd..	
97212	08V	419665	6703626	NAD83	20020708	RH	good	muddy sandy silt. Mixed grd-porphyry float	
97213	08V	420281	6701652	NAD83	20020708	RH	poor	clay-mud rich, swampy sluggish stream, likely till derived.	
97214	08V	420264	6701193	NAD83	20020709	RH	good	sandy-silty sample, mixed intrusive float.	
97612	08V	431287	6669972	NAD83	20020624	FA	fair	sandy decomposed granodiorite from meander bar.	
97618	08V	455537	6714892	NAD83	20020625	FA	fair	jvr notes ??	
97620	08V	454856	6713559	NAD83	20020625	FA	good	sandy overbank material and moss mat. Steep grade to creek with fast flow. Minor cobbles of feldspar porphyry and green dike.	
97621	08V	454678	6713594	NAD83	20020625	FA	good	fine sandy material from steep graded creek. Minor feldspar porphyry (flow rock).	
97622	08V	453390	6713479	NAD83	20020625	FA	poor	stagnant puddle from emerging stream. Organic mat plus decomposed grdr forms sample.	
97623	08V	452978	6713439	NAD83	20020625	FA	fair	sandy decomposed granodiorite. Low grade and moderate flow to stream.	
97634	08V	418649	6658846	NAD83	20020704	FA	good	trickle from granite bluffs	
97635	08V	418575	6658664	NAD83	20020704	FA	fair	coarse material from grdr	
97636	08V	420104	6658797	NAD83	20020704	FA	poor	stream dispersed over 150m width in talus field. Sample from mossmat	
97637	08V	420289	6658730	NAD83	20020704	FA	fair	d/s of 97636. Mossmat	
97638	08V	422368	6660326	NAD83	20020705	FA	good	mid-channel barwith moss and buckbrushn trapping silt. Grdr float	
97639	08V	422740	6660888	NAD83	20020705	FA	good	incised gully in grdr boulder field.	
97640	08V	423190	6661635	NAD83	20020705	FA	good	fine to coarse grdr sand behind large boulder.	
97644	08V	421447	6677592	NAD83	20020705	FA	good	clay rich silt. Rock is mafic poor grdr.	
97645	08V	422305	6680799	NAD83	20020705	FA	fair	grdr sand and mossmat from grdr boulder field.	
97649	08V	416322	6674736	NAD83	20020706	FA	good	sandy material from base of cirque.	
97650	08V	419396	6673852	NAD83	20020706	FA	fair	coarse sand from grdr in mid-channel behind large boulders	
97672	08V	423351	6667042	NAD83	20020624	RS	good	Good active silt very sandy. Large granodiorite boulders. Zinc moss	
97690	08V	447581	6664501	NAD83	20020704	RS	good	granodiorite outcrop	
97691	08V	447036	6663182	NAD83	20020704	RS	good	large granodiorite boulders	
97692	08V	448313	6667435	NAD83	20020705	RS	good	granodiorite bldrs	
97693	08V	448004	6667279	NAD83	20020705	RS	good	granodiorite bldrs and outcrop	

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
97696	308835.0459	644826.2468	silt	Kusawa	136	18	4	13	284	31	48	58	1.78	0.1	1.8	0.5	0.5	0.2	0.41
97697	309048.536	644473.6753	silt	Kusawa	194	16	4	10	268	32	47	36	1.47	0.1	1.6	0.25	1	0.1	0.48
97706	290633.5603	635143.5319	silt	Kusawa	81	4	3	25	518	13	19	80	0.94	0.1	20.7	0.25	3	0.05	0.29
97708	317285.2207	678726.2665	silt	Kusawa	102	16	5	31	471	21	39	106	1.45	0.2	5.1	0.8	2	0.7	0.27
97709	317029.379	678221.4559	silt	Kusawa	96	18	5	27	337	24	37	155	1.91	0.4	6.3	1.4	1	0.7	0.27
97710	316787.4734	677836.3002	silt	Kusawa	78	22	4	18	367	22	66	107	0.94	0.2	3.1	7.5	1	0.3	0.33
97717	308653.3989	628881.9846	silt	Kusawa	338	6	6	26	393	76	29	70	1.3	0.1	2.8	0.7	1	0.6	0.56
97720	308515.1503	627568.2888	silt	Kusawa	181	6	4	35	255	20	27	43	0.72	0.1	2.6	1.3	2	0.1	0.25
97721	308869.2487	627635.9755	silt	Kusawa	194	5	4	51	280	21	34	41	0.64	0.1	3.5	0.25	2	0.4	0.26
97722	309063.0067	628596.8784	silt	Kusawa	296	5	5	19	351	67	22	63	1.13	0.05	2	1	1	0.5	0.45
97723	308945.3767	630522.687	silt	Kusawa	175	10	4	28	235	41	33	46	1.15	0.1	2.6	1.3	2	0.2	0.45
97724	308751.9026	631149.2388	silt	Kusawa	223	2	4	38	262	50	18	43	0.74	0.1	3.9	1.2	0.5	0.8	0.36
97738	307254.7273	647303.8914	silt	Kusawa	228	24	5	11	359	36	67	83	1.7	0.2	1.6	1.4	0.5	0.3	0.44
97739	307545.6357	647255.6045	silt	Kusawa	183	22	5	13	330	31	64	94	1.45	0.1	2.3	0.25	0.5	0.3	0.51
97740	307688.6392	647100.6768	silt	Kusawa	204	22	5	11	351	36	63	115	1.53	0.2	2.2	0.5	0.5	0.3	0.45
97741	307745.6552	647047.4092	silt	Kusawa	186	20	4	11	302	31	53	93	1.4	0.1	1.4	0.25	0.5	0.2	0.43
97744	307899.004	647000.0088	silt	Kusawa	168	21	4	12	309	31	56	100	1.39	0.2	2.3	0.25	1	0.3	0.49
97745	308233.4847	646479.176	silt	Kusawa	199	23	5	13	222	34	59	69	1.45	0.1	2	0.25	0.5	0.1	0.51
97746	308400.4945	645319.033	silt	Kusawa	176	20	5	16	213	57	38	49	1.67	0.8	1.8	2.7	4	0.1	0.52
97747	308250.6487	645259.2476	silt	Kusawa	126	16	5	13	292	41	44	62	1.68	0.1	1.9	1.3	0.5	0.1	0.49
97748	308191.8514	645168.8639	silt	Kusawa	141	14	6	12	285	41	47	53	1.88	0.1	2.2	1.4	1	0.1	0.48
97749	308464.9768	644903.2459	silt	Kusawa	96	11	3	19	214	32	33	38	1	0.1	2.4	0.25	1	0.1	0.42
97750	308257.6287	644156.8884	silt	Kusawa	126	15	5	11	291	36	42	64	1.62	0.1	1.5	0.25	0.5	0.2	0.41
140393	299187.691	687986.3273	silt	Kusawa	97	18	4	13	259	22	44	42	0.81	0.1	1.6	0.25	1	0.1	0.34
140394	299187.691	687986.3273	silt	Kusawa	93	19	4	13	247	21	48	38	0.8	0.1	1.6	0.6	0.5	0.1	0.34
140396	299017.3648	687508.9492	silt	Kusawa	103	24	4	12	283	28	52	46	1.04	0.1	1.9	0.6	2	0.2	0.49
176251	280163.4094	675092.8012	silt	Kusawa	207	30	4	9	596	33	42	56	1.12	0.1	1.3	0.6	2	0.1	0.64
176252	281045.8508	648079.7684	silt	Kusawa	404	9	6	15	503	62	22	112	1.38	0.2	2.1	2.5	3	0.4	0.29
176253	281046.6797	648075.2576	silt	Kusawa	404	9	7	17	519	65	22	116	1.43	0.2	2.1	0.25	3	0.5	0.31

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
97696	0.2	8.2	25	1.64	0.01	0.1	0.59	0.2	0.014	6.9	0.112	11	0.025	0.1	2.4	7.6	0.098	0.1	1.6	0.2
97697	0.1	7.9	19.5	1.69	0.01	0.17	0.54	0.2	0.016	6.6	0.128	3.4	0.025	0.1	1.8	5.4	0.096	0.1	1.8	0.2
97706	0.3	3.9	5.1	1.29	0.01	0.07	0.24	15.1	0.009	2.5	0.071	5.4	0.025	0.1	1.3	6	0.1	0.1	11.4	1
97708	0.4	5.8	14.5	1.74	0.02	0.09	0.29	3.8	0.015	8	0.075	29.5	0.025	0.1	1.7	15.5	0.061	0.2	6.3	1.5
97709	0.7	5.4	17.1	1.6	0.04	0.09	0.36	2.8	0.013	10.3	0.066	28.6	0.025	0.1	1.9	8.8	0.066	0.2	16.2	1.1
97710	0.5	5.7	12.8	2.5	0.01	0.09	0.35	1.8	0.013	8.9	0.085	18.3	0.025	0.1	1.5	17.7	0.066	0.2	7.3	1.4
97717	0.2	4.5	9.6	1.97	0.01	0.46	0.46	2.2	0.022	2.1	0.095	6.7	0.025	0.05	2.3	15.9	0.183	0.3	16.7	1.1
97720	0.1	3	7.5	1.59	0.5	0.21	0.26	0.9	0.013	3.7	0.064	4.4	0.025	0.05	1.4	24.8	0.091	0.1	11.1	1.1
97721	0.1	2.8	4.1	2.14	0.5	0.24	0.22	1.4	0.013	1.1	0.066	4.7	0.025	0.05	1.5	32.5	0.102	0.2	16.4	2.2
97722	0.1	3.9	4.2	1.74	0.5	0.4	0.4	1.1	0.017	1.6	0.075	5.3	0.025	0.05	1.8	12.5	0.161	0.3	6.9	0.7
97723	0.1	3.9	9.2	1.45	0.01	0.21	0.33	4.1	0.025	6.8	0.078	5.1	0.025	0.05	1.8	15.3	0.087	0.1	32	0.5
97724	0.1	2.1	8.5	1.51	0.5	0.24	0.19	1	0.023	0.5	0.049	6.3	0.025	0.05	1.6	30.3	0.099	0.2	7	0.7
97738	0.4	10.7	32	2.04	0.5	0.24	0.8	0.6	0.019	14.3	0.139	7.5	0.025	0.1	2.3	6.2	0.123	0.1	1.5	0.2
97739	0.4	10.5	30.6	1.96	0.5	0.24	0.73	0.7	0.016	14.3	0.171	8.1	0.025	0.1	2.1	7.4	0.11	0.1	1.7	0.2
97740	0.8	11.1	34.2	1.98	0.5	0.25	0.78	0.9	0.018	17.2	0.142	9.2	0.025	0.1	2.3	5.2	0.112	0.1	1.7	0.2
97741	0.5	9.5	29.5	1.74	0.5	0.21	0.69	0.8	0.017	13.9	0.138	7.9	0.025	0.1	2	5.1	0.1	0.1	1.6	0.1
97744	0.7	10	30	1.79	0.5	0.2	0.68	0.8	0.016	15.8	0.159	9	0.025	0.1	2	6.9	0.099	0.1	1.7	0.1
97745	0.4	7.5	23.3	1.63	0.5	0.15	0.55	0.7	0.026	19.2	0.17	6.3	0.025	0.1	2.3	4.1	0.086	0.1	1.2	0.1
97746	0.5	6.3	17.7	1.37	0.03	0.11	0.48	1	0.026	9.7	0.114	7.5	0.07	0.2	1.9	0.9	0.056	0.1	4.6	0.1
97747	0.2	8.4	13.8	1.64	0.5	0.1	0.63	0.1	0.016	7	0.154	13.9	0.025	0.05	2.4	4.9	0.103	0.1	1.3	0.1
97748	0.2	7.6	11.7	1.75	0.01	0.12	0.64	0.4	0.018	6.4	0.113	4.8	0.025	0.1	2.4	3.2	0.104	0.1	1.4	0.2
97749	0.2	4.6	8	1.3	0.01	0.09	0.38	0.2	0.017	4.9	0.139	3.6	0.025	0.1	1.6	4.9	0.074	0.1	1.2	0.2
97750	0.2	7.6	13.8	1.56	0.5	0.11	0.6	0.1	0.015	6.1	0.129	14.3	0.025	0.05	2.3	4	0.101	0.1	1.2	0.1
140393	0.1	5.7	34.4	1.68	0.5	0.22	0.39	0.2	0.014	5.9	0.089	2.5	0.025	0.05	2	4.9	0.106	0.1	2.8	0.2
140394	0.05	5.5	23.8	1.72	0.5	0.21	0.37	0.2	0.013	5.3	0.092	2.4	0.025	0.05	1.8	5.6	0.1	0.1	3	0.2
140396	0.1	7.6	47.4	1.88	0.02	0.23	0.55	0.5	0.021	9.9	0.106	2.7	0.025	0.1	2.5	4.3	0.11	0.1	14.5	0.5
176251	0.4	8.3	18.4	1.77	0.01	0.12	0.48	0.9	0.024	19	0.138	3.2	0.025	0.05	3.2	1.6	0.091	0.1	0.9	0.2
176252	0.5	5	8.3	1.94	0.01	0.24	0.39	3.8	0.017	5.2	0.057	23.9	0.025	0.1	2.6	8.7	0.104	0.2	6.5	0.3
176253	0.6	5.2	13.9	2.01	0.03	0.25	0.4	3.6	0.018	5.7	0.063	24.2	0.025	0.1	2.8	9.4	0.105	0.2	6.8	0.3

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
97696	08V	447456	6680306	NAD83	20020707	RS	good	hbld grano bldrs, cobbles and gravel	
97697	08V	447683	6679962	NAD83	20020707	RS	good	hbld grano bldrs, cobbles and gravel	
97706	08V	429690	6669889	NAD83	20020624	JvR	fair	2 meter wide creek draining NW on target Q	
97708	08V	454535	6714547	NAD83	20020625	JvR	fair	creek draining main cirque, creek is 2 meters wide, fast flowing, brown silt, mostly granitic boulders in creek	
97709	08V	454300	6714033	NAD83	20020625	JvR	poor	same creek as 97708, poor silt accumulations, granitic boulders	
97710	08V	454074	6713638	NAD83	20020625	JvR	fair	fine sand and decomposed granite in southern creek that Farrell sampled, right at mouth with main creek with samples 97708 to 97710	
97717	08V	447911	6664349	NAD83	20020704	JvR	good	fast flowing 3 meter wide creek, granitic boulders and o/c in creek bed [MS reading on boulders range between 5.1 to 6.2 SI Units]	
97720	08V	447826	6663030	NAD83	20020704	JvR	fair	silt on creek south of camp @ 843 m elevation; very high velocity 1.5 m wide stream, smaple behind a large granodiorite boulder	
97721	08V	448176	6663112	NAD83	20020704	JvR	good	silt on same creek as 97720 sample, 0.5 meter wide creek and much slower velocity, coarser silt, ubiquitous intrusive boulders	
97722	08V	448331	6664081	NAD83	20020705	JvR	good	dark grey fine silt on active stream bar, creek is split, 5 meters apart and sample north branch; granodiorite boulders and decomposed fragments make up the coarse fraction	
97723	08V	448137	6666003	NAD83	20020705	JvR	fair	first major drainage north of camp; small 0.3m wide stream with coarse intrusive gravel in stream bed	
97724	08V	447919	6666622	NAD83	20020705	JvR	good	on second creek north of camp, moderate velocity 2.5m wide creek producing active stream bars and silt deposits; huge granodiorite boulder trains near creek	
97738	08V	445781	6682722	NAD83	20020706	RS	good	grano - meta sed contact upstream	
97739	08V	446073	6682685	NAD83	20020706	RS	good	rusty weathered meta-seds outcrop, grano bldrs	
97740	08V	446222	6682536	NAD83	20020706	RS	good	grano bldrs	
97741	08V	446281	6682484	NAD83	20020706	RS	good	banded sltst, lst, sst, qztite and sltst	
97744	08V	446436	6682443	NAD83	20020706	JvR	good	silt below skarn mineralization and where lmst crosses creek branches; rusty metasediment boulders with 10% lmst cobbles	
97745	08V	446790	6681936	NAD83	20020706	RS	fair	seep outflow, hornfels otc, grano and meta-seds bldrs. Draining contact area.	
97746	08V	447003	6680782	NAD83	20020707	JvR	poor	silt above camp F-1; low velocity stream which goes u/g; high organic content, granodiorite boulders in creek	
97747	08V	446856	6680716	NAD83	20020707	JvR	good	major creek draining cirque, fast flowing 1 meter wide creek with granodiorite boulders everywhere	
97748	08V	446801	6680623	NAD83	20020707	JvR	fair	on NE facing slope, south of main creek, intrusive boulders	
97749	08V	447084	6680369	NAD83	20020707	JvR	poor	lots of moss mat but just down stream of zinc moss	
97750	08V	446907	6679614	NAD83	20020707	JvR	good	drains steep cirque south southwest of camp F-1, all granodiorite	
140393	08V	436108	6723082	NAD83	20020730	JvR	good	silt on creek of unknown Minfile occurrence, fast flowing creek towards the east, good silt development, grey weathering coarse intrusive boulders in creek; duplicate of 140394	dup of 1403
140394	08V	436108	6723082	NAD83	20020730	JvR	good	silt on creek of unknown Minfile occurrence, fast flowing creek towards the east, good silt development, grey weathering coarse intrusive boulders in creek; duplicate of 140393	dup of 1403
140396	08V	435957	6722598	NAD83	20020730	JvR	fair	in south fork of creek from 140393, less flow 2 meters wide, much less silt developed	
176251	08V	417642	6709423	NAD83	20020815	FA	fair	stream organics mixed with silt. Granitic environment.	
176252	08V	419608	6682442	NAD83	20020815	FA	fair	dup of 176253. Medium gravel from granitics	
176253	08V	419609	6682438	NAD83	20020815	FA	fair	dup of 176252. Medium gravel from granitics	

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
176255	281732.4277	648877.4977	silt	Kusawa	291	13	7	39	337	47	29	103	1.55	0.7	6.3	13	2	0.5	0.4
176375	296390.6851	657451.5838	silt	Kusawa	125	22	5	16	348	36	47	45	1.39	0.1	0.3	1.2	3	0.1	0.46
176382	299312.8454	654713.674	silt	Kusawa	71	10	3	35	187	19	22	26	0.62	0.05	2.7	0.25	0.5	0.1	0.39
176383	298516.8972	655118.2822	silt	Kusawa	111	15	3	13	255	24	32	49	0.93	0.1	0.6	0.25	4	0.05	0.65
176385	298285.641	654459.5317	silt	Kusawa	78	13	3	24	292	22	26	50	1.12	0.2	2	0.25	4	0.1	0.53
176402	318922.2345	632496.6795	silt	Kusawa	116	6	3	49	1201	129	38	192	0.48	0.1	4.4	0.7	0.5	0.4	2.19
176403	318922.2345	632496.6795	silt	Kusawa	115	7	3	47	1241	128	38	192	0.48	0.1	4.4	0.25	1	0.3	2.2
176404	319482.7025	632900.1009	silt	Kusawa	117	6	3	46	1225	125	38	181	0.48	0.1	4.6	0.25	0.5	0.3	2.16
176405	319568.474	632802.1395	silt	Kusawa	115	6	4	49	1228	126	39	180	0.54	0.1	4.7	0.25	0.5	0.3	2.21
176407	308131.8198	646995.0675	silt	Kusawa	201	23	5	11	356	34	61	118	1.6	0.2	2	0.25	1	0.3	0.49
176408	308544.463	646817.6408	silt	Kusawa	189	22	5	11	356	37	60	127	1.58	0.2	2.4	1.1	1	0.4	0.51
176410	308757.625	646950.8678	silt	Kusawa	218	27	5	13	434	55	67	165	1.79	0.2	2.9	0.25	1	0.3	0.64
176440	305678.7346	654323.2994	silt	Kusawa	188	43	7	10	315	117	98	52	2.52	0.1	1.9	0.25	1	0.1	0.97
176443	307642.2739	662511.8227	silt	Kusawa	161	24	6	13	293	29	52	54	1.53	0.1	3.6	0.5	2	0.3	0.44
176444	307571.4817	650192.6008	silt	Kusawa	107	18	6	22	450	46	42	227	1.33	0.1	4.5	3	1	0.5	0.45
176445	307572.6483	650193.6511	silt	Kusawa	108	18	6	22	462	48	43	230	1.41	0.2	4.6	3.7	1	0.5	0.47
176446	307817.0817	650111.1519	silt	Kusawa	43	5	4	21	245	15	12	75	0.83	0.1	3.7	2.1	1	0.4	0.22
176448	308059.7744	650563.6372	silt	Kusawa	117	17	8	24	390	29	33	134	1.97	0.2	6.9	2.1	1	0.7	0.46
176449	308222.1291	651058.4216	silt	Kusawa	58	4	3	18	201	14	8	52	0.65	0.05	2	1.4	0.5	0.4	0.23
176450	314953.4151	681895.8426	silt	Kusawa	54	16	7	34	621	12	34	238	1.38	0.5	15.2	0.7	2	0.6	0.21
176451	314912.8619	681784.3111	silt	Kusawa	61	14	8	92	892	12	32	337	1.41	0.4	14.8	0.25	2	1	0.2
176452	279298.8618	662746.5735	silt	Kusawa	164	53	5	8	250	45	47	47	1.54	0.1	2.1	0.25	2	0.1	0.52
176601	313454.6539	682017.2616	silt	Kusawa	48	14	6	49	406	12	39	109	0.69	0.1	6.5	2.6	3	0.5	0.26
176602	286891.8894	663134.5683	silt	Kusawa	217	20	7	17	452	36	32	81	1.86	0.2	2.8	0.25	1	0.2	0.49
176603	277827.0955	668949.4134	silt	Kusawa	105	21	4	16	250	19	36	40	1.24	0.1	2.3	0.25	1	0.1	0.26
176604	277780.1343	668905.5714	silt	Kusawa	263	26	6	13	448	40	59	75	1.72	0.1	3.8	0.25	1	0.1	0.56
343887	299928.8236	687489.6893	silt	Kusawa	86	28	4	19	240	22	69	37	0.69	0.1	2.1	0.9	1	0.3	0.41

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
176255	0.4	5	16.3	2.33	0.03	0.19	0.36	5.1	0.014	6.8	0.069	34.4	0.025	0.2	3.5	16.3	0.075	0.1	24.4	1.1
176375	0.1	10.2	27.9	2.09	0.01	0.15	0.66	0.6	0.029	14.1	0.065	4.8	0.025	0.1	2.3	3.7	0.089	0.1	1.5	0.4
176382	0.1	3.6	6	1.03	0.5	0.1	0.25	0.2	0.016	7.9	0.087	3.8	0.025	0.05	1.5	10.3	0.06	0.1	0.9	0.3
176383	0.2	7.8	25.5	1.43	0.01	0.16	0.53	0.3	0.015	10.4	0.124	3.3	0.025	0.05	1.8	3.3	0.08	0.2	2.7	0.1
176385	0.4	6.3	60.5	1.37	0.02	0.15	0.49	0.8	0.016	13.6	0.061	6.8	0.025	0.05	2.4	4.4	0.065	0.2	2.4	0.5
176402	0.2	12.5	4.6	6.44	0.01	0.21	1.15	1.6	0.01	5.2	0.229	20.4	0.06	0.05	5.6	14.9	0.048	0.1	4.4	0.1
176403	0.3	12.5	2.9	6.32	0.01	0.21	1.16	1.6	0.012	4.6	0.235	20.7	0.08	0.05	5.7	15.2	0.043	0.1	4.4	0.05
176404	0.2	12.5	2.4	6.13	0.02	0.21	1.13	1.9	0.009	5.1	0.226	19.8	0.025	0.05	5.6	14.5	0.05	0.1	4.4	0.05
176405	0.2	12.1	2.6	6.03	0.5	0.24	1.14	1.9	0.012	4.8	0.262	19.4	0.025	0.05	5.8	15	0.046	0.1	4.2	0.05
176407	0.7	10.7	34.3	1.98	0.01	0.25	0.78	0.9	0.019	18.2	0.143	9.9	0.025	0.1	2.2	4.8	0.103	0.1	1.7	0.2
176408	0.9	10.4	33.5	1.95	0.5	0.24	0.76	0.8	0.018	18.6	0.139	9.9	0.025	0.1	2.4	5.2	0.109	0.2	1.7	0.2
176410	1.4	12.4	37.5	2.24	0.01	0.25	0.81	0.9	0.024	26.2	0.156	15	0.025	0.1	2.7	5.2	0.106	0.2	1.7	0.2
176440	0.1	16.3	31.7	2.65	0.02	0.1	0.93	0.5	0.113	26.9	0.157	3.5	0.025	0.1	2.6	2.2	0.094	0.1	0.7	0.1
176443	0.2	10.8	18	2.16	0.01	0.36	0.63	0.7	0.023	21.4	0.061	8.5	0.025	0.1	2.9	5.1	0.1	0.2	1.1	0.4
176444	1.5	5.8	40.8	1.73	0.02	0.17	0.43	1.2	0.017	15.5	0.067	12.9	0.025	0.1	3.2	15.5	0.051	0.2	6.7	0.3
176445	1.4	5.9	40.9	1.79	0.01	0.17	0.44	1	0.014	15.3	0.066	13.2	0.025	0.1	3.1	15.3	0.052	0.2	7.4	0.4
176446	0.5	2.1	14.7	1.07	0.01	0.08	0.14	1.4	0.008	3.4	0.037	10	0.025	0.1	2	12.9	0.038	0.1	13.8	0.6
176448	0.9	6.3	27.1	2.3	0.02	0.21	0.42	2	0.015	10	0.058	16.1	0.025	0.1	3.3	11.9	0.072	0.2	17.7	0.6
176449	0.5	2	12.3	0.92	0.5	0.09	0.13	0.3	0.007	3.2	0.03	6.6	0.025	0.05	1.9	11.3	0.035	0.1	2.6	0.2
176450	0.6	5.3	12.8	2.19	0.03	0.11	0.34	3	0.013	9	0.078	45.5	0.025	0.2	2	15.5	0.074	0.2	6	0.8
176451	0.8	5.4	14.9	3.36	0.04	0.15	0.3	6.5	0.01	8.9	0.076	84.3	0.025	0.3	2.3	32.7	0.091	0.4	8.7	1.1
176452	0.1	7.5	13.5	1.42	0.01	0.19	0.5	0.4	0.058	13.8	0.098	3.4	0.025	0.05	3.4	2.2	0.094	0.1	1	0.1
176601	0.3	3.9	68.1	3.46	0.01	0.09	0.24	6.1	0.01	6.9	0.049	13.3	0.025	0.1	1.6	41.3	0.076	0.2	6.5	0.8
176602	0.1	7.1	14.2	2.3	0.04	0.29	0.49	2.5	0.018	6	0.108	4.3	0.025	0.05	4.1	6.2	0.135	0.3	6.4	0.3
176603	0.1	8.2	17.6	1.68	0.01	0.13	0.85	0.5	0.013	68.9	0.059	3.9	0.025	0.1	2.8	3.5	0.071	0.1	2.8	0.1
176604	0.3	10.4	18.4	2.35	0.02	0.3	0.84	0.9	0.024	37.2	0.12	4.3	0.025	0.1	4.9	3.7	0.152	0.2	4.4	0.2
343887	0.1	6.2	71.5	2.28	0.01	0.17	0.38	0.5	0.013	6.2	0.087	2.6	0.025	0.05	1.8	8.8	0.087	0.1	2.6	0.3

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
176255	08V	420261	6683268	NAD83	20020815	FA	fair	granitic granel mixed with till & loess. Fast flow & steep grade	
176375	08V	434539	6692435	NAD83	20020814	RS	fair	dry stream bed, sandy silt. Skarnoid, meta-seds, and white qz pebbles	
176382	08V	437563	6689814	NAD83	20020815	RS	good	Sandy silt seepage outwash. Granodiorite blders, gneissic meta-seds, grey feld porphyry and quartzite.	
176383	08V	436753	6690187	NAD83	20020815	RS	good	boulder filled creek, granodiorite and meta-seds	
176385	08V	436549	6689518	NAD83	20020815	RS	fair	dry stream bed, qtzite and meta-seds bldrs	
176402	08V	458008	6668377	NAD83	20020802	JvR	good	fast flowing 3 meter wide creek that drains large gossan (RS samples gossan), abundant decomposed biotite rich grey weathering granodiorte o/c in creek; duplicate of 176403	dup of 1764
176403	08V	458008	6668377	NAD83	20020802	JvR	good	fast flowing 3 meter wide creek that drains large gossan (RS samples gossan), abundant decomposed biotite rich grey weathering granodiorte o/c in creek; duplicate of 176402	dup of 1764
176404	08V	458551	6668803	NAD83	20020802	JvR	good	silt on main spur of creek sampled in 176402 (north arm), active stream bar with good silt, concentrations of black sand	
176405	08V	458640	6668708	NAD83	20020802	JvR	good	silt on south fork of 176402 creek, silt not as well developed	
176407	08V	446668	6682448	NAD83	20020802	JvR	fair	active stream bar, metasediments highly sheared with abundant qtz; 25% granodiorite rounded boulders	
176408	08V	447087	6682287	NAD83	20020802	JvR	good	silt further down creek from 176407 at distinctive drop in creek, silt actively worked by flow; 99% glacial derived metasediment boulders	
176410	08V	447294	6682429	NAD83	20020802	JvR	good	silt below large step down in 176407 creek; active stream bar, mixture of limestone and foliated intrusive and rusty metasediment boulders	
176440	08V	443929	6689679	NAD83	20020814	JvR	good	braided stream above Farrell's sample; 50% split of intrusive and metasediment boulders	
176443	08V	445561	6697947	NAD83	20020814	JvR	fair	silt in fast flowing 2m wide creek in steep walled o/c of grey weathering porphyritic intrusive	
176444	08V	445982	6685624	NAD83	20020815	JvR	fair	1 meter wide fast flowing creek that drains a steep cirque wall into a 200 meter wide tarn through a huge blocky talus pile of locally grussy white to light brown weathering biotite qtz rich quartzmonzonite & granite; duplica	dup of 1764
176445	08V	445983	6685625	NAD83	20020815	JvR	fair	1 meter wide fast flowing creek that drains a steep cirque wall into a 200 meter wide tarn through a huge blocky talus pile of locally grussy white to light brown weathering biotite qtz rich quartzmonzonite & granite; duplica	dup of 1764
176446	08V	446230	6685552	NAD83	20020815	JvR	poor	deep pile of glacial till cut by north flowing creek; grussy intrusive in creek bed	
176448	08V	446454	6686014	NAD83	20020815	JvR	good	fast flowing creek in white weathering felsic quartzmonzonite subcrop and boulders	
176449	08V	446596	6686516	NAD83	20020815	JvR	good	sample below fork in creek draining two different cirques, mostly intrusive boulders with rare metasediment cobbles	
176450	08V	452082	6717624	NAD83	20020815	JvR	poor	silt on north fork of main drainage in orange/white weathering granite	
176451	08V	452046	6717510	NAD83	20020815	JvR	poor	south side of creek sampled in 176450 in grussy granite boulders	
176452	08V	417276	6697041	NAD83	20020815	JvR	poor	slow moving creek south of the AWA Minfile occurrence, sample is grussy intrusive buildup rather than proper silt sized material	
176601	08V	450582	6717685	NAD83	20020815	RH	fair	side trib, sandy gruss, grd float	
176602	08V	424835	6697736	NAD83	20020815	RH	fair	sandy grd gruss, grd float	
176603	08V	415558	6703185	NAD83	20020815	RH	fair	gruss grd and minor silt sediment, float of minor dark grey felsic float and lots of grd.	
176604	08V	415513	6703140	NAD83	20020815	RH	fair	Main creek, gruss sandy sed, minor silt, trace organics, mostly grd float.	
343887	08V	436867	6722615	NAD83	20020730	RS	good	pan conc 343886 site, granodiorite, greenstone, quartz-feldspar porph., meta-sandstone.	

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm	Ca__
344229	297457.1828	680560.979	silt	Kusawa	99	7	4	36	241	20	24	56	0.64	0.1	3.8	124.3	1	0.2	0.33
344231	298446.7518	681666.2787	silt	Kusawa	81	7	3	21	192	21	17	36	0.58	0.05	2.4	2	0.5	0.05	0.33
344238	305377.0837	656049.5905	silt	Kusawa	745	39	5	21	574	47	88	273	1.54	0.9	19	5.9	2	0.2	0.65
344239	305429.6527	656089.0156	silt	Kusawa	719	34	4	14	436	44	59	169	1.31	0.4	8.2	1.7	3	0.1	0.62
344240	305993.6105	654728.1963	silt	Kusawa	279	50	7	12	498	107	99	140	2.73	0.2	3.9	6.6	2	0.1	0.99
344241	305042.7274	653981.9872	silt	Kusawa	124	71	5	9	325	103	171	46	1.74	0.05	0.8	0.9	3	0.1	0.81
344242	307546.4405	660781.8548	silt	Kusawa	220	35	5	12	559	43	57	93	1.38	0.1	3.3	0.9	3	0.2	0.7
344247	314258.7493	682404.4189	silt	Kusawa	52	13	8	45	479	11	30	300	1.13	0.3	7.6	1.7	1	3.6	0.2
344248	314244.6185	682366.162	silt	Kusawa	56	13	7	57	674	12	26	465	1.42	1.1	12.1	1.1	2	0.8	0.18
344249	281194.9087	661083.0512	silt	Kusawa	192	27	6	13	199	37	44	53	1.57	0.1	1.5	0.25	2	0.1	0.54
344250	280241.4991	674845.8796	silt	Kusawa	196	34	4	9	609	22	46	58	1.16	0.1	1.1	0.25	1	0.1	0.52

Number	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm	W__ppm
344229	0.2	2.6	8.2	1.66	0.5	0.17	0.23	1.4	0.014	2.8	0.092	5.5	0.025	0.1	1.6	12.3	0.09	0.1	3.7	0.5
344231	0.05	2.9	3.6	1.06	0.5	0.14	0.23	0.4	0.012	2.9	0.106	2.7	0.025	0.05	1.5	6.4	0.079	0.1	1.4	0.2
344238	3	17.2	73.3	3.6	0.02	0.16	0.88	3.9	0.018	77.9	0.21	29.1	0.025	2.1	3	6.2	0.052	0.1	2.9	0.1
344239	1.8	14.4	54.3	2.66	0.02	0.17	0.78	1.8	0.026	55.7	0.137	16.1	0.025	1.1	2.4	4.2	0.051	0.1	2.8	0.1
344240	1.1	20.1	52.6	3.17	0.02	0.15	1.12	1.3	0.097	45.4	0.162	6.9	0.025	0.3	3.2	2.9	0.092	0.1	5.8	0.1
344241	0.3	14.1	23.1	3.55	0.5	0.06	0.75	0.3	0.105	16.7	0.145	4.8	0.025	0.1	1.6	1.8	0.055	0.1	0.5	0.1
344242	0.8	12	25.5	2.92	0.5	0.25	0.7	0.7	0.025	24.8	0.105	8.6	0.025	0.1	2.6	4.5	0.071	0.1	0.8	1
344247	0.8	4	17.1	3.27	0.01	0.12	0.21	9.3	0.011	7.7	0.056	24.8	0.025	0.2	2	42.2	0.072	0.2	11.7	0.8
344248	1.1	4.3	17.1	2.89	0.03	0.12	0.22	4.6	0.013	7.5	0.073	71.4	0.025	0.2	2.2	28.8	0.081	0.3	15.6	0.9
344249	0.3	7.5	21.4	1.87	0.02	0.12	0.55	1.1	0.017	13.1	0.131	4.4	0.09	0.1	2.8	1.9	0.122	0.2	1.7	0.1
344250	0.4	9.7	21.1	2.05	0.5	0.28	0.58	1	0.016	21.8	0.139	2.7	0.025	0.05	4.1	2.2	0.118	0.1	1.2	0.1

Number	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio	Duplicate
344229	08V	434678	6715588	NAD83	20020730	FA	fair	steep grade & fast flow Very coarse hbld granite gravel.	
344231	08V	435621	6716733	NAD83	20020730	FA	fair	very fast flow & step grade. Tan coloured fine sand to coarse gravel.	
344238	08V	443559	6691393	NAD83	20020814	FA	good	dry stream on steep NE facin gslope.. Coarse gravel.	
344239	08V	443610	6691435	NAD83	20020814	FA	fair	dry stream, coarse material.	
344240	08V	444227	6690097	NAD83	20020814	FA	good	fast flow & steep grade. Gravelly sample	
344241	08V	443308	6689312	NAD83	20020814	FA	fair	coarse matreial collected from within granite environment.	
344242	08V	445534	6696213	NAD83	20020814	FA	fair	coarse gravel from quartz rich metasediments.	
344247	08V	451369	6718104	NAD83	20020815	FA	poor	coarse granite rubble & sand	
344248	08V	451356	6718065	NAD83	20020815	FA	fair	fine to medium granite gravel	
344249	08V	419234	6695454	NAD83	20020815	FA	poor	lake sediments & organics with minor silt	
344250	08V	417730	6709179	NAD83	20020815	FA	good	fine granite gravel	

2002 Mineral Assessments - Proposed Kusawa SMA

EMR Soil Geochemistry

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
56352	285886.1158	647536.8132	soil	Kusawa	143	10	7	40	851	30	31	185	1.41	1.7	47.9	1.5	0.5	3.5
56353	285845.4268	647561.5907	soil	Kusawa	139	8	5	32	893	38	25	174	1.01	1.8	80.1	2.5	1	1
56354	285814.55	647592.4574	soil	Kusawa	193	2	5	40	368	77	12	152	0.88	3	58.4	2.3	1	6.8
56355	285937.3259	647784.4878	soil	Kusawa	135	7	5	33	708	26	25	153	1.01	0.7	18.7	1.2	1	0.8
56356	285954.9161	647817.969	soil	Kusawa	176	11	5	38	386	32	31	160	1.02	1.3	20.1	0.5	1	2.2
56378	280619.2358	623243.1636	soil	Kusawa	290	8	11	35	990	115	51	143	2.46	0.2	65	0.25	0.5	0.5
56379	279986.7266	623062.9674	soil	Kusawa	372	11	7	15	490	38	38	101	1.41	0.1	2.7	0.25	1	0.05
56380	279693.4492	623202.7211	soil	Kusawa	389	14	8	18	575	37	46	105	1.61	0.1	3.4	0.25	1	0.05
56387	282220.3998	643291.4172	soil	Kusawa	143	29	6	19	473	48	54	86	1.99	0.2	7	2.2	2	0.2
56388	281957.0507	643205.208	soil	Kusawa	174	19	7	24	472	73	39	105	1.96	0.3	8.4	1.2	1	0.6
56390	281804.9401	643504.4732	soil	Kusawa	115	9	5	40	636	27	18	594	1.14	8.8	105.1	29.1	1	1
56397	279214.8541	640360.1305	soil	Kusawa	139	29	5	24	450	44	55	105	1.24	0.1	5.5	2.8	0.5	0.6
56401	298131.01	648868.0601	soil	Kusawa	78	2	2	48	852	17	6	54	0.62	0.1	5.2	0.25	0.5	0.1
56402	298076.8003	648919.1037	soil	Kusawa	122	14	5	21	336	17	31	93	1.15	0.05	4	4.8	1	0.1
56403	297948.7558	648796.0875	soil	Kusawa	111	7	4	31	431	22	19	57	0.89	0.05	4.4	1.7	0.5	0.1
56404	297618.0151	649083.7509	soil	Kusawa	61	1	2	30	478	22	5	65	0.75	0.05	5.7	0.25	0.5	0.1
56405	297112.8836	649587.7187	soil	Kusawa	42	4	2	21	603	16	3	65	0.74	0.2	103.9	2.8	2	0.1
56421	296092.8738	656843.633	soil	Kusawa	152	31	6	15	484	57	60	83	1.69	0.1	3.4	0.5	2	0.1
56461	321887.0795	637111.8036	soil	Kusawa	32	5	5	29	371	7	17	84	0.81	0.1	4.8	1	0.5	0.5
56462	321771.1205	636975.0958	soil	Kusawa	31	2	2	76	247	4	3	78	0.41	0.2	1.8	2	1	0.4
56463	321680.7049	636947.374	soil	Kusawa	20	1	3	41	136	8	1	41	0.48	0.1	5.1	1.5	2	0.3
56464	321582.1948	636858.7998	soil	Kusawa	40	1	4	83	53	8	3	40	0.69	0.3	5.1	7.5	0.5	0.2
56489	294710.9094	677914.7233	soil	Kusawa	120	15	7	30	1075	14	31	172	1.11	0.1	7	0.7	2	3.3
56490	294503.8657	678089.7335	soil	Kusawa	24	6	3	54	223	8	7	99	0.64	0.1	4.5	1	0.5	0.2
56491	294503.9314	678090.8445	soil	Kusawa	26	5	3	60	231	9	5	108	0.68	0.1	3.9	0.25	0.5	0.2
56493	305128.3941	684394.2107	soil	Kusawa	128	20	4	12	356	29	36	37	1.02	0.1	1.3	11.3	1	0.2
56494	305334.0864	684507.5283	soil	Kusawa	186	43	8	6	619	64	100	171	2.4	0.3	5.1	81.8	1	0.2
56495	305484.1102	684666.3406	soil	Kusawa	80	28	6	11	308	29	46	56	1.1	0.1	1.5	5.7	2	0.6
56496	305828.9245	684921.2776	soil	Kusawa	193	23	5	22	420	42	38	92	1.33	0.3	2.4	1.1	2	0.3
56497	305999.1398	685216.1045	soil	Kusawa	151	30	5	10	308	27	44	55	1.16	0.2	1.2	1.3	2	0.2
56498	306118.2065	685421.2664	soil	Kusawa	134	34	5	11	486	38	42	52	1.29	0.2	2	3.6	1	0.3
56499	306123.6445	685548.0529	soil	Kusawa	159	38	3	24	2030	26	36	161	1.24	0.9	7.9	3.3	1	0.5
56511	301961.0931	653491.8394	soil	Kusawa	245	29	7	10	266	113	96	53	2.48	0.2	1.4	2	1	0.05

2002 M																				
EMR S																				
Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
56352	0.17	0.6	10	35	4.11	0.03	0.24	0.37	6.3	0.017	4.7	0.112	95.5	0.14	4.8	2.7	15.1	0.073	0.4	7.6
56353	0.21	1.2	6.8	15.3	2.96	0.03	0.15	0.29	5.3	0.011	4.3	0.098	184	0.09	3.9	2.3	12.5	0.037	0.3	6
56354	0.12	0.7	2.9	22	3.66	0.05	0.22	0.16	5.4	0.019	1.1	0.075	734.9	0.28	13.5	1.6	23.9	0.023	0.5	5.9
56355	0.25	1.1	6	13.4	2.46	0.02	0.18	0.34	3.9	0.02	3.8	0.095	73.5	0.025	1.3	2.5	12	0.064	0.2	6.9
56356	0.24	1.6	6.6	37	2.93	0.03	0.31	0.36	7.7	0.029	3.8	0.11	76.9	0.14	1.2	2.9	15.2	0.108	0.3	6.1
56378	0.78	0.3	10.5	27.2	4.21	0.01	0.7	0.99	1	0.018	4.2	0.172	10.4	0.025	0.2	7.1	10	0.24	0.4	2.5
56379	0.58	0.2	6.9	6.4	2.5	0.01	0.81	0.82	0.2	0.046	3.2	0.171	5.1	0.025	0.05	4.4	3.9	0.26	0.3	1.5
56380	0.64	0.2	8.5	8.3	2.8	0.5	0.91	0.92	0.3	0.048	4	0.195	5.4	0.025	0.1	4.1	4.7	0.298	0.4	1.8
56387	0.5	0.5	10.1	21	2.54	0.03	0.14	0.7	0.8	0.028	18.9	0.112	24.1	0.025	0.3	4.1	5.1	0.129	0.1	1.8
56388	0.65	0.8	7.9	18	2.29	0.5	0.29	0.63	1.1	0.055	8.2	0.133	29.9	0.025	0.2	3.9	5.2	0.128	0.2	2.8
56390	0.32	1.5	5.5	187.8	2.38	0.03	0.15	0.27	196.3	0.006	6.4	0.059	2639.6	0.025	3.8	2.1	15.2	0.014	0.1	17.2
56397	0.54	0.4	9	20.6	2.35	0.02	0.16	0.7	2.5	0.018	11.6	0.164	17.9	0.025	0.1	3.2	10.9	0.115	0.2	9.8
56401	0.2	0.1	3.1	3.5	1.3	0.02	0.14	0.1	1	0.005	1.8	0.05	26.1	0.025	0.1	1.4	14.5	0.004	0.1	2.5
56402	0.22	0.8	5.3	8.2	1.66	0.01	0.14	0.38	0.5	0.015	9.3	0.064	6.3	0.025	0.1	2.3	6.2	0.081	0.1	1.3
56403	0.33	0.2	3.6	4.8	1.56	0.01	0.16	0.24	0.5	0.011	3.8	0.091	10.5	0.025	0.1	2.3	10.4	0.054	0.1	2.9
56404	0.26	0.1	3	3.5	1.47	0.03	0.12	0.11	0.4	0.003	1.1	0.042	18.5	0.025	0.3	1.5	9.8	0.003	0.1	7.3
56405	0.44	0.2	5.3	4	1.24	0.01	0.1	0.14	0.4	0.004	5.2	0.021	25.5	0.025	0.5	1.8	8	0.001	0.1	0.9
56421	0.83	0.6	24.2	42.7	2.42	0.04	0.28	0.87	0.7	0.028	26.3	0.108	13.6	0.025	0.1	3.2	3.5	0.11	0.2	1.5
56461	0.15	0.8	2.8	14.5	1.35	0.01	0.09	0.16	1.1	0.009	3.6	0.046	17	0.025	0.1	1.8	13.6	0.049	0.2	7.2
56462	0.09	0.6	1	16.8	0.98	0.03	0.06	0.06	3	0.003	0.9	0.008	16.9	0.025	0.1	2	24.3	0.002	0.1	3.8
56463	0.17	0.1	1.1	2.6	0.74	0.02	0.1	0.06	0.9	0.003	1.1	0.011	19.6	0.025	0.1	1.5	19.1	0.001	0.1	4
56464	0.16	0.3	0.7	9.6	1.27	0.03	0.06	0.08	4.4	0.007	1.1	0.019	22.6	0.06	0.4	2	30.1	0.003	0.1	5.8
56489	0.17	0.2	7	11.9	2.92	0.03	0.15	0.39	2.7	0.014	9.1	0.073	30.5	0.06	0.2	2.4	12	0.105	0.3	3.1
56490	0.1	0.1	1.6	3.8	1.26	0.01	0.09	0.12	2	0.004	2.8	0.012	25.9	0.025	0.1	1	15.7	0.009	0.1	4.9
56491	0.1	0.1	1.5	3.5	1.32	0.02	0.1	0.11	2.1	0.004	2.8	0.011	26.8	0.025	0.1	1.1	16.6	0.007	0.1	5.8
56493	0.24	0.3	6.4	28.7	1.56	0.03	0.07	0.41	0.5	0.014	9	0.048	14.6	0.025	0.1	1.4	3.9	0.058	0.1	1.2
56494	0.62	0.4	31	36.9	4.59	0.03	1.06	2.24	0.6	0.012	23.9	0.055	23.9	0.06	0.1	4.8	2	0.18	0.8	0.9
56495	0.25	0.2	7.9	27.7	1.98	0.04	0.11	0.6	0.9	0.012	11.6	0.061	13.6	0.06	0.1	1.5	3.3	0.081	0.1	1
56496	0.42	0.6	6.9	69.4	1.9	0.02	0.08	0.5	0.9	0.014	11.4	0.078	17.9	0.025	0.1	2	3	0.042	0.1	2.9
56497	0.2	0.1	6.5	17.8	2.11	0.03	0.1	0.48	1.2	0.011	10.4	0.038	8.8	0.025	0.1	1.7	4.4	0.092	0.1	1.3
56498	0.31	0.3	8.4	24.9	2.02	0.03	0.13	0.64	0.6	0.014	13.8	0.055	13.5	0.025	0.1	1.5	3.5	0.068	0.1	1.3
56499	0.38	1.6	23.1	74.2	3.52	0.03	0.22	0.61	2.4	0.006	30.6	0.053	101.8	0.025	0.4	6.7	5.5	0.014	0.1	3.4
56511	1.06	0.2	12.7	39.6	2.41	0.02	0.14	0.89	0.4	0.105	17.3	0.123	3.3	0.06	0.1	1.9	0.4	0.084	0.1	0.8

2002 M									
EMR S									
Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio
56352	0.2	08V	424458	6682095	NAD83	20020624	RH	good	South side of gully, talus fines.
56353	0.2	08V	424416	6682118	NAD83	20020624	RH	good	centre of gully-chute, talus fines.
56354	0.1	08V	424384	6682148	NAD83	20020624	RH	good	yellow-orange weathering soil-talus fines, granodio float cut by rare qtz-chalcedney veinlets.
56355	0.4	08V	424499	6682345	NAD83	20020624	RH	good	centre of second gully-chute, talus fines
56356	0.6	08V	424515	6682379	NAD83	20020624	RH	good	North side of chute-gully, yellow-orange soil-talus fines.
56378	0.1	08V	420181	6657578	NAD83	20020704	RH	good	From base of granodiorite scree slope containing rusty wea boulders with occassional slicks.
56379	0.05	08V	419557	6657373	NAD83	20020704	RH	good	Muddy till in granodiorite boulder moraine.
56380	0.1	08V	419259	6657501	NAD83	20020704	RH	good	Muddy till in granodiorite boulder moraine. Boulders cut by occassional qtz-feld veinlet.
56387	0.2	08V	420972	6677700	NAD83	20020705	RH	good	Some loess?, boulders of fine gr granite - granodiorite, basalt?, Metaseds?, pink granite.
56388	0.2	08V	420713	6677603	NAD83	20020705	RH	good	Base of hill. White granodiorite and basaltic bx rocks.
56390	1	08V	420549	6677896	NAD83	20020705	RH	good	Grussy grdr float, weak lim alteration.
56397	0.4	08V	418092	6674646	NAD83	20020706	RH	good	Olive brown till, base of scree slope.
56401	0.1	08V	436618	6683920	NAD83	20020707	RS	good	3 - 7 cm deep, yellow brown, granodiorite
56402	0.2	08V	436562	6683968	NAD83	20020707	RS	good	2 - 6 cm, brown, granodiorite boulders, gravel
56403	0.1	08V	436439	6683840	NAD83	20020707	RS	good	3 - 7 cm deep, orange brown, grano bldrs, grav
56404	0.1	08V	436098	6684115	NAD83	20020707	RS	good	3 - 6 cm deep, light sandy brown, grano bldrs
56405	0.05	08V	435574	6684598	NAD83	20020707	RS	good	3 - 5 cm, brown, qz monzo
56421	0.2	08V	434266	6691815	NAD83	20020709	RS	fair	TF, 5m skarn zone at fw of qz porp dyke
56461	0.4	08V	460781	6673112	NAD83	20020802	RH	good	Ram occ. Sandy silty soil in gully. QFP outcrop on both sides of gully
56462	0.1	08V	460671	6672971	NAD83	20020802	RH	good	Light tan-lim-yellow silty, some cly, no rock frags. Recessive zone in QF porphyry.
56463	0.1	08V	460582	6672939	NAD83	20020802	RH	good	Light tan-lim-yellow cly rich, no rock frags. Recessive zone in QF porphyry.
56464	0.1	08V	460487	6672847	NAD83	20020802	RH	good	Light tan-lim-yellow cly rich, no rock frags. QF porphyry.
56489	0.3	08V	432044	6712831	NAD83	20020814	RH	good	brown B and C horizon from grussy granite source near top of hill.
56490	0.2	08V	431830	6712998	NAD83	20020814	RH	good	lim orange we clay rich zone cutting white granite with shears and slicks. Dup of 56491
56491	0.1	08V	431830	6712999	NAD83	20020814	RH	good	lim orange we clay rich zone cutting white granite with shears and slicks. Dup of 56490
56493	0.6	08V	442179	6719728	NAD83	20020815	RH	fair	brown soil, some till and loess, float of grd, feld porph some which are cut by epidote alt fractures.
56494	0.5	08V	442380	6719850	NAD83	20020815	RH	fair	brown soil, some till and loess, minor organics, grd, porphyry and epidote alt porph float. Outcrop of white weathering light grey qtz-feld hbl porphyry. Glacial till boulders.
56495	0.6	08V	442523	6720015	NAD83	20020815	RH	fair	as 56494, float and outcrop of rhyolite feld porphyry float.
56496	0.4	08V	442857	6720283	NAD83	20020815	RH	fair	minor stream sed silt component, outcrop of bio-hbl grd.
56497	0.4	08V	443015	6720585	NAD83	20020815	RH	fair	below main peak. Till and loess plus scree, poor - moderate quality.
56498	0.5	08V	443126	6720795	NAD83	20020815	RH	fair	sandy, grd and various porphyry float.
56499	0.6	08V	443126	6720922	NAD83	20020815	RH	fair	rusty-lim wea soil, porphyry dyke and green feld porphyry andesite.
56511	0.1	08V	440254	6688698	NAD83	20020708	JvR	good	dark brown soil at 45 cm depth, below lmst and skarn o/c in boulder train, frost heaving and sulofluction evident on south facing slope

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
56557	284706.0064	638455.7539	soil	Kusawa	955	5	11	57	451	280	47	241	3.75	0.4	10.5	3.2	1	0.2
56559	275875.504	648921.4701	soil	Kusawa	164	16	6	51	434	43	35	64	1.52	0.1	6.5	2.6	1	0.1
56563	280781.5148	664965.6868	soil	Kusawa	501	46	6	5	148	49	76	78	1.65	1	1.5	3.5	1	0.4
56564	280844.8521	664918.2238	soil	Kusawa	442	62	7	8	221	94	87	99	1.97	1	1.9	2.8	3	0.4
56565	280870.6036	664853.0515	soil	Kusawa	342	135	9	14	359	139	101	151	2.73	0.7	2.2	2.7	1	0.2
56566	280924.4126	664847.4436	soil	Kusawa	196	41	10	7	299	272	67	82	2.64	0.3	1.4	1.9	1	0.2
56568	279983.8682	666067.3553	soil	Kusawa	270	33	7	12	489	87	67	127	2.09	0.2	4	2.9	1	0.4
56575	280900.5964	624740.1942	soil	Kusawa	251	23	9	19	505	25	56	97	2.2	0.1	9.3	1.2	1	0.1
56576	280239.6306	624834.7705	soil	Kusawa	227	12	6	25	394	26	36	72	1.33	0.1	9.3	1.5	1	0.1
97215	294497.9398	673672.8346	soil	Kusawa	84	8	5	35	609	34	21	82	1.25	0.1	6.8	0.25	0.5	0.3
97216	294687.1985	673948.1902	soil	Kusawa	112	5	4	31	598	61	11	66	1.14	0.05	5.4	0.25	0.5	0.1
97617	319318.9843	679308.7441	soil	Kusawa	179	54	9	49	1012	49	144	385	3.06	0.4	15.3	3.8	1	0.9
97619	317883.6004	678446.3251	soil	Kusawa	294	47	8	39	150	37	72	78	1.78	0.1	5.7	0.25	1	0.1
97641	284788.8914	627339.3432	soil	Kusawa	315	12	7	13	427	27	34	82	1.64	0.2	6.9	0.25	1	0.1
97642	282354.2076	643171.6546	soil	Kusawa	89	20	5	18	467	111	44	65	1.21	0.1	7.5	2.8	1	0.1
97643	282655.977	643249.9417	soil	Kusawa	197	16	8	30	723	58	36	94	1.75	0.1	5.4	0.5	1	0.1
97646	277126.3398	640408.344	soil	Kusawa	202	23	7	31	1486	51	57	176	1.72	0.3	21.5	2.2	2	0.3
97647	277127.5893	640410.4942	soil	Kusawa	293	52	11	16	1282	34	99	125	2.59	0.1	6.1	0.7	2	0.1
97648	277214.3937	640383.811	soil	Kusawa	293	35	7	15	793	141	76	120	2.36	0.3	20.3	1.6	1	0.2
97683	306441.4276	633344.2554	soil	Kusawa	106	8	5	31	444	9	20	98	1.09	0.2	8.2	0.6	2	2.3
97684	306477.2706	633266.5266	soil	Kusawa	109	3	6	48	728	13	13	99	0.86	0.1	9.1	1.8	1	1
97685	306630.4651	633154.5007	soil	Kusawa	208	11	6	28	366	13	28	78	1.41	0.1	10.3	0.25	1	1.1
97686	306805.9365	633062.4279	soil	Kusawa	224	10	6	26	426	18	28	82	1.32	0.1	7.2	0.25	1	1.1
97687	306959.2723	633115.2953	soil	Kusawa	267	8	6	26	399	13	27	71	1.33	0.1	7.1	0.7	0.5	1.1
97688	307019.5706	633117.5612	soil	Kusawa	303	9	6	25	454	11	26	87	1.62	0.1	10.4	0.25	1	1.4
97689	306707.9106	632992.0478	soil	Kusawa	129	8	4	29	235	15	26	48	0.76	0.05	5.6	0.25	1	0.7
97698	298302.0198	648580.7178	soil	Kusawa	98	10	3	20	276	18	27	46	0.86	0.1	3.1	0.9	1	0.1
97699	298246.5024	648599.5141	soil	Kusawa	163	10	5	23	340	21	28	52	1.2	0.1	3.3	0.5	1	0.1
97700	298175.2539	648701.6869	soil	Kusawa	121	11	4	23	291	21	29	48	1.12	0.05	3.4	2	0.5	0.1
97707	317649.1031	679049.3263	soil	Kusawa	55	15	9	15	204	12	54	74	1.21	0.1	5.4	1.2	1	0.8
97719	307749.8259	627829.375	soil	Kusawa	389	6	7	38	681	41	34	80	1.31	0.1	3.5	0.25	1	0.1
97727	308706.4116	646204.8819	soil	Kusawa	176	37	6	22	259	23	64	76	1.77	0.05	3.4	1.8	0.5	0.1
97728	308684.8442	646186.0013	soil	Kusawa	888	80	14	18	602	111	78	64	4.62	0.2	3.7	1.9	1	0.1
97729	308706.2195	646140.266	soil	Kusawa	740	44	9	27	505	15	100	149	1.92	0.6	3.7	0.25	0.5	0.2
97730	308699.4466	646077.1232	soil	Kusawa	666	90	9	18	575	37	117	123	2.31	0.3	3.9	22.7	0.5	0.2
97731	308713.4714	645998.3614	soil	Kusawa	263	37	7	16	295	32	96	111	2.24	0.2	3.5	0.9	1	0.1
97732	308673.1161	645869.0806	soil	Kusawa	329	28	6	13	321	44	75	91	1.96	0.3	3	0.9	0.5	0.1

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
56557	0.8	0.6	6.1	32.4	5.38	0.01	0.64	0.95	5.8	0.045	2.2	0.195	79	0.025	0.3	8.1	8.2	0.196	0.4	7
56559	0.38	0.3	5.1	10.5	2.28	0.01	0.12	0.39	0.9	0.011	8.1	0.086	15.3	0.025	0.1	2.8	4.8	0.056	0.1	1.5
56563	0.4	0.3	13.6	212.6	5.26	0.5	0.35	0.67	16.2	0.074	31.4	0.083	7.5	0.3	0.1	3.7	1.6	0.162	1	1.3
56564	0.42	0.8	24.1	328.5	7.86	0.01	0.41	0.68	20.1	0.106	81.7	0.115	5.7	0.53	0.1	3.4	2.1	0.201	1	1.8
56565	1.15	1	36.9	191.5	4.97	0.02	0.44	1.48	8.3	0.082	112	0.156	5	0.11	0.1	4.8	2.8	0.174	0.6	1.9
56566	2.02	0.9	19.8	130.1	2.99	0.5	0.37	1.33	0.8	0.054	37.3	0.164	4.8	0.025	0.05	4	2.3	0.109	0.3	1.1
56568	0.62	0.4	13.7	71.8	3.7	0.01	0.32	0.85	1.6	0.028	20	0.124	8.8	0.025	0.1	4	3.7	0.124	0.2	3.9
56575	0.41	0.1	9.8	22.7	2.99	0.01	0.51	0.9	1.3	0.019	10.3	0.141	6	0.025	0.1	4.1	4.9	0.263	0.4	1.6
56576	0.54	0.1	6.5	8.7	2.2	0.5	0.5	0.68	0.4	0.02	4.7	0.189	3.4	0.025	0.1	3.1	6.6	0.222	0.3	1.6
97215	0.42	0.3	4.9	22	1.89	0.01	0.11	0.29	0.6	0.014	5.2	0.077	17.7	0.025	0.1	2.3	10.5	0.033	0.1	5.5
97216	0.45	0.1	4.2	8.6	1.8	0.01	0.11	0.24	0.6	0.005	3.3	0.029	16.9	0.025	0.1	2.1	13	0.008	0.1	5.1
97617	0.32	1	26.7	117.5	4.69	0.02	0.17	1.05	42.1	0.023	36.3	0.114	99.3	0.09	0.4	6.5	5.2	0.067	0.6	4.1
97619	0.64	0.1	7.1	11.5	2.98	0.5	0.18	0.6	1.9	0.007	11.3	0.204	10.3	0.025	0.1	4.9	8.2	0.068	0.2	9.2
97641	0.33	0.2	6.4	9.1	2.36	0.01	0.41	0.59	2.4	0.02	6.1	0.122	4.2	0.025	0.1	3.1	3.8	0.241	0.2	4.2
97642	0.65	0.3	7.2	13.3	2.04	0.01	0.11	0.48	0.5	0.028	11	0.137	19.2	0.025	0.2	3.4	5.1	0.119	0.1	2
97643	0.55	0.2	9.1	7.8	2.68	0.03	0.14	0.59	0.5	0.013	8	0.124	15.2	0.025	0.2	3.2	3.6	0.024	0.1	1
97646	0.79	1	19.2	24.8	4.64	0.03	0.29	0.97	3.1	0.012	11.1	0.187	42.5	0.025	0.7	7.1	8.8	0.081	0.3	4.8
97647	0.91	0.4	19.7	13.7	5.28	0.01	0.33	2.05	1.1	0.012	14.7	0.206	10.7	0.025	0.1	9.9	1.5	0.084	0.1	0.7
97648	0.95	0.6	16	22.9	3.36	0.01	0.27	0.95	1.5	0.134	9.2	0.128	34.1	0.025	0.2	5.4	5.5	0.174	0.3	3.9
97683	0.11	0.4	3.8	23.2	1.87	0.02	0.12	0.25	1	0.009	5.5	0.047	17.4	0.025	0.1	2.3	12.8	0.086	0.2	7
97684	0.12	1.4	2.6	40.1	2.09	0.01	0.07	0.2	0.6	0.006	2.1	0.033	14.8	0.025	0.1	3	13	0.044	0.2	13
97685	0.2	0.2	4.7	22.7	1.96	0.01	0.23	0.34	0.9	0.018	8.1	0.076	13.8	0.025	0.2	3.5	15.5	0.123	0.2	5.7
97686	0.23	0.2	4.9	17.4	2.13	0.02	0.3	0.39	0.7	0.021	7.5	0.067	8.7	0.025	0.1	3.5	15.3	0.145	0.3	4.6
97687	0.19	0.2	4.4	17	1.91	0.01	0.27	0.34	0.9	0.013	5.8	0.066	9.3	0.025	0.1	3	16.1	0.133	0.3	5.7
97688	0.14	0.2	4.6	20.9	2	0.5	0.3	0.34	0.8	0.012	6.8	0.073	12.5	0.025	0.1	3.3	15.6	0.14	0.3	6.7
97689	0.28	0.2	3.4	12.7	1.44	0.01	0.15	0.23	0.8	0.012	4.6	0.084	5.9	0.025	0.1	2.4	13.4	0.098	0.2	2.7
97698	0.29	0.2	4.1	7.3	1.42	0.01	0.16	0.3	0.5	0.016	5.9	0.095	4.7	0.025	0.1	1.8	7.6	0.086	0.1	1.1
97699	0.27	0.1	4.4	7.3	1.65	0.01	0.23	0.35	0.4	0.016	6.5	0.076	4.7	0.025	0.1	2.9	9.1	0.114	0.2	2.6
97700	0.33	0.1	4	7.5	1.53	0.01	0.17	0.32	0.3	0.016	6.4	0.099	4.6	0.025	0.1	2.8	7.2	0.105	0.2	2.3
97707	0.12	0.2	3.5	14.1	2.03	0.02	0.06	0.2	5.6	0.012	7.9	0.041	51.3	0.025	0.3	1.7	8	0.086	0.2	5.8
97719	0.38	0.1	5	5.3	2.6	0.01	0.59	0.52	1.6	0.014	2.2	0.095	6.2	0.025	0.05	3.2	33.8	0.199	0.4	8.8
97727	0.33	0.1	19.9	36.7	3.03	0.01	0.55	0.74	0.5	0.019	36.9	0.111	7.4	0.08	0.1	4.2	6.9	0.166	0.2	1
97728	2.53	0.2	17.5	25.1	3.01	0.5	0.7	2.32	0.4	0.153	40.8	0.092	8.9	0.025	0.1	8.3	9	0.219	0.5	0.7
97729	0.14	0.7	13.5	48.9	3.34	0.01	0.26	0.6	1.2	0.006	37.7	0.074	11.9	0.025	0.2	6.1	9.8	0.117	0.3	3.4
97730	0.42	0.7	18.5	73	3.83	0.5	0.26	1.19	1.6	0.018	65.9	0.144	16.6	0.06	0.1	5.3	5.6	0.141	0.1	1.6
97731	0.54	0.3	11.7	49.2	2.41	0.03	0.18	0.67	1.4	0.021	38	0.217	9.9	0.025	0.2	3.7	3.7	0.104	0.2	1.7
97732	0.41	0.4	10.3	43.7	2.28	0.02	0.19	0.64	1.7	0.027	27	0.133	7.4	0.06	0.2	3	2.3	0.095	0.1	1.9

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio
56557	0.1	08V	423645	6672963	NAD83	20020707	FA	good	orange soil from decomposed argillic altered intrusive See rock 56556.
56559	0.2	08V	414417	6683075	NAD83	20020707	FA	good	brn soil from frost heave in NW-SE trending fault in fine grain biotitie & silica rich intrusive. i
56563	0.2	08V	418666	6699321	NAD83	20020708	FA	fair	brn sol from rusty biotite gneiss from 3 spots on talus across 5m width
56564	0.2	08V	418731	6699276	NAD83	20020708	FA	fair	brn soil & talus from rusty biot gneiss. See rock 56562
56565	0.1	08V	418759	6699211	NAD83	20020708	FA	fair	brn soil & qv materialfrom AWA showing gully.
56566	0.1	08V	418813	6699208	NAD83	20020708	FA	fair	lt brn soil from side of rock chute below AWA showing. See rock 56567.
56568	0.2	08V	417826	6700390	NAD83	20020708	FA	good	tan brn soil/talus from debris trail of weathered rusty gossan west of camp.
56575	0.1	08V	420401	6659088	NAD83	20020704	FA	good	grey-brn soil in frost boil. 70:30 white grdr:grey hbl-grdr
56576	0.1	08V	419738	6659156	NAD83	20020704	FA	good	brn soil at 10cm depth in white coarse grain grdr.
97215	0.1	08V	432001	6708581	NAD83	20020709	RH	good	Light green - tan soil, near saddle at head of anomalous creek. In area of white wea Nisling porph with lim coated fractures.
97216	0.8	08V	432179	6708864	NAD83	20020709	RH	good	yellow soil, frost heave, freash unaltered porph grd float - felsenmeer.
97617	1.2	08V	456541	6715211	NAD83	20020625	FA		
97619	0.3	08V	455143	6714292	NAD83	20020625	FA	good	org-brn soil from frost heave amongst medium grained granodiorite talus.
97641	0.4	08V	424174	6661845	NAD83	20020705	FA	good	frost boil in grdr talus field.
97642	0.1	08V	421110	6677586	NAD83	20020705	FA	good	brn mica rich soil in porphyry talus field. See station RH48 for description.
97643	0.05	08V	421408	6677676	NAD83	20020705	FA	fair	decomposed blue grey weathering feldspar porphyry. Hand sample collected.
97646	0.2	08V	416007	6674610	NAD83	20020706	FA	good	from talus slope of Fe-stained grdr
97647	0.1	08V	416008	6674612	NAD83	20020706	FA	good	gry soil from decomposed intermed fine grain intrusive with trace po.
97648	0.3	08V	416096	6674589	NAD83	20020706	FA	fair	very coarse brn soil/talus from scree slope east of soil 97647.
97683	0.8	08V	445527	6668725	NAD83	20020703	RS	good	0 - 5 cm, TF, sandy brown, granodiorite bldrs
97684	2.3	08V	445566	6668648	NAD83	20020703	RS	good	0 - 4 cm, TF, brown, grano bldrs
97685	1.3	08V	445723	6668543	NAD83	20020703	RS	good	2 - 5 cm, TF, brown, grano bldrs
97686	0.9	08V	445902	6668457	NAD83	20020704	RS	good	2 - 5 cm, frost boil, brown, grano bldrs
97687	1.2	08V	446053	6668517	NAD83	20020704	RS	good	0 - 5 cm, TF, sandy brown, granodiorite bldrs
97688	1.3	08V	446113	6668521	NAD83	20020704	RS	good	0 5 cm, TF, brown, grano bldrs
97689	0.8	08V	445807	6668383	NAD83	20020704	RS	good	2 - 7 cm, frost boil, grano bldrs, felsite
97698	0.2	08V	436800	6683639	NAD83	20020707	RS	good	2 - 5 cm, yl-brn, or-brn to buff granitic bldrs
97699	0.2	08V	436744	6683655	NAD83	20020707	RS	good	2 - 6 cm, brown, granodiorite boulders, gravel
97700	0.2	08V	436669	6683755	NAD83	20020707	RS	good	3 - 7 cm, yl-brn
97707	0.8	08V	454885	6714885	NAD83	20020625	JvR	good	40 cm deep sample on whale's back with large 2m square granitic boulders, soil is dark brown/red
97719	0.2	08V	447052	6663260	NAD83	20020704	JvR	fair	talus fine of ground up granodiorite at base of steep scree slope, particle size 1cm to 2mm, 2% orange rusty frags
97727	0.2	08V	447273	6681680	NAD83	20020705	JvR	good	soil in frost boil on HW of lmst in metaseds with garnets, 4-10cm deep, yellow brown with lots of clay
97728	0.3	08V	447252	6681661	NAD83	20020705	JvR	good	soil in lmst unit frost heave, rusty brown fine soil, 20 cm deep
97729	0.05	08V	447275	6681616	NAD83	20020705	JvR	good	in frost heave, good soil development on top of ridge, depression is 1m square in lmst but also metaseds from HW mixed in
97730	0.1	08V	447271	6681552	NAD83	20020705	JvR	good	soil on FW of lmst in metaseds, 20 cm deep, dark brown/red, less clay
97731	0.2	08V	447288	6681474	NAD83	20020705	JvR	fair	in frost heave with less well developed soil, mix of subcrop and float-lmst and biotite altered metasediments, less clayly in sample
97732	0.2	08V	447253	6681343	NAD83	20020705	JvR	poor	soil in small poorly developed frost heave near contact with intrusive, frags 95% metaseds with increased qtz content (some rose qtz)

Number	Albers_x	Albers_y	Smpl_typ	Project	Ba_ppm	Cr_ppm	Ga_ppm	La_ppm	Mn_ppm	Sr_ppm	V_ppm	Zn_ppm	Al__	Ag__ppm	As__ppm	Au__ppb	B__ppm	Bi__ppm
97733	308617.4336	645754.0071	soil	Kusawa	279	37	7	15	351	44	98	92	2.43	0.3	3.1	2.8	0.5	0.1
97736	307121.8557	647390.3096	soil	Kusawa	370	70	10	13	703	125	209	355	2.8	1.9	4.6	3.6	0.5	0.3
97737	307083.3694	647406.9119	soil	Kusawa	399	69	11	15	797	101	144	313	3.45	1.1	4.8	3.1	0.5	0.4
176254	281200.1113	649074.5481	soil	Kusawa	479	33	13	15	762	21	67	141	3.64	0.1	8.9	1.3	4	0.6
176377	300252.7421	655314.1328	soil	Kusawa	81	165	6	13	316	33	46	44	2.18	0.1	2.4	0.25	1	0.2
176379	300111.8876	655272.0214	soil	Kusawa	31	13	2	5	340	76	15	46	0.72	0.4	1.9	2.3	1	0.1
176380	299956.3404	654866.3073	soil	Kusawa	91	23	4	12	305	500	30	44	1.31	0.1	4.5	0.25	1	0.1
176381	299820.5431	654661.198	soil	Kusawa	112	25	6	17	258	15	39	49	1.69	0.1	2.2	0.25	0.5	0.1
176387	302437.7847	656899.7353	soil	Kusawa	108	30	5	15	216	41	39	39	1.43	0.1	1.3	0.25	1	0.1
176388	302238.8957	656945.5232	soil	Kusawa	93	23	5	15	285	25	40	38	1.31	0.05	1.4	0.25	1	0.1
176389	302124.8186	656915.1954	soil	Kusawa	120	36	6	21	288	25	46	49	1.65	0.05	1.7	0.25	0.5	0.1
176390	302123.7152	656915.2578	soil	Kusawa	126	39	7	21	309	26	49	52	1.73	0.1	1.9	0.25	1	0.1
176391	301929.1433	656890.605	soil	Kusawa	136	25	5	17	294	34	41	47	1.41	0.1	1.8	0.25	0.5	0.1
176392	301825.5533	656781.6772	soil	Kusawa	123	21	5	19	247	30	39	44	1.28	0.1	1.8	0.25	1	0.1
176393	301667.3154	656665.8193	soil	Kusawa	133	32	5	16	307	39	41	46	1.28	0.05	1.8	0.25	0.5	0.1
176394	301577.4775	656497.0495	soil	Kusawa	116	22	4	20	360	39	36	39	1.09	0.05	1.8	0.25	0.5	0.1
176441	312889.7118	662221.1938	soil	Kusawa	109	19	4	18	212	28	46	38	1.17	0.1	4.4	0.25	1	0.2
176453	280688.1277	644922.8541	soil	Kusawa	246	18	6	19	601	25	37	98	1.55	0.2	6.6	1.7	1	0.2
176454	281126.0656	645163.0523	soil	Kusawa	253	18	7	12	508	45	41	93	1.83	0.3	7.1	0.25	2	0.2
176455	281367.4311	645308.5288	soil	Kusawa	317	25	12	20	1007	49	55	181	3.58	0.6	14	0.7	2	0.5
176605	282005.102	644265.6346	soil	Kusawa	200	10	6	39	1262	92	26	210	1.82	1.3	37.4	7	1	0.8
176606	282055.9211	644484.3035	soil	Kusawa	328	2	4	23	886	83	11	300	1.01	2	22.8	0.6	1	1.4
176607	282059.797	644484.0629	soil	Kusawa	311	2	4	22	886	80	11	302	1	1.9	22.5	0.7	0.5	1.3
343896	318407.3701	630948.1449	soil	Kusawa	38	6	3	48	1994	19	25	196	0.55	0.05	4.1	0.25	4	0.1
343897	318399.4738	630946.324	soil	Kusawa	299	5	5	56	1238	41	34	178	0.88	0.05	2.5	0.25	3	0.05
343898	318392.6374	630835.2886	soil	Kusawa	576	15	10	143	3443	77	88	309	1.42	0.05	1	0.25	4	0.2
344230	297599.3706	680802.4337	soil	Kusawa	202	10	5	24	876	56	25	100	1.13	0.1	3.7	2	3	0.1
344236	320708.196	637099.2827	soil	Kusawa	58	4	7	112	556	19	10	145	1.15	0.8	9.6	11	1	2.6
344243	305662.9291	684761.1161	soil	Kusawa	110	41	5	13	450	29	55	73	1.28	0.1	2.1	2.5	0.5	0.2
344244	305930.8224	685044.8971	soil	Kusawa	151	29	4	13	364	27	36	42	1.18	0.1	1.6	2.4	1	0.2
344245	305932.0079	685321.3079	soil	Kusawa	232	27	5	13	501	29	37	64	1.38	0.3	2.2	1.8	0.5	0.2
344246	305989.8358	685520.973	soil	Kusawa	94	127	6	11	664	28	76	148	1.88	0.1	4.7	0.5	0.5	0.2

Number	Ca__	Cd__ppm	Co__ppm	Cu__ppm	Fe__	Hg__ppm	K__	Mg__	Mo__ppm	Na__	Ni__ppm	P__	Pb__ppm	S__	Sb__ppm	Sc__ppm	Th__ppm	Ti__	Tl__ppm	U__ppm
97733	0.38	0.4	11.9	39.6	2.76	0.01	0.27	0.86	1.6	0.028	33	0.119	6.2	0.06	0.1	4.4	4.5	0.136	0.2	1.3
97736	0.37	1.1	12.6	186	4.3	0.05	0.52	1.31	13.1	0.057	73.2	0.256	9.4	0.35	0.3	4.6	3	0.123	0.3	6.4
97737	0.41	1	23	184.9	4.89	0.03	0.54	1.45	10.1	0.021	81.6	0.186	15	0.08	0.2	6.5	6.8	0.165	0.4	3.8
176254	0.14	0.6	12.6	32	4.28	0.04	0.42	0.8	1.8	0.02	24.4	0.068	37.9	0.025	0.3	5.5	17.7	0.164	0.3	6.7
176377	0.31	0.1	22.9	52.9	2.42	0.01	0.11	1.11	0.5	0.026	134.9	0.041	7	0.025	0.05	3	3	0.099	0.2	1.1
176379	1.4	0.3	49.9	107	8.2	0.02	0.06	0.2	1.1	0.017	101.6	0.164	7.2	0.1	0.1	1.8	1.8	0.049	0.1	1.2
176380	11.88	0.2	10.3	17.9	1.89	0.01	0.12	0.51	0.3	0.023	22.4	0.054	15.3	0.025	0.2	2.2	3.9	0.067	0.1	0.6
176381	0.19	0.2	7.6	14.2	1.95	0.02	0.22	0.54	0.4	0.016	17.2	0.038	7.3	0.025	0.1	2.8	5.2	0.123	0.2	0.9
176387	0.5	0.05	7.7	22.7	1.96	0.01	0.35	0.62	0.2	0.037	18.6	0.058	5.8	0.025	0.05	3.1	6.7	0.112	0.2	1.2
176388	0.44	0.1	6.9	19.2	1.74	0.01	0.27	0.58	0.2	0.038	10	0.04	4.4	0.025	0.05	4.1	6.2	0.111	0.1	0.9
176389	0.42	0.1	8.4	17.4	2.16	0.01	0.33	0.77	0.2	0.026	18.5	0.058	5.4	0.025	0.05	4.6	7.7	0.145	0.2	1.2
176390	0.41	0.1	9.3	19.3	2.33	0.01	0.36	0.81	0.2	0.03	19.9	0.062	5	0.025	0.05	4.8	7.8	0.149	0.2	1.4
176391	0.5	0.1	7.9	12.6	1.88	0.5	0.32	0.63	0.3	0.038	13.6	0.091	4.3	0.025	0.05	3.2	6.1	0.122	0.2	0.8
176392	0.48	0.1	6.3	11.1	1.67	0.01	0.25	0.57	0.1	0.036	12.1	0.086	3.9	0.025	0.05	3.3	6.6	0.118	0.2	0.9
176393	0.54	0.1	8.9	14	1.87	0.01	0.27	0.63	0.3	0.041	17.3	0.093	4.8	0.025	0.05	3.5	6.5	0.127	0.2	0.8
176394	0.6	0.1	8.8	11.2	1.6	0.01	0.23	0.51	0.2	0.048	12.4	0.113	5.1	0.025	0.05	3.1	6.8	0.109	0.1	0.8
176441	0.35	0.2	5.9	11.8	1.55	0.01	0.15	0.4	0.4	0.018	12.1	0.122	5.4	0.025	0.1	2	4.7	0.06	0.1	1.1
176453	0.25	0.4	8.2	19.8	2.37	0.02	0.22	0.51	1.5	0.016	12.7	0.08	29.3	0.025	0.2	4.1	13.4	0.121	0.2	8.8
176454	0.23	0.2	7	16.5	2.36	0.07	0.14	0.41	1.4	0.012	12.4	0.084	16.1	0.06	0.3	1.8	2	0.045	0.2	1.8
176455	0.25	0.4	11.4	44.4	3.78	0.07	0.28	0.66	7.5	0.013	17.3	0.091	63.3	0.06	0.3	3.9	11.3	0.022	0.3	11.6
176605	0.53	0.7	6.3	55.7	2.48	0.03	0.15	0.33	2.8	0.024	8.9	0.077	108.8	0.025	0.4	2.8	12.5	0.022	0.1	7.7
176606	0.41	2.5	3.9	80.1	1.74	0.02	0.22	0.24	2.1	0.012	0.8	0.044	157	0.025	0.3	2.3	13.2	0.059	0.1	8.1
176607	0.38	2.5	3.9	80.9	1.75	0.5	0.21	0.23	2	0.011	1.1	0.042	154.9	0.025	0.3	2.3	12.9	0.058	0.1	8.1
343896	0.65	0.2	12.6	8.7	7.61	0.01	0.08	0.31	2.5	0.003	5.7	0.219	10.5	0.025	0.05	4.1	7.3	0.002	0.1	3.2
343897	0.62	0.2	9.5	2.2	7.8	0.01	0.46	0.39	5.4	0.008	3.5	0.188	4.3	0.025	0.05	7.7	5.5	0.088	0.2	7.1
343898	1.47	0.3	19.4	3	10.84	0.01	0.87	0.75	3.5	0.01	7.1	0.424	11.2	0.025	0.05	23.8	61.9	0.067	0.4	6.1
344230	0.79	0.4	5.8	13.7	1.72	0.04	0.35	0.37	0.8	0.017	6.8	0.106	7.7	0.025	0.1	2.4	3.2	0.092	0.2	1.5
344236	0.22	0.7	3.1	36.6	4.84	0.06	0.19	0.13	23.5	0.029	2.4	0.035	51.6	0.25	3.6	4	75.9	0.012	0.2	13.4
344243	0.34	0.2	9.3	41.2	2.36	0.5	0.09	0.64	0.5	0.014	14.4	0.097	11.7	0.025	0.1	1.9	3.4	0.061	0.1	1.4
344244	0.31	0.2	7	34.4	1.82	0.5	0.09	0.58	0.5	0.018	11.3	0.078	11.6	0.025	0.1	1.9	7.2	0.056	0.1	1.2
344245	0.26	0.4	7.3	52.3	2.27	0.01	0.14	0.59	0.8	0.01	11.5	0.062	11.5	0.025	0.1	1.9	4.3	0.067	0.1	1.4
344246	0.38	0.6	19.5	40.7	3.36	0.05	0.22	1.2	0.9	0.019	35.5	0.079	11.1	0.025	0.2	2.4	1.9	0.112	0.2	1

Number	W__ppm	Utm_zone	X	Y	Datum	Date	Person	Quality	Descriptio
97733	0.2	08V	447202	6681226	NAD83	20020705	JvR	fair	poorly developed frost heave, rxs are less altered, more qtz rich, weak hornfels, local py, finer laminated, 20cm deep
97736	0.1	08V	445645	6682803	NAD83	20020706	JvR	fair	talus fines below metasediment o/c on south facing wall of steep cirque, rusty weathering biotite rich metaseds make up talus slope; fines are dark red/brown in colour
97737	0.2	08V	445606	6682818	NAD83	20020706	JvR	good	talus fines west of sample #36, closer to intrusive contact, also near a buff weathering sill sampled by RS
176254	6.6	08V	419722	6683443	NAD83	20020815	FA	good	brown B and C horizon form intrusive sources
176377	0.6	08V	438477	6690452	NAD83	20020814	RS	fair	soil and till from andesite bedrock.
176379	0.2	08V	438338	6690404	NAD83	20020814	RS	good	gritty brn soil & till from 15cm depth.
176380	0.1	08V	438199	6689992	NAD83	20020815	RS	fair	gravelly soil & till
176381	0.2	08V	438072	6689782	NAD83	20020815	RS	fair	soil & till & loesswithin red stained feldspar porphyry andesite.
176387	0.2	08V	440593	6692126	NAD83	20020815	RS	fair	frost boil, brown, 6 cm, grano, Qz monzo, thn qzite, meta-seds, qz-bio sch, qz
176388	0.4	08V	440393	6692164	NAD83	20020815	RS	fair	frost boil, yl-brn, 8 cm, qz-bio sch, qzite, qz-bio-mus sch/gneiss.
176389	0.3	08V	440280	6692129	NAD83	20020815	RS	good	frost boil, brown, 6 cm, qzite, qz-bio sch, qz-bio-hbld gn, qz
176390	0.2	08V	440279	6692129	NAD83	20020815	RS	good	frost boil, brown, 6 cm, qzite, qz-bio sch, qz-bio-hbld gn, qz
176391	0.2	08V	440086	6692096	NAD83	20020815	RS	good	frost boil, brown, 12 cm, meta-seds, qzite, qz-bio sch, qz monzo, hbld dior, grano
176392	0.2	08V	439987	6691983	NAD83	20020815	RS	good	frost boil, brown, 8 cm, qtzite, grano, siltst, qz, qz-bio-hbld sch/gneiss
176393	0.3	08V	439834	6691861	NAD83	20020815	RS	good	frost boil, brown, 6 cm, meta-seds, gneiss, qtzite, qz, hbld diorite, granodiorite
176394	0.2	08V	439751	6691689	NAD83	20020815	RS	good	frost boil , brown, 5 cm, meta-seds, qz.
176441	0.3	08V	450807	6697867	NAD83	20020814	JvR	fair	brown soil in frost boil at Povoas target, suspect glacial drift, 20 cm deep hole
176453	0.3	08V	419378	6679270	NAD83	20020815	JvR	fair	brown soil in frost boil in talus pile of intrusive rocks
176454	0.2	08V	419805	6679528	NAD83	20020815	JvR	fair	soil from frost boil in blocky granodiorite boulder field - major glacial influence
176455	0.6	08V	420040	6679683	NAD83	20020815	JvR	good	soil from frost boil in 3m square boulders of granodiorite with a distinct lack of any secondary veining or dyking (local dry rusty fractures - no quartz flooding)
176605	0.1	08V	420718	6678666	NAD83	20020815	RH	fair	granular gruss soil with some silt, grd scree- float.
176606	0.4	08V	420760	6678886	NAD83	20020815	RH	fair	Brown soil at base of scree, grd with minor limonite on some fractures, amphibole on some fractures. Dup of 176607
176607	0.3	08V	420764	6678886	NAD83	20020815	RH	fair	Brown soil at base of scree, grd with minor limonite on some fractures, amphibole on some fractures. Dup of 176606
343896	0.05	08V	457556	6666807	NAD83	20020802	RS	good	yellow-orange gossanous soil/talus fines, 10 cm. Strongly weathered med-coarse grained hbld-biotite granodiorite. Rusty brown weathered, f.g. buff qz dyke in float
343897	0.05	08V	457548	6666805	NAD83	20020802	RS	good	In situ weathered, rusty brown-orange, 10 cm. Biotite-hbld granodiorite. Grauzy granite.
343898	0.05	08V	457546	6666694	NAD83	20020802	RS	good	Rusty brown, 12 - 15 cm, grauzy granite.
344230	0.3	08V	434810	6715835	NAD83	20020730	FA	fair	dark brn soil from tan weathering granitic.
344236	0.1	08V	459606	6673053	NAD83	20020802	FA	good	collected on east margin of QFP altered zone.
344243	0.6	08V	442698	6720117	NAD83	20020815	FA	fair	soil and till from andesite bedrock.
344244	0.6	08V	442954	6720411	NAD83	20020815	FA	good	gritty brn soil & till from 15cm depth.
344245	0.4	08V	442944	6720687	NAD83	20020815	FA	fair	gravelly soil & till
344246	0.4	08V	442994	6720889	NAD83	20020815	FA	fair	soil & till & loesswithin red stained feldspar porphyry andesite.

Appendix F

2002 Whole Rock Geochemistry Results

09-Oct-02		
Yukon Geology Program - Mineral Assessments		
Whole Rock Sample List		
Number	**Mag Sus ***	**TC1****
176437	26.2	13.1
176442	2.83	11.3
176524	0.16	12.8
176525	0.06	13.6
176537	0.51	15.3
176538	0.08	18.7
FA-45	0.9	13.2
FA-50	5.27	13.9
RH02-108	4.5	15
RH02-35	1.35	15.5
RH-125	6.72	18.2
RH-126	0.12	12.8
RH-129	8.72	16.1
RH2-131	0.14	13
RH-43	0.22	13.6
RH2-48	6.95	16.1
RH2-49	0.71	18.1
RS02S011	-0.5	14
RS02S02	0.17	12.6
RS02W01	14.2	14.3
RS02W03	20.1	12.4
RSK45	0.08	18.5
YGP Standard	Canmet standard: syenite rock SY-3	

*Exploranium Kappameter KT-9 with pin (pin mode), SI units, average of 10 readings

** Urtec Sustems Inc. Threshold Scintillometer, Miniscint UG130, TC2 at 10 seconds

(processes all energies {U,Th,K} above 400 keV), TC=total counts

Quality Analysis... Actlabs *Innovative Technologies*

Invoice No.: 25882
Work Order: 26050
Invoice Date: 14-NOV-02
Date Submitted: 25-OCT-02
Your Reference: GN0253304000100
Account Number: Y00

YUKON GEOLOGY PROGRAM
P.O. BOX 2703 (K-10)
WHITEHORSE, YUKON TERRITORY
Y1A 2C6

ATTN; ROGER HULSTEIN

CERTIFICATE OF ANALYSIS

23 ROCKS (PREP.REV3.2) were submitted for analysis.

The following analytical packages were requested. Please see current fee schedule for elements and detection limits.

REPORT 25882 CODE 4C - WHOLE ROCK ANALYSIS-XRF

REPORT 25882 RPT.XLS CODE 4B2-RES - TRACE ELEM FUS ICP/MS(WRA4B2.REV5)

CERTIFIED BY :

DR E.HOFFMAN/GENERAL MANAGER

ACTIVATION LABORATORIES LTD.
1336 Sandhill Drive, Ancaster, Ontario Canada L9G 4V5 TELEPHONE +1.905.648.9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL ancaster@actlabs.com ACTLABS GROUP WEBSITE http://www.actlabs.com

Activation Laboratories Ltd. Work Order No. 26050 Report No. 25882

SAMPLE	SiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	TOTAl	
	%	%	%	%	%	%	%	%	%	%	%	%	
176437	50.18	17.85	9.02	0.158	6.50	9.59	2.72	0.63	0.956	0.31	1.86	99.70	
176442	49.76	14.98	11.89	0.154	7.73	8.84	3.11	0.36	1.648	0.33	0.85	99.66	
176442 /R	50.12	15.11	11.96	0.154	7.77	8.91	3.01	0.37	1.661	0.34	0.71	100.11	
176524	45.41	15.91	12.37	0.188	6.34	9.89	3.02	0.01	1.605	0.17	4.39	99.31	
176525	82.16	6.68	2.83	0.045	1.78	2.31	1.73	-0.01	0.355	0.08	1.46	99.42	
176537	54.71	17.38	8.13	0.156	4.74	8.34	3.35	1.24	0.955	0.32	0.90	100.22	
176538	71.17	14.64	2.28	0.041	0.85	2.24	3.78	3.40	0.308	0.09	1.04	99.84	
176538 /R	70.71	14.45	2.24	0.041	0.85	2.17	3.85	3.49	0.308	0.10	1.04	99.24	
FA-45	55.73	18.02	8.48	0.125	3.17	7.16	2.93	1.92	1.178	0.40	0.74	99.85	
FA-50	75.28	13.03	1.38	0.021	0.10	0.52	3.82	4.65	0.122	0.03	0.93	99.88	
RH02-108	76.17	12.33	1.45	0.013	0.07	0.58	3.88	4.71	0.099	0.02	0.66	99.98	
RH02-35	76.24	13.08	1.11	0.027	0.08	0.44	3.47	5.06	0.075	0.03	0.73	100.33	
RH-125	74.39	13.15	1.60	0.043	0.02	0.40	4.48	4.71	0.107	0.02	0.51	99.43	
RH-126	68.87	15.59	3.07	0.057	0.85	2.96	3.54	3.93	0.478	0.19	0.40	99.94	
RH-129	73.92	13.63	1.88	0.057	0.24	1.00	4.15	4.52	0.193	0.06	0.36	100.00	
RH2-131	69.67	15.54	2.79	0.039	0.84	3.11	4.32	2.33	0.404	0.13	0.57	99.76	
RH-43	63.78	17.18	5.23	0.088	1.83	4.72	3.97	2.28	0.742	0.28	0.30	100.38	
RH-43 /R	63.43	17.31	5.15	0.086	1.79	4.75	3.96	2.42	0.762	0.29	0.30	100.25	
RH2-48	73.91	12.96	2.04	0.028	0.20	0.95	3.84	4.86	0.188	0.04	0.68	99.68	
RH2-49	74.49	13.03	1.99	0.030	0.26	1.16	3.72	4.63	0.226	0.05	0.42	100.02	
RS02S011	88.75	4.84	1.98	0.002	0.16	0.02	0.09	1.33	0.244	0.02	1.35	98.80	
RS02S02	64.55	16.09	5.25	0.092	1.87	3.76	2.95	3.06	0.557	0.16	1.60	99.93	
RS02W01	44.78	7.57	9.61	0.153	21.02	7.52	1.75	3.07	0.519	0.60	3.53	100.13	
RS02W03	48.36	9.80	9.12	0.158	14.93	8.14	1.67	4.99	0.644	0.58	0.99	99.38	
RSK45	72.61	14.38	2.04	0.050	0.38	1.91	3.63	4.14	0.214	0.07	0.67	100.08	
RSK45 /R	72.64	14.53	2.06	0.049	0.38	1.88	3.72	4.17	0.215	0.07	0.67	100.40	
YGP STANDARD	60.20	11.67	6.48	0.329	2.54	8.28	4.20	4.35	0.144	0.54	1.18	99.91	
YGP STANDARD /R	60.01	11.73	6.40	0.324	2.52	8.09	4.32	4.34	0.142	0.54	1.20	99.61	
SY3 CERT	59.62	11.75	6.49	0.32	2.67	8.26	4.12	4.23	0.15	0.54	1.16		syenite
SY-3/A	58.48	11.60	6.39	0.326	2.62	8.19	4.15	4.26	0.144	0.54			
NIST 694 CERT	11.20	1.80	0.79	0.01	0.33	43.60	0.86	0.51	0.11	30.20			western phosphate rock
NIST 694/A	11.33	1.89	0.73	0.012	0.33	42.93	0.88	0.48	0.115	28.76			
W-2 CERT	52.44	15.35	10.74	0.163	6.37	10.87	2.14	0.627	1.06	0.131	0.60		diabase
W-2/A	53.67	15.52	10.91	0.168	6.40	11.00	2.18	0.76	1.080	0.18			
DNC-1 CERT	47.04	18.30	9.93	0.149	10.05	11.27	1.87	0.229	0.48	0.085	0.60		dolerite
DNC-1/A	47.92	18.76	9.99	0.150	10.18	11.37	1.92	0.24	0.489	0.07			
BE-N CERT	38.20	10.07	12.84	0.200	13.15	13.87	3.18	1.39	2.610	1.05			basalt
BE-N/A	38.49	10.04	12.79	0.197	13.09	13.87	3.18	1.41	2.651	1.06			

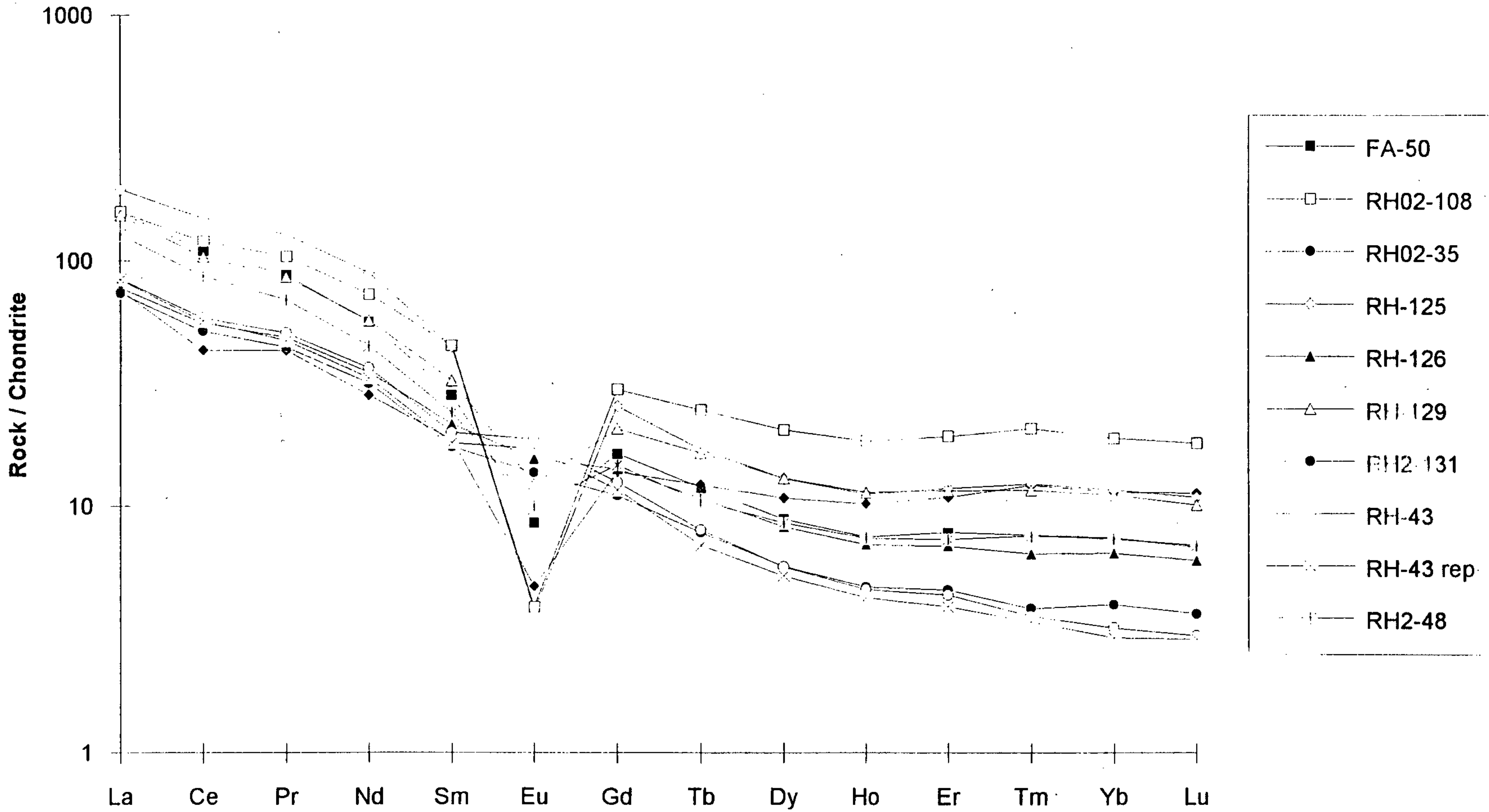
Dr. Eric Hoffman, Ph.D
General Manager

Negative values indicate less than the reporting limit
LOI values less than -0.01% represent a Gain on Ignition

SAMPLE	SiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	TOTAL	
	%	%	%	%	%	%	%	%	%	%	%	%	
GBW 07113 CERT	72.78	12.96	3.21	0.140	0.16	0.59	2.57	5.43	0.30	0.05			rhyolite
GBW 07113/A	72.36	13.03	3.13	0.140	0.17	0.59	2.65	5.43	0.283	0.06			
NBS 1633b CERT	49.24	28.43	11.13	0.020	0.799	2.11	0.271	2.26	1.32	0.53			fly ash
NBS 1633b/A	48.86	28.40	11.14	0.018	0.78	2.10	0.28	2.30	1.267	0.54			
STM-1 CERT	59.64	18.39	5.22	0.22	0.101	1.09	8.94	4.28	0.135	0.158			syenite
STM-1/A	60.18	18.27	5.16	0.220	0.08	1.11	8.74	4.26	0.133	0.17			
IF-G CERT	41.20	0.15	55.85	0.042	1.89	1.55	0.032	0.012	0.014	0.063			iron form sample
IF-G/A	41.43	0.14	57.25	0.039	1.93	1.54	0.03	-0.01	0.006	0.07			
FK-N CERT	65.02	18.61	0.09	0.005	0.01	0.11	2.58	12.81	0.02	0.02			K-feldspar
FK-N/A	64.83	18.67	0.15	0.002	-0.01	0.09	2.47	12.76	0.006	0.02			

Note: *Certificate data underlined are recommended values; other values are proposed except those preceded by a "(" which are information values.*
Note: The Fe2O3 for the standards is Total Fe2O3 and has not been adjusted for the FeO.

Negative values indicate less than the reporting limit
LOI values less than -0.01% represent a Gain on Ignition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RH-126
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RH2-131
RH-43
RH-43 rep
RH2-48

Chart34

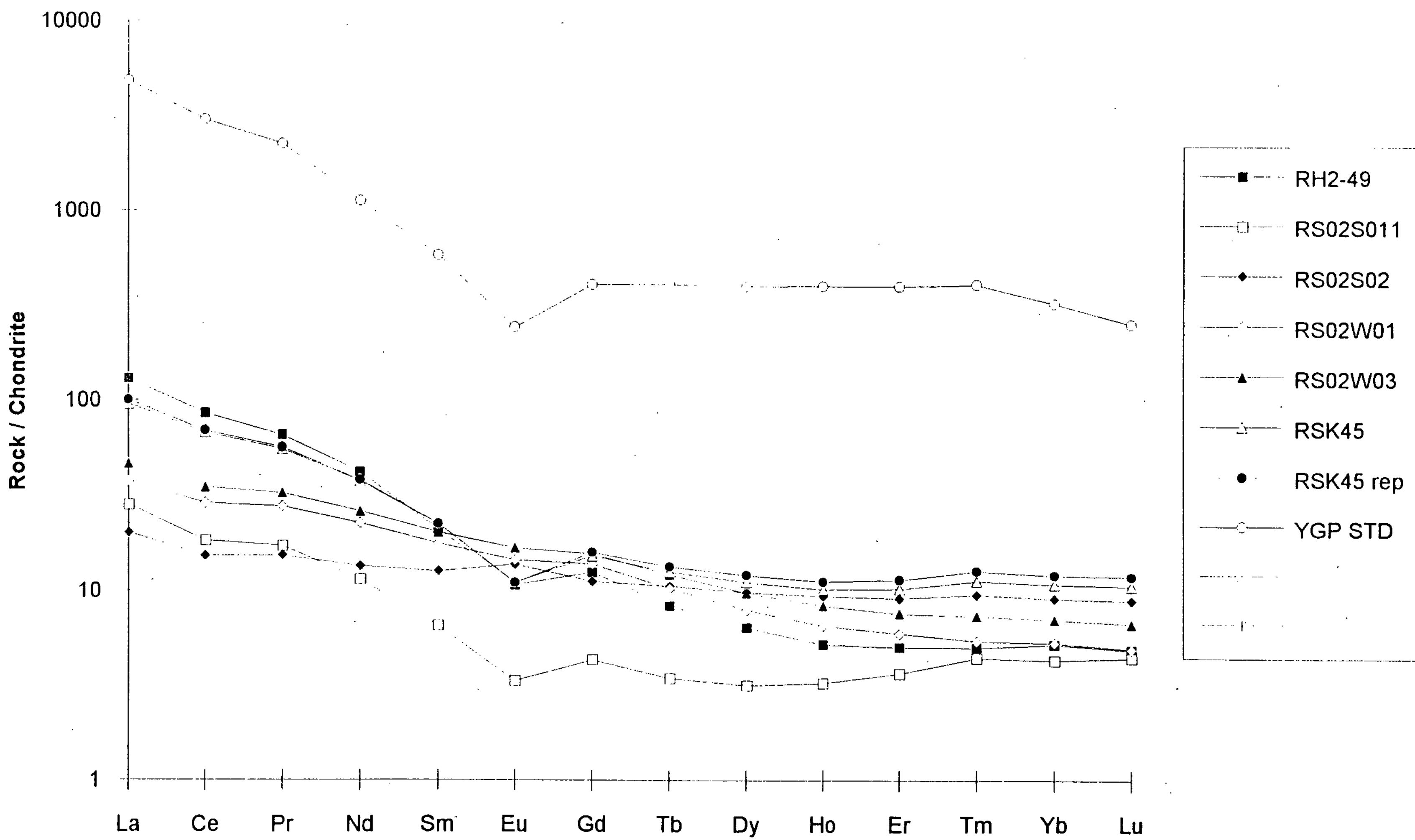
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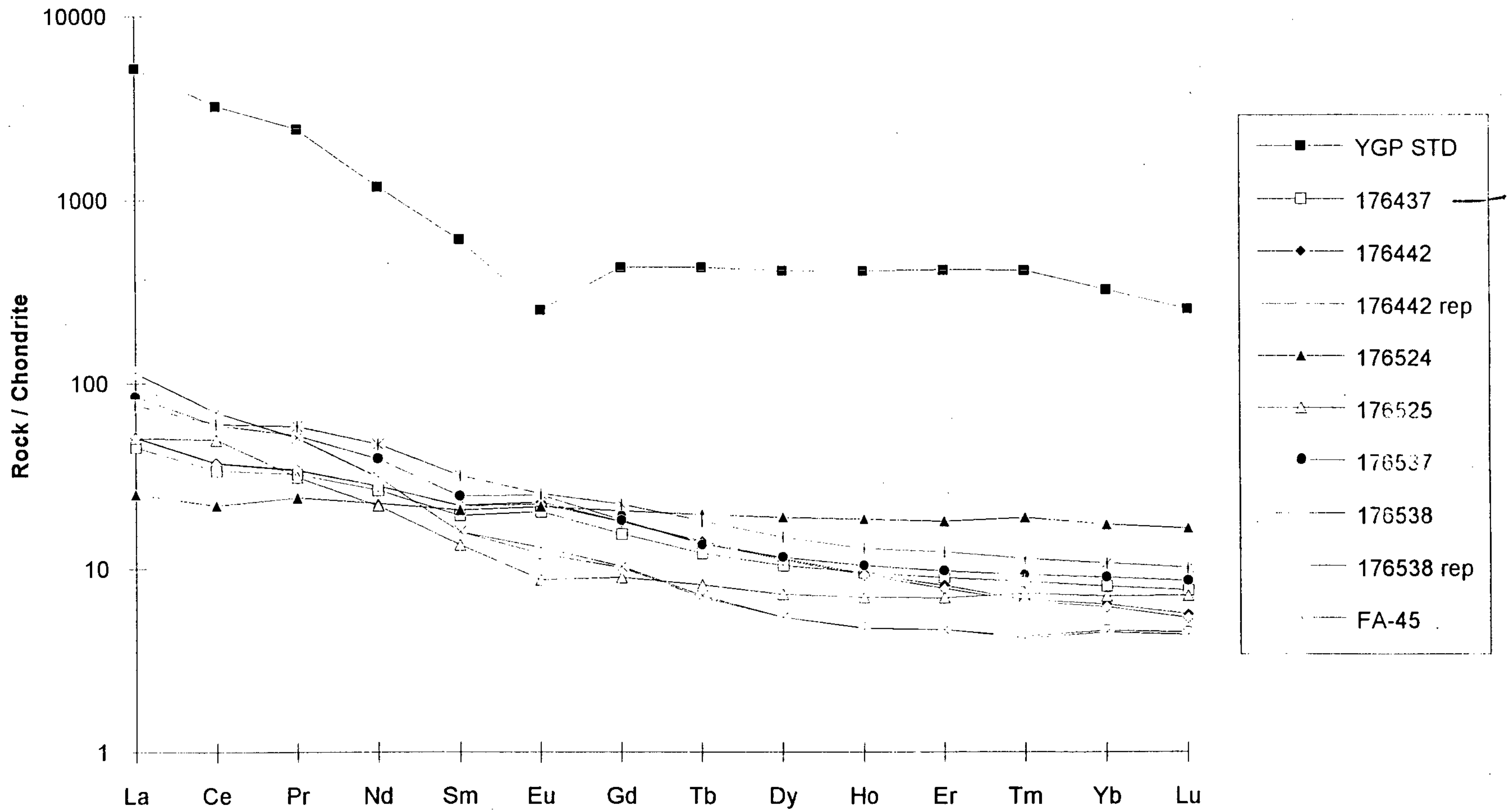
Chart32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YGP STD
176437
176442
176442 rep
176524
176525
176537
176538
176538 rep
FA-45

Actlabs 4B2 (Research Package) Job #: 26050 **Report #: 25882** **Company: Yukon Geology Program** **Customer: R. Hulstein**

Trace Element Values Are in Parts Per Million. Negative Values Equal Not detected at That Lower limit

Sample ID:	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr
YGP Standard	51	-20	7	-20	18	236	40	3.3	27	212	322	746	352	167	-2	0.7	-0.1	6	0.3	2.8	449	1,630	2,630	273
176437	215	104	27	40	-10	79	18	1.3	-5	11	739	18.5	29	6.8	-2	-0.5	-0.1	-1	-0.2	0.2	575	14.2	27.4	3.63
176442	184	243	46	149	47	127	21	1.4	-5	4	447	18.1	101	19.6	3	-0.5	-0.1	-1	-0.2	-0.1	355	16.1	30.2	3.83
176442 rep	184	243	46	145	46	108	21	1.3	-5	3	441	18.0	101	19.9	3	-0.5	-0.1	-1	-0.2	-0.1	352	16.0	29.9	3.79
176524	350	131	39	64	-10	80	19	1.3	-5	-1	101	36.4	108	3.9	-2	-0.5	-0.1	-1	-0.2	0.2	83	8.0	17.8	2.71
176525	66	56	12	35	47	50	11	0.9	-5	-1	150	13.3	85	5.6	-2	-0.5	-0.1	-1	0.7	0.1	1,050	15.9	40.2	3.50
176537	177	100	23	34	20	66	22	1.1	-5	35	831	20.7	108	8.0	2	-0.5	-0.1	-1	-0.2	2.3	1,400	26.8	48.4	5.85
176538	26	-20	4	33	12	41	19	0.9	-5	82	456	10.6	147	8.7	2	-0.5	-0.1	-1	-0.2	2.0	3,260	35.9	56.5	5.67
176538 rep	27	22	4	-20	19	-30	18	-0.5	-5	80	453	10.3	148	8.7	-2	-0.5	-0.1	-1	-0.2	1.9	3,130	36.2	56.6	5.71
FA-45	130	70	21	37	38	198	25	1.3	-5	62	683	25.2	167	9.7	3	-0.5	-0.1	-1	0.2	3.1	971	24.1	48.8	6.57
FA-50	8	-20	-1	-20	-10	84	21	1.3	-5	127	83	15.8	132	12.8	3	-0.5	-0.1	-1	-0.2	1.3	1,160	49.8	89.2	9.80
RH02-108	7	-20	-1	-20	-10	63	24	1.5	-5	167	26	39.7	161	15.7	3	0.0	-0.1	-1	-0.2	2.0	226	50.1	97.6	11.7
RH02-35	6	-20	2	-20	16	35	16	1.2	-5	206	67	23.5	81	12.5	-2	-0.5	-0.1	2	-0.2	2.4	411	24.0	35.0	4.82
RH-125	-5	-20	-1	38	-10	100	23	1.5	-5	133	12	21.5	225	11.9	3	-0.5	-0.1	2	-0.2	2.4	133	61.8	121	14.4
RH-126	36	-20	4	-20	-10	82	21	1.1	-5	113	422	14.8	120	8.6	-2	-0.5	-0.1	2	-0.2	4.3	1,370	24.5	45.3	5.46
RH-129	7	-20	-1	-20	-10	85	19	1.1	-5	119	132	24.3	197	14.4	15	0.6	-0.1	3	-0.2	3.3	1,570	48.4	84.3	9.62
RH2-131	29	-20	3	-20	19	-30	20	0.8	-5	64	508	9.7	134	6.5	-2	-0.5	-0.1	1	-0.2	2.0	1,350	23.3	41.9	4.97
RH-43	53	-20	7	-20	-10	99	24	0.7	-5	67	644	9.1	153	9.8	-2	-0.5	-0.1	-1	-0.2	2.0	1,060	26.6	47.5	5.69
RH-43 rep	60	49	7	51	-10	98	24	0.9	-5	66	647	9.1	154	11.9	5	-0.5	-0.1	-1	-0.2	1.9	1,060	26.4	46.2	5.29
RH2-48	9	-20	2	-20	-10	49	19	1.2	-5	101	161	16.9	172	11.6	-2	-0.5	-0.1	5	-0.2	1.0	1,700	40.4	70.5	7.78
RH2-49	11	-20	2	-20	18	33	19	1.2	-5	101	248	11.8	141	8.8	-2	-0.5	-0.1	-1	-0.2	1.7	2,050	41.0	69.9	7.41
RS02S011	27	29	-1	-20	12	-30	7	1.1	12	37	11	6.8	203	4.5	-2	-0.5	-0.1	3	-0.2	1.0	288	9.07	15.1	1.95
RS02S02	89	-20	10	-20	-10	57	18	1.1	-5	73	465	19.8	121	6.1	-2	-0.5	-0.1	1	-0.2	1.9	3,730	6.42	12.5	1.73
RS02W01	154	1,570	72	615	66	78	10	1.4	-5	76	682	14.0	52	3.8	-2	-0.5	-0.1	-1	-0.2	11.3	1,050	12.0	23.9	3.15
RS02W03	175	1,050	54	305	76	68	13	1.3	-5	118	770	17.4	69	4.8	-2	-0.5	-0.1	-1	-0.2	2.4	1,150	14.8	28.8	3.71
RSK45	11	-20	2	-20	-10	-30	19	1.1	-5	125	266	23.7	136	6.2	-2	-0.5	-0.1	1	-0.2	2.5	1,320	30.3	55.5	6.26
RSK45 rep	11	-20	1	-20	-10	46	19	1.2	-5	124	263	26.0	144	6.1	-2	-0.5	-0.1	1	-0.2	2.6	1,260	31.7	56.6	6.39
YGP Standard	48	-20	7	-20	2	233	42	3.5	28	210	320	745	359	166	-2	-0.5	-0.1	6	0.3	2.7	445	1,550	2,480	253
Control Material W2	274	97	44	81	99	84	18	1.7	-5	21	181	21.9	85	7.3	-2	-0.5	-0.1	2	0.8	0.9	177	11.5	22.7	3.05
Certified W2	**262***	**93***	**44***	**70***	**103***	**77***	**20***	**(1.0)**	**1.2**	**20***	**194***	**24***	**94***	**7.9**	**(0.6)**	**(0.046)**			**0.79**	**0.99***	**182***	**11.4***	**24***	**(5.9)**
Control Material WMG-1	172	850	217	2,200	6,060	117	11	1.7	10	4	41	14.7	53	5.4	-2	3.1	-0.1	2	2.3	0.6	116	8.22	15.9	2.14
Certified WMG-1	**(149)**	**(770)**	**(200)**	**(2700)**	**(5900)**	**(110)**	**(10.3)**		**(7)**	**(4)**	**(41)**	**(12)**	**(43)**	**(6)**	**(1.4)**	**(2.7)**		**(2.2)**	**(1.8)**	**(0.48)**	**(114)**	**(8.2)**	**(16)**	
Blank	-5	-20	-1	-20	-10	-30	-1	-0.5	-5	-1	-2	-0.5	-1	-0.2	-2	-0.5	-0.1	-1	-0.2	-0.1	-3	-0.05	-0.05	-0.01
Calibration Standard MAG1	130	101	22	59	59	128	22	1.3	6	147	135	26.5	117	13.3	-2	-0.5	-0.1	3	0.8	8.5	484	41.2	78.9	9.42
Certified MAG1	**140***	**97***	**20.4***	**53***	**30***	**130***	**20.4***		**9.2**	**149***	**146***	**28***	**126***	**12**	**1.6**	**0.08**	**(0.18)**	**3.6**	**0.96***	**8.6***	**479***	**43***	**88***	**9.3**
Calibration Standard BIR1	306	384	50	149	117	75	16	1.4	-5	-1	107	15.6	14	0.4	-2	-0.5	-0.1	-1	0.4	-0.1	9	0.88	1.90	0.41
Certified BIR1	**313***	**382***	**51.4***	**166***	**126***	**71***	**16**	**1.5**	**(0.4)**	**0.25***	**108***	**16***	**15.5**	**0.6**	**(0.5)**	**(0.036)**		**0.65**	**0.58**	**0.005**	**7**	**0.62***	**1.95***	**0.38***
Calibration Standard DNC1	141	282	55	264	94	71	14	1.4	-5	4	144	17.6	35	1.3	-2	-0.5	-0.1	1	0.8	0.2	107	3.99	8.02	1.12
Certified DNC1	**148***	**285***	**54.7***	**247***	**96***	**66***	**15**	**(1.3)**	**(0.2)**	**(4.5)**	**145***	**18***	**41***	**3**	**(0.7)**	**(0.027)**			**0.96***	**(0.34)**	**114***	**3.8***	**10.6**	**1.3**
Calibration Standard GXR-2	53	41	8	29	86	72	37	1.0	28	116	156	18.7	252	10.7	-2	2.5	-0.1	2	30.2	10.1	2,230	26.8	50.8	5.61
Certified GXR-2	**52**	**36**	**8.6**	**21**	**76**		**37**		**25**	**78**	**160**	**17**	**269**	**11**	**(2.1)**	**17**	**(0.252)**	**1.7**	**49**	**5.2**	**2,240**	**25.6**	**51.4**	
Calibration Standard LKSD-3	78	84	32	47	33	168	16	0.9	7	77	243	30.0	179	8.5	-2	3.6	-0.1	2	1.4	2.4	680	50.1	87.5	11.6
Certified LKSD-3	**82**	**87**	**30**	**47**	**35**	**152**			**27**	**78**	**240**	**30**	**178**	**8**	**(<5)**	**2.7**		**3**	**1.3**	**2.3**	**680**	**52**	**90**	
Calibration Standard MICA Fe	123	88	26	31	-10	1,240	94	3.1	6	2,600	4	47.3	920	288	-2	0.9	0.6	70	-0.2	200	151	233	491	51.0
Certified MICA Fe	**135***	**90***	**23***	**35***	**5***	**1300***	**95***	**3.2**	**3**	**2200***	**5***	**48***	**800***	**270***	**1.2**		**0.60**	**70***		**180***	**150***	**200***	**420***	**49***
Calibration Standard GXR1	93	-40	8	-40	1,120	808	13	3	427	3	267	33	28	1.2	18	31	0.8	53	112	3.0	671	9.5	14.9	2.21
Certified GXR1	**80**	**12**	**8.2**	**41**	**1,110**	**760**	**13.8**		**427**	**(14)**	**275**	**32**	**(38)**	**(0.8)**	**18**	**31**	**0.77**	**54**	**122**	**3**	**750**	**7.5**	**17**	
Calibration Standard SY3	50	-40	7	-40	-20	238	39	3	17	211	278	716	388	171	-4	-1	-0.2	6	-0.4	2.8	465	1,540	2,480	222
Certified SY3	**50**	**(11)**	**8.8**	**11**	**17**	**244***	**27***	**1.4**	**18.8**	**206***	**302***	**718***	**320**	**148**	**(1.0)**	**(1.5)**		**(6.5)**	**0.31**	**2.5**	**450**	**1340***	**2230***	**223***
Calibration Standard STM1	-5	-20	-1	-20	-10	283	37	1.6	7	119	711	47.0	1,370	256	5	-0.5	-0.1	7	1.8	1.6	559	163	295	25.5
Certified STM1	**(8.7)**	**(4.3)**	**0.9**	**(3)**	**(4.6)**	**235***	**36***	**(1.4)**	**4.6**	**118***	**700***	**46***	**1210***	**268***	**5.2**	**0.079***	**(0.12)**	**6.8**	**1.66***	**1.54***	**560***	**150***	**259***	**19***

Actlabs 4B2 (Research Package) Job #: 26050 **Report #: 25882** **Company: Yukon Geology Program** **Customer: R. Hulstein**

Trace Element Values Are in Parts Per Million Negative Values Equal Not detected at That Lower limit

Sample ID	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	La	Ce	Pr
Calibration Standard IFG1	7	-20	28	26	-10	-30	-1	21.6	[illegible]	-1	4	9.7	2	-0.2	-2	-0.5	-0.1	-1	0.6	-0.[illegible]	-3	3.06	3.65	0.47
Certified IFG1	**2**	**4**	**29***	**23**	**13***	**20***	**0.7**	**24**	**1.5**	**0.4**	**3**	**9***	**1**	**0.1***	**0.7**		**0.2**	**0.3**	**0.63**	**0.06**	**1.5**	**2.8***	**4***	**0.4***

NOTE: ' * ' = RECOMMENDED VALUES
' ( ) ' = INFORMATION VALUES
ALL OTHER VALUES ARE PROPOSED

NOTE: WE RECOMMEND USING OPTION 4B1 FOR ACCURATE LEVELS OF BASE METALS Cu,Pb,Zn,Ni,Ag AND OPTION 4B-INAA FOR As,Sb, HIGH W>100PPM AND Cr>1000PPM; AND Sn>50PPM BY CODE 5D. VALUES FOR THESE ELEMENTS PROVIDED BY ICP/MS ARE ORDER OF MAGNITUDE ONLY AND ARE PROVIDED FOR GENERAL INFORMATION. MINERALIZED SAMPLES SHOULD HAVE THE QUANT OPTION SELECTED OR REQUEST ASSAYS FOR VALUES WHICH EXCEED THE RANGE OF OPTION 4B1.

Certified By:

David D'Anna

D. D'Anna, Dipl. T.
ICPMS Technical Manager, Activation Laboratories Ltd.

Date Received: 25-Oct-02

Date Reported: 13-Nov-02

Actlabs 4B2 (Research Package) Job #: 26050

Trace Element Values Are in Parts Per Million. Negative

Sample ID	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
YGP Standard	714	119	18.4	113	21.4	135	29.0	89.7	13.4	68.8	8.40	11.6	23.5	2.0	1.46	61	0.6	1,110	773
176437	15.9	3.75	1.48	4.02	0.60	3.40	0.67	1.9	0.275	1.68	0.249	0.9	0.35	-0.5	0.08	5	-0.1	0.75	0.46
176442	16.7	4.24	1.66	4.68	0.69	3.70	0.66	1.7	0.218	1.35	0.184	2.6	1.46	-0.5	0.10	-5	-0.1	1.65	1.21
176442 rep	16.8	4.22	1.62	4.67	0.68	3.64	0.65	1.7	0.213	1.30	0.176	2.6	1.44	-0.5	-0.05	-5	-0.1	1.62	1.19
176524	13.5	4.01	1.57	5.35	0.97	6.17	1.30	3.9	0.609	3.65	0.539	3.0	0.15	-0.5	-0.05	-5	-0.1	0.33	0.17
176525	13.1	2.61	0.63	2.34	0.40	2.37	0.49	1.5	0.236	1.49	0.233	2.2	0.51	-0.5	-0.05	-5	0.2	4.21	1.12
176537	23.4	4.76	1.81	4.77	0.67	3.77	0.73	2.1	0.299	1.88	0.280	2.7	0.63	-0.5	0.24	-5	-0.1	3.45	1.75
176538	18.7	3.06	0.875	2.64	0.34	1.77	0.33	1.0	0.138	0.97	0.147	3.8	0.96	-0.5	1.51	15	-0.1	12.2	4.33
176538 rep	18.7	3.06	0.947	2.69	0.35	1.78	0.33	1.0	0.134	0.94	0.142	3.8	0.96	-0.5	0.33	-5	-0.1	11.6	4.59
FA-45	28.1	6.13	1.84	5.80	0.89	4.83	0.90	2.6	0.367	2.25	0.331	4.3	0.58	-0.5	0.52	10	-0.1	3.39	1.30
FA-50	33.8	5.46	0.625	4.27	0.59	2.91	0.53	1.7	0.247	1.57	0.223	4.2	1.05	1.1	0.76	17	-0.1	12.8	2.72
RH02-108	43.7	8.66	0.283	7.76	1.21	6.69	1.30	4.1	0.670	3.99	0.593	5.7	1.19	0.6	1.29	7	-0.1	18.5	4.24
RH02-35	16.9	3.59	0.343	3.60	0.60	3.54	0.72	2.3	0.394	2.41	0.372	3.2	1.54	1.2	1.38	18	0.2	24.6	5.47
RH-125	53.4	8.58	0.273	6.64	0.84	4.25	0.79	2.5	0.399	2.46	0.357	6.2	0.90	-0.5	0.84	13	-0.1	12.0	3.36
RH-126	20.9	4.16	1.13	3.69	0.53	2.71	0.49	1.5	0.207	1.36	0.197	3.5	0.92	-0.5	0.64	10	-0.1	9.75	2.70
RH-129	34.2	6.26	0.891	5.38	0.81	4.27	0.81	2.5	0.375	2.35	0.333	5.7	1.19	1.0	0.63	13	-0.1	13.4	4.48
RH2-131	18.9	3.37	0.994	2.88	0.39	1.87	0.33	1.0	0.124	0.84	0.119	3.7	0.41	0.6	0.39	-5	-0.1	5.36	1.84
RH-43	21.8	3.85	1.36	3.26	0.40	1.86	0.32	0.9	0.115	0.67	0.097	3.9	0.45	-0.5	0.35	-5	-0.1	6.54	1.38
RH-43 rep	19.9	3.49	1.24	3.05	0.34	1.71	0.30	0.8	0.109	0.61	0.094	3.8	0.44	-0.5	0.44	6	-0.1	5.74	1.24
RH2-48	26.9	4.62	0.736	3.83	0.52	2.81	0.52	1.6	0.245	1.56	0.227	5.0	0.92	-0.5	0.51	8	0.1	12.1	3.42
RH2-49	25.4	4.12	0.780	3.27	0.41	2.08	0.36	1.1	0.160	1.08	0.157	3.8	0.75	-0.5	0.84	12	-0.1	11.1	2.59
RS02S011	6.87	1.25	0.240	1.11	0.17	1.02	0.23	0.8	0.141	0.89	0.143	5.3	0.42	1.0	0.18	-5	0.3	7.11	1.60
RS02S02	8.11	2.45	1.00	2.92	0.52	3.21	0.66	2.0	0.308	1.91	0.288	3.3	0.55	-0.5	0.51	11	-0.1	1.48	1.18
RS02W01	13.7	3.46	1.06	3.62	0.51	2.59	0.46	1.3	0.173	1.10	0.159	1.4	0.30	-0.5	0.10	-5	-0.1	2.19	1.22
RS02W03	15.9	3.96	1.23	4.11	0.60	3.19	0.59	1.6	0.236	1.47	0.217	1.9	0.35	0.8	0.09	-5	-0.1	2.83	1.56
RSK45	22.8	4.41	0.802	4.02	0.62	3.64	0.72	2.2	0.364	2.27	0.344	4.2	1.49	-0.5	1.02	-5	-0.1	11.7	2.59
RSK45 rep	23.1	4.40	0.799	4.18	0.66	3.96	0.79	2.4	0.411	2.54	0.388	4.6	0.75	-0.5	0.63	9	-0.1	11.1	2.72
YGP Standard	673	112	17.7	106	20.1	131	28.3	86.0	13.2	68.7	8.31	11.4	23.2	1.7	1.46	61	0.6	1,040	745
Control Material W2	12.9	3.24	1.18	3.76	0.67	4.02	0.81	2.41	0.354	2.14	0.312	2.4	0.55	-0.5	0.12	6	-0.1	2.13	0.50
Certified W2	**14.0**	**3.25***	**1.1***	**3.6***	**0.63**	**3.8***	**0.76***	**2.5**	**0.4**	**2.05***	**0.33***	**2.56***	**0.5**	**(0.3)**	**(0.2)**	**9**	**(0.03)**	**2.2***	**0.53**
Control Material WMG-1	9.4	2.33	0.78	2.54	0.44	2.55	0.52	1.51	0.221	1.36	0.202	1.5	0.40	1.8	0.16	16	0.4	1.12	0.62
Certified WMG-1	**(9)**	**(2.3)**	**(0.8)**		**(0.4)**	**(2.8)**	**(0.5)**		**(0.2)**	**(1.3)**	**(0.21)**	**(1.3)**	**(0.5)**	**(1.3)**		**(15)**		**(1.1)**	**(0.65)**
Blank	-0.05	-0.01	-0.005	-0.01	-0.01	-0.01	-0.01	-0.01	-0.005	-0.01	-0.002	-0.1	-0.01	-0.5	-0.05	-5	-0.1	-0.05	-0.01
Calibration Standard MAG1	35.2	6.69	1.44	6.05	0.92	5.04	0.96	2.59	0.415	2.55	0.368	3.4	1.15	1.5	0.18	13	-0.1	11.2	2.56
Certified MAG1	**38***	**7.5***	**1.55***	**5.8***	**0.96***	**5.2***	**1.02***	**3**	**0.43***	**2.6***	**0.40***	**3.7***	**1.1**	**1.4**	**(0.59)**	**24***	**0.34**	**11.9***	**2.7***
Calibration Standard BIR1	2.37	1.06	0.536	1.72	0.38	2.60	0.57	1.61	0.276	1.65	0.249	0.6	0.03	-0.5	-0.05	-5	-0.1	-0.05	0.01
Certified BIR1	**2.5***	**1.1***	**0.54***	**1.85***	**0.36***	**2.5***	**0.57***	**1.7***	**0.26***	**1.65**	**0.26***	**0.6***	**0.04**	**0.07**	**(0.01)**	**3**	**(0.02)**	**0.03**	**0.01**
Calibration Standard DNC1	5.00	1.39	0.625	1.94	0.42	2.82	0.64	1.85	0.327	2.00	0.299	1.0	0.09	-0.5	-0.05	-5	-0.1	0.25	0.06
Certified DNC1	**4.9***	**1.38***	**0.59***	**2**	**0.41***	**2.7**	**0.62**	**2***	**(0.33)**	**2.01***	**0.32***	**1.01***	**0.098***	**(0.2)**	**(0.026)**	**6.3**	**(0.02)**	**(0.2)**	**(0.1)**
Calibration Standard GXR-2	20.2	3.69	0.879	3.34	0.53	3.04	0.62	1.77	0.297	1.89	0.283	7.0	0.93	1.6	0.27	27	-0.1	8.78	2.90
Certified GXR-2	**(19)**	**3.5**	**0.81**	**(3.3)**	**0.48**	**3.3**			**(0.3)**	**2.04**	**(0.27)**	**8.3**	**0.9**	**1.9**	**1.03**	**690**	**(0.69)**	**8.8**	**2.9**
Calibration Standard LKSD-3	43.1	7.77	1.51	6.65	0.92	5.05	0.99	2.80	0.449	2.77	0.413	4.7	0.65	1.9	0.55	15	-0.1	10.7	4.24
Certified LKSD-3	**44**	**8.0**	**1.50**		**1.0**	**4.9**				**2.7**	**0.4**	**4.8**	**0.7**	**(<4)**		**29**		**11.4**	**4.6**
Calibration Standard MICA Fe	181	33.5	0.644	23.0	2.74	10.9	1.47	3.85	0.572	3.50	0.478	26.6	34.5	7.9	16.0	10	0.7	197	83.7
Certified MICA Fe	**180***	**33***	**0.7***	**21***	**2.7***	**11***	**1.6***	**3.8***	**0.48***	**3.5***	**0.5***	**26***	**35***	**15**	**16**	**13***	**2**	**150***	**80***
Calibration Standard GXR1	9.0	2.95	0.69	4.23	0.9	5.28	1.03	2.73	0.45	2.46	0.327	0.8	0.13	171	0.50	731	1,380	2.6	32.4
Certified GXR1	**(18)**	**2.7**	**0.69**	**4.2**	**0.83**	**4.3**			**(0.43)**	**1.9**	**0.28**	**0.96**	**0.175**	**164**	**(0.39)**	**730**	**1,380**	**2.44**	**34.9**
Calibration Standard SY3	713	120	18.5	117	22.0	137	29.6	84.7	13.7	70.5	8.62	12.3	22.3	1.8	1.33	46	-0.2	1,150	707
Certified SY3	**670**	**109**	**17***	**105***	**18**	**118**	**29.5***	**68**	**11.6***	**(62)**	**7.90**	**9.70**	**30***	**1.1***	**1.50**	**133***	**(0.8)**	**1003***	**650***
Calibration Standard STM1	79.1	11.9	3.64	9.0	1.52	8.28	1.55	4.32	0.691	4.46	0.635	27.5	19.5	3.3	0.28	14	0.4	29.7	8.4
Certified STM1	**79***	**12.6***	**3.6***	**9.5***	**1.55***	**8.1***	**1.9**	**4.2***	**0.69**	**4.4***	**0.60**	**28***	**18.6***	**3.6***	**0.26**	**17.7***	**0.13**	**31***	**9.06***

Actlabs 4B2 (Research Package) Job #: 26050

Trace Element Values Are in Parts Per Million. Negative

Sample ID:	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Bi	Th	U
Calibration Standard IFG1	1.78	0.38	0.365	0.65	0.12	0.83	0.21	0.62	0.09[illegible]	[illegible]59	0.093	-0.1	[illegible]	219	-0.05	-5	-0.1	0.05	0.03
Certified IFG1	**0.2**	**0.4***	**0.39***	**0.74***	**0.11***	**0.8***	**0.2***	**0.63***	**0.09***	**0.6***	**0.09***	**0.04**	**0.2**	**220**	**0.02**	**4**		**0.1**	**0.02**

Appendix G

2002 Petrographic Report

PETROGRAPHIC REPORT ON 14 THIN SECTIONS

Report for: Roger Hulstein, Geologist
Yukon Geology Program
2009 2nd Avenue, P.O. Box 2703 (K-10)
Whitehorse, Y.T. Y1A 2C6.

Invoice 020622

Nov. 16, 2002.

SUMMARY:

Of the 14 samples submitted in this suite, most (12) are plutonic rocks; only two samples (176524 and RH35) appear to be extrusive, and RH35 may actually be a high-level intrusive.

The plutonic rocks range from coarse-grained, hypidiomorphic (e.g. RSK45) through porphyritic (e.g. FA53, FA51, RH126) to fine-grained, hypabyssal porphyry (RH108, possibly RH35).

Composition ranges from gabbro (176437) through biotite-hornblende quartz diorite (FA42, FA94, RSK62), biotite-hornblende granodiorite (RH126), biotite-hornblende quartz monzonite (FA53) or monzodiorite (FA51), to biotite or hornblende granite (RSK45, RH49, RH125) and biotite rhyolite porphyry (RH35, RH108); one sample (56571) is a trondjhemite, or "soda granite". Note that RH125 could also be classed as a quartz syenite.

Gabbro (176437) consists of about 65% andesine-labradorite (An50), 30% relict clinopyroxene partly replaced by amphibole, and accessory opaques, apatite, chloritized biotite, cut by epidote-Kspar fractures.

Biotite-hornblende quartz diorite ("tonalite") (FA42, FA94, RSK62) consists of about 55-70% andesine (local rims of oligoclase), 10-15% quartz, 7-20% hornblende, 5% biotite, and accessory Kspar, opaques, apatite, sphene/rutile, zircon, epidote/zoisite, and sericite/?clay.

Hornblende-biotite granodiorite (RH126) is porphyritic and consists of about 45% sharply zoned, locally inclusion-rich ?bytownite/oligoclase, 25% K-feldspar, 20% quartz and 7% biotite (all phyric phases, in a matrix of Kspar-quartz-plagioclase-biotite), plus accessory amphibole, apatite, opaques, zircon and sericite/?clay.

Biotite-hornblende quartz monzonite/monzodiorite (FA53, FA51) consists of 40-60% oligoclase/andesine, 20-35% K-feldspar, 5-15% quartz, 3-7% hornblende (rare relict ?clinopyroxene cores in FA51), 3-7% biotite, and accessory opaques, apatite, zircon, sphene, ?monazite, ?allanite.

Biotite granite (RSK45, RH49) consists of about 40% oligoclase, 30-35% K-feldspar (perthitic ?orthoclase), 20-25% quartz, 3-5% biotite, and accessory opaques, apatite, ?sphene/rutile, ?allanite, zircon.

Hornblende quartz syenite (RH125) consists of 70% K-feldspar (perthitic ?orthoclase), 20% quartz, 7% albite/oligoclase, and accessory amphibole (trace relict ?clinopyroxene), biotite, opaque (?magnetite), sphene and zircon.

Biotite rhyolite porphyry (RH35, RH108) consists of phenocrysts of ?orthoclase, quartz, albitic plagioclase and relict (partly chlorite-epidote altered) biotite with accessory opaques and fluorite, in a graphic-textured (RH108) to spherulitic (RH35) matrix of Kspar and quartz.

Trondjhemite or "soda granite" (56571) consists of about 75% albite, 20% quartz, 2-3% biotite, 1-2% K-feldspar, and accessory amphibole, apatite, sericite, zircon, opaque, ?monazite, and ?allanite.

Mafic volcanic (176524) consists of about 35% relict (?albitized) plagioclase, 25% fine-grained ?clinopyroxene, 15% chlorite, 10% amphibole, 5% epidote, 5% ?serpentine/hydrobiotite, and accessory leucoxene (sphene/rutile), secondary quartz, and sericite.

Alteration in most of these samples is mostly absent or is confined to traces of incipient deuteric or propylitic sericite/?clay after feldspars and chlorite +/- epidote after biotite and hornblende, or actinolite after hornblende. However, in some samples there is minor potassic alteration, consisting of pervasive fine secondary biotite (mostly after primary biotite, locally after hornblende and rarely also after plagioclase), or locally fracture-controlled K-feldspar, biotite, epidote, or secondary amphibole-hydrobiotite, or veinlets of amphibole-epidote-quartz-chlorite.

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FA53: BIOTITE-HORNBLENDE QUARTZ MONZONITE (ACCESSORY OPAQUES, ZIRCON, APATITE, ?MONAZITE OR SPHENE, ?ALLANITE)

Described as granodiorite, ETqN, Kusawa project; hand sample is a medium-grained, grey-white, felsic plutonic rock with a vaguely porphyritic texture caused by subhedral feldspar phenocrysts (locally almost megacrysts) up to almost 1 cm long, some of which stain yellow for K-feldspar in the etched slab; there is also fine-grained Kspar in the matrix. The rock is magnetic but shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

Plagioclase (oligoclase-andesine)	40%
K-feldspar	35%
Quartz (mainly primary)	15%
Amphibole (?hornblende)	3-5%
Biotite (partly secondary)	3-5%
Opaques (?magnetite)	<1%
?Monazite or sphene	<1%
Zircon	<1%
Apatite	<1%
?Allanite	<1%

In thin section, this sample consists of about 10% K-feldspar and 25% smaller plagioclase "phenocrysts" (the texture is actually somewhat seriate, i.e. size graduated) in a matrix of finer-grained, but phaneritic, K-feldspar, quartz, amphibole and biotite plus accessory opaques, monazite or sphene, zircon and trace apatite and ?allanite.

Plagioclase forms stubby subhedral, essentially unaltered, locally strongly zoned crystals up to 3 mm in diameter, with cores about An30 (oligoclase-andesine) and rims about An12 (sodic oligoclase). K-feldspar forms rounded subhedra, locally glomeratic up to 4 mm in diameter in the thin section, commonly with inclusions of quartz around the rim, suggesting late-magmatic overgrowths. Traces of clay-sericite alteration occur along fracture networks in the Kspar. Quartz crystals are subhedral and locally optically continuous for up to 1.5 mm; inclusions of Kspar and plagioclase occur in places, and the crystals are moderately strained (show undulose extinction).

The matrix of fine-grained quartz, K-feldspar and plagioclase is composed of subhedral crystals mostly <0.5 mm in diameter, in places containing crystals of mafic and associated accessory minerals.

Amphibole forms subhedral crystals up to almost 2 mm long with pale to dark olive green pleochroism and small extinction angle (possibly hornblende). Biotite forms ragged subhedral flakes with dark brown pleochroism up to about 1 mm in diameter, locally aggregating to 2 mm. Locally, fine-grained matted flakes of secondary biotite with greenish pleochroism replace biotite and rarely amphibole. Traces of carbonate appear to replace the biotite in places.

Zircon forms slender euhedral prisms up to 250 microns long; apatite euhedra are up to 125 microns long; ?monazite or sphene subhedra are mostly <60 microns in diameter, with extinction angle about 10 degrees. An unidentified accessory mineral with intense deep red to deep brown pleochroism forms euhedral crystals up to 0.2 mm in diameter; it might be allanite (Ce-bearing epidote), although the pleochroism is more intense than I have ever seen.

This sample would be classed as a biotite-hornblende quartz monzonite, with accessory opaque (likely mostly magnetite), ?monazite or sphene, zircon, apatite and ?allanite. The texture is somewhat porphyritic or locally megacrystic.

FA51: BIOTITE-HORNBLENDE (TRACE RELICT ?CLINOPYROXENE) QUARTZ MONZODIORITE (ACCESSORY OPAQUES, APATITE, SPHENE)

Described as quartz diorite, unit ETgN, Kusawa project; hand sample is a grey, medium-grained, felsic-intermediate, weakly porphyryitic plutonic rock characterized by white plagioclase crystals in a darker matrix that stains for K-feldspar in the etched slab; rounded xenoliths up to 1.5 cm across occur. The rock is magnetic but shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

Plagioclase (oligoclase-andesine)	60%
K-feldspar	20%
Amphibole (?hornblende)	5-7%
Biotite (partly secondary)	5-7%
Quartz	5%
Opaques (?magnetite)	1%
Relict ?clinopyroxene (in amphibole)	<1%
Apatite	<1%
Sphene	<1%
?Clay (after K-feldspar)	<1%

This slide consists of phenocrystic plagioclase crystals set in a matrix of smaller plagioclase, K-feldspar, quartz, amphibole, biotite and accessories.

Plagioclase forms mainly euhedral crystals up to 5 mm in size (locally up to 7 mm where glomeratic), commonly with oscillatory zoning over a range in composition from cores of An30 (andesine) to rims of An20 (oligoclase). Small inclusions of quartz, Kspar, biotite and amphibole are common; alteration is mainly absent but locally fine shreddy secondary biotite occurs in the cores.

In the matrix, plagioclase occurs as small tablets mostly <1 mm in size, with a somewhat seriate (size graduated) texture. K-feldspar forms small subhedra mostly <0.5 mm in diameter interstitial to the plagioclase. K-feldspar is commonly clouded by minute ?clay particles. Quartz forms finer-grained subhedral to anhedral crystals mostly <0.2 mm in diameter, interstitial to K-feldspar.

Amphibole and biotite are commonly mixed together, forming subhedral to ragged crystals locally up to 1.5 mm in diameter. Amphibole has olive green to green pleochroism with extinction angle near 16 degrees, suggesting hornblende; locally, magmatic zoning is seen. Partial alteration at rims to fine-grained secondary biotite is common; rare corroded cores of brown ?salitic clinopyroxene are present. Biotite has deep brown pleochroism and is commonly closely associated with clusters of small subhedral opaque crystals mostly <0.2 mm in diameter (possibly mostly ?magnetite), apatite and minor sphene. Apatite forms euhedral barrel-shaped crystals locally up to 0.2 mm long; sphene forms subhedra mostly <0.1 mm in size.

The xenolith is composed of small euhedra of plagioclase mostly <0.7 mm long set in a matrix of finer-grained amphibole and biotite crystals mostly <0.3 mm in diameter, with accessory quartz, opaque, Kspar and apatite crystals mostly <0.1 mm in diameter. Quartz locally occurs as larger subhedra up to almost 1 mm across associated with altered glomeratic plagioclase up to 2.5 mm across.

This sample would also be classified as a biotite-hornblende (quartz) monzodiorite (trace relict ?clinopyroxene) and accessory opaques (likely mostly ?magnetite), apatite, and sphene; the quartz content is on the boundary between monzodiorite-quartz monzodiorite. The texture is a little finer than in FA53, and the tendency to porphyryitic/megacrystic texture is less developed.

FA42: BIOTITE-HORNBLENDE QUARTZ DIORITE (ACCESSORY APATITE, SPHENE, ZIRCON); MINOR ALTERATION TO SERICITE, KSPAR, BIOTITE, CHLORITE

Described as quartz monzonite, unit ETgN, Kusawa project. Hand sample is medium-grained, white/black ("salt and pepper") coloured felsic/intermediate plutonic rock containing only minor interstitial K-feldspar as indicated by yellow stain in the etched slab. The rock is not magnetic and shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

Plagioclase (oligoclase-andesine)	70%
Quartz	10
Biotite (partly secondary)	7%
Amphibole (?hornblende)	7%
K-feldspar (mostly primary)	3-5%
Clay-sericite (after feldspars)	<1%
Apatite	<1%
Sphene, trace rutile	<1%
Zircon	<1%
Opaque	tr

This slide consists of interlocking plagioclase laths separated by finer-grained, interstitial quartz, mafics (biotite and amphibole), K-feldspar and accessories.

Plagioclase forms mainly euhedral crystals up to about 4 mm in diameter with minor oscillatory zoning that changes little in composition except at the outer rim (cores of sodic andesine about An35, rims of oligoclase about An20). Most crystals show only traces of alteration to minute ?clay-sericite particles, but along fractures there are patches of significant alteration to fine-grained sericite (subhedral flakes mostly <25 microns in diameter). Plagioclase contains small (<0.1 mm) inclusions of K-feldspar and quartz.

Quartz forms subhedral to anhedral crystals rarely over 1 mm in diameter, but locally aggregating to almost 2 mm. The crystals are fractured and locally strained (undulose extinction). K-feldspar occurs as interstitial subhedral to anhedral crystals up to 0.5 mm diameter, or rarely as subhedra <0.25 mm in size along fractures with traces of secondary biotite, quartz and sphene.

Biotite forms subhedral flakes with ragged terminations up to 1.5 mm in diameter, and dark greenish brown pleochroism; rare chloritization is accompanied by traces of rutile. Locally the flakes are partly rimmed by or cut by secondary biotite as fine matted flakes mostly <50 microns in size. Amphibole forms subhedral, in places twinned crystals up to almost 2 mm in diameter, with pale olive-green to deep green pleochroism and extinction angle about 20 degrees, likely hornblende. Biotite is locally intergrown at the margins of the amphibole crystals, and there are inclusions of opaques and apatite.

Accessory minerals include sphene as subhedra up to 0.15 mm in diameter, apatite subhedra of similar size, euhedral zircon crystals up to 175 microns long, and rare opaques mostly <50 microns in diameter.

This sample would be classified as biotite-hornblende quartz diorite (accessory apatite, sphene, zircon, opaques). It shows minor fracture-controlled alteration to sericite, Kspar, biotite and chlorite.

56571: "SODA GRANITE" (TRONDJHEMITE): ALBITIC PLAGIOCLASE, QUARTZ, AND ACCESSORY BIOTITE, AMPHIBOLE, APATITE, ?MONAZITE, ?ALLANITE, ZIRCON

Described as granite, unit ETqN, Kusawa project; hand sample is a coarse-grained, pinkish-white, leucocratic felsic plutonic rock (minor mafic minerals, mostly biotite). The rock is not magnetic, shows no reaction to cold dilute HCl, and only minor stain for K-feldspar in the etched slab, suggesting a plagiogranite ("soda granite" or trondjhemite). Modal mineralogy in thin section is approximately:

Plagioclase (albite)	75%
Quartz	20%
Biotite (partly secondary, partly chloritized)	2-3%
K-feldspar	1-2%
Amphibole (?tremolite-actinolite)	<1%
Sericite, ?clay	<1%
Apatite	<1%
?Monazite, ?allanite	<1%
Zircon	<1%
Opaques	tr

This slide consists mainly of coarse plagioclase crystals, with interstitial quartz, minor biotite and K-feldspar, trace amphibole and accessories (?monazite, opaques).

Plagioclase crystals are generally subhedral to locally anhedral, and range upwards of 7 mm in diameter. Included crystals of K-feldspar, locally along narrow fractures, have subhedral outlines up to 0.7 mm in diameter. Plagioclase composition appears to be about pure albite, An0, based on extinction Y^010 of 16 degrees and relief negative compared to adjacent quartz. Most crystals show traces of incipient alteration to minute flakes of sericite, mostly <20 microns in diameter, localized along fractures.

Quartz crystals are mainly anhedral to subhedral, ranging up to about 2.5 mm in diameter. They are weakly to moderately fractured but show little strain (generally lack undulose extinction).

Biotite forms generally subhedral flakes up to about 1.5 mm in diameter with medium brown pleochroism, (locally aggregating to 4 mm clumps that in places are associated with minor ?amphibole. This amphibole forms small fibrous crystals up to 0.35 mm long that are colourless and have a small extinction angle around 15 degrees, suggesting ?tremolite-actinolite that may have replaced earlier crystals of ?hornblende that originally had subhedral outlines up to 1.25 mm long. In places, biotite flakes are partly altered, particularly at rims, to fine-grained secondary biotite as subhedral flakes mostly <0.1 mm in diameter.

Accessory minerals, commonly associated with biotite and especially secondary biotite, include apatite (stubby prisms up to 0.15 mm long), ?monazite (stubby euhedra up to 0.2 mm long), zircon (euhedra up to 120 microns long) and trace opaques (mostly <50 microns in diameter). An unidentified accessory occurs as a single euhedral crystalalmost 1 mm long, with distinct yellow-brown colour but no pleochroism; it could be ?allanite (Ce-bearing epidote).

In summary, this does in fact appear to be a trondjhemite or soda-granite, composed mainly of albitic plagioclase and quartz, with very little K-feldspar. It is quite leucocratic (colour index <5), with only accessory biotite, amphibole, apatite, ?monazite, zircon, and ?allanite.

FA94: BIOTITE-HORNBLENDE QUARTZ DIORITE (ACCESSORY KSPAR-OPAQUE-APATITE-SPHENE; MILD DEUTERIC ALTERATION TO SERICITE-?ZOISITE-ACTINOLITE-CHLORITE)

Described as hornblende granodiorite, unit ETgN, from Wellesley project; hand sample is a greenish-grey, medium-grained, intermediate plutonic rock with colour index of about 20-30. The rock is not magnetic, shows no reaction to cold dilute HCl, and only trace yellow stain for K-feldspar in the etched slab. Modal mineralogy in thin section is approximately:

Plagioclase (andesine)	55%
Amphibole (?hornblende)	20%
Quartz	15%
Biotite (partly chloritized)	5%
Sericite (after plagioclase)	1-2%
K-feldspar	<1%
?Zoisite (after plagioclase)	<1%
Opaque	<1%
Apatite	<1%
Sphene, rutile	<1%

This slide consists of quartz, amphibole and lesser biotite crystals interstitial to laths of plagioclase that is incipiently saussuritized; accessories include K-feldspar, apatite, sphene/rutile and opaques.

Plagioclase forms mainly euhedral tablet-like crystals up to about 1.5 mm diameter, with strong zonation in composition from core to rim from about An40 (calcic andesine) to An30 (sodic andesine). Saussuritization (replacement of up to about 25% of the crystals by flakes of sericite up to 0.1 mm in diameter and minor colourless (Fe-poor) epidote, possibly ?zoisite, of similar size) is common.

Quartz occurs as somewhat skeletal, subhedral crystals that are optically continuous for up to 2 mm diameter, poikilitically enclosing plagioclase, biotite, and amphibole crystals. The quartz crystals are commonly touching, forming a semi-continuous matrix to plagioclase and mafic crystals.

Amphibole forms euhedral to subhedral crystals up to 3 mm in diameter with deep brownish green pleochroism and extinction angle about 13 degrees, likely hornblende. Locally the hornblende is altered at the margins to a secondary amphibole with sea-green pleochroism, likely actinolitic hornblende. Biotite, commonly intergrown with hornblende, forms mainly euhedral crystals up to 1.2 mm diameter with deep brown pleochroism that are commonly partly replaced by bright green chlorite.

Accessory minerals include traces of opaques (subhedra to 0.25 mm diameter), apatite (euhedra to 0.15 mm long), sphene (subhedra mostly <0.1 mm in size, possibly locally mixed with ?rutile in chloritized biotite sites).

To summarize, this would be classified as a biotite-hornblende quartz diorite (K-feldspar is very minor), or "tonalite", with accessory opaques, apatite, and sphene. It has suffered mild deuteric or propylitic alteration to sericite, ?zoisite ?actinolitic amphibole and chlorite.

RSK45: BIOTITE GRANITE (ACCESSORY OPAQUE, APATITE, SPHENE/RUTILE, ?ALLANITE; MINOR DEUTERIC ALTERATION TO SERICITE/CLAY, CHLORITE)

Described as granite, unit ETqN, Kusawa project; hand sample is coarse-grained, grey-white, felsic plutonic rock with colour index <10. The rock is not magnetic and shows no reaction to cold dilute HCl, but there is extensive stain for K-feldspar in the etched slab. Modal mineralogy in thin section is approximately:

Plagioclase (oligoclase)	40%
K-feldspar	30%
Quartz	25%
Biotite	3-5%
Sericite, ?clay (after feldspars)	<1%
Chlorite (after biotite)	<1%
Opaque	<1%
?Allanite	<1%
?Sphene, rutile	<1%
Apatite	<1%

In thin section, this sample consists of coarse plagioclase crystals and irregular masses of quartz in a matrix of K-feldspar, quartz and biotite plus accessory minerals.

Plagioclase crystals are generally euhedral to subhedral, and up to 3 mm in diameter (5 mm where glomeratic). Gradual, faintly oscillatory zoning is common, with compositions ranging from about An27 (calcic oligoclase) at the core to An15 (sodic oligoclase) at the rims based on extinction X^001 of zero and -12 degrees respectively. Most crystals are relatively fresh (unaltered) but some are up to 15% altered to fine-grained (<25 micron) sericite at the cores.

K-feldspar occurs as subhedral to irregular-shaped crystals generally <1.5 mm in diameter, but locally glomeratic up to 3 mm in diameter. They are marked by incipient alteration to minute particles of ?clay.

Quartz forms anhedral to subhedral crystals up to 3.5 mm in diameter, locally aggregating to 7 mm across. The crystals are strained (undulose extinction) and show moderate fracturing. Small inclusions of feldspar(s) are common.

Biotite occurs as ragged subhedral crystals up to 2.5 mm in diameter, locally aggregating to 3.5 mm. Pleochroism is to deep greenish brown; the crystals commonly contain small (<50 micron diameter) inclusions of accessory minerals such as ?sphene or rutile, apatite, and opaques, and are associated with an unidentified mineral occurring as a single euhedral crystal 0.4 mm across with intense re-brown pleochroism (possibly ?allanite). Opaques are subhedral and mainly <0.2 mm in diameter. In places, the biotite is replaced by fine-grained matted flakes (<0.1 mm in diameter) of chlorite with yellow to bright green pleochroism (probably Fe-rich).

In summary, this sample would be classified as a biotite granite, with accessory opaque, apatite, sphene/rutile, and ?allanite. There is minor incipient deuteric alteration to clay/sericite and chlorite.

176524: MAFIC/INTERMEDIATE VOLCANIC, ALTERED TO ?ALBITE-CLINOPYROXENE-CHLORITE-AMPHIBOLE-EPIDOTE-SERPENTINE/HYDROBIOTITE-QUARTZ-LEUCOXENE

Described as andesite, Kusawa project; hand sample is dark green, fine-grained, somewhat fragmental (or sheared?) mafic volcanic rock in which the ?clasts appear to be subangular and up to 1.5 cm in diameter, partly replaced by pale green ?epidote and partly by dark green ?chlorite (see etched slab). The rock is weakly magnetic but shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched slab. Modal mineralogy in thin section is approximately:

Plagioclase (relict, ?albitized)	35%
?Clinopyroxene (secondary)	25%
Chlorite	15%
Amphibole (secondary)	10%
Epidote	5%
?Serpentine/hydrobiotite	5%
Quartz (secondary)	2-3%
Sphene/rutile ("leucoxene")	1-2%
Sericite	<1%

Fine grain size in this thin section makes positive identification of mineralogy difficult, but essentially this altered volcanic rock appears to consist of subangular areas (?clasts) that are composed of variable ratios of relict plagioclase crystals separated by relict mafic material (secondary ?clinopyroxene, chlorite, yellow ?serpentine/hydrobiotite and semi-opaque sphene/leucoxene), cut by veinlets <2 mm thick composed of secondary amphibole, epidote, quartz and chlorite.

Relict plagioclase crystals have mainly subhedral outlines <1 mm in diameter, commonly partly replaced along fractures by fine-grained amphibole, epidote and chlorite mostly <35 microns in diameter, and pervasively by minor sericite mostly <25 microns in diameter. Composition is no longer determinable, but the vaguely twinned nature suggests it may have been albitized.

Interstitial mafic minerals have been completely replaced by fine-grained, intimately intermixed ?clinopyroxene (small, essentially colourless subhedra mostly <0.1 mm long with approximate 45 degree extinction) set in a matrix of pale green chlorite as subhedral flakes mostly <35 microns in diameter) or locally bright green amphibole as subhedral crystals mostly 50 microns long, and a brownish yellow, finely flakey (<25 micron) mineral that is unidentified but with characteristics similar to ?serpentine and/or "hydrobiotite" (Fe-rich chlorite). Former ?ilmeno-magnetite crystals with mainly euhedral outlines up to 0.3 mm across are pseudomorphed by fine-grained wooly aggregates of sphene cored by ?rutile ("leucoxene").

Veinlets are composed of amphibole (fibrous subhedra up to 0.35 mm long with pale to bright sea-green pleochroism suggesting actinolitic, Fe-rich composition) intimately intergrown with epidote (subhedra up to 0.5 mm with variable yellowish pleochroism suggestive of Fe-rich composition) and quartz (irregular anhedra to subhedra up to 0.5 mm in diameter, plus selvages of chlorite (minute flakes mostly <25 microns in diameter with bright green pleochroism but near-zero birefringence, suggestive of median to somewhat Fe-rich composition).

In summary, this appears to have been a mafic to intermediate volcanic rock that has been strongly altered to ?albite-clinopyroxene-chlorite-amphibole-epidote-serpentine/hydrobiotite-leucoxene and veined by amphibole-epidote-quartz-chlorite.

176437: GABBRO (PLAGIOCLASE AN50, RELICT PYROXENE ALTERED TO AMPHIBOLE, ACCESSORY CHLORITIZED BIOTITE, OPAQUES, APATITE; EPIDOTE-CHLORITE-KSPAR FRACTURES)

Described as hornblende granodiorite, unit ETgN, Kusawa project; hand sample is greenish-grey, fine- to medium-grained intermediate plutonic rock with a dioritic or gabbroic appearance. The rock is strongly magnetic but shows no reaction to cold dilute HCl, and only trace yellow stain for K-feldspar along fractures in the etched slab. Modal mineralogy in thin section is approximately:

Plagioclase (andesine-labradorite)	65%
Clinopyroxene (relict)	15%
Amphibole (secondary)	10%
Chlorite	5%
Opaques (magnetite, ?ilmenite)	2-3%
Biotite (chloritized)	1%
Epidote	1%
K-feldspar (secondary)	<1%
Sericite	<1%
Apatite	<1%

This slide is composed essentially of 65-70% plagioclase and 30-35% relict mafic crystals, with 2-3% accessory opaques and apatite, cut by narrow fracture zones of epidote-Kspar-sericite.

Plagioclase forms mainly subhedral to euhedral tablets up to 2.5 mm in maximum dimension with poorly defined, gradual concentric zonation; composition appears to be about An50 (andesine-labradorite) based on extinction Y^010 up to 27 degrees. Incipient alteration to fine-grained sericite or clay is generally minor (<5% of the crystal).

Relict mafic crystals with euhedral to subhedral outlines up to 2 mm in diameter are mainly clinopyroxene, partly to completely replaced by secondary amphibole and locally rimmed by chlorite. The pyroxene is very pale green but non-pleochroic, with a large extinction angle near 45 degrees, and is characterized by strong cleavage and oriented rod-like opaque inclusions akin to Schiller structure. Secondary amphibole forms fibrous to subhedral lath-like or locally irregular crystals up to 1 mm long with distinct but pale olive-green pleochroism (possibly hornblende). Locally, minor relict biotite (extensively altered to chlorite and minor epidote) forms subhedral flakes up to 1 mm in diameter.

Accessory opaques form clusters of subhedral crystals up to 0.5 mm across, possibly including both magnetite and ?ilmenite. Apatite forms stubby subhedra mostly <0.3 mm long.

Along fractures, epidote with variable yellow pleochroism (indicating moderate Fe content) forms subhedral crystals up to 0.35 mm in diameter, associated with chlorite as minute flakes mostly <50 microns in diameter (pale green pleochroism and near-zero birefringence indicates median Fe content), minor sericite as <20 micron flakes, and K-feldspar as subhedra to 0.25 mm.

To summarize: the calcic plagioclase (at An50 on the boundary between gabbro sensu stricto and diorite), the presence of relict clinopyroxene, and abundance of accessory opaque oxides,biotite and apatite all suggest that this rock might be classified as a gabbro rather than a pyroxene diorite. Alteration is to secondary amphibole, chlorite, epidote and K-feldspar.

RH35: QUARTZ-FELDSPAR PORPHYRY (BIOTITE RHYOLITE CONTAINING PERTHITIC ?ORTHOCLASE, QUARTZ AND ALBITE PHENOCRYSTS, ACCESSORY OPAQUE OXIDES, RARE ZIRCON)

Described as quartz-feldspar porphyry, Kusawa project; hand sample shows a pale grey-white felsic volcanic or hypabyssal rock composed of 15-20% white feldspar and 5-10% grey quartz phenocrysts in an aphanitic matrix that stains extensively yellow for K-feldspar in the etched slab. The rock is weakly magnetic but shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

K-feldspar (matrix, phenocrysts)	60%
Quartz (phenocrysts, matrix)	25%
Plagioclase (phenocrysts, albitic)	10%
Relict biotite, secondary biotite	1-2%
Sericite, ?clay	1-2%
Opaques (partly ?magnetite)	1%
Chlorite	<1%
Zircon	tr

This slide consists of about 5-10% each quartz, K-feldspar, and plagioclase phenocrysts (plus <5% relict biotite and accessory opaque oxide crystals) in a fine-grained, locally spherulitic matrix of K-feldspar, quartz and minor biotite and opaques.

Quartz phenocrysts have euhedral outlines up to 2 mm diameter (almost 4 mm across where glomeratic). Indications of embayment are common, and locally overgrowth rims mostly of fine-grained K-feldspar are present.

K-feldspar phenocrysts have euhedral, locally embayed outlines up to 3.5 mm in diameter, with simple Carlsbad twinning. They are mostly perthitic ?orthoclase, containing about 25% fine string-like inclusions of ?albite mostly <25 microns thick, and local inclusions of quartz up to 0.1 mm across, or ragged relict biotite crystals up to 0.25 mm in size.

Plagioclase phenocrysts are mainly euhedral, up to 1.5 mm in diameter where glomeratic, and show the vague twinning and strong flecking by fine-grained sericite (subhedra mostly <50 microns in diameter) and clouding by minute ?clay particles, typical of albite. Extinction on 010 up to about 10 degrees and negative relief compared to adjacent quartz in the groundmass supports this identification.

Former small biotite crystals have subhedral outlines mostly <0.5 mm in diameter, and are now extensively replaced by fine-grained secondary biotite (flakes <75 microns in diameter, with medium brown pleochroism), local chlorite (flakes to 30 microns with bright green pleochroism indicating Fe-rich composition) and opaque oxides (subhedra to 50 microns, possibly ?magnetite). Traces of zircon (euhedra to 35 microns long) are associated with the relict biotite sites.

The groundmass consists of spherulitic aggregates of quartz up to 0.25 mm in diameter embedded in a matrix of small feathery lath-like crystgals of K-feldspar mostly <0.15 mm long, with scattered concentrations of 20 micron biotite and opaques that likely represent former biotite flakes that were less than 0.1 mm in diameter.

The composition of this quartz-feldspar porphyry is (biotite) rhyolite; it likely represents a hypabyssal (high-level) intrusive such as a dyke, sill or stock although the locally spherulitic texture could indicate an extrusive, flow origin. It is essentially unaltered apart from late-stage replacement of biotite by secondary biotite.

RH49: BIOTITE GRANITE (ACCESSORY OPAQUES, APATITE, TRACE ZIRCON); MINOR ALTERATION TO CHLORITE, CLAY/SERICITE

Described as granite, unit ETqN, Kusawa project; hand sample is a pinkish-grey, medium- to coarse-grained felsic plutonic rock. The rock is weakly magnetic in places and shows no reaction to cold dilute HCl, but there is extensive yellow stain for K-feldspar in the etched slab. Modal mineralogy in thin section is approximately:

Plagioclase (oligoclase)	40%
K-feldspar	35%
Quartz	20%
Biotite (partly chloritized)	3-5%
Opaques (partly ?magnetite)	<1%
Apatite	<1%
Clay, sericite	<1%
Zircon	tr

In thin section, this sample consists of hypidiomorphic plagioclase, K-feldspar, quartz and minor biotite and accessory opaques, apatite and zircon typical of a granite.

Plagioclase forms subhedral to locally euhedral crystals up to just over 3 mm in diameter, with generally vaguely defined, gradual zoning over a limited composition range near An20 (oligoclase) based on extinction Y^010 near 1-2 degrees; some crystals show oscillatory zoning with a range from An37 (andesine) at the cores to An15 (oligoclase) at the rims based on extinction Y^010 from 20 to -6 degrees. Most crystals show only traces of sericite as inclusions or minor limonite as stains along fractures.

K-feldspar forms subhedral to anhedral crystals up to 3 mm in diameter, commonly containing small (<0.2 mm) inclusions of quartz, and locally with narrow strips of albite <50 microns thick giving a perthitic texture. Alteration to minute cloudy ?clay particles is common along fractures.

Quartz forms anhedral to subhedral crystals up to almost 2 mm in diameter that are commonly interstitial to feldspars and locally overgrow the margins of feldspars. The crystals show mild strain (undulose extinction) and fracturing.

Biotite forms euhedral to subhedral flakes up to 1.5 mm, aggregating to 2 mm, with dark brown to greenish brown pleochroism. The flakes are locally interleaved by chlorite with strong green pleochroism and length-slow character, suggesting relatively Fe-rich composition. Traces of opaques as subhedral to euhedral crystals mostly <50 microns in size are commonly included in or associated with the margins of biotite crystals. Accessory apatite forms slender needles up to 0.15 mm long; zircon occurs as euhedra mostly <75 microns long, some with rounded opaque inclusions.

To summarize, this sample is a biotite granite, with accessory opaques, apatite, and trace zircon; there are traces of incipient deuteric alteration to chlorite and sericite-clay.

RH108: QUARTZ-FELDSPAR PORPHYRY (BIOTITE RHYOLITE, CONTAINING PERTHITIC ORTHOCLASE, QUARTZ, ALBITE AND MINOR BIOTITE PHENOCRYSTS, ACCESSORY ?MAGNETITE, ?FLUORITE; MINOR ALTERATION TO EPIDOTE, CHLORITE)

Described as quartz-feldspar porphyry, Kusawa project; hand sample is grey-white, with abundant white feldspar, lesser grey quartz and scattered black ?biotite phenocrysts in a phaneritic siliceous matrix that stains extensively for K-feldspar and has strongly "graphic" texture. The rock is strongly magnetic and shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

K-feldspar (phenocrysts and matrix)	70%
Quartz (phenocrysts and matrix)	20%
Plagioclase (?albite)	7%
Relict biotite (partly chloritized)	1-2%
?Clay, sericite	<1%
Epidote	<1%
Fluorite (?)	<1%

This slide consists of about 25-30% K-feldspar, 5-10% quartz, 5% plagioclase, and 1-2% small biotite phenocrysts in a myrmekitic groundmass composed of strongly graphic-textured quartz and Kspar.

K-feldspar phenocrysts have euhedral to subhedral, commonly glomeratic outlines up to 4 mm in diameter. The individual crystals show multiple Carlsbad twinning and are locally slightly zoned from core to rim. The crystals are generally strongly clouded by minute particles of ?clay and sericite, locally with minor hematite. Inclusions of quartz as subhedra up to 0.2 mm in size are common; included plagioclase occurs as narrow strips (imparting a perthitic texture) or locally subhedra up to 1 mm in size.

Quartz phenocrysts have euhedral to subhedral outlines up to 4 mm in diameter, with abundant indications of embayment and local rimming by K-feldspar. The crystals are mildly strained (undulose extinction) and fractured.

Plagioclase phenocrysts have euhedral to glomeratic outlines up to 4.5 mm in diameter, with poorly defined twinning and vague zoning from core to rim. Negative relief compared to quartz suggests a composition near albite. Clouding by incipient ?clay alteration is common but not as severe as in K-feldspar.

Biotite forms subhedral to anhedral, ragged crystals up to 0.6 mm in diameter, generally in aggregates up to 1.5 mm across with opaques, epidote, and minor chlorite. Biotite has deep red-brown pleochroism except where partially chloritized. Epidote forms euhedral crystals up to 0.15 mm long with weak yellow pleochroism indicating moderate Fe content.

The matrix consists of subhedral to euhedral quartz and K-feldspar crystals up to about 1.5 mm in diameter, intergrown in graphic-textured fashion.

Accessory opaques form subhedral crystals mostly <0.6 mm in diameter (possibly mostly ?magnetite). Rare ?fluorite forms almost cubic, euhedral crystals up to 0.8 mm in diameter associated with biotite or interstitial to the main rock-forming minerals.

In summary, this sample is a quartz-feldspar porphyry of biotite rhyolite composition, probably a high-level intrusive, with unusual graphic-textured groundmass and accessory opaques (?magnetite) and ?fluorite. Minor deuteric alteration to ?clay-sericite, epidote and chlorite is present.

RH125: HORNBLENDE GRANITE/QUARTZ SYENITE, ACCESSORY OPAQUE (?MAGNETITE) CLINOPYROXENE, BIOTITE, SPHENE, ZIRCON

Described as granite, unit ETqN, Kusawa project; hand sample is coarse-grained, pinkish granite that stains extensively yellow for K-feldspar in the etched slab. The rock is magnetic but shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

K-feldspar	70%
Quartz	20%
Plagioclase (albite-oligoclase)	7%
Amphibole (?hornblende)	1%
Opaque (?mainly magnetite)	1%
Relict ?clinopyroxene	<1%
Biotite	<1%
Sphene	<1%
Zircon	<1%

This section consists mainly of hypidiomorphic K-feldspar, with significant quartz, minor plagioclase, and accessory amphibole, opaques, biotite and zircon.

K-feldspar forms subhedral to anhedral crystals up to about 4.5 mm in diameter, but aggregating to almost 1 cm in places. Most of the crystals are perthitic or locally microperthitic, containing about 5-20% inclusions of ?albitic plagioclase that locally suggest much of the Kspar may have formed as a late-magmatic overgrowth on or replacement of plagioclase. K-feldspar is generally clouded by minute ?clay and ?hematite particles.

Quartz forms subhedral crystals up to 2 mm in diameter that locally aggregate up to 0.5 cm across, although they poikilitically enclose other silicates. Embayment textures are common; the quartz is relatively unstrained and little fractured.

Plagioclase forms euehdral to subhedral crystals up to 2 mm in diameter. Composition is about An12 (sodic oligoclase, close to albite) based on extinction angle Y^010 about 9 degrees and negative relief compared to adjacent quartz.

Amphibole occurs as small euhedral to subhedral crystals up to almost 1 mm in diameter with intense dark green to greenish brown pleochroism, in clusters or aggregates up to 2 mm across associated with minor biotite, opaques and accessory minerals such as zircon. The amphibole may be ?hornblende, and in places appears to mantle former ?clinopyroxene forming subhedral pale green but non-pleochroic crystals <0.6 mm in diameter. Biotite crystals are subhedral, <0.3 mm in diameter, and have deep red-brown to almost black pleochroism. Opaques have subhedral to euhedral outlines up to 0.4 mm in diameter, and may be ?magnetite. Zircon crystals are euhedral, up to 270 microns long; sphene crystals are euhedral, up to 0.2 mm long.

In summary, this is a somewhat unusual granite (rich in K-feldspar and poor in quartz, located on the boundary between granite and quartz syenite) with textures suggesting that part of the Kspar has replaced former plagioclase. Also, the mafic minerals are unusual (very dark amphibole mantling minor ?clinopyroxene, very dark red-brown biotite) and are associated with ?magnetite, sphene and relatively abundant, relatively coarse-grained zircon.

RH126: PORPHYRITIC HORNBLENDE BIOTITE GRANODIORITE (STRONGLY ZONED PLAGIOCLASE, QUARTZ PHENOCRYSTS; ACCESSORY OPAQUE, APATITE, ZIRCON)

Described as granodiorite, unit ETgN, Kusawa project; hand sample is grey, medium-grained, felsic-intermediate plutonic rock with faint porphyritic tendency caused by slightly larger white plagioclase and quartz crystals in finer-grained matrix of quartz, K-feldspar (stains yellow in etched slab) and mafic minerals. The rock is not magnetic and shows no reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

Plagioclase (phenocrysts, matrix)	45%
K-feldspar (matrix, rare phenocrysts)	25%
Quartz (phenocrysts, matrix)	20%
Biotite	7%
Amphibole (?hornblende)	1%
Sericite, ?clay	1%
Opaques	<1%
Apatite	<1%
Zircon	tr

In thin section, this slide consists of seriate-textured to phenocrystic plagioclase, minor quartz and rare K-feldspar phenocrysts and recrystallized biotite and amphibole crystals, in a fine-grained matrix.

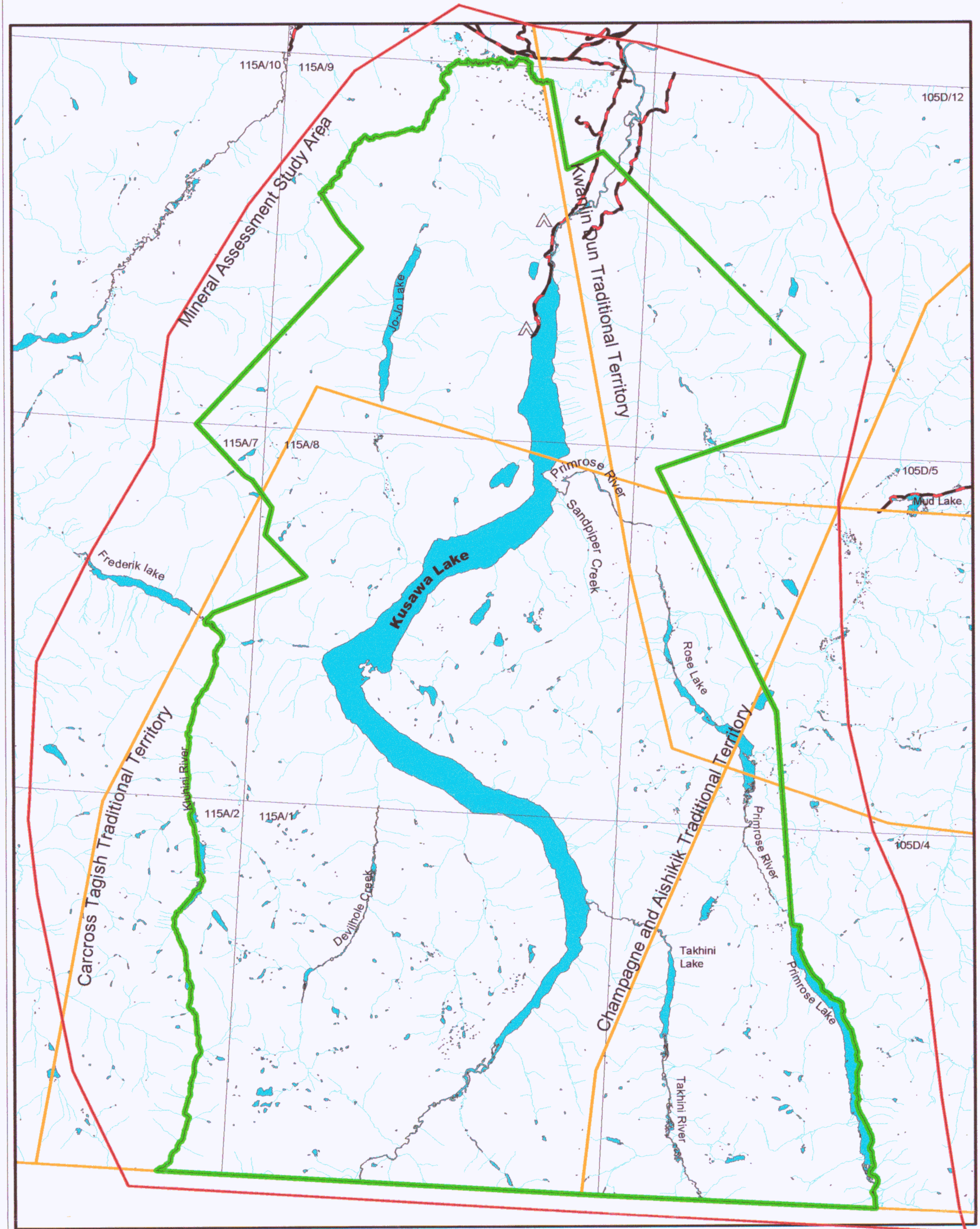
Plagioclase crystals are generally euhedral, up to about 2.5 mm in diameter, some showing sharp single zoning with cores possibly as calcic as An75 (bytownite) and rims of An25 (oligoclase), and others with the cores marked by abundant inclusions of amphibole (subhedra to 0.1 mm) and trace alteration to sericite. The two types of crystals (with inclusions and without) occur adjacent, suggesting possible ?mixing from two separate but similar magma chambers. In places the plagioclase crystals appear to be corroded at the margins and overgrown by quartz.

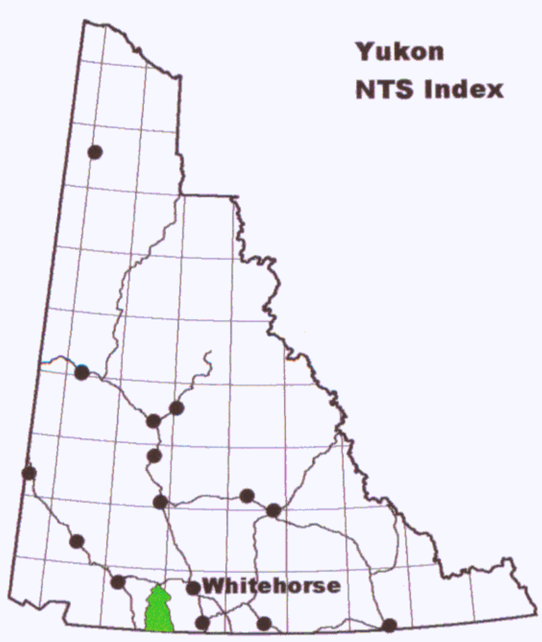
Quartz phenocrysts are mainly subhedral to rounded, over 3 mm in diameter, and appear to be corroded and embayed at the margins. The crystals do not appear to be strongly strained, but are locally fractured and recrystallized around the fractures.

K-feldspar phenocrysts are rare (one may be seen in the etched slab, about 1.5 mm in diameter; in thin section the largest, subhedral, crystal seen is 0.6 mm across. It has weakly microperthitic texture, and is probably orthoclase. K-feldspar is abundant in the matrix, forming mainly anhedral to subhedral crystals <0.25 mm in diameter mixed with similar sized anhedral to subhedral quartz, lesser plagioclase and minor biotite and amphibole mostly <0.1 mm in diameter.

Biotite is by far the most common mafic mineral, forming subhedral to ragged deep brown flakes up to 1.5 mm in diameter, locally associated with small subhedral deep brownish green amphibole crystals mostly <0.25 mm in diameter. Aggregates of amphibole crystals up to 1 mm across are rarely present, rimmed by biotite. Accessory apatite associated with the mafic minerals forms stubby or locally needle-like euhedra up to 0.15 mm in diameter. Opaques are rare but locally subhedra up to 0.5 mm in diameter occur at the center of biotite clusters. Rare ?zircon or monazite crystals to 50 microns long are included in biotite, surrounded by dark pleochroic haloes.

In summary, this sample could be described as a porphyritic hornblende-biotite granodiorite, although it is on the junction with the granite, quartz monzonite and quartz monzodiorite fields; accessory minerals are opaques, apatite and trace zircon. Alteration is mostly absent apart from traces of incipient sericite/?clay in feldspars.





5 0 5 10 15 20 Kilometers

Scale 1:300,000

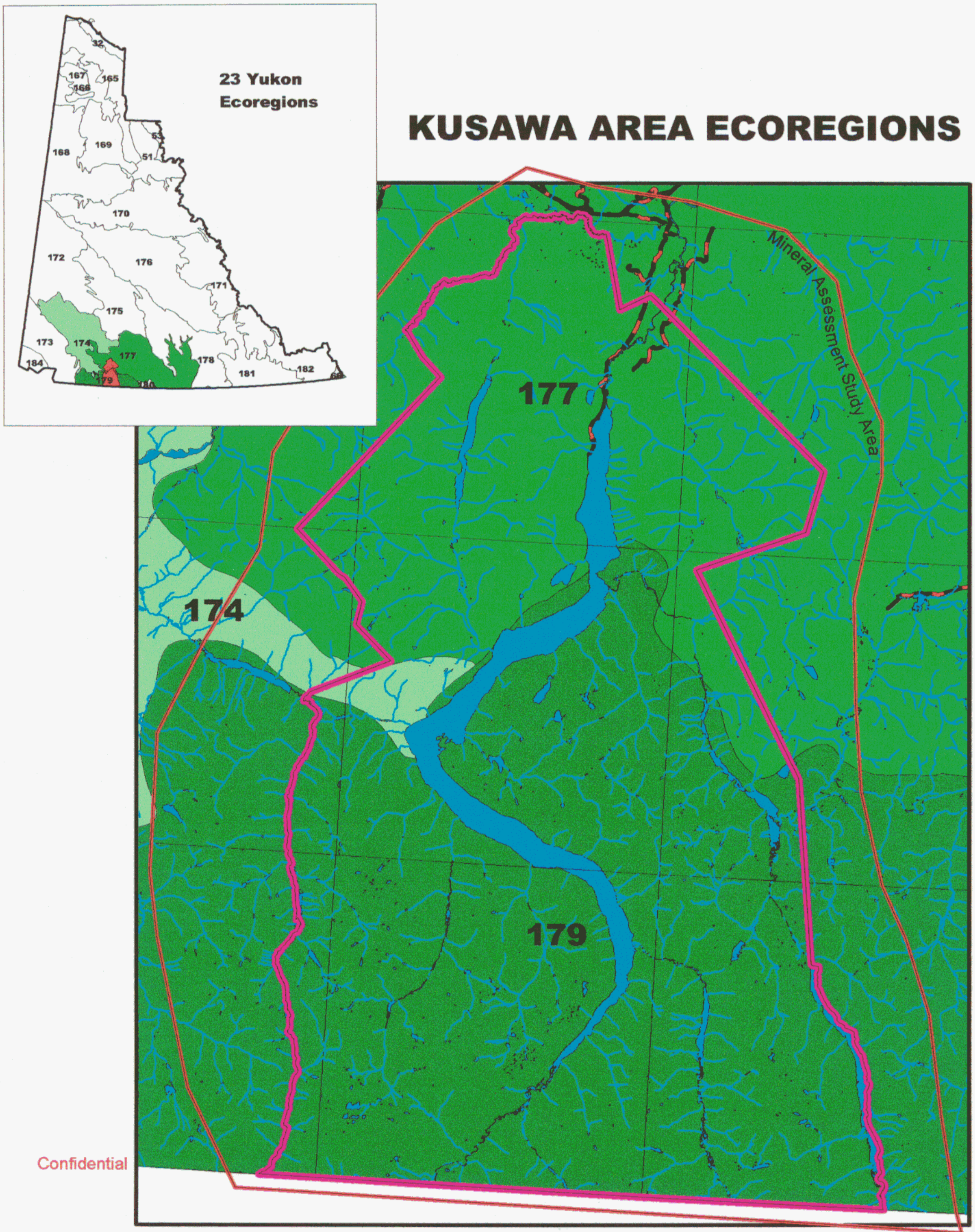
Proposed Kusawa Natural Environment Park Special Management Area
(September 2002 Outline)

Confidential

LOCATION MAP

Arcview GIS Version 3.2 - RH - February 2003

Figure 1



Proposed Kusawa Natural Environment Park Special Management Area (September 2002 Outline)

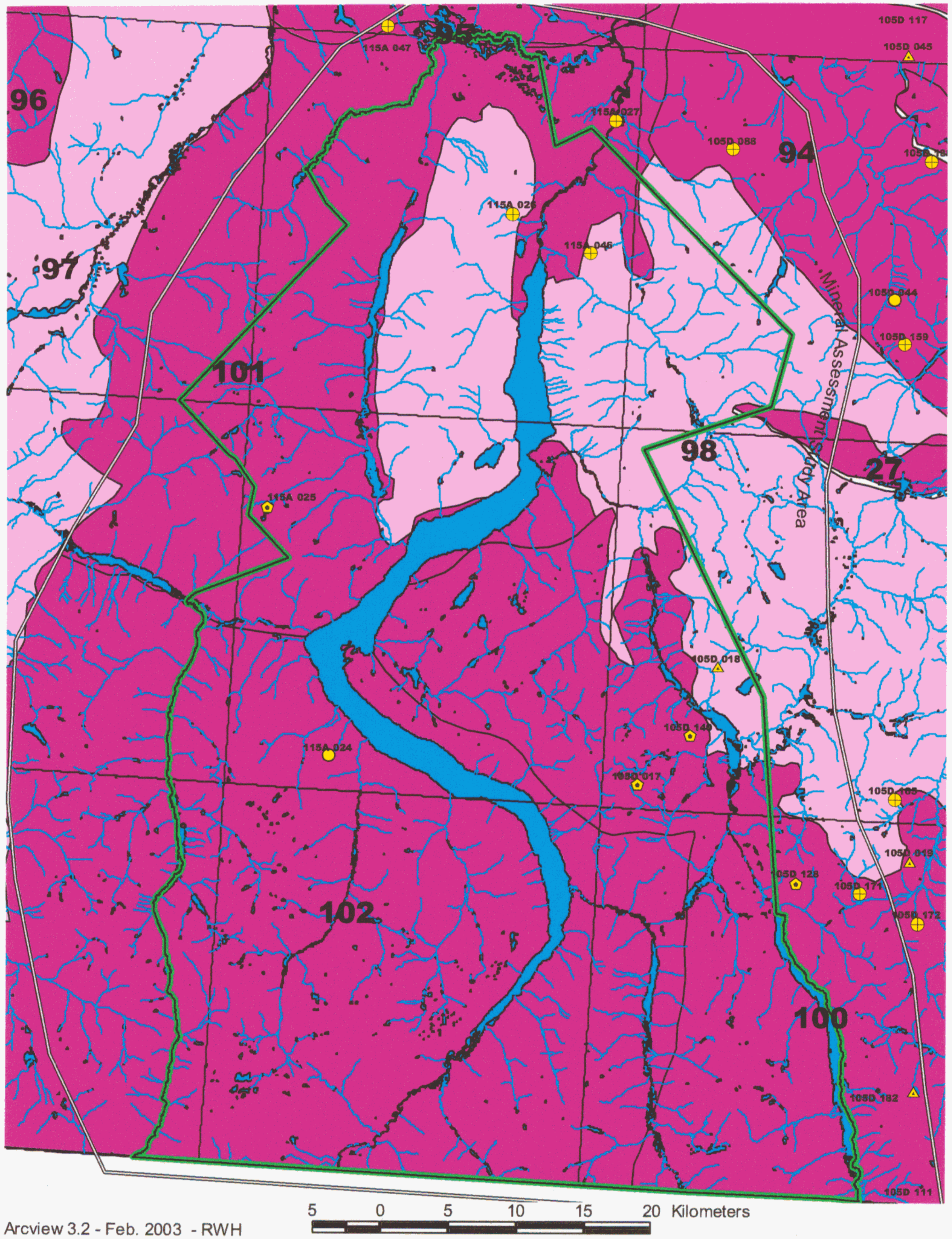
Ecoregions

174	Ruby Ranges
177	Yukon Southern Lakes
179	Yukon - Stikine Highlands

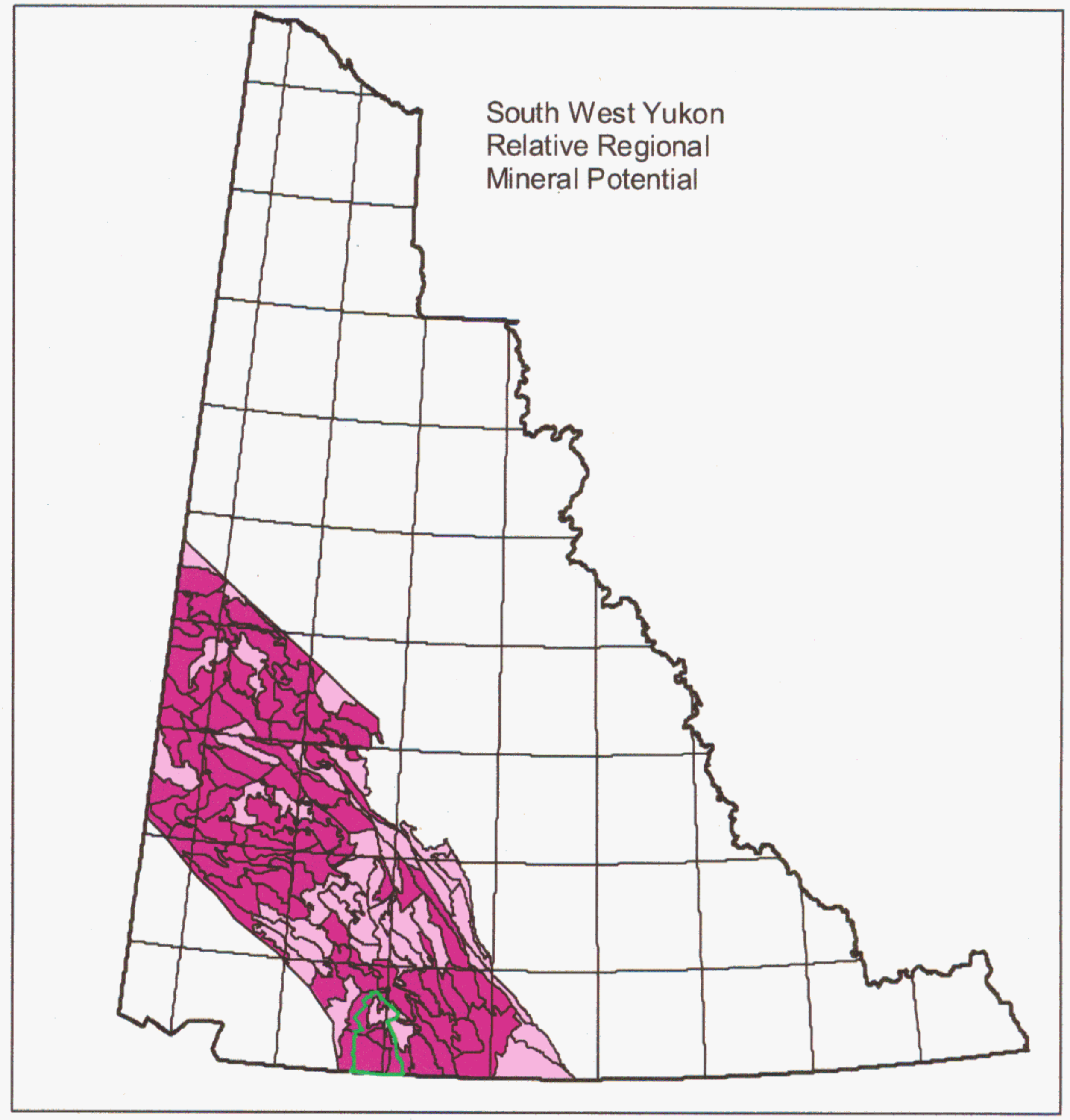
5 0 5 10 15
Kilometers

Arcview GIS Version 3.2 - RH - February 2003

Figure 2



Arcview 3.2 - Feb. 2003 - RWH



Legend

Yukon Minfile Occurrences

- **PORPHYRY**
- **SKARN**
- **UNKNOWN**
- **VEIN**

Proposed Kusawa Special Management Area

Relative Regional Mineral Potential

- **Highest**
- **Lowest**

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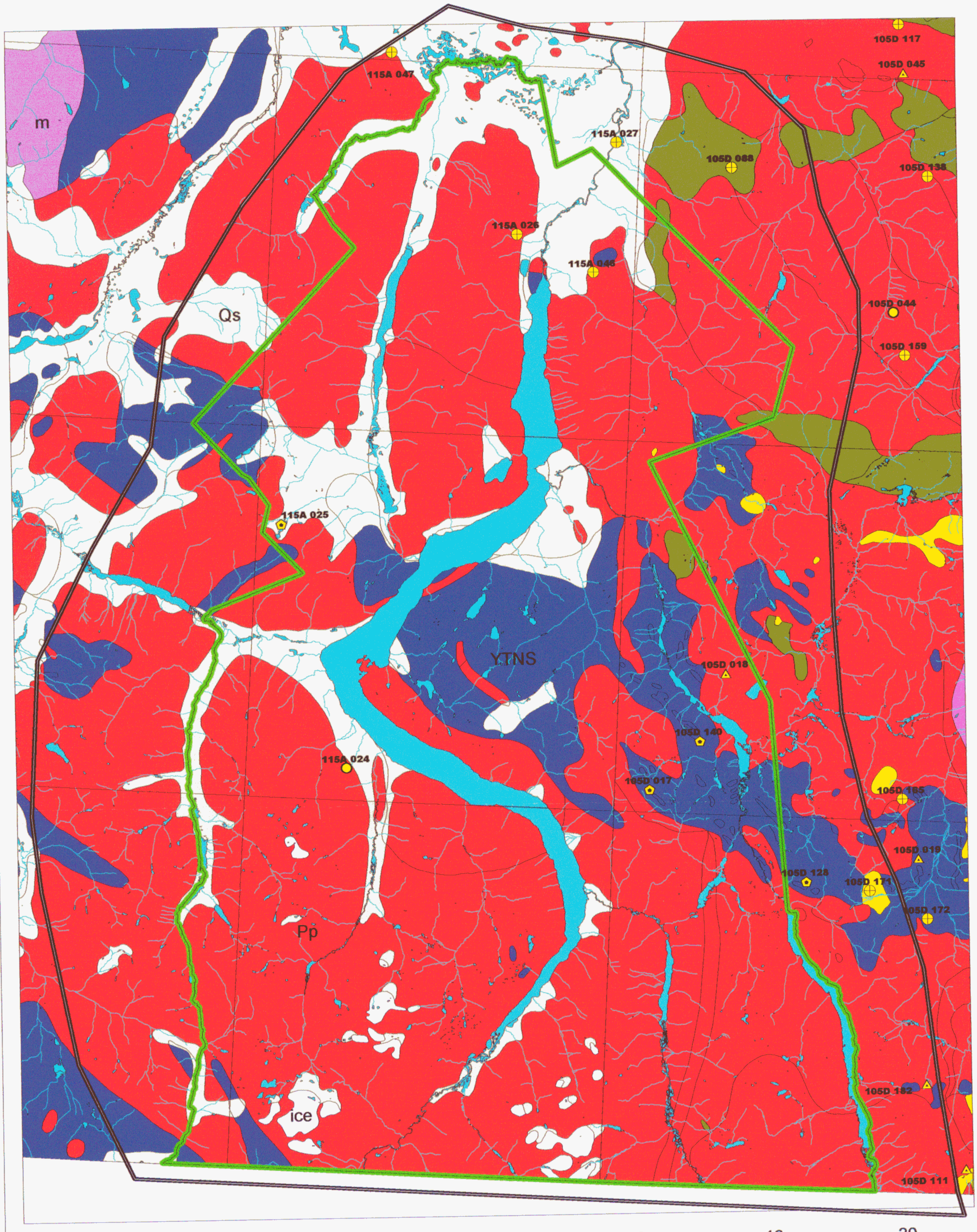
Relative Regional Mineral Potential

Figure 3



LEGEND

Quaternary

ice	Ice
Qs	Quaternary cover, beneath which terrane, overlap or intrusive assemblage boundaries cannot be extended with confidence

Quaternary(?) and Tertiary

Tvs	Felsic to mafic volcanics and interbedded terrestial sediments
Pp	Paleogene; Plutonic, post accretion

mid Cretaceous

mKp	Plutonic, post accretion

Late Jurassic to Early Cretaceous

MJp	Plutonic, post amalgamation
m	undivided metamorphics

Mesozoic to Paleozoic

ST	Stikine (part of Intermontane Superterrane): Basement of Devonain to Permian arc volcanics and platform carbonates overlain by Triassic and Lower Jurassic arc volcanics, volcaniclastics, chert, carbonate, and arc-derived clastics intruded by comagmatic plutonic rocks

Proterozoic to lower Paleozoic(?)

YTNS	Metamorphosed Proterozoic to lower Paleozoic(?) passive continental margin (=Nisling Assemblage)

Yukon Minfile Occurrences

- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area

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Terrane Map

Figure 4

Geology after; Gordy and Makepeace (2001).
Arcview 3.2 - Feb. 2002 - RWH

LEGEND

ice — Ice

QUATERNARY

Q — Q: QUATERNARY
unconsolidated glacial, glaciofluvial and glaciolacustine deposits

MAGMATIC ROCKS

MIOCENE TO PLIOCENE

MPMC — MPMC: MILES CANYON
dark red to brown weathering, columnar jointed olivine basalt flows, commonly amygdaloidal and vesicular; ultramafic xenoliths

LOWER EOCENE

IES1 — IES1: SKUKUM
flow banded rhyolite flows and breccia, andesite flows and breccia, tuff, pyroclastic and epiclastic rocks, granite conglomerate; rhyolite feldspar porphyry domes, plugs and lacoliths; feldspar +/- hornblende +/- quartz-phyric felsite dykes and plugs

EARLY TERTIARY

ETN — ETN - NISLING RANGE SUITE
medium to coarse grained equigranular to porphyritic rocks of intermediate composition (g), fine to coarse grained, equigranular and porphyritic granitic rocks of felsic composition (q) and felsic dyke rocks (f), intermediate to mafic varieties (m)

MID-CRETACEOUS

mKW — mKW: WHITEHORSE SUITE
grey, medium to coarse grained, generally equigranular granitic rocks of felsic (q), intermediate (g), locally mafic (d) and rarely syenitic (y) composition

MID-JURASSIC

MJgB — MJgB: BRYDE SUITE: BENNETT GRANITE
undeformed granitic rocks, medium grained, hornblende monzodiorite, hornblende-biotite quartz monzodiorite and minor hornblendeite; pink potassium feldspaer megacrystic, hornblende granite to granodiorite and associated easterly trending mafic dyke swarms

LAYERED ROCKS

LOWER AND MIDDLE JURASSIC, HETTANGIAN TO BEJOCIAN

JL — JL: LABERGE
poorly sorted, medium bedded to massive arkosic sandstone and minor shale with interbeds and thick members of resistant heterolithic pebble and boulder conglomerate; recessive,

UPPER TRIASSIC, CARNIAN TO NORIAN

uTrAK1 — uTrAK1: AKSALA:
brown shale, black and minor red siltstone, greenish, calcareous greywacke and interbedded bioclastic, argillaceous limestone; igneous- or limestone-clast pebble and cobble conglomerate; lahaaric debris flows; rare feldspar-augite porphyry flows

UPPER TRIASSIC, CARNIAN AND OLDER(?)

uTrP / uTrP? — uTrP and uTrP?: POVOAS and POVOAS?
augite or feldspar phyric, locally pillowed andesitic basalt flows, breccia, tuff, sandstone and argillite; local dacitic breccia and tuff with minor limestone; greenschist, chlorite schist, chlorite-augite-feldspar gneiss, amphibolite

UPPER PALEOZOIC

uPT — uPT: TAKHINI
variably sheared and metamorphosed metabasite, amphibolite gneiss, tuff, wacke and marble with minor quartz mica schist and orthogneiss

PROTEROZOIC TO MESOZOIC

PMm — PMm: UNDIVIDED METAMORPHICS: Dark purplish brown staurolite cordierite biotite hornfels with relict schistose texture; quartz-sericite-chlorite schist; minor quartzite (metamorphosed Jura-Cretaceous Dezadeash Gp.? and undivided Nisling assem.)

LATE PROTEROZOIC AND PALEOZOIC

PPN — PPN: NISLING
assemblage characterized by mica quartz feldspar schist (1) and abundant locally thick limestone members (2); includes possibly equivalent strata northeast of Tintina Fault (3); gneissic to foliated hornblende diorite (4)

Yukon Minfile Occurrence
Deposit Model Type
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN
- Proposed Kusawa Special Management Area
- Study Area
- fold axis
- faults (all types)
- G Gossan

Confidential

5 0 5 10 15

Kilometers

Proposed Kusawa SMA
Scale 1:100,000
February 18, 2002
Mineral Assessment, YTG
Albers Custom Projection

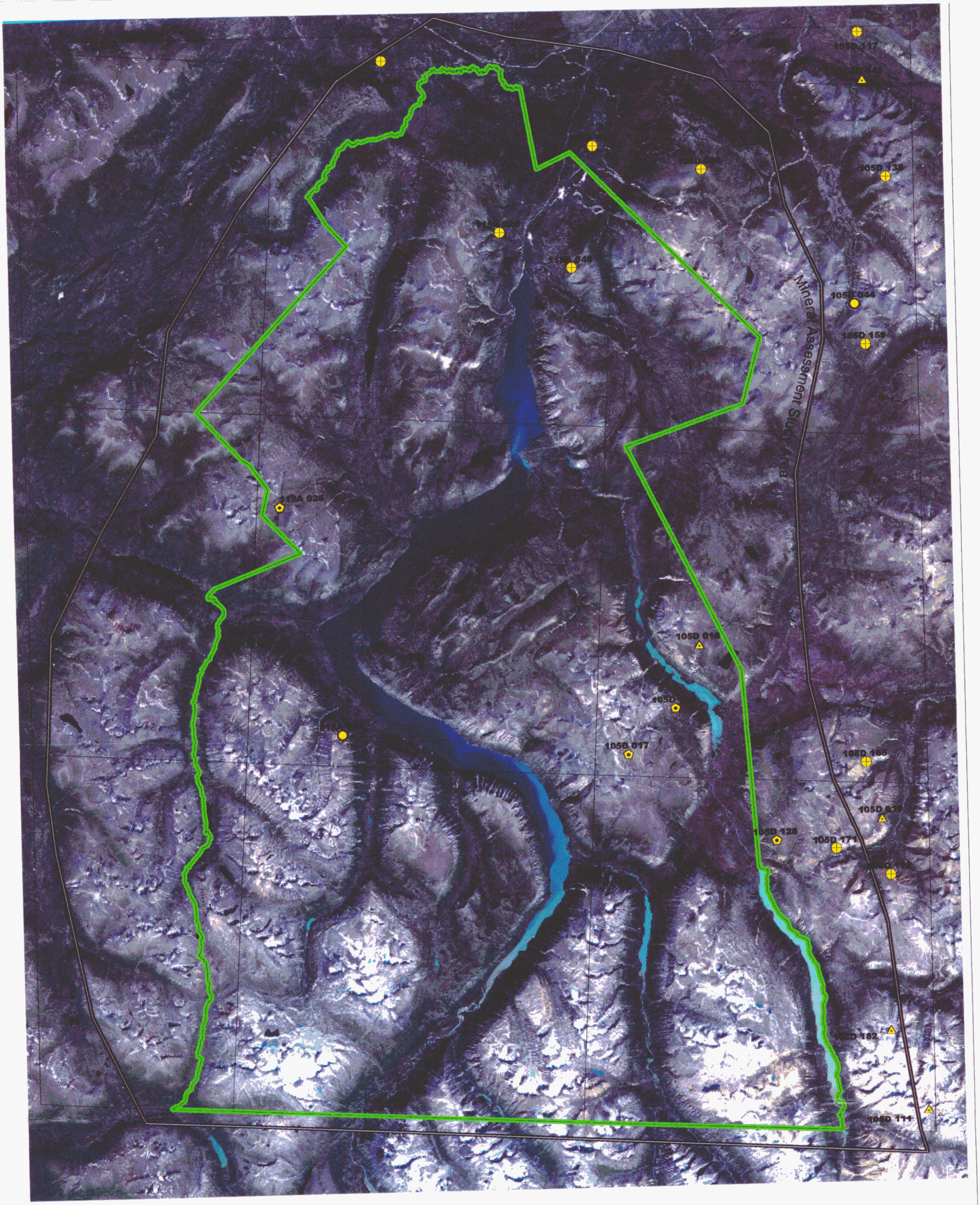
GEOLOGY
Proposed Kusawa SMA

Note: Geology modified from Gordy and Makepeace (2001).

Arcview GIS version 3.2 - RWH - February 2003

GEOLOGY

Figure 5



5 0 5 10 15 Kilometers

Yukon Minfile Occurrences

- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (Sept. 2002, Outline)

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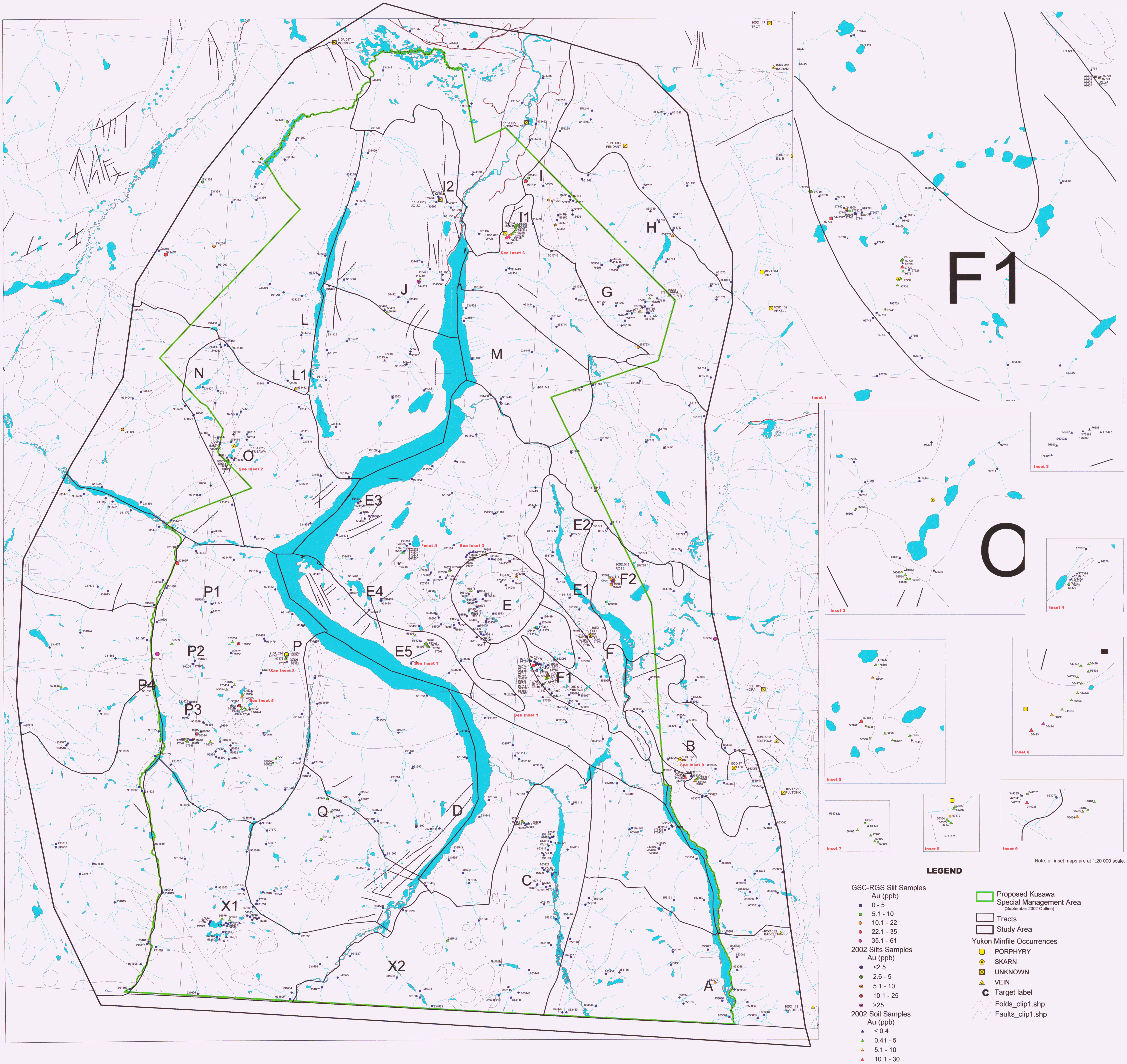
True Color LANDSAT 7 Thematic Mapper Image

Figure 6

Arcview GIS Version 3.2 - RWH - February 2003

Note: Source of Image; Geomatics Yukon



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Proposed Kusawa SMA

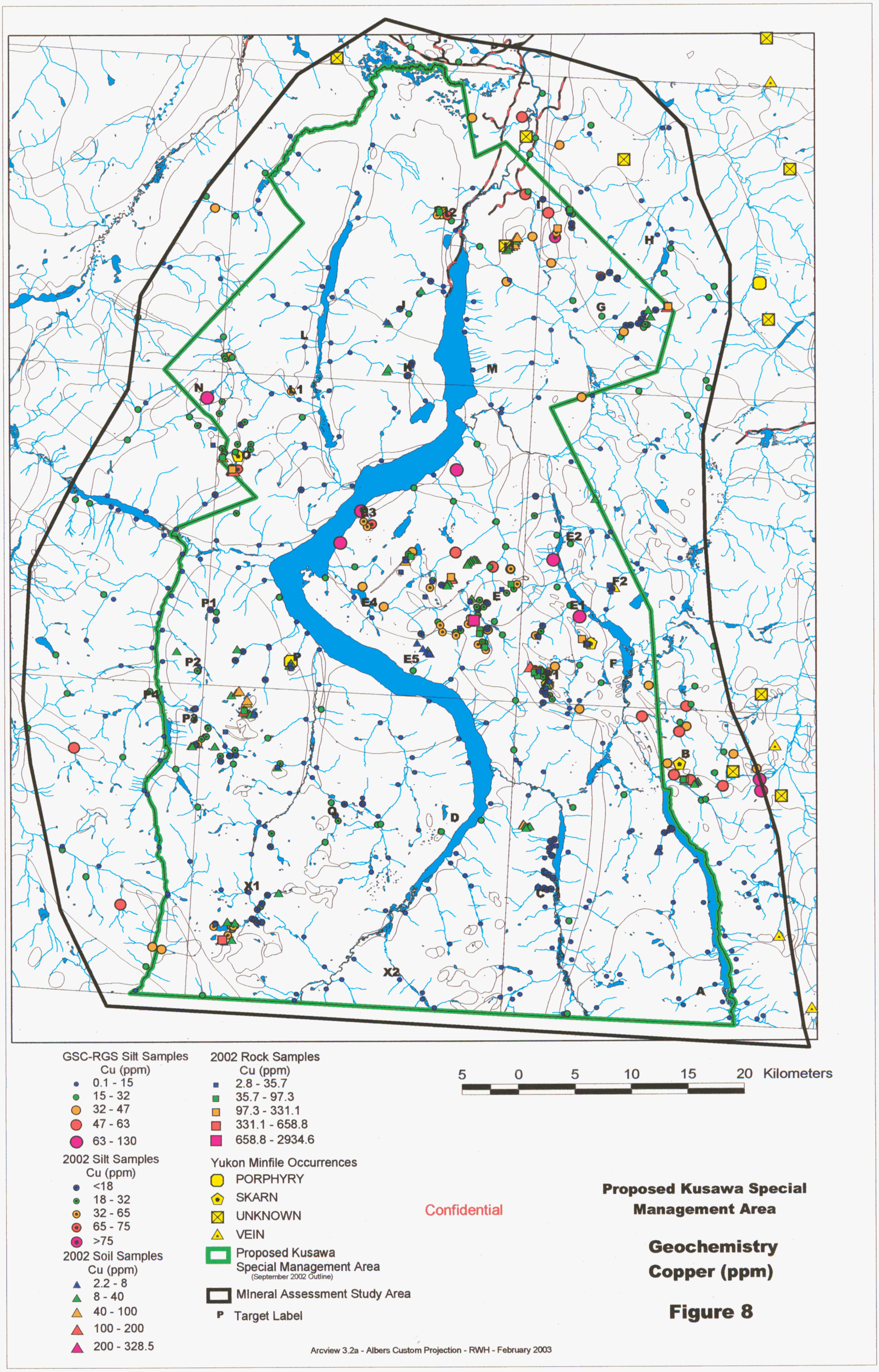
Gold (ppb) Geochemistry and Sample Location Map

Arcview 3.2a - Albers Custom Projection - RWH - February 2003

Proposed Kusawa SMA

Gold (ppb) Geochemistry and Sample Location Map

Figure 7



Proposed Kusawa Special Management Area

Geochemistry Copper (ppm)

Figure 8

GSC-RGS Silt Samples
Pb (ppm)
- 1 - 5
- 5 - 11
- 11 - 23
- 23 - 35
- 35 - 65

2002 Silt Samples
Pb (ppm)
- 1.1 - 5
- 5 - 20
- 20 - 45
- 45 - 60
- >60

2002 Soil Samples
Pb (ppm)
- 3.3 - 42.5
- 42.5 - 108.8
- 108.8 - 184
- 184 - 734.9
- 734.9 - 2639.6

2002 Rock Samples
Pb (ppm)
- 2.3 - 241.7
- 241.7 - 702.6
- 702.6 - 1603.6
- 1603.6 - 7242.2
- 7242.2 - 25602.7

Yukon Minfile Occurrences
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (September 2002 Outline)

MIneral Assessment Study Area

P Target Label

5 0 5 10 15 20 Kilometers

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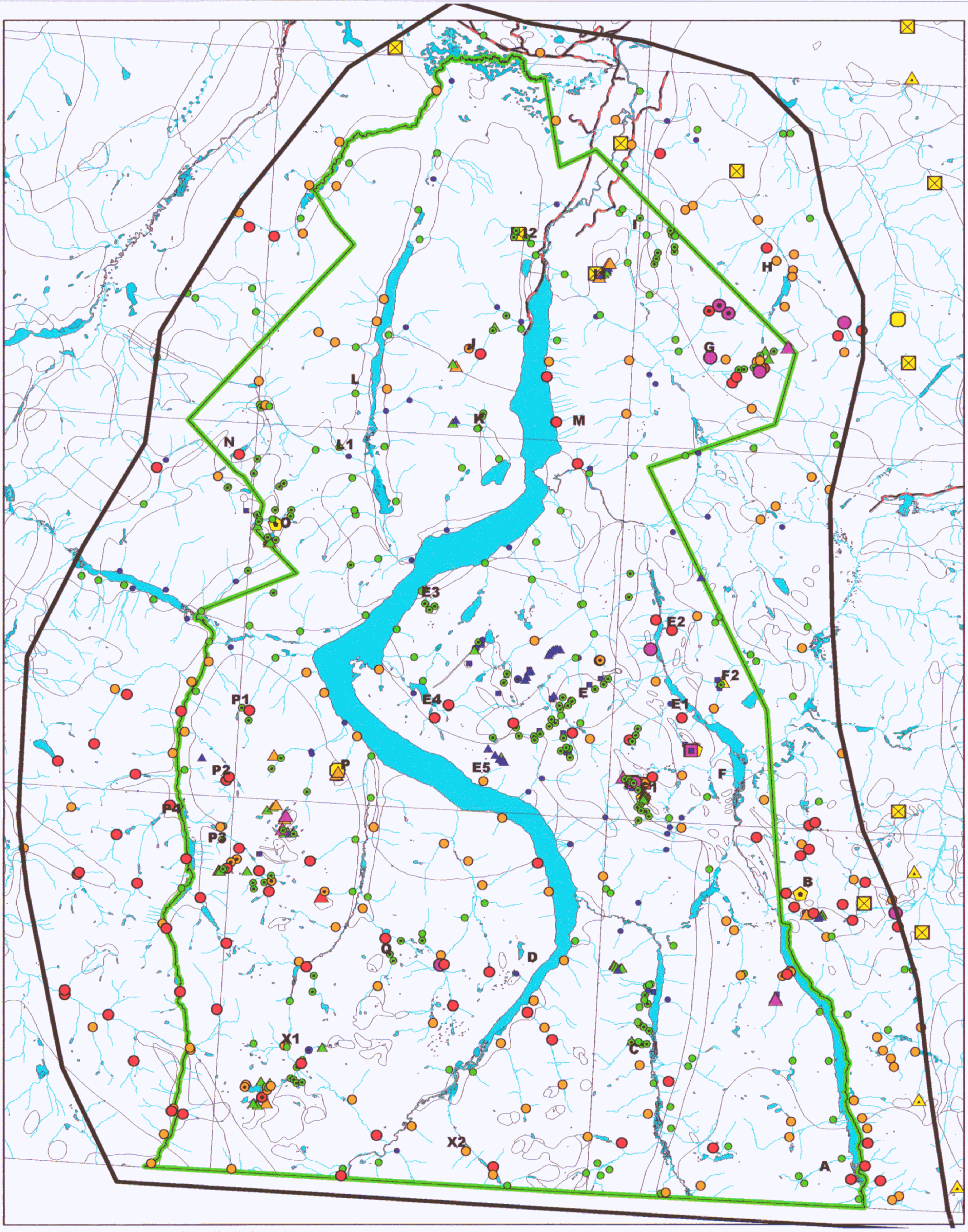
Proposed Kusawa Special Management Area

Geochemistry Lead (ppm)

Figure 9

Arcview 3.2a - Albers Custom Projection - RWH - February 2003



GSC-RGS Silt Samples
Zn (ppm)
- 18 - 40
- 40 - 65
- 65 - 100
- 100 - 200
- 200 - 440

2002 Silt Samples
Zn (ppm)
- <30
- 30 - 140
- 141 - 225
- 226 - 330
- >330

2002 Soil Samples
Zn (ppm)
- <37
- 70 - 140
- 140 - 220
- 220 - 300
- >300

2002 Rock Samples
Cu (ppm)
- 9 - 1066
- 1067 - 5947
- 5948 - 23562
- 23563 - 66172
- 66173 - 99999

Yukon Minfile Occurrences
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (September 2002 Outline)

Mlneral Assessment Study Area

P Target Label

5 0 5 10 15 20 Kilometers

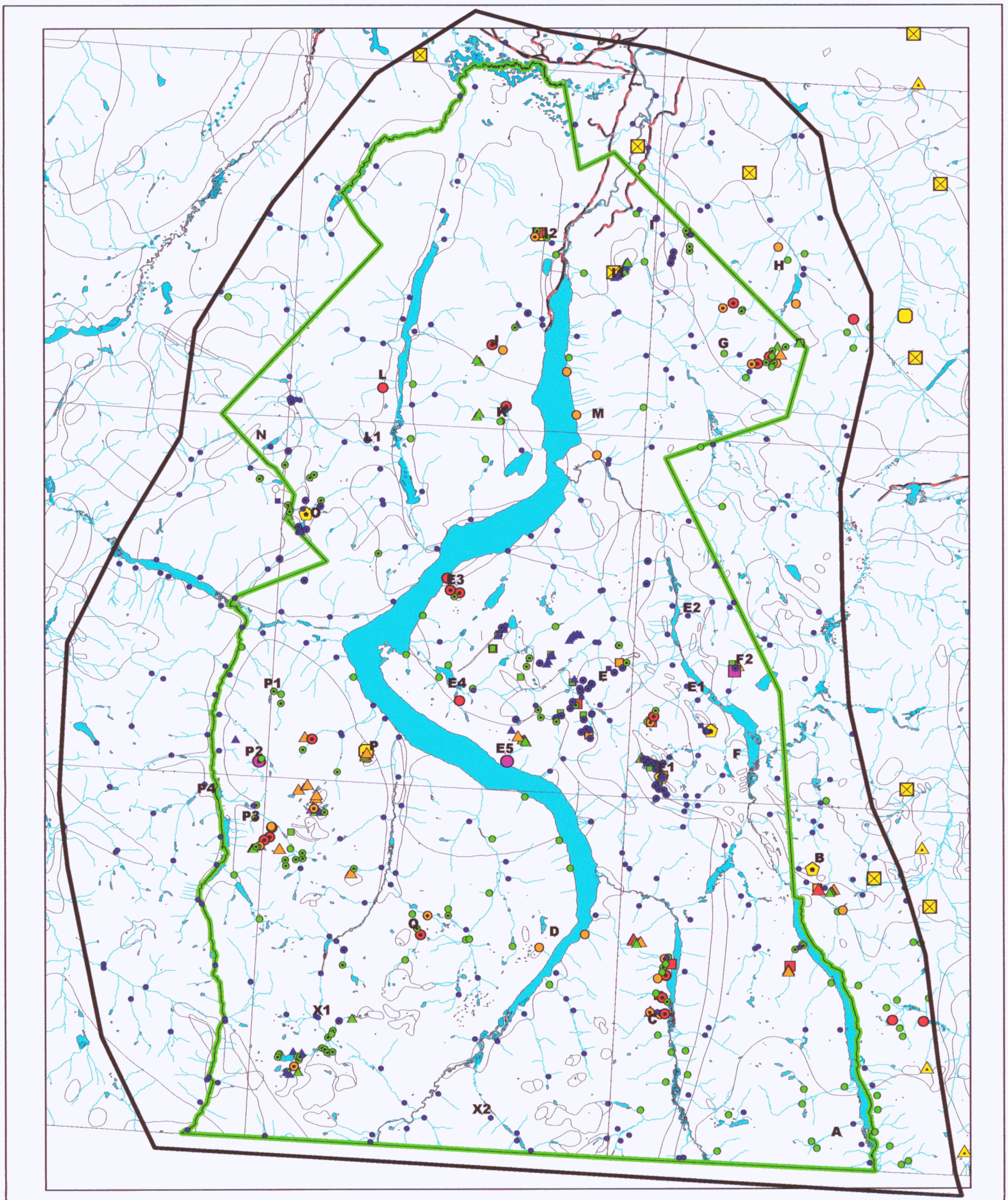
Confidential

Proposed Kusawa Special Management Area

Geochemistry Zinc (ppm)

Figure 10

Arcview 3.2a - Albers Custom Projection - RWH - February 2003



GSC-RGS Silt Samples
U (ppm)
- 2 - 13
- 14 - 36
- 37 - 70
- 71 - 216
- 217 - 351

2002 Silt Samples
U (ppm)
- <2
- 2 - 10
- 10.1 - 15
- 15.1 - 32
- >32.1

2002 Soil Samples
U (ppm)
- 0.6 - 2
- 2 - 6
- 6 - 12
- 7 - 16
- 16 - 17.2

2002 Rock Samples
U (ppm)
- 0.05 - 0.9
- 0.9 - 2.3
- 2.3 - 4.9
- 4.9 - 8.4
- 8.4 - 13.4

Yukon Minfile Occurrences
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (September 2002 Outline)

Mineral Assessment Study Area

P Target Label

5 0 5 10 15 20 Kilometers

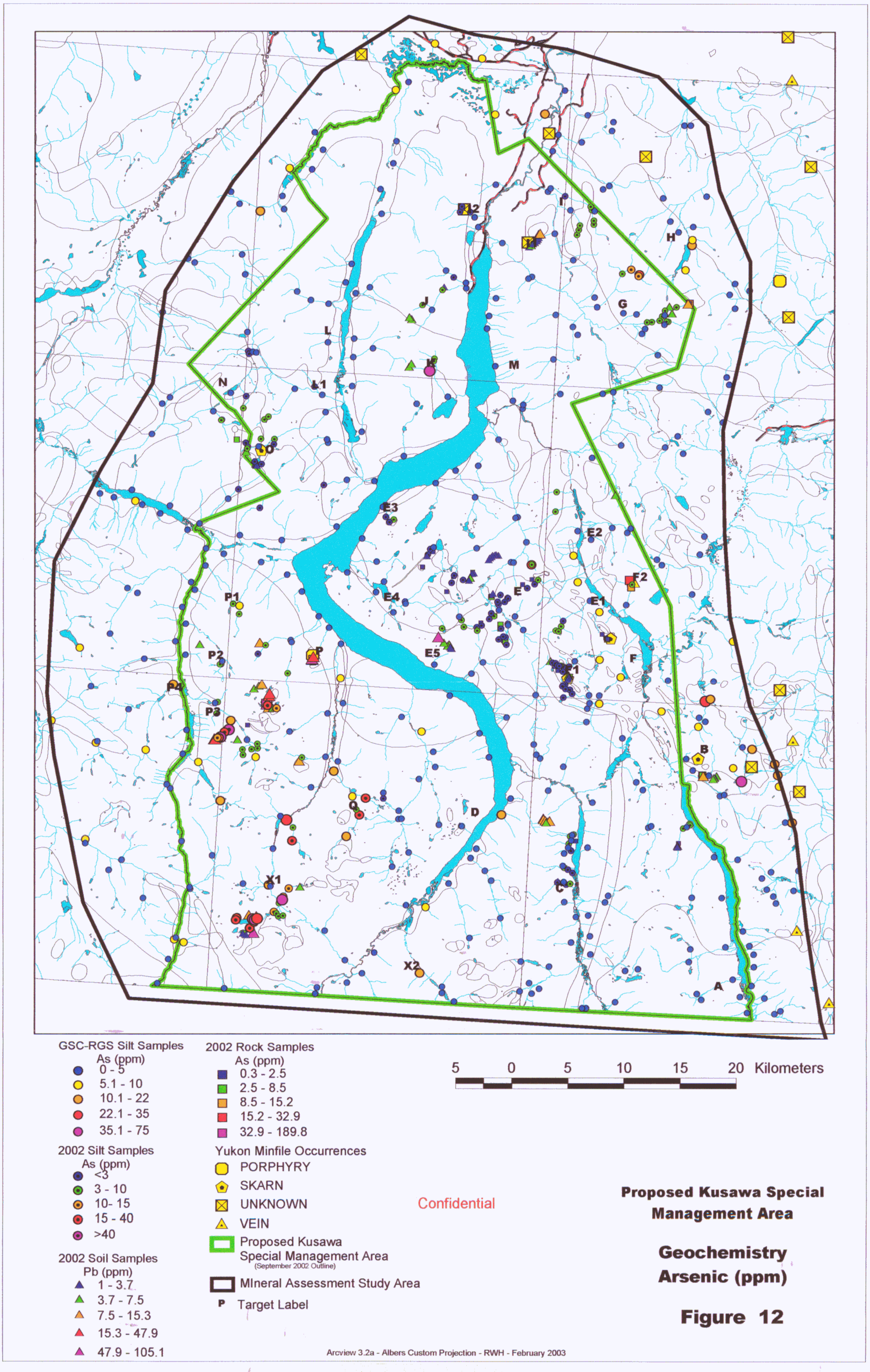
Confidential

Proposed Kusawa Special Management Area

Geochemistry Uranium (ppm)

Figure 11

Arcview 3.2a - Albers Custom Projection - RWH - February 2003

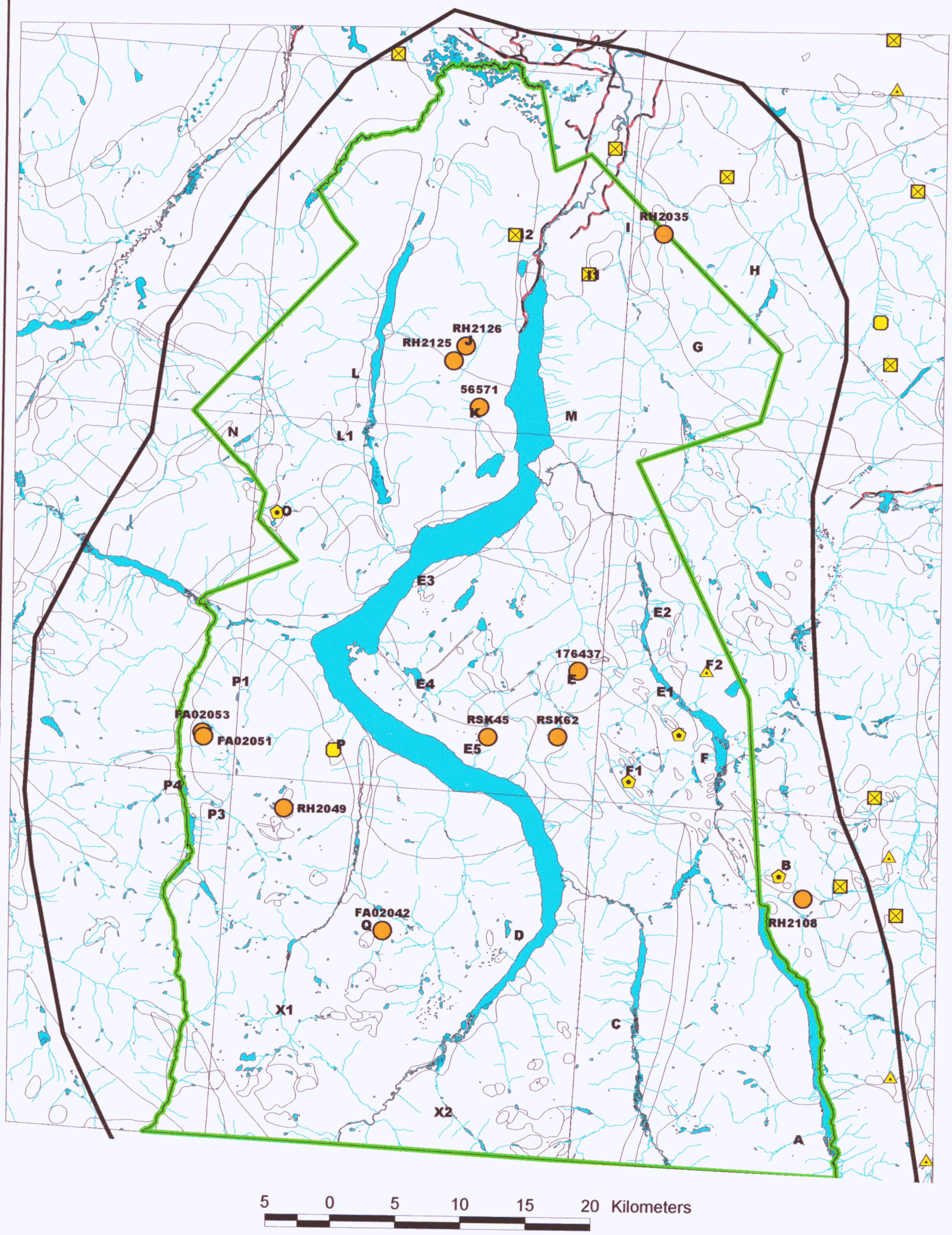


Proposed Kusawa Special Management Area

Geochemistry Arsenic (ppm)

Figure 12

Arcview 3.2a - Albers Custom Projection - RWH - February 2003



Yukon Minfile Occurrences
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (September 2002 Outline)

MIneral Assessment Study Area

P Target Label

Whole Rock Samples

Petrographic Samples

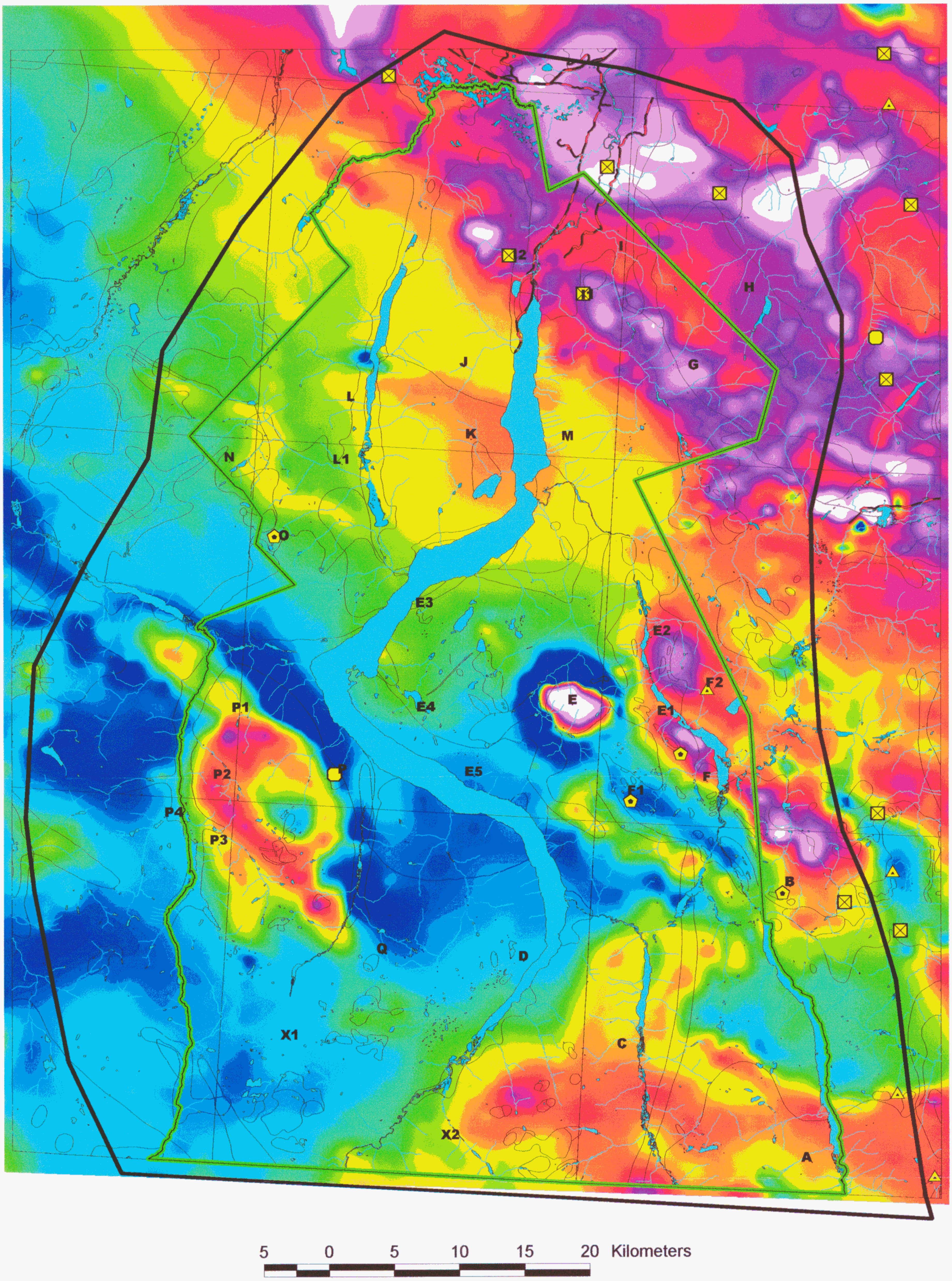
Confidential

Proposed Kusawa Special Management Area

Whole Rock and Petrographic Sample Locations

Arcview 3.2a - Albers Custom Projection - RWH - February 2003

Figure 13



Yukon Minfile Occurrences

- PORPHYRY
- SKARN
- UNKNOWN
- VEIN

Proposed Kusawa Special Management Area (September 2002 Outline)

MIneral Assessment Study Area

P Target Label

Magnetic Residual Anomaly (nT)

4300	35
700	15
570	0
460	-20
390	-35
340	-50
295	-55
280	-65
260	-85
230	-95
215	-105
190	-125
160	-135
140	-145
115	-160
100	-190
75	-220
55	-280

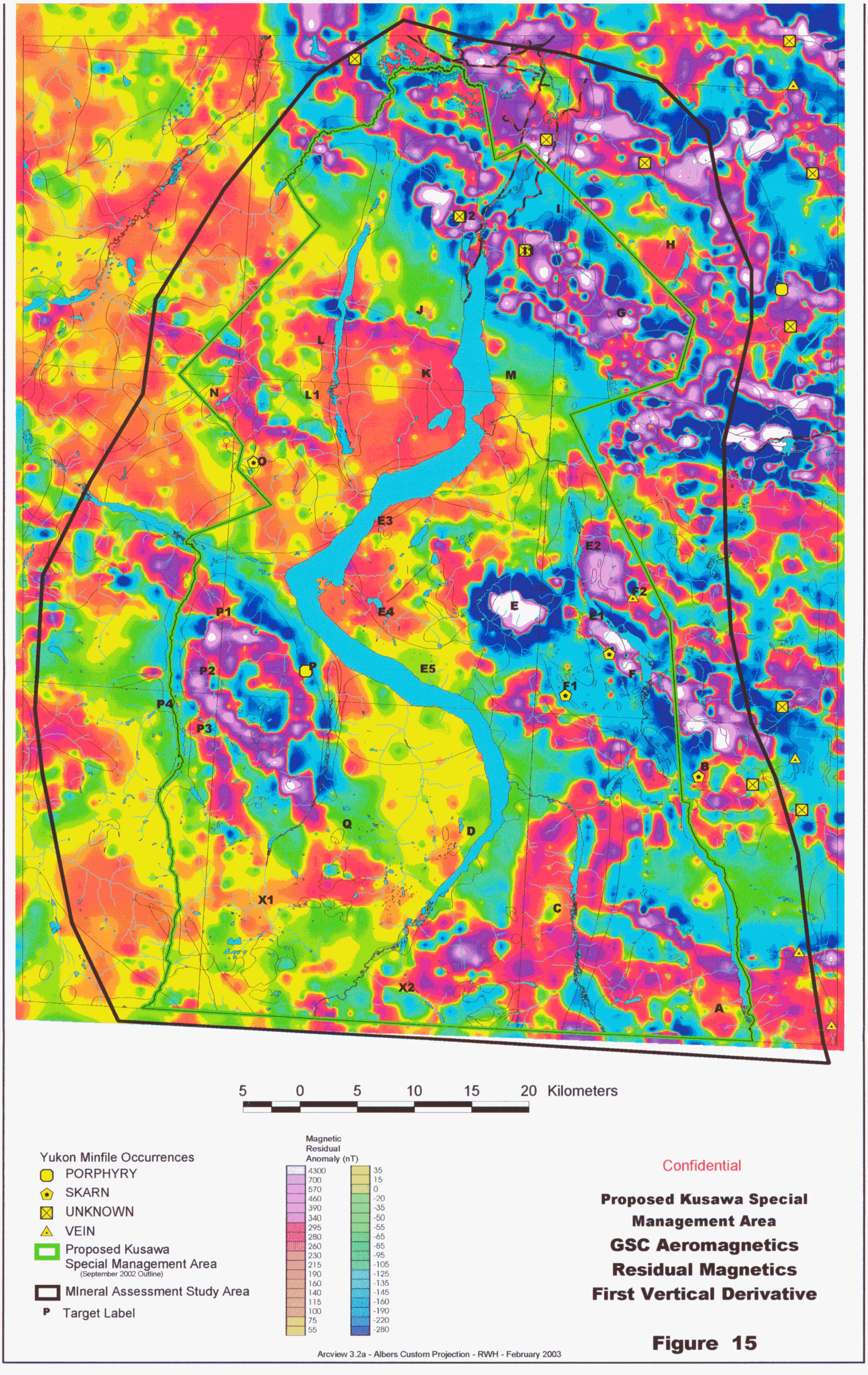
Confidential

Proposed Kusawa Special Management Area

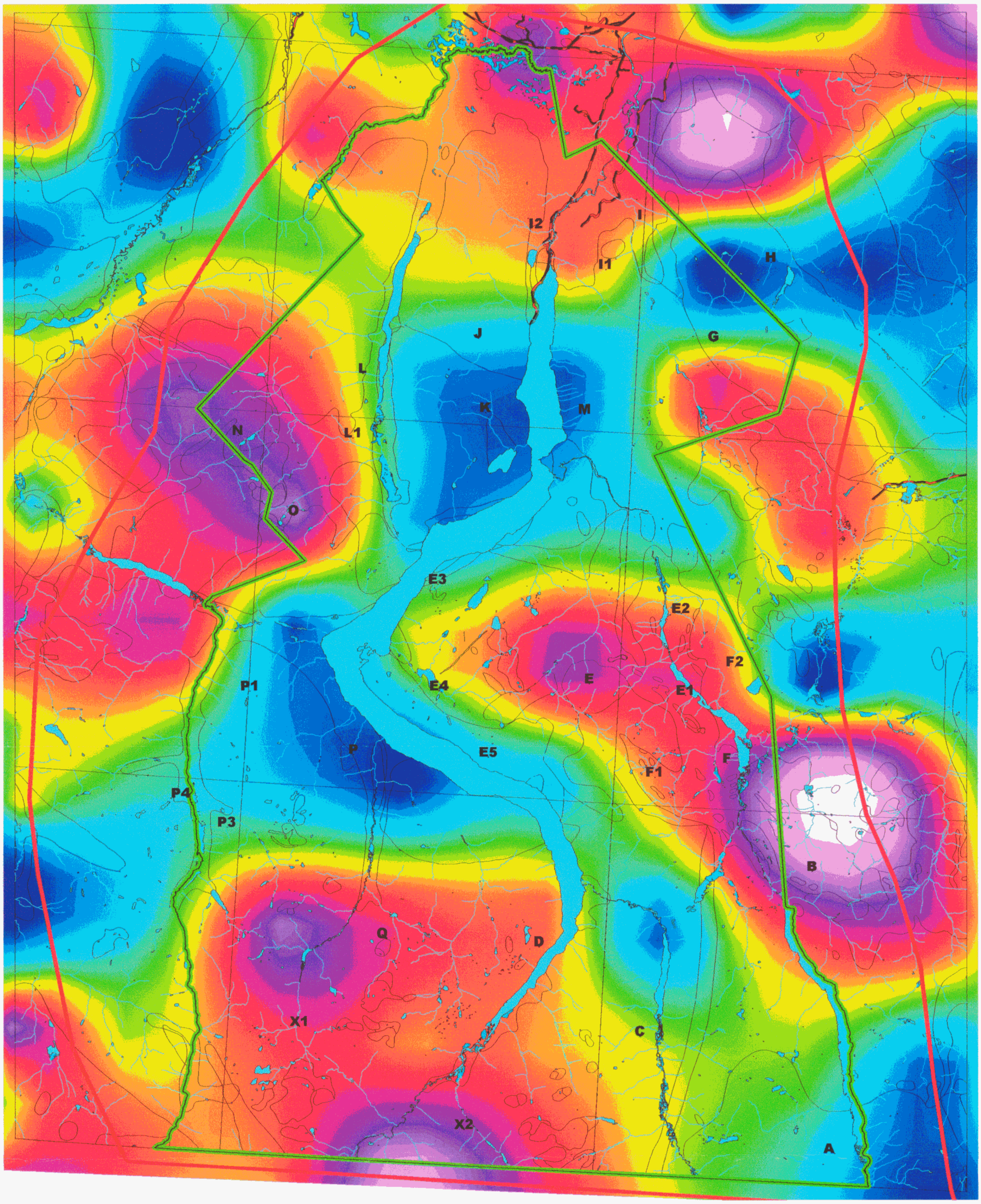
GSC Aeromagnetics Residual Magnetics

Figure 14

Arcview 3.2a - Albers Custom Projection - RWH - February 2003



H
G
J
L
K
M
N
L1
O
E3
E2
F2
E
E4
E1
P1
P2
P
E5
F
F1
P4
P3
B
Q
D
X1
C
X2
A
5 0 5 10 15 20 Kilometers
Yukon Minfile Occurrences
PORPHYRY
SKARN
UNKNOWN
VEIN
Proposed Kusawa Special Management Area (September 2002 Outline)
MIneral Assessment Study Area
Target Label
Magnetic Residual Anomaly (nT)
4300
700
570
460
390
340
295
280
260
230
215
190
160
140
115
100
75
55
35
15
0
-20
-35
-50
-55
-65
-85
-95
-105
-125
-135
-145
-160
-190
-220
-280
Confidential
Proposed Kusawa Special Management Area
GSC Aeromagnetics
Residual Magnetics
First Vertical Derivative
Figure 15
Arcview 3.2a - Albers Custom Projection - RWH - February 2003



FIRST VERTICAL DERIVATIVE

-0.0029 -0.0018 -0.0014 -0.0012 -0.0009 -0.0008 -0.0006 -0.0005 -0.0003 -0.0002 -0.0001 0.0001 0.0002 0.0003 0.0004 0.0005 0.0006 0.0007 0.0009 0.0010 0.0012 0.0015 0.0020 0.0033

5 0 5 10 15 20 Kilometers

Yukon Minfile Occurrences
- PORPHYRY
- SKARN
- UNKNOWN
- VEIN
- Proposed Kusawa Special Management Area (September 2002 Outline)
- Mineral Assessment Study Area
- P Target Label

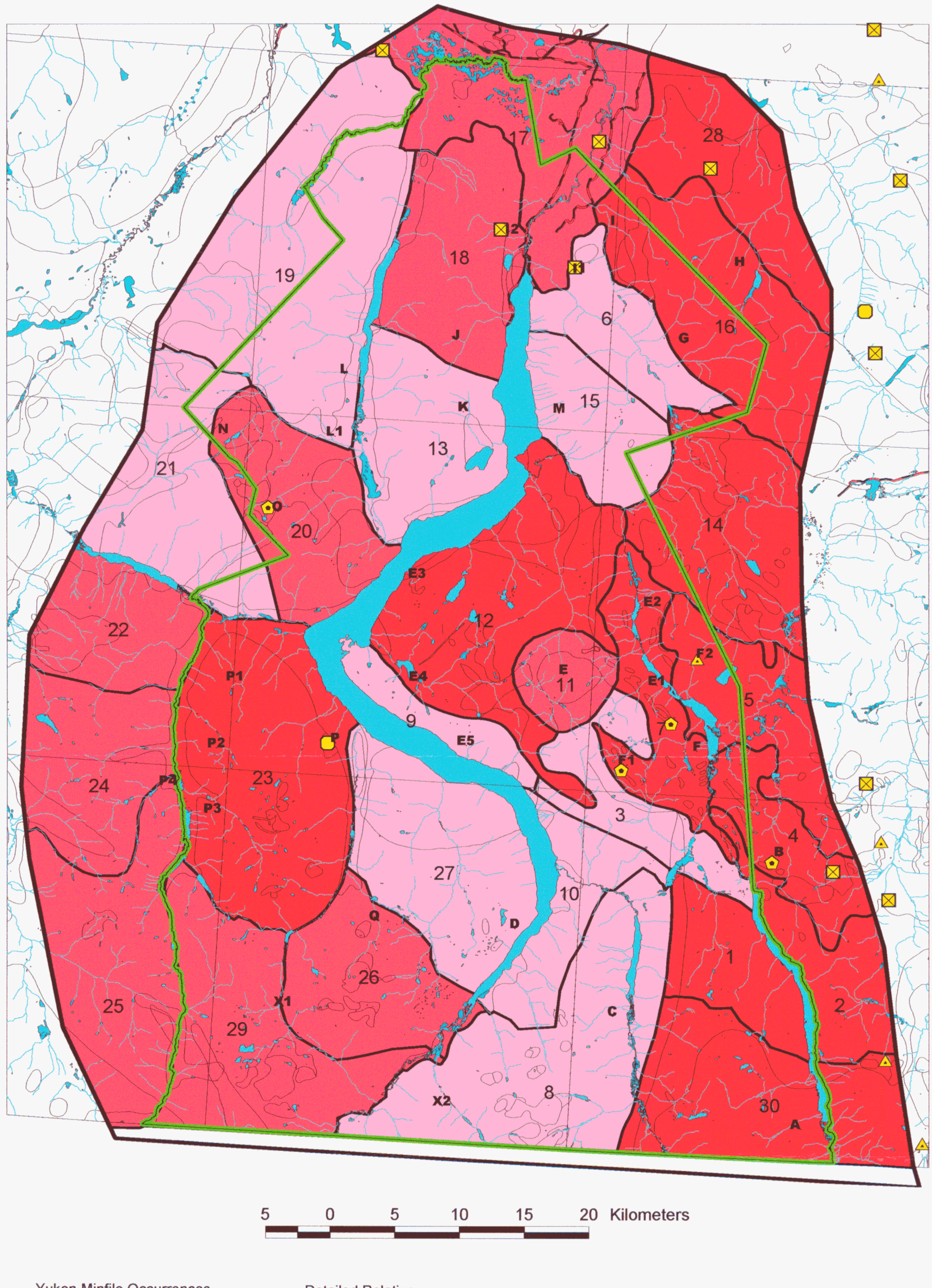
Confidential

Proposed Kusawa Special Management Area

Gridded Bouger Gravity First Vertical Derivative

Arcview 3.2a - Albers Custom Projection - RWH - February 2003

Figure 16



Confidential

Proposed Kusawa Special Management Area

Detailed Relative Mineral Potential Map

Figure 17

Arcview 3.2a - Albers Custom Projection - RWH - February 2003