

## QUEST and QUEST-West Property File: Analysis and Integration of Property File's Industry File Documents with British Columbia's MINFILE (NTS 093; 094A, B, C, D; 103I)

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### Introduction and Background

This paper outlines contributions to the British Columbia Geological Survey's Property File digital database, implemented by Purple Rock Editing and funded by Geoscience BC as part of their QUEST initiative (Figure 1). It describes a number of previously discovered but not publicly reported mineral occurrences. Highlighted herein are a potential Zn target in the Kimball Creek–Black Stuart Mountain area, a potential stockwork Mo deposit near Burns Lake and a potential epithermal Au system near Clisbako. These and other locations examined in the past and documented in Property File may have since become of economic significance.

Property File is an eclectic archive of about 100 000 geoscientific documents that have accumulated during the last 150 years of BC's mining history. Many of these documents contain the only known copies of original research and exploration reports. Prior to 2007, Property File had never been indexed, microfiched or scanned, so none of the information it contains was readily accessible to the public. About 35 000 of these documents (including those processed through this project) have been scanned and indexed, with just over 9 000 of these documents currently accessible to the public. Property File can be accessed online at <http://propertyfile.gov.bc.ca/>. Property File documents can also be found frequently referenced in the BC Geological Survey's mineral inventory database, MINFILE.

A substantial portion of Property File's documents was donated by companies, including Falconbridge, Cyprus-An-

vil, Rimfire, Chevron and Placer Dome, as well as individuals, scientists, prospectors and small companies. In this project, these Industry File documents (specifically those from Cyprus-Anvil, Rimfire, Chevron and Placer Dome) from the QUEST areas were scanned, indexed, added to the online database and used to update any related MINFILE occurrences.

During the course of this project, numerous mineral occurrences were found documented in Property File but not present in MINFILE. This report highlights these discoveries, along with notable updates to existing MINFILE occurrences.

### Project Summary

In this project, 2619 documents were scanned, processed, added to the Property File database and integrated with the appropriate MINFILE geological description and bibliographies. Another 241 previously scanned Property File documents were similarly integrated with MINFILE. In total, 483 MINFILE occurrences were updated and 17 new MINFILE occurrences were identified.

Table 1 shows a breakdown of the Property File documents processed by collection.

### Results

#### General Files

Some Property File documents from the QUEST area contain widespread projects that fall into the 'general file' cate-

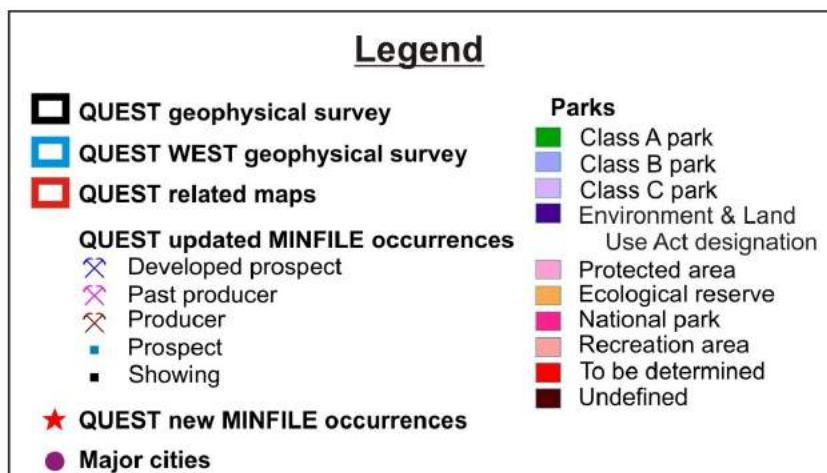
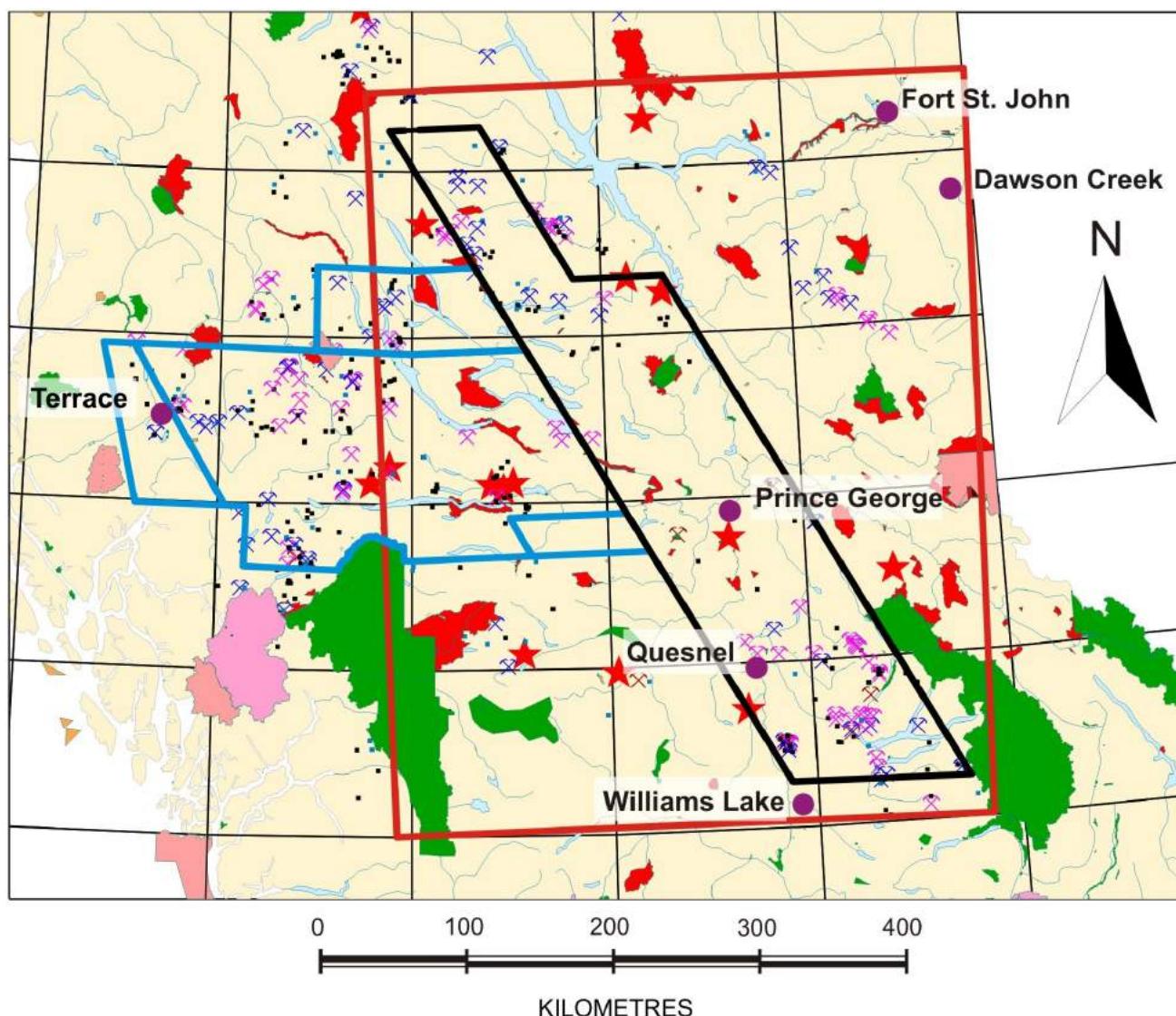
**Table 1.** Documents processed, by Industry File collection.

Collection	Number of documents processed
Cyprus Anvil	494
Rimfire	1339
Chevron	304
Placer Dome	482
<b>Total</b>	<b>2619</b>

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**Keywords:** QUEST, QUEST-West, Property File, mineral exploration, MINFILE

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**Figure 1.** Location of the QUEST and QUEST-West areas in central British Columbia and relevant MINFILE occurrences (modified from MapPlace, 2009).

gory and are not associated with a known MINFILE occurrence. These are referenced by a system similar to MINFILE numbers; for example, the general file for a 1:250 000 map sheet can be 093 GEN. This section contains a review some of the more interesting document findings in the general file category.

### Cordilleran Sediments Project: Quesnel Lake Area

The Chevron collection contains a set of documents that describes the Cordilleran Sediments Project in 093A GEN (Dillon, 1980a). These documents include maps, analyses and sample sheets from two stream geochemical surveys conducted in the Quesnel Lake–Barkerville area. The ‘Cordilleran Sediments geochemical stream sediment program, Quesnel Lake–Barkerville area’ report (Dillon, 1980a) covers two geochemical studies. The first is a reconnaissance-level study, which covered a 6000 km<sup>2</sup> area and comprised 384 samples. The researchers concluded that two areas, both in NTS 093A/14, were promising and warranted more detailed exploration.

The follow-up study in the same report included 230 samples collected over a 462 km<sup>2</sup> area, 75% of which was accessible only by helicopter. The first anomalous area, Cunningham Creek–Roundtop Mountain, was dismissed by the researchers because the anomalously high Pb values were due to past placer operations in the area. The samples in the Kimball Creek–Black Stuart Mountain area, however, proved more interesting. The highest Zn values (2620 and 2605 ppm) occurred within the Midas Formation (black shale and phyllite) or downstream from its contact with the Yank’s Peak quartzite. This led the author of the above-mentioned report to recommend that the most likely point of Zn mineralization is “near the upper contact of the Midas Formation with the Yank’s Peak quartzite” (Dillon, 1980a). There is no record of any follow-up work.

### Cordilleran Sediments Project: Chetwynd Area

The Cordilleran Sediments Project also included exploration in the Chetwynd area. The program report (Dillon, 1980b) described a reconnaissance stream silt geochemical program that was conducted in NTS 093O/7 and /10 from August 15 to 20, 1980. Forty-two samples taken over 842 km<sup>2</sup> returned primarily weakly anomalous Zn values—except for one sample, which returned 860 ppm Zn, 240 ppm Pb, 150 ppm Cu and 5.4 ppm Ag (Figure 2).

### Eutsuk Project

Two Property File reports from the Cypress-Anvil collection support the Eutsuk Project. Woodcock (1971) is a report on Mo in the Pond claim group (MINFILE 093E 058; MINFILE, 2009), a region with Cu and/or Ag occurrences but no other known reports of molybdenite. In this study of a large pyritic gossan zone 130 km southwest of Burns Lake, Woodcock claimed that the region has a tectonic and

geological setting suitable for a stockwork molybdenite deposit.

The gossan zone in question measures 3.2 km by 1.2 km and has an hourglass shape. Some of the results of stream, silt and rock geochemistry performed on the property (e.g., the low values of Mo in silt) are similar to those from the nearby Red Bird molybdenite deposit (MINFILE 093E 026). Other results, including up to 35 000 ppm F in the rock samples from the central gossan, led Woodcock to believe that fluorspar or topaz was present in the area. Also, Mo is extremely low in the water samples (up to only 7 ppb), which had pH values as low as 3.7. According to Woodcock, the depletion of Mo is considerable in BC because of the abundant rain that increases the pH of nearby water. Molybdenum is soluble in more basic waters. This unique setting lends credence to Woodcock’s theory and he recommended drilling two holes of 305 m (1000 ft.) into the gossan to test it.

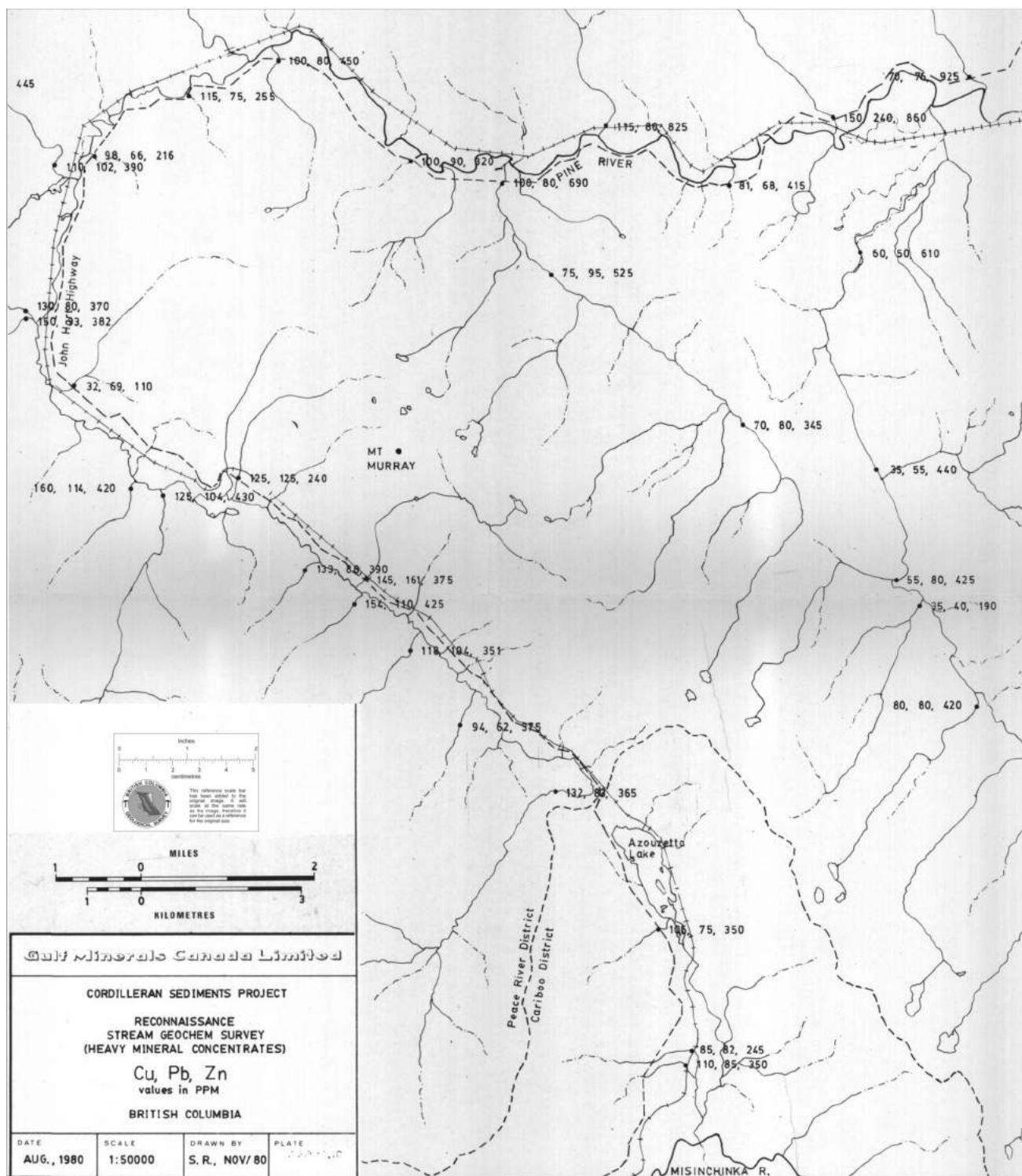
Sawyer and Mark (1972) briefly corresponded regarding Woodcock’s report. Although they believed “the molybdenum prospect does look to be a long shot”, Sawyer said that he “would recommend serious consideration largely on the basis of Woodcock’s ability and experience” (Sawyer and Mark, 1972). It seems, however, that this project was never pursued.

### Hogem Batholith

The Hogem batholith is discussed in two Property File reports: ‘Hogem Batholith (South)’ (Reynolds, 1970), covering the southern portion of the batholith; and ‘Hogem Batholith Reconnaissance Project’ (Johnson, 1971a), covering portions of NTS 093N, 094C and 094D.

Reynolds’s report records the results of a reconnaissance stream sediment geochemistry survey on a portion of Omineca intrusive rocks in a 4100 km<sup>2</sup> portion of the Hogem batholith, completely within NTS 093N. The survey, which was in search of porphyry-Cu-type deposits, collected soil and water samples every 19 km (12 mi.) of total drainage and at major stream intersections throughout the drainage area. Copper values did not exceed 200 ppm, but the survey did identify four anomalous areas and recommended staking and further exploration of the GIL 1–120 claims in NTS 093N/07.

Johnson provided further details in an assessment report (Johnson, 1971b). Although his report recommended no further work, he recorded up to 600 ppm Cu in the 1500 soil and silt samples collected and claimed that “the largest and strongest anomalous zones appear to be along the contact of the intrusive (?) syenite-monzonite. Although no Cu mineralization was seen in these areas, it is highly probable that above background, low grade hydrothermal solutions would accompany the intrusive which would create these



**Figure 2.** Portion of a stream geochemical survey map of Cu, Pb and Zn in heavy mineral concentrates, Chetwynd area, central British Columbia (Dillon, 1980b).

anomalous non-economic concentrations" (Johnson, 1971b).

Johnson's report (1971a) in Property File is a 140-page document that includes the reconnaissance survey of both Hogem North and Hogem South, the follow-up soil and silt surveys on the areas of interest, the geochemical results for the samples taken, and the sample results and locations plotted on both large- and small-scale maps of the region. The most interesting prospect in the Hogem Batholith project is Duckling Creek, which shows soil anomalies of up to 391 ppm Cu. Another anomalous sample in the reconnaissance project returned greater than 1000 ppm Zn. Since only one sample was taken at that particular river, it is not possible to tell whether this sample indicates a significant anomaly.

### New MINFILE Occurrences

In addition to documents about general or widespread parts of the QUEST area, this project identified new MINFILE occurrences through portions of larger documents or reports documenting exploration work done on specific, previously unidentified mineral occurrences. This section provides a summary of several notable new MINFILE occurrences that were identified as a result of this project. The entire list of new MINFILE occurrences is provided in Table 2.

#### Tub 1–3 (093B 065)

After successfully panning for Au on his property, H. Tuura asked A. Burton to conduct a more complete exploration of the Tub 1–3 and Tuura Ten 1–4 claims (Burton, 1991). The claims are located on an unnamed creek flowing into

Narcosli Creek near Webster Lake, 31.5 km southwest of Quesnel.

Fieldwork was completed from August to October 1991 and included collecting samples from the creek. Five and a half kilometres of the creek contained anomalous Au values. Five samples returned more than 1000 ppb Au, including one that yielded 6820 ppb Au. See Figure 3 for the locations of 11 samples.

Given the location of the occurrence, just east of the well-explored Clisbako region, and the favourable geology of underlying intrusive and volcanic masses paired with a network of normal, thrust and transcurrent faults, Burton (1991) concluded that "...the anomalies extend over a large enough cohesive area to be compatible with two moderate or one large epithermal lode gold system."

Although this property is called "worthy of further exploration" and is given a "high odds of success" (Burton, 1991), no assessment reports have been written on the area except for the nearby 30817, which reports on a small project and is currently under review. All nearby MINFILE occurrences record diatomite or clay.

#### QFP (093B 066)

The document supporting the QFP MINFILE occurrence (Heberlein, 1992a) is a five-page report on the limited work done on the property, including preliminary mapping and a rock and soil sampling program. Approximately half of the 19 rock samples collected yielded Au values of up to 145 ppb, with one sample of chalcedonic quartz returning 3100 ppb Au (Heberlein, 1992a). Unfortunately, the soil samples were not as promising. The geological setting of

**Table 2.** New MINFILE occurrences from the QUEST Property File project.

MINFILE No.	Names	Status	Commodities	NTS area	Latitude, longitude (NAD 83)
093B 065	Tub 1-3, Tuura Ten 1-4	Showing	Au	093B10E	52°43'48" N, 122°39'00" W
093B 066	QFP, Fishpot	Showing	Au, Cu	093B13W	52°58'48" N, 123°55'48" W
093F 034	Tat	Showing	Cu	093F09E	53°30'21" N, 124°52'12" W
093F 069	Ram 1-2, Mstsacha	Showing	Au, Cu, Zn, Pb	093F02W	53°06'00" N, 124°52'12" W
093G 031	Wed, Minou	Showing	Cu, Au, Mo	093G15W	53°46'12" N, 122°46'12" W
093H 046	Cochran, L'Orsa	Showing	Cu	093H11E	53°31'48" N, 121°07'12" W
093K 105	Bonus	Anomaly	Mo	093K03E	54°05'24" N, 125°03'03" W
093K 107	Chess	Anomaly	Mo	093K03E	54°07'12" N, 125°10'48" W
093L 330	Orion	Showing	Ag, Zn	093L01W	54°07'48" N, 126°25'12" W
093L 331	Benamy, Lucky Ben 2, Foxy Creek	Showing	Ag	093L01E	54°13'48" N, 126°13'48" W
093M 196	David, Joy, Spark	Showing	Mo, Cu	093M08W	55°15'36" N, 126°21'36" W
093N 226	Diver Lake Group, DAG	Showing	Cu	093N12W	55°41'24" N, 125°53'24" W
093O 051	K Group, Nat, Horribilis	Showing	Au	093O05E	55°21'00" N, 123°43'48" W
094B 034	Len, Oak	Showing	Pb, Zn, Ag	094B11W	56°32'24" N, 123°28'48" W
094B 035	Brin, Nebasche, Bertha	Showing	Pb, Zn, Ag	094B05E	56°18'00" N, 123°30'36" W
094D 190	May	Showing	Cu, Ag, Zn, Mo	094D15E	56°58'48" N, 126°33'36" W
094G 037	Cusker, Bertha	Showing	Zn, Ag, Pb, Cu	094G04W	57°00'36" N, 123°47'24" W

the QFP MINFILE occurrence is significant because the QFP claims are underlain by a quartz-eye rhyolite porphyry body that shows alteration, and the adjacent Fishpot claims are underlain by similar porphyritic dikes. Altered epiclastic sedimentary rocks, including chert-pebble conglomerate, shale and tuffaceous sandstone, host these intrusions. Breccia veins with episodic banding cut the sediments. This geological setting suggests a potential significant epithermal system nearby, masked by the overburden that almost completely blankets the area (Heberlein, 1992a).

The report concluded with a recommendation not to proceed with further exploration and development of the property. The recommendation was apparently ignored because Assessment Reports 20277, 21594, 22400 and 23045 were subsequently written on the QFP property, and Assessment Reports 20022, 20874, 23695 and 24177 were subsequently written on the Fishpot claims. The occurrence remains in the exploration stage.

### Ram 1–2 (093F 069)

The Ram 1–2 occurrence is located on Tsacha Mountain, with one of the closest established MINFILE occurrences

being the Capoose deposit (MINFILE 093F 040), 27 km to the southeast.

Several documents from the Placer Dome collection called the claim group ‘Mstsacha’ during the 1980s, and one document from the Rimfire collection called it ‘Ram’ during the 1990s.

The Placer Dome documents include a hand-drawn soil, rock and silt sample location map (JMT Group, 1982b); a soil geochemical survey map showing As sample values and As contours (Figure 4; Placer Development Limited, 1982); a soil, rock and silt sample location map showing Cu and Zn values (Anonymous, 1982a); and two geochemical maps delineating Cu values greater than 500 ppm (Anonymous, 1982b) and Zn values greater than 200 ppm (Anonymous, 1982c).

Also in the Placer Dome collection is a 23-page report (Kimura, 1982b) on a property evaluation commissioned by the JMT Group. The question was whether this property may have a similar geological setting and potential to the nearby Capoose deposit (MINFILE 093F 040). The document reported the results of geochemical mapping and soil sampling of 80% of the claim area during the field season of

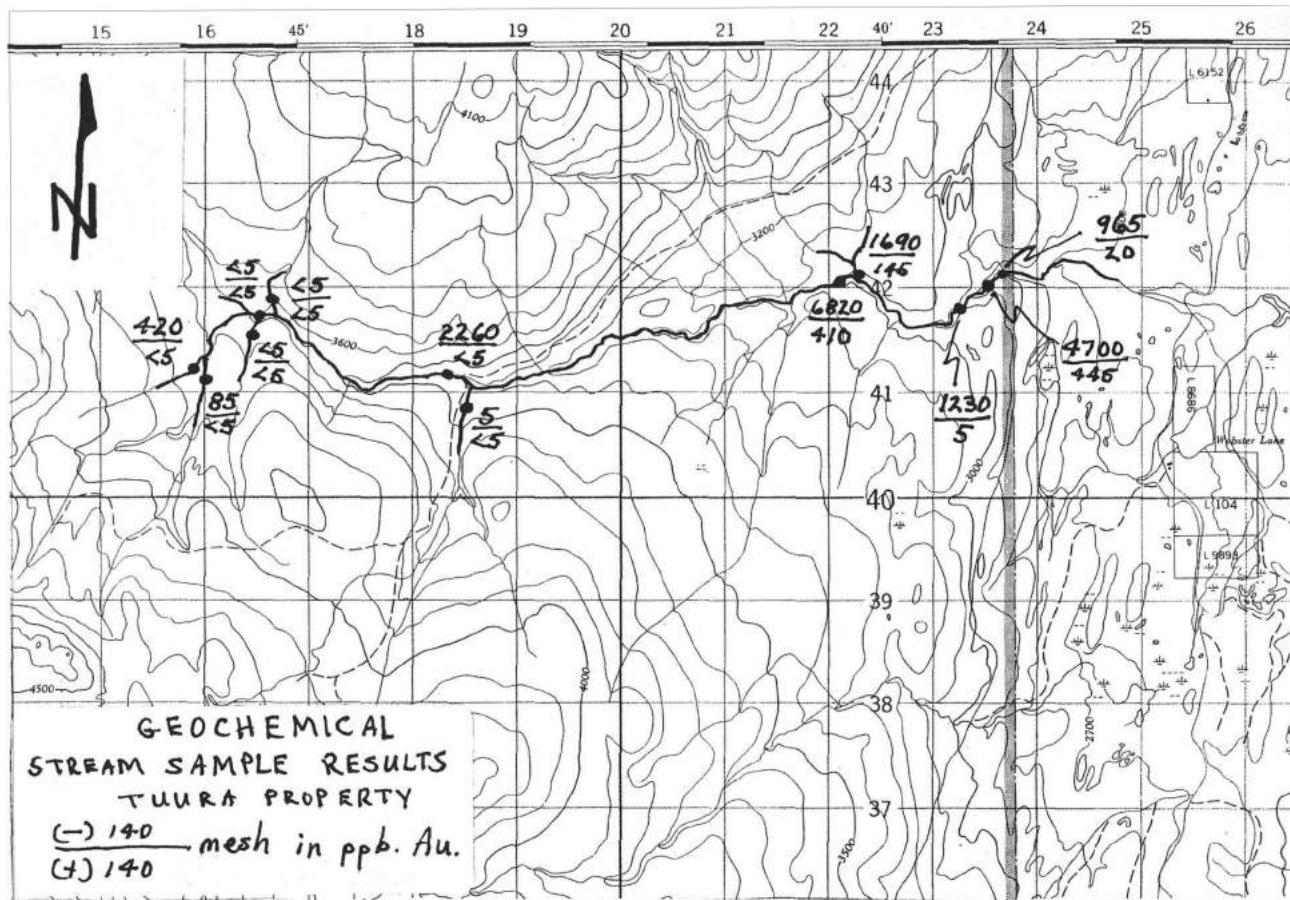


Figure 3. Sketch map of geochemical stream sample results, Tub occurrence, central British Columbia (MINFILE 093B 065; Burton, 1991).

1982. Although only minor pyrite and rare chalcopyrite mineralization was detected, the soil samples returned As values in the range 500–900 ppm, consistent with Cu and Zn rather than Au mineralization. The report also noted a persistent Zn anomaly. In a separate but contemporary report, Kimura's geochemical analysis sheets from Mstsacha (Kimura, 1982a) show values in various samples as high as 2000 ppm Zn, 260 ppm Cu, 390 ppm Pb, 500 ppm As, 2.1 ppm Ag and 1.29 ppm Au. Kimura (1982b), however, did not recommend pursuing this property further.

The Property File document that supports the creation of the Ram MINFILE occurrence is a two-page report (Kasper, 1993) that outlines and describes the Ram 1–2 claims. Although the report recommended declining the property, it noted three areas of mineralization: the first contained rock samples showing Zn values ranging from 1460 ppm to 3.3% Zn; the second contained mineralization of potassium feldspar, chlorite, epidote, garnet alteration and veins of skarn material containing pyrite and magnetite; and the third contained "a 400 by 600 m wide band of low-order Cu-Zn-Pb-As soil anomalies."

At the time of the document's publication, access to the property was limited to helicopter or ATV. Now the Digital Road Atlas layer on the BC Geological Survey's MapPlace shows roads leading directly to the site.

In addition to the documents from Property File, Assessment Reports 22539 and 23520 support this new MINFILE occurrence.

### Brin (094B 035)

The Brin MINFILE occurrence occurs on a tributary of the Nabesche River in NTS area 094B/05. Reconnaissance exploration began in this area as a result of the discovery of the Barrier–Robb Lake Pb-Zn occurrence (the developed prospect, MINFILE 094B 005). In discussing the Pine Point deposit and deposits in southeastern Missouri, Campbell (1972) explained that the analogous Robb Lake occurrence would also contain mineralized reefal dolomite of the Middle Devonian. This unit is well exposed on Brinex claim block 5. Tavela (1972) recorded Zn values of 300 and 700 ppm on the Nabesche claims (part of the Brin claim group). In total, three Zn, one Cd, two Pb and nine Ag anomalies were also found on the Brin claim group (Campbell, 1972).

During the 1970s, assessment work was done on many claims in the area surrounding the Brin group. Of particular interest is Pearson (1974), which is an assessment report covering the same Nabesche claims that are found in the Property File Cypress-Anvil document (Dickie, 1972) and discussed in Campbell (1972) and Tavela (1972). Little exploration has been recorded in the area since these reports.

### Cusker (094G 037)

The documents supporting the Cusker MINFILE occurrence summarize reconnaissance exploration that began after the discovery of the Barrier–Robb Lake occurrence. The Cusker occurrence lies 12 km north-northwest of Robb Lake on Sidenius Creek and was explored as a result of the same regional studies that led to discovery of the Brin occurrence. Rich float was reported on the southwestern Bertha claims, with sphalerite, copper and galena found on the property (Campbell, 1972; Tavela, 1972). Two significant geochemical anomalies exceeded 1000 ppm Zn (Campbell, 1972). Tavela's (1972) paper also reported the existence of Zn-Cd-Pb anomalies that occur mostly south of Sidenius Creek, likely a continuation of the mineralized field from the Robb Lake occurrence. Detailed geochemical maps support Tavela's recommendations.

Campbell (1972) agreed with many of Tavela's statements regarding the area, although he took a different approach: Tavela's (1972) report was a 'geochemical exploration', whereas Campbell's report was an 'office study', focusing on analogous deposits at Pine Point and in southeast Missouri. Along with the Cusker and Bertha claims, Campbell mentioned the 'Dodson submittal', which included a discovery of significant mineralization. We believe that this 'submittal' is possibly the same occurrence as Assessment Report 4149 (Leighton and Dodson, 1972).

Westoll and Sullivan (1973) and Adamson and Saunders (1973) did further work on the area and are the most recent studies known to date.

### Updated MINFILE Occurrences

In addition to adding new MINFILE occurrences to the database, information uncovered during this project was used to enhance 483 existing occurrences by adding references to relevant documents in the MINFILE bibliographies, hyperlinking them and adding information to the geological descriptions. The examples described in this section either originally had very small MINFILE geological descriptions, which increased significantly following addition of the Property File information, or key information on occurrences was missing and the Property File documents enabled that information to be added to the descriptions.

### Bob (093B 054)

The Bob occurrence originally had a geological description that included the regional geology and the geology of the claim locations. Using ten documents from the Property File Rimfire collection, the geological description now includes the initial staking by Lac Minerals; the drilling history of the Bob group; the drilling and geochemical surveys of the Naz group; line-cutting and a geochemical survey on the McKay claims; and a geochemical survey, IP surveys

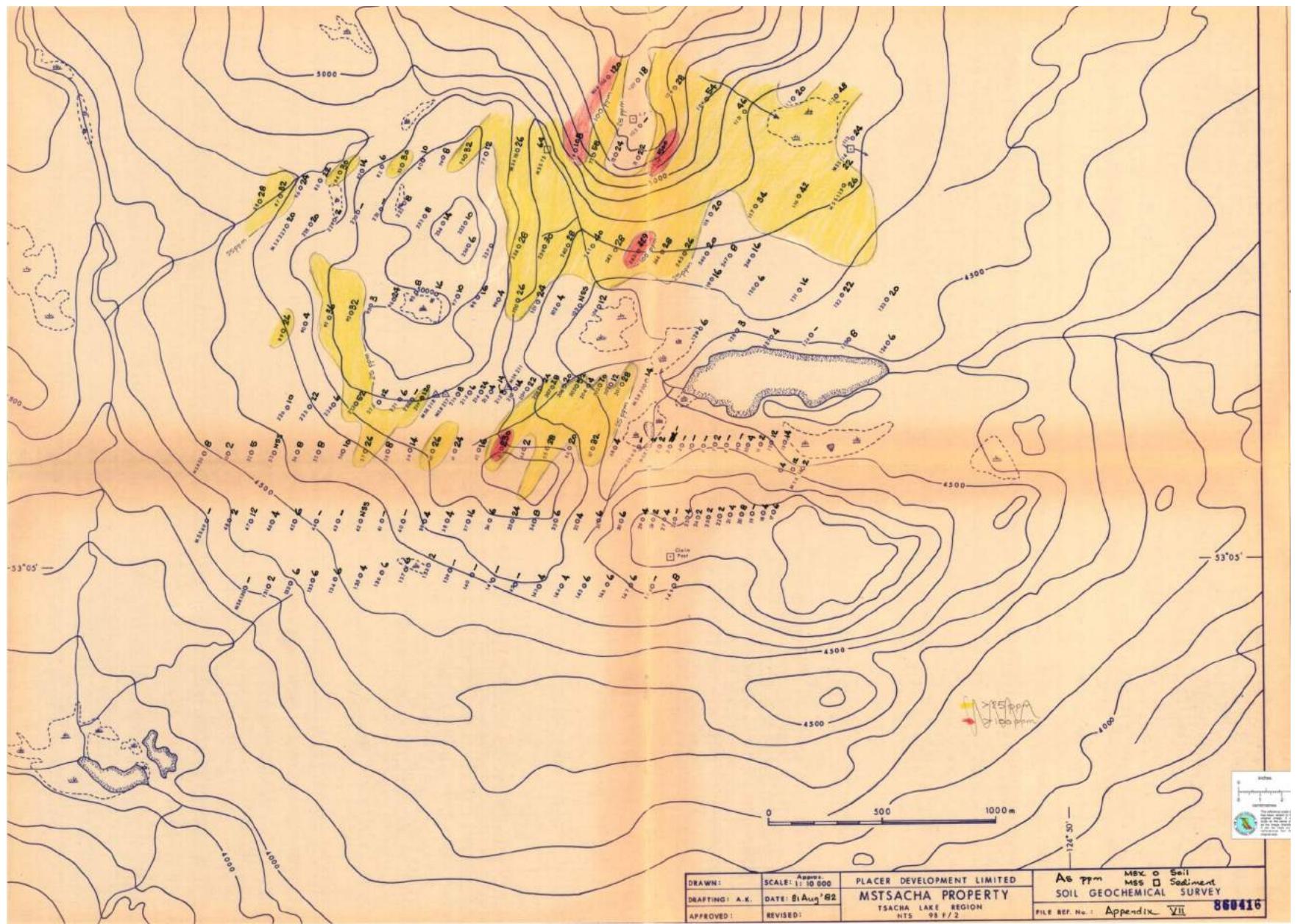


Figure 4. Soil and sediment geochemical survey map showing As sample values and contours, Ram occurrence, central British Columbia (Placer Development Limited, 1982).

and drilling on the Esker claims. Exploration of the multi-element soil geochemical anomaly occurred between 1983 and 1988, and returned 0.10% Cu over 2 m (Eldor Resources Ltd., 1987), 300 ppb Au over a thickness of 3.05 m (Anonymous, 1987) and a mineral inventory of 384 200 t grading 0.75 g/t Au (Eighty Eight Resources Ltd., 1990). The distribution of the latter Au values can be seen in Figure 5.

### **Tetrahedrite (093E 059)**

Prior to this report, the Tetrahedrite occurrence contained only a small geological description. This project expanded the description so that it now also contains the exploration history. The most significant work on the site was by the Meteor Mining Co. Ltd. One of the two Property File documents (Meteor Mining Co. Ltd., 1966) includes a geochemical survey map and a self-potential survey, which indicates anomalous values of both Ag and Cu. The other document (Pavelic and Chisholm, 1967) includes various sample assays taken in 1922 and 1924, an excerpt from the Report of the Minister of Mines in 1923, seven ‘ore’ sample assays from the Cascade mineral claims conducted in 1926 and excerpts from a report by W.H. Plumb in 1956. These documents demonstrate continued exploration interest in the property over numerous decades.

### **Wolf (093F 045)**

The Property File Rimfire collection contains 306 documents on the Wolf occurrence, including geological sketches and maps, drilling sections, drill logs and maps, reports, photographs of samples, airphoto overlays, geochemical analyses, IP survey maps, biogeochemical survey results, surface trenching maps and VLF-EM maps and profiles. Also, the Rimfire collection includes an M.Sc. thesis (Andrews, 1988) that focuses on the development and mineralization of the property, and a report on the Nechozo project (including the Wolf occurrence; Nelson, 1985). These documents span 15 years of exploration (1979–1994), during which Lucero Resources Ltd. conducted exploration on the Ridge and Pond zones and Minnova conducted biogeochemistry, airborne magnetic and electromagnetic surveys, and diamond-drilling after optioning the property from Lucero Resources.

Of particular interest is the report by Heberlein (1992b), which provides results from the property thus far, including trenches containing mineralized hydrothermal breccias that returned values of up to 2.64 g/t Au. In the same report, Heberlein wrote that new targets will be explored based on high resistivity values and northeast-trending structures. Heberlein (1994) included some interesting values, such as 21.65 g/t Au over 3 m and 6.12 g/t Au over 3 m on a shallowly west-dipping breccia in the trenches on the Ridge zone.

Despite being classified as only a prospect in the MINFILE database, the Wolf property is an epithermal Au-Ag occurrence that has been well documented over the years. Little exploration has occurred since the mid-1990s.

### **G-South (093G 007)**

The Property File Cyprus-Anvil collection contains 26 documents on the G-South occurrence and the Rimfire collection contains another two. Combined, these documents provide information on the history of the work done on the property by Alrae Engineering Ltd., Cariboo Minelands Ltd. and Gabriel Resources Ltd.

The oldest Rimfire document is correspondence regarding the Ahbau Creek area that describes a moderate interest in the property (Sirola, 1964). Alrae Engineering Ltd. wrote a report detailing a mineral examination, geochemical soil sampling program and a ground magnetometer survey (Jury, 1968). That report recommended further exploration that was, in turn, documented in a diamond-drill record (Cariboo Minelands Ltd., 1969) and a summary report (Simpson, 1969), which records eight drillholes totalling almost 914 m (3000 ft.). Diamond-drill hole 1 assayed 3.54 g/t (0.16 oz./ton) Au, 3.89 g/t (1.16 oz./ton) Ag, 0.17% Cu and 0.53% Pb over 1.83 m (6 ft.) of core, and hole 6 assayed 5.67 g/t (0.20 oz./ton) Au, 72.01 g/t (2.54 oz./ton) Ag, 1.86% Cu, 0.2% Pb and 0.57% Zn; however, the company indicated “only subsidiary interest” in the property (Simpson, 1969).

Another document from the Rimfire collection combined a series of news releases from the late 1980s from Gabriel Resources Ltd., who optioned the property in 1981 (Hughes, 1988). These include results from geochemical, airborne magnetometer, electromagnetic, VLF-EM and IP surveys, as well as 43 diamond-drill holes and trenching.

Eleven assessment reports have been written on the area, and the G-South occurrence has been upgraded to a ‘developed prospect’ in the MINFILE database.

### **Cob (093M 088)**

The Cob Mo-Cu showing originally had a mere two-sentence MINFILE geological description, specifying only its location and regional geology. Ten documents from the Cyprus-Anvil collection enhanced this information significantly, including three reports published in consecutive years and seven supporting maps of related work. Leigh and Kahlert (1967) reported multidirectional fracturing and quartz veining that contained visible molybdenite flakes. The most favourable trench result averaged 0.09% MoS<sub>2</sub> over 12 m (40 ft.). The North zone rock samples averaged 0.07% MoS<sub>2</sub> and the South zone rock samples averaged 0.03% MoS<sub>2</sub>. The report includes duplicate sample assays from two laboratories. In light of the results, Leigh and

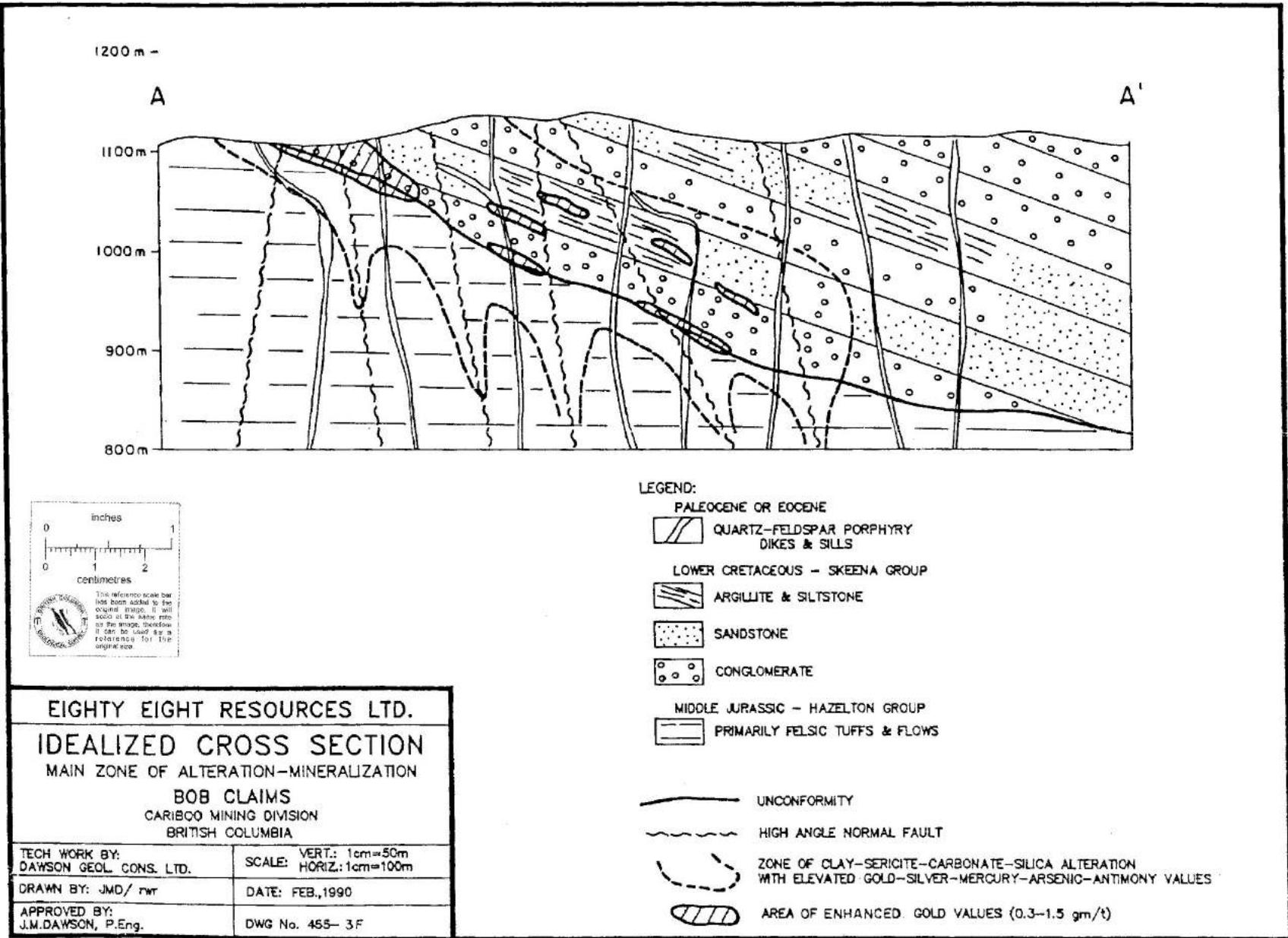


Figure 5. Idealized cross-section of the main zone of alteration-mineralization on the Bob claims, central British Columbia (MINFILE 093B 054; Eighty Eight Resources Ltd., 1990).

Kahlert recommended that Canadian Superior Exploration Ltd. perform a drilling program.

Kahlert (1968) documented the results of that drilling and further geochemical rock sampling, and determined that “the most encouraging untested zone” was on the eastern slope of Graham Peak with Mo values exceeding 400 ppm (Kahlert, 1968).

Kahlert (1969) followed up with 610 m (2000 ft.) of drilling in two holes on the eastern slope of Graham peak.<sup>1</sup> Hole A-5-69 averaged 0.02% Mo over 307 m (1007 ft.) and hole A-6-69 averaged 0.15% Mo over 294 m (963 ft.). Kahlert determined through this drilling that, contrary to expectations, molybdenite decreases with depth, thus making it unlikely that mineralization occurs in the area.

Within 30 km, however, ten MINFILE occurrences exist, nine of which are occurrences of Mo and one of which has an associated Property File document. Only one assessment report has been written in the same area (Miller, 1978).

### Vega (094C 021)

Only one document appears in Property File on the Vega occurrence, but the 14-page report (Weishaupt, 1989) from the Placer Dome collection provides significant information on the long exploration history of this location. The original MINFILE geological description included several sentences summarizing previous work done in the 1930s and 1970s. This Placer Dome report provides further details, beginning with the original exploration and staking in 1935 and concluding with a 1989 field season report. In addition, one of the assay plan maps from exploration in 1938 on the property is included in a Property File collection not covered by this project and is available for download (Consolidated Mining and Smelting Company Limited, 1938).

According to Weishaupt (1989), the exploration history of the Vega occurrence includes diamond-drilling, trenching, prospecting, a thin-section study, airborne and ground geophysics surveys, and other work. Most recently, a soil geochemical survey returned values up to 2380 ppb Au, 2876 ppm Cu, 1652 ppm As and 521 ppm Zn (Weishaupt, 1989). Limited sampling of existing underground workings was also performed. It seems, however, that exploration at Vega concluded around 1990.

### Conclusions

This project identified 17 new MINFILE occurrences and updated 483 existing MINFILE occurrences. It is likely

that even more new MINFILE occurrences are hidden within the ~2900 recently processed files.

The findings from this project described in this paper have synthesized information from various sources and noted interesting possibilities. Many of the occurrences noted here were not pursued, and the reasons for these decisions are not always clear. Oftentimes, the occurrences were inaccessible, of a lower grade than was economic at the time, or the concerned companies had more promising projects elsewhere. It is entirely possible that some of these forgotten possibilities may have since become viable; however, it should be noted that the authors of this paper have not carried out any ground-truthing in preparing this report. All of the information contained herein is no more accurate than the original reports; however, since this information is available in a digital, organized and downloadable format, it is a cost-effective way to conduct a preliminary exploration of prospects within the QUEST areas.

The Property File documents described here comprise only a small fraction of documents processed during the course of this project. By synthesizing information found in the Property File database with the information from the ARIS and MINFILE databases and the MapPlace, valuable interpretations can be made that will guide exploration in the future.

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