

BRITISH COLUMBIA
PROSPECTORS ASSISTANCE PROGRAM
MINISTRY OF ENERGY AND MINES
GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR: 2001/2002

REPORT #: PAP 01-5

NAME: MEL HEGGE

PRELIMINARY PROSPECTING REPORT

on the

AREA NORTHEAST OF OKANAGAN FALLS, BC

OSOYOOS MINING DIVISION

NTS 082E05E

Reference number 2001/2002 P8

by

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Penticton, BC

November 30, 2001

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1.0 Summary

Due to some unforeseen delays, prospecting work in the project area did not commence until September 2001. This consisted of initially of examining known mineral occurrences within the area, followed by reconnaissance surveys, then more detailed prospecting, the staking of eight 2-post mineral claims, and further detailed prospecting and geochemical rock sampling. The project area is underlain to the east by mostly unprospective pre-Permian rocks of the Monashee Complex, intruded to the north by plutonic rocks of the Nelson Complex. Later Eocene alkalic intrusions of the Coryell syenitic complex near Allendale Lake exhibit local porphyry-style copper mineralization and the complex is considered to be coeval with portions of the volcanic rocks to the west belonging to the White Lake Basin. Structurally-controlled Au-Ag mineralization in these latter rocks were the main targets of investigation in this project, as exemplified by the former Dusty Mac Mine. Follow-up prospecting along the northwest strike extent of the mineralization at Dusty Mac resulted in the location of several zones of favourable alteration which warranted staking. Subsequent further work, which included detailed rock sampling, was carried out but temporarily suspended due to lack of funds at this time.

2.0 Introduction

Following the submission of a Program Proposal by the writer before the April 20th, 2001 deadline, written approval was received in late May. The initial grant payment, however, was not received until the last week of July. Prior to this, a target for acquisition had been identified, namely the former Dusty Mac gold-silver producing area which had been forfeited by the property owners in May. Since funds were not available to acquire the ground before receiving the initial grant payment, other interests acquired the main area of interest on June 17th, 2001 and significantly reduced the number of targets available for prospecting and acquisition. Following a literature re-assessment of the project area, it was decided to divide the prospecting program into two phases, an initial general reconnaissance of the entire area followed by a detailed phase to possibly result in ground acquisitions worthy of later geological mapping and rock geochemical analyses. The initial phase commenced in September and work continued into November when eight 2-post mineral claims were located northwest of the Dusty Mac area. Due to a lack of funds, however, the assaying of collected geochemical rock samples and the carrying out of follow-up geological investigations will have to be deferred to a later date. This report summarizes the results of work conducted to date.

3.0 Project Location and Access

The project area is located to the north of Okanagan Falls, BC and east to Mt. Christie in the Osoyoos Mining Division, NTS 082E05E (Dwg. 1).

Good access is provided through secondary and logging roads throughout the area from Okanagan Falls, but also from the north via Eastlake and McLean Creek Roads. The Allendale Lake and Shuttleworth Creek roads provide access to the east part of the project area. Due to the presence of numerous logging and ranching roads, the writer used these for the main part of the reconnaissance to investigate the general area.

It should be noted that the area immediately to the north-west of Okanagan Falls includes a very large amount of development including housing projects, agriculture – mainly orchards and vineyards, ranching, and hobby farms. Local access may be restricted in these areas.

4.0 Geologic Setting of Project Area

The original project area encompassed a potential block east from the south end of Skaha Lake to the eastern flank of Mt. Christie, and north from Shuttleworth Creek to the northern flank of Mt. Christie. The geology is recorded on Map 15 – 1961 published by the Geological Survey of Canada (Dwg. 1).

The majority of the area is underlain by the Monashee Complex (Okanagan Gneiss Complex) of designated Pre-Permian age. This consists dominantly of strongly foliated, hornblende, biotite granodiorite orthogneiss which is massive, resistant and weathers medium-grey. The strong foliation locally grades to mylonitic gneiss mylonite, and blastomylonite. This complex is well exposed along the east side of Skaha Lake and is locally cut by small dykes and sills of granitic composition, possibly related to the Nelson plutonic rocks to the north. These are reportedly of Cretaceous (?) age. Both of these complexes are in fault contact (Okanagan Fault) to the southwest with a down-dropped block of Eocene volcanic rocks known as the White Lake Basin, a sequence with intercalated sedimentary units, up to 2500m thick. To the east, near Allendale Lake, is a postulated coeval equivalent termed the Coryell intrusives consisting of syenite, granite, minor monzonite and shonkinite. The Eocene volcanic rocks are considered to be targets for economic mineralization in this project. The earlier rock types offer less potential except where intruded by the Coryell intrusives and local apophyses.

In the project area, the White Lake Basin consists of the lower Marama Formation, a distinctive unit of buff coloured dacite and rhyolite with local flow banding. The overlying White Lake Formation is comprised of lower andesite lahars and flows interfingered with sediments and, in turn, overlain by a more dominant sediment package.

The major structural feature of the area is the Okanagan Fault, which more or less parallels Skaha Lake, and is a postulated rift system or tensional feature. Splays or related faulting is locally evident, such as parallel to McLean Creek and Shuttleworth Creek. Sympathetic and sub-parallel faulting is thought to control metal mineralization known in these areas and hosted by the rocks of the White Lake Basin.

5.0 Known Mineral Occurrences in Project Area

Going from east to west, the following reported mineral occurrences were examined initially in the project area in order to become familiar with the different styles of mineralization. It should be noted that, since all are presently covered by valid mineral claims, these are excluded from the project area and no sampling was carried out except for reference purposes. The investigated occurrences were as follows:

- (i) Porphyry-style Cu showings related to the Allendale Lake stock (51.7 Ma), assigned to the Coryell intrusive complex and located 1.5 km west of Allendale Lake, near the headwaters of Shuttleworth Creek. The area is traversed by numerous logging roads which have exposed the stock and associated mineralization. Former work has described the stock as roughly 2.5 km in diameter and grading outwards from monzonite-syenite phases to a shonkinitic border. Local pegmatite dykes are evident and one has reportedly returned some traces of uranium mineralization. The mineralization of apparent interest consists of shear- and fracture-controlled pyrite, chalcopyrite, bornite, and lesser tetrahedrite, which apparently returns the silver values. Molybdenite occurs in trace amounts. In summary, the showings are typical of other porphyry-style Cu deposits related to alkalic intrusives elsewhere on southern BC, examples including Copper Mountain and Afton. The reported low grades at Allendale Lake are not considered economic but the occurrences are of interest within the scope of this study as it indicates that the early migration of volatiles within the intrusion contributed to sulphide mineralization carrying Ag-Au values that are coeval with precious metal mineralization within the White Lake Basin. For example, the Vault Au-Ag prospect occurs in fractured Marama Formation which, in turn, is overlain by the Kitley Lake Member dated at 51.6 Ma. This compares favourably with dates in the Coryell intrusions. It might be noted that the Allendale Lake mineralization has not apparently been tested for palladium values, which is of economic interest of late in the Afton area.

(ii) The Shuttleworth Creek asbestos showing occurs on the south side of the creek, about 6.5 km southeast of Okanagan Falls. Since the occurrence is not considered relevant to this study, only limited investigations in the field were carried out.

(iii) The Dusty Mac Mine was a former producer of gold, silver, copper, lead, and zinc. The deposit was the original focus of this study but, as previously mentioned, was acquired by other interests. It remains, however, the type of mineralization that is being pursued by the writer in the project area.

Consequently, with the permission of the mineral claim holder, a significant amount of time was spent on the property to investigate the styles of mineralization and extrapolate the permissive area along strike in both directions. Since the geology of the property has been well documented, this will not be covered in this report. The significant technical details that were obtained from the literature and examined in the field can be summarized as follows:

- (a) The host rocks belong to the White Lake Formation consisting of light coloured pyroclastic rocks, thick feldspathic andesite lahar deposits, minor andesitic lavas, and minor sediments including carbonaceous shales. These overlie the Marama Formation which hosts the Vault Au-Ag deposit, 5.5 km to the northwest of Dusty Mac.
- (b) Mineralization is controlled by an important system of reverse faults, which is interwoven with eastern and southern striking segments and splays. Locally, at Dusty Mac, the main structure is a northwest trending mineralized fault structure which has been traced for a strike length of 1.1 km and ranges in true width from 20-100+ m. Sub-parallel structures can also be mineralized.
- (c) Identified minerals include pyrite, chalcopyrite, galena, sphalerite, native silver, and minor bornite and tetrahedrite. Total sulphide content can occur up to 15% by volume.
- (d) Alteration consists of distal epidote-chlorite, then sericite-argillic-potassic envelopes surrounding multi-episodic silicification comprised of discrete chalcedony veins to quartz breccia bodies and pervasive wallrock silicification. On a local basis, gossanous outcrops near silicified topographic highs appear to be favourable prospecting guides.
- (e) Permissive areas for mineralization can occur not only along strike, but also at depth since dilation zones within the fault structures are considered favourable sites for later hydrothermal fluids to precipitate dissolved metals.
- (f) The targets may be relatively small but can be economically important if viewed as a series of small open pit operations with a central milling facility.

6.0 Prospecting Results

6.1 General Reconnaissance

The general area between Allendale Lake and Eastside Road was prospected mainly along the valleys following the McLean Creek Fault and the Shuttleworth Creek Fault. These areas were investigated along access roads from the junction of Eastside Road and McLean Creek Road and then along the numerous old logging roads east of McLean Creek and north of Shuttleworth Creek. (Dwg. 2)

The above area is underlain entirely by the Monashee Complex which is dominated by a massive, medium-grey orthogneiss. This produces blocky outcrops higher in the terrain and is well exposed along roadcuts. There are local exposures of darker, schistose rocks but these comprise less than 5% of the observed total. Narrow sills and dykes of granitic and/or pegmatitic composition, possibly related to the Nelson plutonic complex or the later Coryell intrusive event cut all rock types. No contact metasomatic or vein-type sulphide mineralization of significance, however, was observed during any of the traverses. There were a few rusty zones but mainly along fractures. Other noted alteration included chloritization and minor silicification. Since nothing was found that warranted assaying, only a few type rock samples were collected for future reference. The postulated fault zones along the creeks were mainly covered by valley fill and glacial overburden. In summary, the examined areas were not found to warrant any detailed follow-up within the scope of this project.

6.2 Detailed Reconnaissance

6.2.1 Dusty Mac North

This area lies to the immediate north of the northern claim boundary of the Dusty Mac mineral claim block (#387258). The area of prime interest was the northwest strike extent of the "Main Pit Fault" on the original Dusty Mac property and appears to be the structural control for mineralization at the mine. Minnova Inc. subsequently tested this in 1989 for a length of about one kilometre, north to the "NW Zone". The testing, however, consisted only of very widely spaced and vertical drill holes which can only be considered as inconclusive since the structure itself is nearly vertical. In fact, Minnova reported that drill hole DM-12, near the pit, "intersected 20 meters of mineralized quartz breccia, near the surface that was not previously recognized due to the fact it is a near vertical zone and previous drilling was vertical".

The Dusty Mac North area is underlain by the White Lake Formation of Eocene age, consisting mainly of lahar and sedimentary rocks to the southwest which are overlain to the northeast by tuff and agglomerate (Dwg. 4). The units are on the south limb of southeasterly trending syncline which dips between 20-35 degrees SE. Outcrop is exposed over 3-5% of the area, most prominently along precipitous bluffs and cliffs which trend in a general northwesterly direction. A strong cross-fracture system strikes approximately 010 degrees dipping about 80 degrees westerly almost perpendicular to the synclinal axis. The rocks are in fault contact to the east with older Monashee Complex rocks. The fault follows the McLean Creek valley and is probably part of the regional Okanagan Fault system. To the south, the fault is cut off by a structure paralleling Shuttleworth Creek.

Ag-Pb-Zn-Au showings in silicified rocks, approximately 3km along strike from the Dusty Mac pit, have been reported from work in the late 1960's and called the Bev (?) showings. This prompted work by the writer in the area but nothing was located that definitely matched the literature descriptions. Local zones, however, of silicification, chloritization with argillic alteration along bluffs and gullies were noted with some nearby gossans. No evidence of sulphide mineralization has been located to date but the latter "discoveries" indicated the area warranted further attention and a decision was made to cover the prospective area with mineral claims. Follow-up work consisted primarily of detailed prospecting and geochemical rock sampling. Analyses of the thirty samples collected from the claims remains to be carried out because of funding shortfalls.

7.0 Claim Staking

7.1 MEL #1-8 two-post claims (Claim tag no's 699466-73M)

On November 1, 2001, eight 2-post claims were staked to cover previously discovered zones of favourable alteration up to 3 km northwest of the Dusty Mac pit. These were called the MEL # 1-8 claims. The #1 post for MEL #1 and #2 is located 1000 metres west along the north claim boundary from the Legal Corner Post for Dusty Mak #387258 and at the top of a prominent hill. The azimuth for the location line is 340 degrees from true north and extends for 2000 metres to the final post for MEL #7 and #8. This final post is located in a small ravine and can be accessed from a road at #315 Eastside Road, along Skaha Lake, about 2.5 km north of Okanagan Falls. (Dwg. 3)

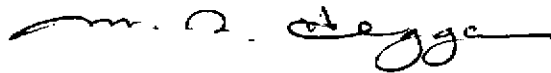
8.0 Conclusions

- (i) The commencement of the project was delayed by the late receipt of the initial grant payment. In the interim, the main area of interest was staked by other parties and the proposed program had to be restructured to accommodate the new land position in the project area.
- (ii) Initial ground reconnaissance commenced in the eastern half of the project area and westward to McLean Creek. No metal mineralization was noted that could be of economic significance. Detailed investigations were then concentrated in the area of the former Dusty Mac Mine and, in particular, along strike to the northwest. This resulted in the location of altered zones similar to that observed in the area of the former open pit operations.
- (iii) A total of eight 2-post mineral claims were staked to cover the area to the northwest of the Dusty Mak claim. Follow-up work consisted of detailed prospecting and the collection of geochemical rock samples for later analyses. Work was suspended due to the lack of funds.

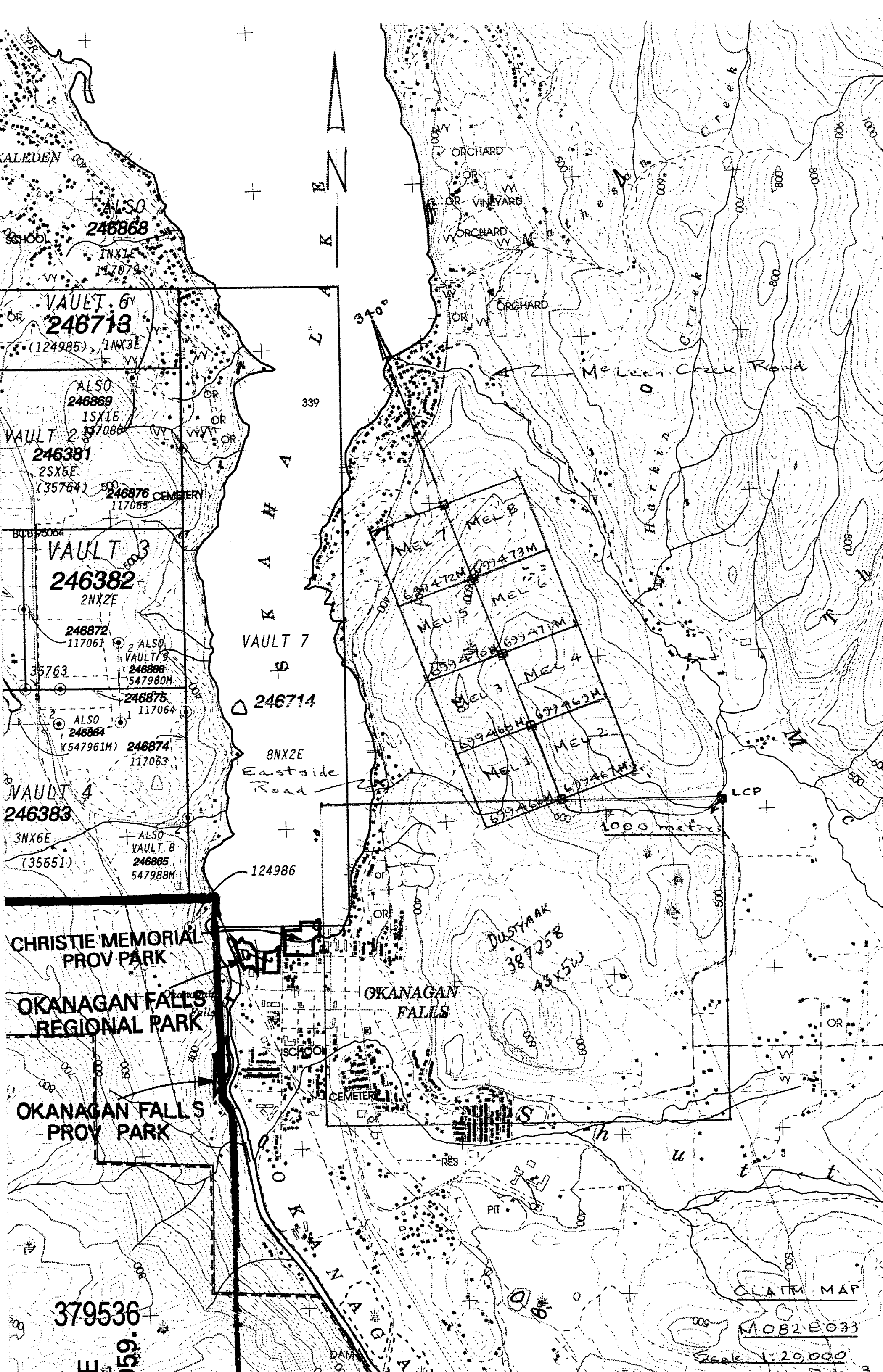
9.0 Recommendations

- (i) The first priority is to analyze the geochemical rock samples collected on the MEL #1-8 claims.
- (ii) Any anomalous areas should be the subject of further detailed prospecting and sampling followed by geological mapping as warranted.
- (iii) The location of additional claims to the north and east should be considered in light of the results obtained in (i) and (ii).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'M.R. Hegge', with a long horizontal flourish extending to the right.

M.R. Hegge, P.Eng.



D. TECHNICAL REPORT

- One technical report to be completed for each project area.
- Refer to Program Regulations 15 to 17, pages 6 and 7.

SUMMARY OF RESULTS

- This summary section must be filled out by all grantees, one for each project area

Information on this form is confidential subject to the provisions of the Freedom of Information Act.

Name Mel Hegge Reference Number 2001/2002 PB

LOCATION/COMMODITIES

Project Area (as listed in Part A) NE of OK Falls MINFILE No. if applicable _____
Location of Project Area NTS 082E05E Lat 49°20'42"N Long 119°32'41"W
Description of Location and Access North and east of OK Falls, and east to Mt. Christie; access via secondary and logging roads from O.K. Falls.

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)

Main Commodities Searched For Au, Ag, Cu, Pb, Zn

Known Mineral Occurrences in Project Area Attendale Lake Cu-Ag; Shuttleworth Creek asbestos; Dusty Mac Au-Ag-Cu-Pb-Zn

WORK PERFORMED

1. Conventional Prospecting (area) ~ 90 km²
2. Geological Mapping (hectares/scale) _____
3. Geochemical (type and no. of samples) 30 geochemical rock samples
4. Geophysical (type and line km) _____
5. Physical Work (type and amount) _____
6. Drilling (no. holes, size, depth in m, total m) _____
7. Other (specify) _____

Best Discovery

Project/Claim Name Dusty Mac North Commodities Au, Ag, Cu (?)
Location (show on map) Lat. 49°21'30"N Long 119°33'50"W Elevation 550 m (asl)
Best assay/sample type (Pending)

Description of mineralization, host rocks, anomalies Several favourably altered zones along silicified structures near bluffs ± chloritization, argillitization and Fe staining along zones of fracturing similar to Dusty Mac.

FEEDBACK: comments and suggestions for Prospector Assistance Program _____

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS

- Those submitting a copy of an Assessment Report or a report of similar quality that covers all the key elements listed below are not required to fill out this section.
- Refer to Program Regulation 17D on page 6 for details before filling this section out (use extra pages if necessary)
- **Supporting data must be submitted with the following TECHNICAL REPORT or any report accepted in lieu of.**

Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act*.

Name Mel Hagge Reference Number 2001/2002 78

1. LOCATION OF PROJECT AREA [Outline clearly on accompanying maps of appropriate scale.]

NE of OR Falls, Osoyoos M.D. (Dwg 1)

2. PROGRAM OBJECTIVE [Include original exploration target.]

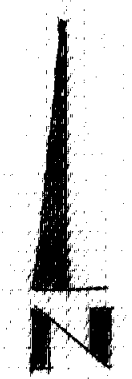
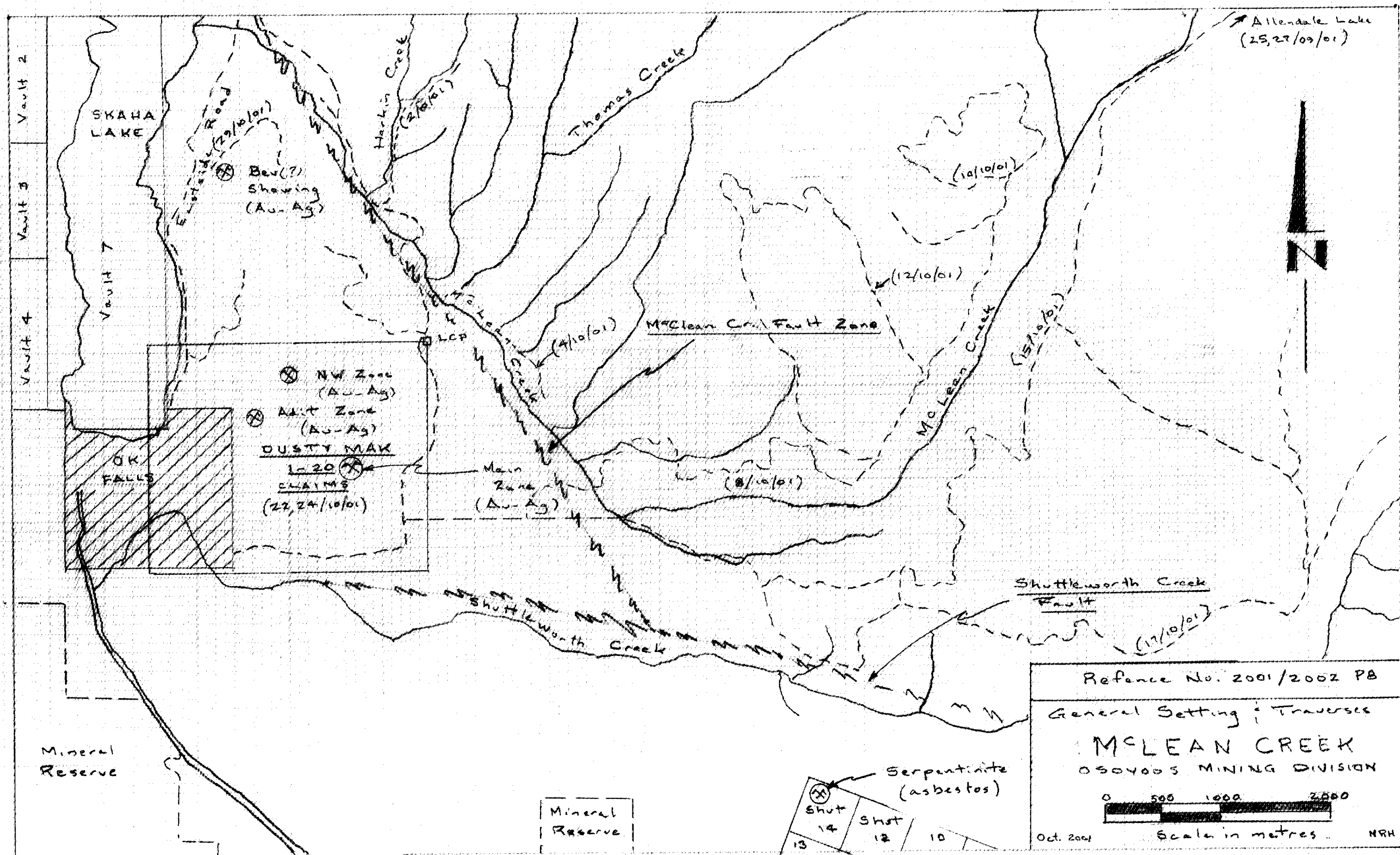
Dusty Mac equivalents (ie. epithermal Au-Ag; low
HOS: { ~~low~~ sulphidization

IOS: polymetallic veins;
Ag-Pb-Zn ± Au

— hosted by rocks of White Lake Basin

3. PROSPECTING RESULTS [Describe areas prospected and significant outcrops/float encountered. Mineralization must be described in terms of specific minerals and how they occur. These details must be shown on accompanying map(s) of appropriate scale; prospecting traverses should be clearly marked.]

(See appended report)



Reference No. 2001/2002 PB

General Setting : Traverses

MCLEAN CREEK

OS04005 MINING DIVISION

0 500 1000 2000

Scale in metres

Oct. 2001

NRH

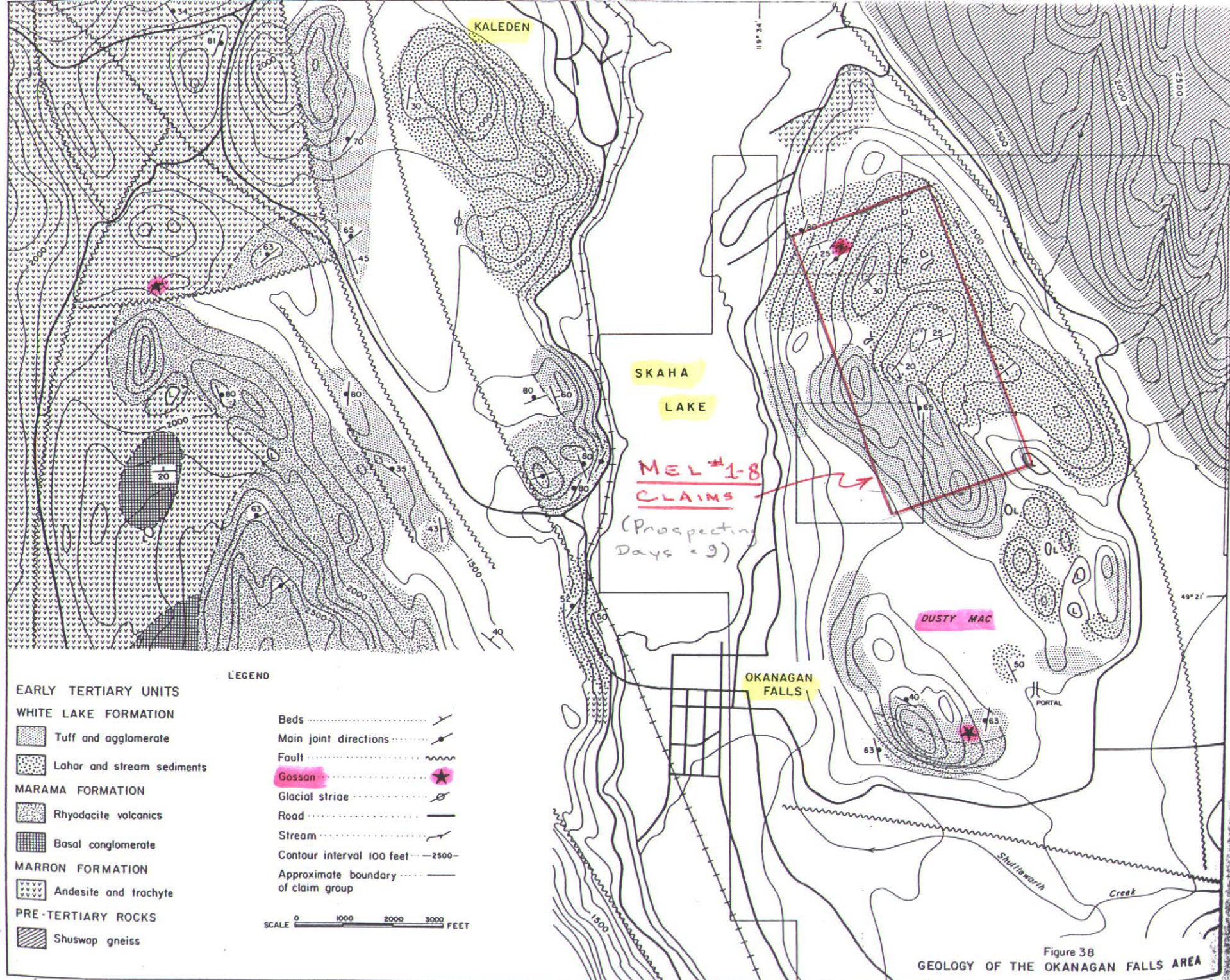


Figure 38
GEOLOGY OF THE OKANAGAN FALLS AREA

(after N. Church, 1970)

Dwg. 4

Dusty Mac LEGEND

TERTIARY
MIOCENE (?)

21 Basalt; minor olivine basalt.

OLIGOCENE (?)

20 CORYELL PLUTONIC ROCKS: syenite, granite; minor monzonite and shonkinite

EOCENE OR OLIGOCENE

19 Andesite, trachyte, minor basalt; locally, interbedded tuff and shale; 19a, andesite and trachyte flows and agglomerate; 19b, conglomerate, sandstone, shale, tuff; minor agglomerate and breccia; coal; 19c, andesite and trachyte; 19d, agglomerate and conglomerate

PALEOCENE OR EOCENE

18 Porphyritic granite and rhyolite

17 Conglomerate, sandstone, shale, tuff

CRETACEOUS (?)

16 VALHALLA PLUTONIC ROCKS: granite, granodiorite

15 NELSON PLUTONIC ROCKS: granodiorite, quartz diorite, diorite; granite, quartz monzonite, syenite, monzonite

JURASSIC (?)

14 14a, pyroxenite; 14b, hornblende; 14c, serpentinite

TRIASSIC OR JURASSIC

13 Limestone

TRIASSIC

UPPER TRIASSIC
NICOLA GROUP

12 Greenstone, tuff, quartzite, limestone, argillite, and schist

TRIASSIC OR EARLIER

8-11 8, BARSLOW FORMATION: argillite
9, INDEPENDENCE FORMATION: chert, greenstone
10, SHOEMAKER FORMATION: chert, some tuff and greenstone
11, OLD TOM FORMATION: greenstone, minor diorite

PERMIAN AND/OR TRIASSIC

ANARCHIST GROUP

7 Greenstone, quartzite, greywacke, limestone; locally paragneiss

PERMIAN AND (?) PENNSYLVANIAN

5,6 5, CACHE CREEK GROUP: greenstone, quartzite, argillite, limestone
6, BLIND CREEK FORMATION: limestone; limy argillite

CARBONIFEROUS (?)

KOBAU GROUP

4 Quartzite, schist, greenstone

PRE-PERMIAN

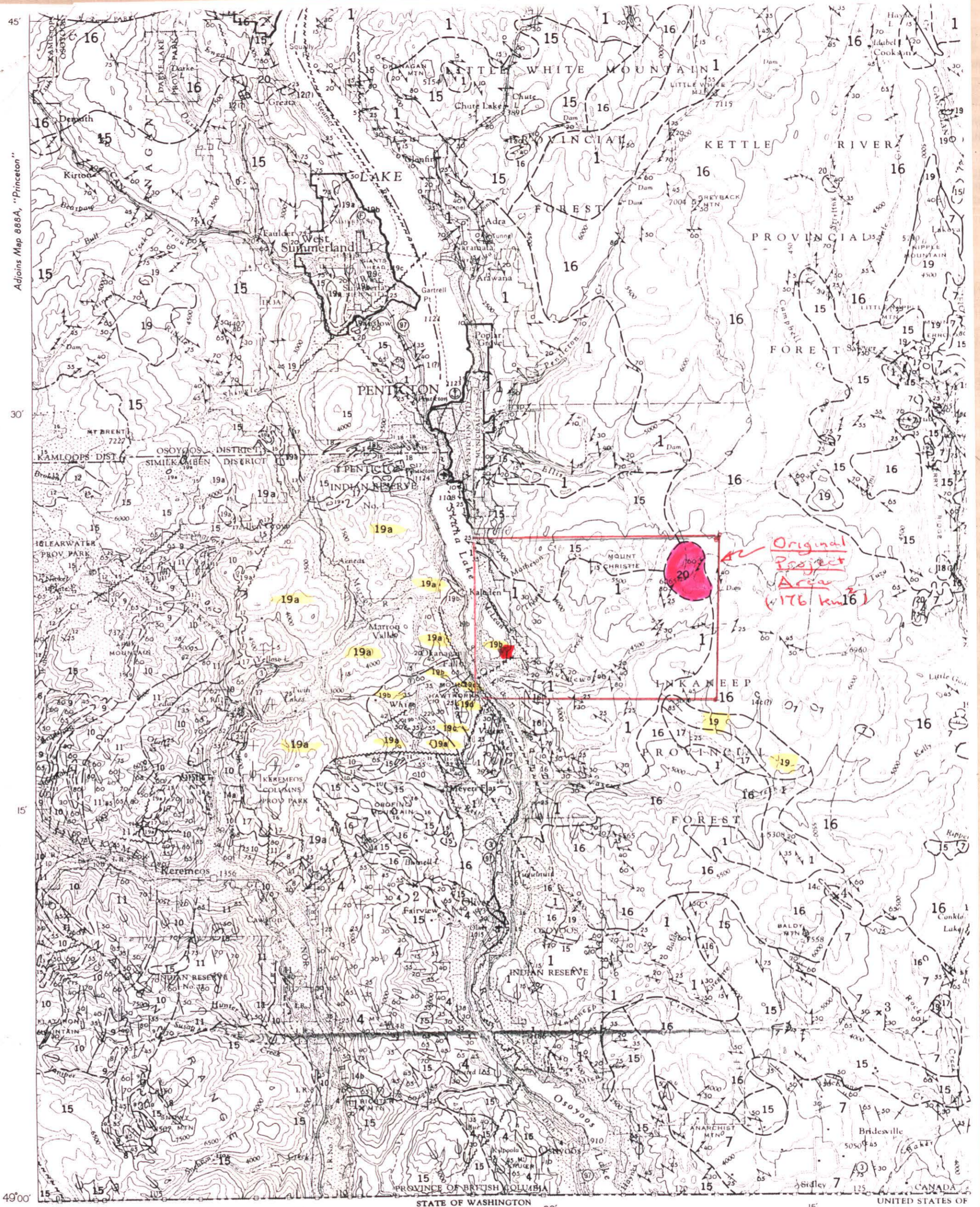
3 OLD DAVE INTRUSIONS: serpentinized ultrabasic rocks

CHAPPERON GROUP

2 Chlorite schist, quartzite

MONASHEE GROUP

1 Layered gneiss (paragneiss); minor schist, amphibolite, quartzite, marble, and pegmatite



PUBLISHED, 1961
COPIES OF THIS MAP MAY BE OBTAINED FROM THE
DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

MAP 15-1961
(REVISION OF MAP 538A)

GEOLOGY
KETTLE RIVER
(WEST HALF)
BRITISH COLUMBIA

Scale: One Inch to 100 Miles = $\frac{1}{253,440}$
Mile

4 2 0 4 8 12

Approximate magnetic declination, 23° 00' East

Air photographs covering this area may be
obtained through the National Air Photographic
Library, Topographical Survey, Ottawa

01-05

Location Map

Project Area

* 2001/2002 P8

Dwg. 1