MOUNTAIN MINERALS CO. LTD.

1978 GEOLOGICAL, GEOCHEMICAL, AND SCINTILLOMETER SURVEY OF PARTS OF ACTIVE CLAIMS 1 TO 5 AND 10 TO 13 LAMBLY CREEK AND BLUE GROUSE MOUNTAIN, KELOWNA AREA, SOUTHERN BRITISH COLUMBIA

VERNON MINING DIVISION

Geographic Coordinates
49° 56'-50° 00'N
119° 30'-119° 42'W
NTS Sheets 82E/13, 82L/4

by

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1978 05 10

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SECTION 1.0 INTRODUCTION

In recent years, several properties with basal-type uranium deposits have been discovered in the Kelowna area. The uranium mineralization is found in unconsolidated Tertiary fluvial sediments, many capped by Miocene or Pliocene plateau basalts. Meta-autunite, in films on pebbles and in the matrix of conglomerates and carbonaceous sediments, is found in groundwater traps at or near an unconformity. Exploration has included the Eocene Kettle River and Marron Formations because of similar uranium deposits in carbonaceous sediments in the Oligocene Gerome Formation in the state of Washington to the south.

A field investigation for Mountain Minerals Co. Ltd. of Active Claims 1 to 5 and 10 to 13 along Lambly (Bear) Creek, on Blue Grouse Mountain, and near Westbank up to 30 km or so west of Kelowna was carried out in April 1978 to determine whether a deposit of this type might be found in the exposed Tertiary rocks. From April 1 to 13, 1978, a four-man party consisting of two geologists and two assistants, employed by Halferdahl and Associates Ltd. of Edmonton, conducted a scintillometer survey and a geochemical survey of soils and waters, as well as some reconnaissance geological mapping.

The scintillometer survey covered 30 km of line on Active 1 to 5, 10, and 13. The geochemical survey, conducted on Active 1 to 5, 10, and 13, included 241 soil samples and 15 water samples which were analyzed for uranium. Reconnaissance geological mapping, augmented by study of aerial photographs, was done at a scale of 1:20 000 on about 19 km^2 on all or parts of Active 1 to 5 and 10 to 13.

The surveys and mapping were done on a grid laid out by topofil chain and compass. Corner and identification posts encountered during the survey were located in the same manner. Several traverses by chain and compass, and by air photo augmented the geological mapping. This report is based on information gathered in the field, and on published and unpublished reports.

SECTION 2.0 CONCLUSIONS AND RECOMMENDATIONS

2.1 Conclusions

1. The property is underlain by argillites, siltstones, limestones and volcanic rocks of the Cache Creek Group, Nelson intrusive rocks, and Tertiary volcanic rocks of Eocene and Miocene? ages. No sedimentary rocks of Tertiary age except tuffs were found on the property; such sediments could underlie the Miocene? basalts along Lambly Creek and its tributaries.

2. In general the younger rocks are found at successively higher elevations except the Miocene? volcanic rocks which lie along the bottom of creek valleys, and are mostly covered by unconsolidated valley deposits.

3. Two major normal faults have been recognized; others are probably present.

4. The geochemical soil samples, analyzed for uranium only, showed that 8 of the 12 samples with uranium concentrations more than 0.4 ppm are at or near the lower contact of the Eocene Marron Formation, mostly coinciding with a unit of hornblende andesite tuff.

5. Two or three of the geochemical water samples which were analyzed for uranium only, are slightly anomalous. Two of these from springs coincided with similarly anomalous values obtained previously by a recent federal-provincial program. One is at or near a fault. These two samples and a third considered anomalous in the federal-provincial program were collected adjacent to the valley of Lambly Creek. The source of this uranium has not been explained. It could be from the hornblende andesite tuffs, or less likely from sediments underlying the Miocene? basalts.

6. The scintillometer survey showed that many of the rock types observed had characteristic levels of radioactivity, with the higher amounts apparently related to increasing amounts of potash feldspar in the more acidic volcanic rocks. No anomalous readings were obtained.

2.2 Recommendations

1. Any future work undertaken, such as more detailed geological mapping and geochemical surveys, should concentrate on the unit of hornblende andesite tuff at the base of the Marron Formation and along the lower contact of the largely drift-covered Miocene? basalts in the valley of Lambly Creek and its tributaries. These basalts may overlie sedimentary rocks also of Miocene? age.
2. Consider dropping units of claims that are not underlain by hornblende andesite tuff or Miocene? basalts.

SECTION 3.0 PROPERTY AND PREVIOUS WORK

Nine Active mineral claims along Lambly (Bear) Creek, on Blue Grouse Mountain, and near Westbank, in the Vernon mining district, comprise the property.

Mineral Claim	Number of Units	Record Number
Active 1	20	292
Active 2	20	293
Active 3	20	294
Active 4	20	295
Active 5	20	296
Active 10	2	301
Active 11	3	302
Active 12	20	303
Active 13	6	304
	131	

These claims were staked in April 1977 and recorded on April 29, 1977. The recorded holder is Mountain Minerals Co. Ltd. of Lethbridge, Alberta. The work described in this report is expected to fulfill the assessment work requirements for the first year, so that on its approval, the expiry date for these claims will be April 29, 1979.

These claims cover ground underlain in part by Eocene and Miocene volcanic rocks which have been the target of recent nearby exploration. A brief reconnaissance was carried out at the time of staking. The claim area was regionally mapped by H. W. Little of the Geological Survey of Canada in 1958 and 1959 at a scale of four miles to the inch. More recently in 1976, a joint federal-provincial geochemical reconnaissance program for uranium was carried out in a large area of southern British Columbia including that covered by the Active claims. Considerable exploration has been in progress in the Hydraulic Lake area just east of Kelowna where uranium has been found in Tertiary sediments.

SECTION 4.0 GEOGRAPHIC SETTING

The Active claims reported on here are located on the west side of Okanagan Lake near Kelowna, British Columbia. Active 1, 2, 3, 11, 12, and 13 are along Lambly (Bear) Creek and Active 4 and 5 on Blue Grouse Mountain east of Active 3 and 2 respectively, all between 7 and 32 km northwest of Kelowna. Parts of all of these claims are accessible by truck along the Crown Zellerbach

haulage road along Lambly Creek, which leaves the paved road to Wilson Landing just north of the mouth of Lambly Creek, 12 km by road from Kelowna. Several logging trails and a road to the television tower on Blue Grouse Mountain all passable to four-wheel-drive vehicles provide access to much of the claims. Active 10 is 1 km north of highway 97 on a secondary road, about 10 km by road west of Kelowna.

The claims lie in mountainous terrain on both sides of Lambly Creek. Elevations vary from 365 m (1 200 feet) near Okanagan Lake, to 1 463 m (4 800 feet) on the southeast corner of Active 1. Active 10 covers several rocky hills with relief up to 75 m (250 feet). Much of Blue Grouse Mountain, covered by the Active 2, 3, 4, and 5 claims, has fairly continuous outcrop, especially those parts underlain by volcanic rocks. The rest is mostly scree and rubbly outcrop of the Cache Creek Group. The other claims have limited exposures because of recessive rock types, north-facing slopes which are heavily tree-covered, and a thick mantle of glacial drift which covers much of the valley bottom of Lambly Creek. This drift forms several distinct terraces on the lower part of the creek. A terrace of sand and gravel covers much of the southern part of the Active 10 claim and is currently the site of a sand-and-gravel operation.

Snow line was at about 1 200 m (4 000 feet) on south-facing slopes and 1 000 m (3 300 feet) on north-facing slopes while work was in progress. Weather during the fieldwork was generally cloudy, 0^{o} - 5^{o} C, with several rain and snow showers and one day of steady rain. Melt-water runoff was minimal, except in small draws near snow line. Most intermittent streams were already dry.

SECTION 5.0 GEOLOGY OF THE PROPERTY

The bedrock underlying the Active 1 - 5 and 10 - 13 claims consists of volcanic and related rocks, granitic rocks, and older argillite, siltstone, limestone, and volcanic rocks as shown in the Table of Formations. The Cache Creek Group and Nelson Intrusives form the bedrock of a pre-Tertiary erosional surface of considerable relief upon which the Tertiary volcanic rocks were deposited. Contemporaneous or postdepositional normal faulting seems to have

resulted in gentle tilting of the Eocene volcanic rocks whereas the Miocene basalts are flat-lying, probably with an unconformity between them.

TABLE OF FORMATIONS ON ACTIVE 1 - 5, 10 - 13 CLAIMS

Tertiary

Miocene?: vesicular columnar basalt flows

——————— Unconformity ———————

Eocene: Marron Formation - porphyritic trachyte and trachy-andesite or andesite flows; andesite tuffs, lapilli tuffs, and minor agglomerate; syenite, dacite, and diorite dykes

——————— Unconformity ———————

Mesozoic

Cretaceous: Nelson Intrusives-biotite granite or quartz monzonite, aplite dykes

——————— Unconformity ———————

Paleozoic

Permian (and Carboniferous?): Cache Creek Group - mainly argillite, siltstone, and tuffaceous siltstone; limestone, minor andesite or basaltic andesite flows and tuffs

5.1 Cache Creek Group

Massive black slaty argillites and siltstones are the most common lithology on the property. They are invariably well fractured in several directions, producing recessive, rubbly outcrops of small rhomb-shaped pieces with limonite-coated faces, which form most of the talus and parent material of soils on the mountainsides. Weathered boulders commonly exhibit graded bedding from very fine grained sandstone or siltstone to argillite in beds 2 to 5 cm thick, but because of fracturing, bedding is rarely observed in place. Small veinlets of quartz or calcite are common as fracture fillings. Near the western border of Active 2, these siltstones become very fine grained phyllites, retaining the strong blocky fracture. Calcareous green or greenish-grey tuffaceous silt-

stone showing similar graded bedding in places is intercalated with black argillite and siltstone, especially on the east side of Blue Grouse Mountain on Active 5. In road cuts on Bald Range Creek on Active 12, and along the paved road to Wilson Landing interbedded grey to white limestone, black or dark-grey calcareous argillite and siltstone, and grey quartzite in beds 2 to 15 cm thick were observed. Around the junction of the Bear Creek Road with the paved road on Active 5, and under much of the north end of Active 3 grey-weathering, grey to white massive crystalline limestone outcrops in places. Equant calcite grains are up to 2 mm in places, but generally much finer, producing a sugary texture.

Flows and tuffs ranging from basaltic andesite to andesite or dacite are a minor part of the Cache Creek Group in this area. Outcrops are isolated, their relationships obscure and their state of preservation good, so that they are difficult to distinguish from some of the Tertiary volcanic rocks. They generally weather black, reddish brown, or yellow brown; fresh surfaces are greenish black to green or grey green. The tuffs are hard and difficult to distinguish from flows where contacts are obscured. Phenocrysts of a subhedral to euhedral hornblende, biotite, or pyroxene commonly altered to chlorite up to a few millimetres, and small plagioclase laths form 10 to 30 per cent of these volcanic rocks. The groundmass is commonly aphanitic. Some units are extremely fine grained, with only rare biotite flecks. Breccias with angular fragments of lavas and argillite or quartzite up to 2 cm were observed on Blue Grouse Mountain. These may be agglomerate, or flow breccias which have incorporated sedimentary rocks. On the Bear Creek Road near its junction with the paved road, fine-grained biotite-andesite incorporates several xenoliths of purple graded tuff or tuffaceous siltstone up to ½ m long. Nearby is a small outcrop of well-bedded, fissile water-lain tuff.

The contact between rocks of the Cache Creek Group and the overlying Marron Formation was not directly observed, except near sample point 5 + 2000 ÷ 200, where it is faulted. Study of aerial photographs indicates that the contact on the west side of Blue Grouse Mountain on Active 5 is a fault, as is the eastern contact near the Bear Creek Road. Elsewhere the contact is apparently depositional, but nearly everywhere it is buried in talus at or near the base of a cliff. In the vicinity of the legal corner post of Active 2, 3, 4, 5, the Cache Creek is apparently directly overlain by crumbly tuff and agglomerate

of the Marron Formation. Several local fensters appear on this flat shelf, indicating some relief on the old depositional surface. Much of the relief for the contact on Blue Grouse Mountain is ascribable to tilting and block faulting. Elsewhere the Cache Creek rocks are apparently directly overlain by andesite, trachy-andesite, or trachyte flows. Several isolated erosional remnants of single porphyritic flows 10 to 20 m in size, were found up to 1 km from the contact on the east side of Blue Grouse Mountain, lying directly on Cache Creek siltstones. A similar remnant was observed on the west side of Lambly Creek overlying the intrusive contact between interbedded limestone and argillite of the Cache Creek Group, and Nelson biotite granite.

Several dykes 1 to 10 m wide were observed to cut only sedimentary rocks of the Cache Creek Group. Fracture sets, although less well developed in the dykes, were common to both the sedimentary rocks and the dykes. The dykes consisted of a black porphyritic rock with about 30 per cent stubby subhedral prisms of feldspar 1 to 3 mm long which appear to have been altered, probably to albite, and about 10 per cent anhedral mafic phenocrysts of similar size which are completely altered to biotite and chlorite.

5.2 Marron Formation

The Marron Formation outcrops on Blue Grouse Mountain and on the hills of Active 10. It is represented by two major lithologies. The more abundant group is resistant, commonly cliff-forming, rusty-red, pink, orange or orange-brown weathering massive porphyritic trachytes, trachy-andesites and some andesites. A second less abundant group of lithologies are recessive olive-green to brownish-grey crumbly hornblende andesite tuffs and minor agglomerate. These tuffs are apparently at or near the base of the formation, and grade upward into more resistant andesite and trachy-andesite flows or indurated tuffs.

Active 10 is directly underlain only by the Marron Formation represented chiefly by rusty-orange to pink-weathering, grey, brown, buff, and rarely pink fresh, massive porphyritic trachytes. Feldspar phenocrysts are white subhedral rhombs up to 10 mm across, generally comprising 5 to 15 per cent of the rock. Biotite phenocrysts are euhedral, bronze-colored hexagonal flakes 1 to 3 mm across, comprising 1 to 3 per cent of the rock. Small vesicles, some filled with calcite or zeolites, are common. Several small syenite dykes,

comprised mainly of a tight intergrowth of feldspar laths 1 to 3 mm long, were observed at the eastern end of the property. Some green hornblende-bearing andesite or trachy-andesite flows and tuffs were observed along the north boundary.

Similar massive trachyte and trachy-andesite or andesite flows form the resistant capping outcrops on several benches of Blue Grouse Mountain. Most are characterized by the same rhomb-shaped, commonly rounded and broken feldspar phenocrysts up to 15 mm across, although some units contain small euhedral laths. Mafic phenocrysts are generally less abundant and smaller: glassy green pyroxene, black, brown, or bronze-colored biotite, and rounded black hornblende prisms, all rarely exceeding 5 mm. Almost all of the groundmass is aphanitic and may be grey white, grey, brownish grey, sandy brown, brown, grey-green, green, and pink, or pinkish grey in color. Amygdules filled with calcite, zeolites such as stilbite and heulandite in crystals up to 1 cm, chalcedony, jasper, are common with chlorite less so. Trachytic texture was observed in a few flows, but some units are definitely indurated tuffs with many crystals fragmented, and containing volcanic debris and chips of jasper. Some of these are sufficiently well layered to obtain rough bedding measurements.

The hornblende - andesite tufts outcrop chiefly on the south slopes of Blue Grouse Mountain. They are poorly consolidated, commonly forming a sandy rubble on the hillside. They contain about 30 per cent of 2 to 3 mm rounded hornblened prisms in a green groundmass, many with egg-like amygdules ½ - 1 cm in size with radiating fibrous or chalky zeolites, which weather out as little balls. At several places on the television tower road, these are well bedded and were probably waterworked. One outcrop on this road had rounded cobbles of porphyritic volcanics included and appeared to be a volcanic conglomerate. Eastwards across the hill are better indurated outcrops of the same rock; there they become grey green and grey as they begin to have rhomb-shaped feldspar phenocrysts and scarce biotite flakes. The andesite tuffs appear to grade through these porphyritic indurated tuffs or flows to the andesite and trachy-andesite flows already described. No contact with the younger Miocene basalts was observed.

Several outcrops of dark-grey, fine-grained diorite dykes were found mostly cutting the Cache Creek Group, but very fresh in appearance. These are

probably feeder dykes to the andesites and trachy-andesites of the Marron Formation. One large dyke, up to 20 m across, composed of 10 per cent plagioclase laths with about 5 per cent hornblende phenocrysts altering to biotite, in an aphanitic grey groundmass cuts both Nelson granite and Cache Creek siltstones on the west side of Lambly Creek.

5.3 Miocene (?) Basalt

Purplish-grey weathering dark-grey vesicular basalt outcrops along Lambly Creek and Terrace Creek in Active 1, 2, 3, 11, and 12. Flows are flat-lying with columnar jointing. Vesicles are up to 5 cm and some are banded. Pillows were observed at one outcrop on Active 1. Pyroxene and plagioclase phenocrysts up to a few millimetres form a few per cent of the rock. The groundmass is glassy.

Except for an apparent faulted contact with Cache Creek Group rocks, no contacts with other units were observed, because of the heavy drift cover in the creek valleys. The topographic relationships with the Marron Formation suggest that these were valley-filling flows. If so, they may overlie fluvial sediments. Geological Survey of Canada Map 15-1961 indicates an area underlain by these basalts on the southwest corner of Active 1 but deep snow prevented observing them.

5.4 Nelson Intrusions

Biotite granite or quartz monzonite outcrops on the northeast corner of Active 4, and in the southern part of Active 2. It is white, medium-grained, and massive, with 5 to 10 per cent of biotite, commonly partly and in places completely altered to chlorite. Aplite dykes up to ½ m are common near the contacts, both in the granite and the surrounding rock. Contacts with the Cache Creek Group are complicated by faulting on the Wilson Landing road, and are poorly exposed on Active 2. Cache Creek siltstones and limestones have been metamorphosed to phyllite and marble near the contacts, but original bedding is preserved. Contacts appear to be gradational, with schlieren of sedimentary rocks cut by numerous aplite dykes, incorporated into the fringes of the intrusives. As mentioned before, a porphyritic flow of the Marron Formation was observed to overlie both granite and contact-metamorphosed argillite-limestone of the Cache Creek Group.

5.5 Structure

Few structures can be observed directly because of the recessive, rubbly nature of the Cache Creek Group and the massive character of the Marron Formation. The wide variation of attitudes of the Cache Creek rocks suggests considerable folding. Fault breccias are common in argillites and siltstones but orientation and displacements cannot be determined. The Marron volcanic rocks appear to have been cut by at least two major normal faults striking about 30^{0} and dipping steeply to the east. As their traces are in recessive draws, they were only observed directly in two places. Both faults have dropped the eastern block down. The Marron volcanic rocks both on Blue Grouse Mountain, and possibly on Active 10 are tilted about 15^{0} to the east-southeast. The Miocene basalts appear to have been unafftected by this tilting.

SECTION 6.0 GEOCHEMICAL SURVEY

A geochemical soil survey was carried out along traverse lines in a grid laid out by compass and topofil chain. Lines were run north-south or east-west at spacings of about 500 m, and tied to claim boundary posts wherever possible. The lines were run up or down slope as much as possible to cover the basal contact of the nearly flat-lying Tertiary volcanics. Sample stations were marked and labelled with red flagging. A sample interval of 100 m slope distance was used, except on the first line and where the contact zone could be recognized, where an interval of 50 m was used. The soils were generally poorly developed or azonal lithosols. Sand and pebble content was high, many soils representing stabilized talus slopes. Wherever recognizable, the B horizon was sampled. In poorly developed soils, the most clayey part of the C horizon just below the litter layer was sampled. Soil samples were not taken in areas of extensive outcrop and scree nor in areas of deep snow or organic cover, nor where the soil was obviously derived from glacial drift. A total of 240 soil samples were collected.

Water samples were taken at any flowing streams or springs encountered on traverse lines, which were not obviously meltwater. Water samples were also taken where roads crossed several creeks. Fifteen water samples were collected.

Streams were running on gravel bottoms; springs were running out over organic-rich grassy muck, therefore no sediment samples were taken.

Analytical work was performed by Chemex Labs (Alberta) Ltd. in its laboratories in Calgary. Soil samples were dried at 60°C and screened. A 0.25 g sample of the -80 mesh fraction was weighed out and heated at 550°C to remove organics. The ashed residue was digested in 5 ml of 4 M HNO_3 and dried. This residue was leached in 50 ml of 1% HNO_3, stirred, and settled. A few microlitres of the clear solution were evaporated on a platinum dish and fused with a 0.50 g pellet of carbonate-fluoride flux at 650°C. Uranium fluorescence of the fused pellet was determined using a Turner III or Jarrell Ash 26-000 fluorometer. Detection limits are 0.4 ppm uranium. Water samples were acidified, and a 50 ml sample taken for analysis. 2 ml of concentrated HNO_3 was added and the solution evaporated to dryness of uniform low temperature. The residue was dissolved in 1 ml of warm 4 M HNO_3 and evaporated on a platinum dish. The samples were fused and fluorometric analysis performed as for the soils. Detection limits are 0.05 ppb uranium.

Analytical results and sample descriptions are given in Appendices 9.1 to 9.3. Because all but 12 of the soils were below detection limits, no statistical analysis was attempted. Of these 12 samples, 2 + 2000 + 900 is on Nelson granite, 5 + 500 + 900, 5 + 500 + 1100 are between andesite outcrops, and 10 + 500 + 00 is nearest outcrops of trachyte. All the others are at or near the lower contact of the Marron Formation, either visibly, or probably underlain by the hornblende andesite tuff unit.

As only 15 water samples were taken, backgrounds for each lithology cannot be determined. However, with the sample mean of 0.9 ppb as background and the sample mean plus two standard deviations (2.9 ppb) as threshold, only two samples are slightly anomalous. Both these samples are from springs: 3 - 2000 + 1650 and 5 + 2100 + 300. Results of the joint federal-provincial geochemical survey, which, because of sample size, include individual thresholds for the lithologies are roughly comparable. They are 2.0 ppb for the Cache Creek Group and Nelson granites, and 1.0 ppb for Marron Formation volcanics. If these thresholds are used, sample R-2 from a small creek draining Nelson granite, would also be slightly anomalous. Samples from the larger creeks, especially those from Active 1 where runoff was considerable, have the lowest values. The federal-provincial survey found anomalous uranium values in waters on Bald Range Creek, the creek bottom from which sample 3 + 2000 + 1650 was taken, and the

main creek on the south end of Blue Grouse Mountain (near sample 5 + 2100 + 200). None of these samples had correspondingly anomalous uranium in the stream sediments. No anomaly was found in the creek sampled as R-2.

Sample 5 + 2100 + 200 drains a draw which contains the fault contact between Cache Creek and Marron Formation rocks. It may reflect higher concentrations in the hornblende andesite tuffs or waters moving along the fault. Sample 3 + 2000 + 1650 drains an area underlain by rocks only of the Cache Creek Group, which is dominantly limestone in that basin. The higher uranium concentration may reflect higher carbonate concentrations in the water, but could be related to a fault not yet detected.

SECTION 7.0 SCINTILLOMETER SURVEY

A scintillometer survey was carried out along with the geochemical survey. Two portable total count scintillometers were used: a McPar model TI-33A and a Scintrex model BGS-ISL. Both instruments were compared on various backgrounds, and on known samples, and found to differ less than 5 per cent. Each scintillometer was run continuously on all traverses except one, when only one instrument was available, to monitor significant changes. Readings were taken for periods of about 10 seconds with the sensor about 5 cm from the ground surface at the observation points shown in Fig. 6.1 to 6.4.

Results of the scintillometer survey are shown in figures 6.5 to 6.8. Background and threshold values were calculated for each map unit as the sample mean, and the sample mean plus two standard deviations. Sample points visibly contaminated by scree from other units were eliminated. This applies to outcrops below cliffs of porphyritic flows, the scree from which gave the same high values.

Map Unit	Background counts per second	Threshold counts per second
Cache Creek Group	82.5	180.5
Nelson Granite	113.3	156.7
Hornblende Tuff	111.5	142.5
Porphyritic Flows (Andesite to Trachyte)	131.0	179.8
Porphyritic Flows (Trachyte-Active 10)	199.8	313.4
Basalt	61.7	80.3
Glacial Drift	102.0	112.6

The largest variation is within the Cache Creek Group, but the limited outcrop and variation in lithology makes separation of samples into different localities difficult. Generally, the limestones and quartzites had counts of 50 to 60 per second. Siltstones and argillites varied from 65 to about 100 cps, and the volcanics from 100 to 115 cps. No anomalous values were noted.

The volcanics of the Marron Formation have much higher background values. The andesites have values ranging from 90 to 125 cps, and the porphyritic volcanics range up to 275 cps. The highest values are for trachytes and syenites, which are dominantly potash feldspar on Active 10. Background thus appears to vary with potassium content. One anomalous value was noted for a sample taken next to a cliff and is a topographic effect.

One anomalous value was noted for the hornblende andesite tuffs. This was near an outcrop containing abundant feldspar rhombs and was in the transition to overlying trachytes and trachy-andesites. No anomalous values were noted over basalts. One anomalous sample was noted in the glacial drift: this was caused by residual boulders of porphyritic trachyte from adjacent outcrops.

Respectfully submitted,

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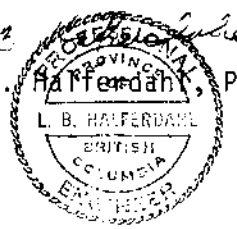

Expiry Date: August 5, 1978

Edmonton, Alberta
May 10, 1978

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SECTION 9.0 APPENDICES

9.1 Geochemical Soil Sample Descriptions

Sample Number*	Soil Horizon	Sample Depth (cm)	Remarks
3-2500 + 1000	C	25	dark brown, sandy, pebbly
+ 1100	C	20	medium brown, sandy, pebbly
+ 1200	C	30	dark brown, sandy, pebbly
+ 1300	C	25	medium brown, sandy
+ 1400	C	20	medium brown, sandy, pebbly
+ 1500	C	25	light brown, sandy with few pebbles
+ 1600	C	25	medium brown, sandy
+ 1700	C	30	dark brown, silty
+ 1800	C	45	light brown, sandy, pebbly
+ 1900	C	25	light brown, sandy, pebbly
4-2000 + 200	C	20	rusty brown, sandy
+ 100	B	25	light greyish-brown, clayey, silty, slightly sandy
3-2000 + 00	C	20	light brown, sandy
+ 100	C	25	dark brown, clayey, silty
+ 200** (3+2500+200)	C	25	medium brown, sandy
+ 500	C	20	medium brown, sandy, clayey, pebbly
+ 600	C	25	light brown, sandy, clayey
+ 700	C	25	light brown, sandy, clayey
+ 800	C	25	light brown, sandy, clayey, pebbly
+ 900	C	20	rusty brown, sandy, pebbly
+ 1000	C	25	medium brown, sandy, pebbly
+ 1100	C	20	medium brown, sandy, pebbly
+ 1200	C	25	medium brown, sandy, pebbly
+ 1300	C	25	medium brown, sandy, pebbly
+ 1400	C	20	light brown, sandy
+ 1500	C	45	medium brown, sandy, clayey
+ 1600	C	30	medium brown, sandy
+ 1700	C	25	dark brown, sandy, pebbly
+ 1800	C	20	medium brown, sandy, pebbly
+ 1900	C	25	light brown, sandy, pebbly
+ 2000	C	30	light brown, sandy
3-1500 + 100	C	20	medium brown, sandy, clayey
+ 500	C	45	medium brown, sandy, clayey
+ 600	C	45	medium brown, sandy, clayey
+ 700	C	30	medium brown, sandy, pebbly
+ 800	C	30	medium brown, sandy, clayey

* The sample number consists of three parts: the first is the claim number, the second and third respectively are the distances in metres north or south and east or west from the legal corner post.

** Sample bag incorrectly labeled; correct number in parenthesis.

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
3-1500 + 900	C	30	medium brown, sandy, pebbly
+ 1000	C	30	light brown, sandy, pebbly
+ 1100	C	45	medium brown, sandy
+ 1200	C	30	medium brown, sandy
+ 1300	C	45	medium brown, sandy, pebbly
+ 1400	C	20	medium brown, sandy, pebbly
+ 1500	C	25	medium brown, sandy, clayey
+ 1600	C	30	medium brown, sandy, clayey, pebbly
+ 1700	C	20	light brown, sandy
+ 1800	C	30	light brown, sandy with few pebbles
+ 1900	C	20	light brown, silty
+ 2000	C	20	light brown, silty
3-1000 + 100	C	20	reddish-brown, sandy, clayey
3- 500 + 400	C	25	grey-brown, slightly pebbly
+ 500	C	25	grey-brown, clayey, pebbly
+ 550	C	20	grey-brown, clayey, very rocky
+ 600	C	15	grey-brown, clayey, very pebbly
+ 800	C	30	dark brown, clayey, very pebbly
+ 900	C	30	brown, clayey, very pebbly
+ 1100	C	30	brown, sandy, pebbly
+ 1200	C	25	light brown, clayey, very pebbly
+ 1300	C	25	light brown, clayey, very pebbly
5+ 00 + 1550	C	30	brown, clayey, pebbly
+ 1500	C	30	reddish-brown, clayey, pebbly
+ 1450	C	30	reddish-brown, clayey, slightly pebbly
+ 1400	C	30	reddish-brown, clayey
+ 1350	C	30	brown, pebbly
+ 1250	C	30	reddish-brown, clayey, pebbly
+ 1200	C	30	reddish-brown, clayey, pebbly
+ 1100	C	20	brown, rocky
+ 950	C	30	dark brown, clayey
+ 900	C	30	grey-brown, clayey
+ 750	C	30	brown, sandy, clayey
+ 700	C	30	grey-brown, clayey, rocky
+ 650	C	15	brown, clayey
+ 550	C	30	mostly crumbled tuffaceous rock
+ 500	C	35	brown, clayey
+ 450	C	20	brown, clayey
+ 400	C	30	brown, clayey, slightly pebbly
+ 350	C	35	brown, clayey, rocky, poorly developed podzol

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
5+ 00 + 300	C	25	brown, clayey, rocky
+ 250	C	25	brown, rocky, clayey
+ 200	C	30	mostly volcanic talus
+ 150	C	30	brown, clayey, pebbly
+ 100	C	30	brown, very pebbly
+ 50	C	30	brown, very pebbly
+ 00	C	30	light brown, clayey, pebbly
3- 00 + 100	C	25	brown, clayey, pebbly
+ 200	B	10	orange-brown, clayey
+ 300	C	20	grey-brown, clayey, slightly rocky
+ 350	C	25	grey-brown, clayey, pebbly, poorly developed podzol
+ 400	C	25	grey-brown, clayey
+ 450	C	35	grey-brown, clayey, pebbly
+ 500A***	C	25	brown, clayey, rocky
+ 500	C	15	dark brown, clayey
+ 550	C	30	yellow-brown, clayey, pebbly
+ 600	C	10	grey-brown, clayey
+ 800	C	25	brown, very rocky
+ 900	C	30	grey-brown, pebbly, clayey
+ 940	C	30	grey-brown, clayey, pebbly
5- 100 + 00	C	20	medium brown, clayey, silty
- 200 + 00	C	20	medium brown, clayey, sandy
- 300 + 00	C	30	medium brown, clayey, silty
- 400 + 00	C	25	medium brown, clayey, silty
5- 500 + 2000	C	30	medium brown, sandy
+ 1900	C	25	medium brown, sandy
+ 1800	C	20	reddish-brown, sandy, pebbly
+ 1700	C	20	medium brown, sandy
+ 1600	C	30	greyish brown, sandy, pebbly
+ 1500	C	25	medium brown, sandy, pebbly
+ 1420	C	20	reddish-brown, sandy, pebbly
+ 1100	C	30	medium brown, coarse sand
+ 1000	C	15	reddish-brown, silty, pebbly
+ 900	C	30	light brown, silty
+ 830** (5-500+820)	C	25	light brown, sandy
+ 700	C	20	reddish-brown, sandy, silty
+ 600	C	15	reddish-brown, silty, sandy

*** One of three unlabeled samples. Two contained less than 0.4 ppm uranium: the third was not received by Chemex.

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
5- 500 + 500	C	20	light brown, sandy
+ 400	C	30	reddish-brown, coarse sand
+ 300	C	30	yellowish-brown, coarse sand
+ 200	C	25	reddish-brown, clayey, silty
+ 100	C	25	medium brown, clayey, silty
2- 500 + 00	C	25	medium brown, sandy, clayey, pebbly
+ 100	C	30	dark brown, sandy, clayey
+ 200	C	20	dark brown, sandy, pebbly
+ 300	C	25	medium brown, pebbly, sandy
+ 400	C	25	medium brown, sandy
+ 600	C	30	medium brown, pebbly, sandy
+ 800	C	30	reddish-brown, sandy, pebbly
2- 600 + 00	C	25	medium brown, clayey, sandy, pebbly
- 700 + 00	C	30	dark brown, clayey, pebbly
- 800 + 00	C	20	medium brown, clayey, sandy
- 900 + 00	C	20	dark brown, silty, clayey
2- 600 + 2000	C	15	brown, very rocky
- 700 + 2000	A	20	dark brown
- 800 + 2000	C	15	brown, very pebbly, clayey
- 900 + 2000	C	15	brown, very pebbly, clayey
-1000 + 2000	C	20	reddish-brown, pebbly
5-1000 + 1900	C	30	reddish-brown, clayey, pebbly
+ 1700	C	25	dark brown, clayey
+ 1600	C	20	brown, clayey, pebbly
+ 1500	C	20	brown, clayey, pebbly
+ 1200	C	30	brown, clayey, sandy
+ 1100	C	15	brown, clayey, pebbly
+ 500	C	20	reddish-brown, very clayey
+ 400	C	30	reddish-brown, very clayey, pebbly
+ 350	C	25	reddish-brown, pebbly
+ 300	C	25	brown, clayey, very pebbly
+ 200	C	20	brown, clayey
+ 100	C	20	dark brown, very rocky
2-1000 + 00	C	30	medium brown, sandy, pebbly
+ 100	C	20	brown, clayey, very pebbly
+ 300	C	20	brown, clayey, very pebbly
+ 600	C	25	brown, sandy, pebbly

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
2-1200 + 00	C	30	medium brown, sandy, pebbly
-1300 + 00	C	30	medium brown, sandy, pebbly
-1400 + 00	C	30	medium brown, sandy, pebbly
2-1100 + 2000***	C	20	reddish-brown, clayey, pebbly
-1500 + 2000	C	20	dark brown, very pebbly
5-1500 + 1400	C	30	grey-brown, very clayey
+ 1200	C	20	light brown, sandy, clayey
+ 900	C	15	brown, clayey, very rocky
+ 700	B	35	yellow-brown, very clayey, sandy
+ 600	C	20	brown, clayey, pebbly
+ 400	C	30	orange-brown, clayey, pebbly
+ 350	C	5	brown, slightly clayey
+ 300	C	20	reddish-brown, clayey, pebbly
+ 250	C	25	dark brown, pebbly
+ 200	C	25	reddish-brown, slightly pebbly
2-1500 + 00	C	30	medium brown, sandy, pebbly
2-1500 + 900	C	25	reddish-brown, very pebbly
+ 1200	C	25	dark brown, clayey, pebbly
+ 1300	C	25	brown, clayey, pebbly
+ 1400	C	25	brown, clayey, very pebbly
+ 1500	C	25	brown, clayey, pebbly
+ 1600	C	25	brown, clayey, pebbly
+ 1700	C	20	brown, very pebbly
5-2000 + 2000	C	25	medium brown, silty
+ 1800	C	30	medium brown, silty, sandy
5-2100 + 1700	C	20	medium brown, sandy, pebbly
5-2000 + 1400	C	30	light brown, sandy, clayey
+ 1300	C	25	medium brown, pebbly, sandy
+ 1200	C	25	light brown, sandy
+ 1100	C	30	light brown, sandy
+ 1000	C	30	light brown, sandy
+ 900	C	30	light brown, sandy
+ 800	C	20	dark brown, sandy, pebbly, clayey
+ 700	C	40	light brown, sandy, pebbly
+ 600	C	40	medium brown, sandy
+ 500	C	30	reddish-brown, sandy, pebbly

*** One of three unlabeled samples. Two contained less than 0.4 ppm uranium: the third was not received by Chemex.

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
5-2000 + 400	C	30	reddish-brown, sandy
+ 300	C	40	medium brown, sandy, clayey, slightly pebbly
+ 200	C	25	medium brown, sandy
+ 100	C	30	dark brown, sandy
+ 00	C	30	medium brown, sandy
2-2000 + 900	C	25	medium brown, sandy, pebbly
+ 1000	C	25	light brown, coarse sand
+ 1300	C	25	medium brown, pebbly, sandy
+ 1500** (5-2000+1500)	C	30	medium brown, pebbly, sandy
5-2100 + 00	C	30	medium brown, sandy
-2200	C	30	light brown, sandy, slightly pebbly
-2300	C	30	light brown, sandy, pebbly
-2400	C	30	light brown, sandy
5-2500 + 1400	C	40	dark brown, sandy, pebbly
+ 1320	B	40	medium brown, silty, clayey
+ 1200	C	30	medium brown, silty
+ 1000	C	40	medium brown, sandy, pebbly
+ 900	C	25	medium brown, sandy, pebbly
+ 800	C	30	medium brown, sandy, pebbly
+ 700	C	25	medium brown, sandy, pebbly
+ 600	C	25	reddish-brown, sandy, clayey
+ 500	C	30	dark brown, sandy
+ 435	C	30	medium brown, sandy, pebbly
+ 300	C	30	light brown, sandy, pebbly
+ 200	C	30	light brown, coarse sand, pebbly
+ 100	C	30	light brown, sandy
+ 00	C	30	light brown, sandy, pebbly
2-2500 + 500	C	25	light brown, sandy, slightly pebbly
+ 600	C	25	medium brown, coarse sand, pebbly
13-400 + 500	C	30	light brown, sandy
-450	C	30	light brown, sandy
-500	C	25	light brown, sandy
-550	C	30	medium brown, sandy
-600	C	25	medium brown, sandy
-650	C	30	medium brown, sandy, pebbly
-700	C	20	medium brown, sandy
-800	C	25	reddish-brown, sandy, pebbly
-900	C	20	medium brown, sandy

9.1 Geochemical Soil Sample Descriptions (cont.)

Sample Number	Soil Horizon	Sample Depth (cm)	Remarks
13-1000 + 1000	C	25	reddish-brown, sandy, pebbly
- 900	C	25	dark reddish-brown, sandy, pebbly clayey
- 800	C	25	medium brown, sandy, clayey
- 700	C	25	light brown, silty, sandy
- 600	C	40	medium brown, sandy
- 550 **			
(3+550+1000)	C	25	medium brown, sandy
10- 500 + 00	C	25	dark brown, clayey, slightly pebbly
+ 100	C	20	dark brown, clayey, pebbly
+ 200	C	20	grey-brown, clayey, pebbly
+ 400	C	15	grey-brown, sandy, slightly pebbly
+ 500	C	20	dark brown, very rocky
+ 600	C	20	dark brown, clayey, pebbly
+ 700	C	30	grey-brown, sandy
+ 800	B	20	light brown, sandy
+ 900	C	20	brown, clayey sand, slightly pebbly
10- 300 + 700***	C	20	grey-brown, sandy, clayey, pebbly

*** One of three unlabeled samples. Two contained less than 0.4 ppm uranium: the third was not received by Chemex.

9.2 Geochemical Water Sample Descriptions

Number and Location	Remarks
R-1 on paved highway east of Active 5	small creek
R-2 on paved highway east of Active 4	small creek
1079 intersection of creek and Bear Creek road on Active 1	creek, high discharge
1049 downstream of 1079, just before intersection with Lambly Creek	creek, high discharge
1102 on Lambly Creek about 150 m upstream from 1049	creek, high discharge
1 - 00 + 00*	creek, high discharge
2 - 1457 + 00	small creek
2 - 1637 + 125	small creek
3 - 2000 + 1650	collected at pipe outlet from spring
5 - 500 + 338	small creek
5 - 950 + 1450	small creek
5 - 1000 + 225	small creek
5 - 2100 + 300	spring
13- 335 + 00	creek, high discharge
13- 540 + 00	creek, high discharge

* Incorrectly labeled 2 - 00 + 00

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CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

Halferdahl & Associates Ltd.
Edmonton, Alberta

DATE April 28, 1978

PROJECT NO. 663-1-1518

URANIUM GEOCHEMICAL ANALYSIS
WATER ANALYSIS

Location	ppb
R1	0.7
R2	2.4
1049	0.2
1079	0.1
1102	0.2
2+00+00	0.2
2-1457+00	0.7
2+1637+125	0.8
3+2000+1650	2.9
5-500+338	0.6
5+950+1450	0.7
5+1000+225	0.6
5+2100+300	3.0
13-335+00	0.4
13-540+00	0.4

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DATE April 28, 1978

PROJECT NO 663-1-1578

URANIUM GEOCHEMICAL ANALYSES

Location	ppm
5-2000+00	<0.4
5-2100+00	<0.4
5-2200+00	<0.4
5-2300+00	<0.4
5-2400+00	<0.4
5-2500+00	<0.4
5-2500+100	<0.4
5-2500+200	<0.4
5-2500+300	<0.4
5-2500+435	<0.4
5+2500+500	<0.4
5-2500+600	<0.4
5-2500+700	<0.4
5-2500+800	<0.4
5-2500+900	<0.4
5+2500+1000	<0.4
5-2500+1200	<0.4
5-2500+1320	<0.4
5-2500+1400	<0.4
5-2000+100	<0.4
5-2000+200	<0.4
5-2000+300	<0.4
5-2000+400	<0.4
5-2000+500	<0.4
5-2000+600	<0.4
5-2000+700	<0.4
5-2000+800	<0.4
5-2000+900	<0.4
5-2000+1000	<0.4
5-2000+1100	<0.4
5-2000+1200	<0.4
5-2000+1300	<0.4
5-2000+1400	<0.4
5-2000+1500	<0.4
5-2000+1800	<0.4
5-2000+2000	<0.4
5-2100+1700	<0.4
5-100+00	<0.4
5-200+00	<0.4
5-300+00	<0.4

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URANIUM GEOCHEMICAL ANALYSES

PROJECT NO 663-1-15 8

Location	ppm
5+400+00	<0.4
5-500+100	<0.4
5-500+200	<0.4
5-500+300	4
5-500+400	4
5-500+500	<0.4
5-500+600	<0.4
5-500+700	<0.4
5-500+820	<0.4
5+500+900	2
5-500+1000	<0.4
5+500+1100	2
5-500+1420	<0.4
5-500+1500	<0.4
5+500+1600	<0.4
5+500+1700	<0.4
5-500+1800	<0.4
5-500+1900	<0.4
5-500+2000	<0.4
5-00+00	<0.4
5-00+50	<0.4
5-00-100	<0.4
5-00-150	<0.4
5-00+200	<0.4
5-00-250	<0.4
5-00-300	<0.4
5-00-350	<0.4
5-00-400	<0.4
5-00-450	<0.4
5-00-500	<0.4
5-00-550	2
5-00-650	<0.4
5-00-700	<0.4
5-00-750	<0.4
5-00-900	<0.4
5-00-950	<0.4
5-00-1100	<0.4
5-00-1200	<0.4
5-00-1250	<0.4
5-00-1350	<0.4

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PROJECT NO. 663-1-1518

Location	ppm
5-00-1400	<0.4
5-00-1450	<0.4
5-00-1500	<0.4
5-00+1550	<0.4
3+00+940	<0.4
3+00+900	<0.4
3+00+800	<0.4
3+00+600	<0.4
3+00+550	<0.4
3+00+500	<0.4
3+00+450	<0.4
3+00+400	<0.4
3+00+350	<0.4
3+00+300	<0.4
3+00+200	<0.4
3+00+100	<0.4
3+500+400	<0.4
3+500+500	<0.4
3+500+550	<0.4
3+500+600	<0.4
3+500+800	<0.4
3+500+900	<0.4
3+500+1100	<0.4
3+500+1200	<0.4
3+500+1300	<0.4
10+500+00	2
10+500+100	<0.4
10+500+200	<0.4
10+500+400	<0.4
10+500+500	<0.4
10+500+600	<0.4
10+500+700	<0.4
10+500+800	<0.4
10+500+900	<0.4
2+100+600	<0.4
2+100+300	<0.4
2+100+100	<0.4
5+1000+100	<0.4
5+1000+200	<0.4
5+1000+300	<0.4

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PROJECT NO. 663-1-1518

Location	ppm
5+1000+350	2.0
5+1000+400	<0.4
5+1000+500	<0.4
5+1000+1100	<0.4
5+1000+1200	<0.4
5+1000+1500	<0.4
5+1000+1600	<0.4
5+1000+1700	<0.4
5+1000+1900	<0.4
5+1500+200	<0.4
5+1500+250	<0.4
5+1500+250	<0.4
5+1500+300	<0.4
5+1500+350	4
5+1500+400	2
5+1500+600	2
5+1500+700	4
5+1500+900	<0.4
5+1500+1200	<0.4
5+1500+1400	<0.4
2+600+2000	<0.4
2+700+2000	<0.4
2+800+2000	<0.4
2+900+2000	<0.4
2+1000+2000	<0.4
2+1500+1700	<0.4
2+1500+1600	<0.4
2+1500+1500	<0.4
2+1500+1400	<0.4
2+1500+1300	<0.4
2+1500+1200	<0.4
2+1500+900	<0.4
2+2500+500	<0.4
2+2500+600	<0.4
2+2000+1300	<0.4
2+2000+1000	<0.4
2+2000+900	2
3-2500+200	<0.4
3-550+1000	<0.4
UN-NUMBERED 1	<0.4

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URANIUM GEOCHEMICAL ANALYSES

PROJECT NO. 663-1-1318

Location	ppm
UN-NUMBERED 2	<0.4
3+1500+2000	<0.4
3-1500+1700	<0.4
3-1500+1800	<0.4
3-1500+1900	<0.4
3-2000+2000	<0.4
3-2000+1900	<0.4
3-2000+1800	<0.4
3-2000+1700	<0.4
3-2000+1600	<0.4
3-2000+1500	<0.4
3-2500+1000	<0.4
3-2500+1100	<0.4
3-2500+1200	<0.4
3-2500+1300	<0.4
3-2500+1400	<0.4
3-2500+1500	<0.4
3-2500+1500	<0.4
3-2500+1600	<0.4
3-2500+1700	<0.4
3-2500+1800	<0.4
3-2500+1900	<0.4
3-2000+1400	<0.4
3-2000+1300	<0.4
3-2000+1200	<0.4
3-2000+1100	<0.4
3-2000+1000	<0.4
3-2000+900	<0.4
3-2000+800	<0.4
3-2000_700	<0.4
3-2000+600	<0.4
3-2000+500	<0.4
3-2000+100	<0.4
3-2000+00	<0.4
4-2000+100	<0.4
4-2000-200	<0.4
3-1500+1600	<0.4
3-1500+1500	<0.4
3-1500+1400	<0.4
3-1500+1300	<0.4
3-1500+1200	<0.4

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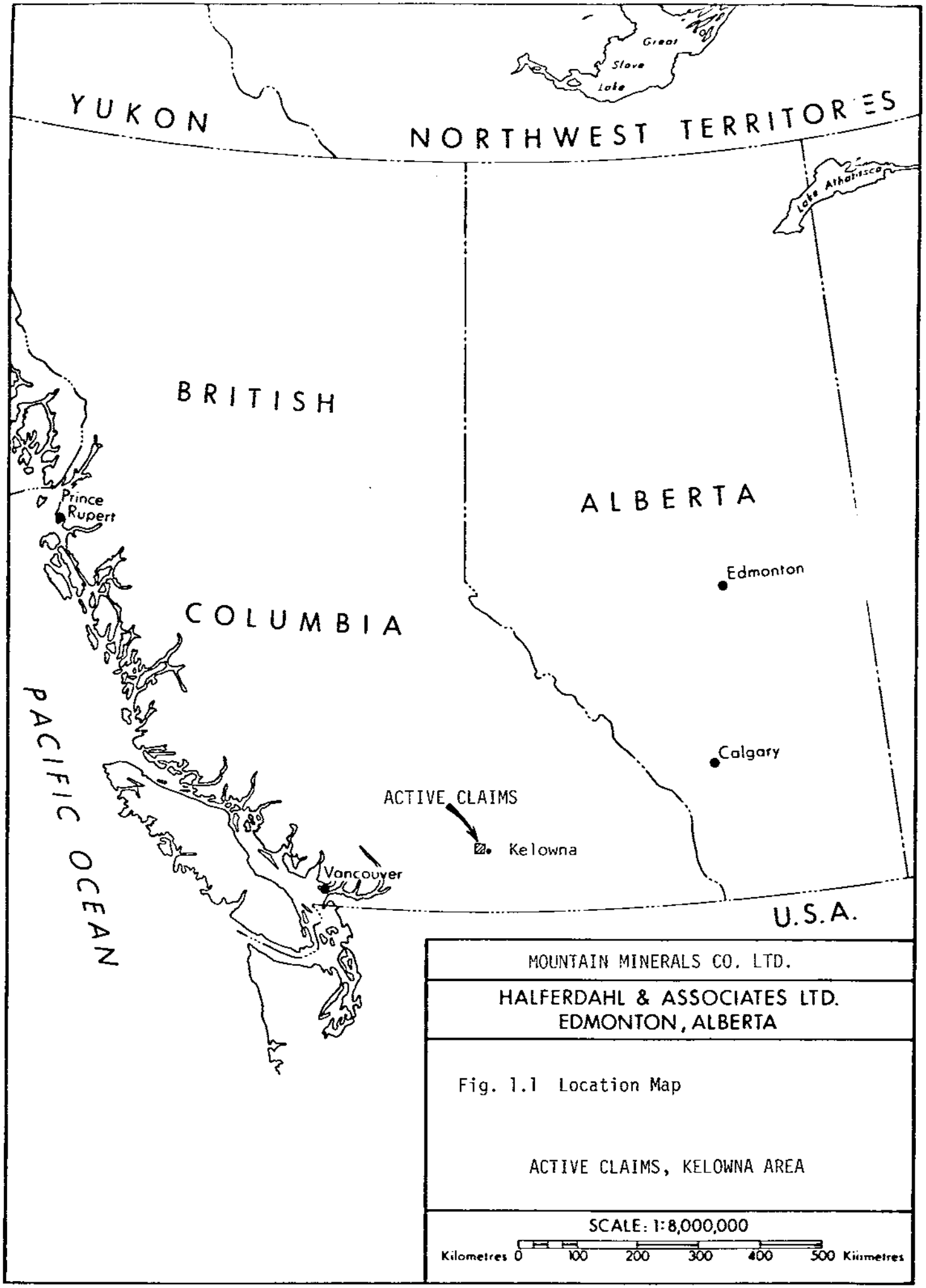
Location	ppm
3-1500+1100	<0.4
3-1500+1000	<0.4
3-1500+900	<0.4
3-1500+800	<0.4
3-1500+700	<0.4
3-1500+600	<0.4
3-1500+500	<0.4
3-1500+100	<0.4
3-1000+100	<0.4
2-1500+00	<0.4
2-1400+00	<0.4
2-1300+00	<0.4
2-1200+00	<0.4
2-1100+2000	<0.4
2-1000+00	<0.4
2+900+00	<0.4
2-800+00	<0.4
2-700+00	<0.4
2-600+00	<0.4
2-500+00	<0.4
2-500+100	<0.4
2-500+200	<0.4
2-500+300	<0.4
2-500+400	<0.4
2-500+600	<0.4
2-500+800	<0.4
13-400+500	<0.4
13-450+500	<0.4
13-500+500	<0.4
13-550+500	<0.4
13-600+500	<0.4
13-650+500	<0.4
13-700+500	<0.4
13-800+500	<0.4
13-900+500	<0.4
13-1000+1000	<0.4
13-900+1000	<0.4
13-800+1000	<0.4
13-700+1000	<0.4
13-600+1000	<0.4

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by



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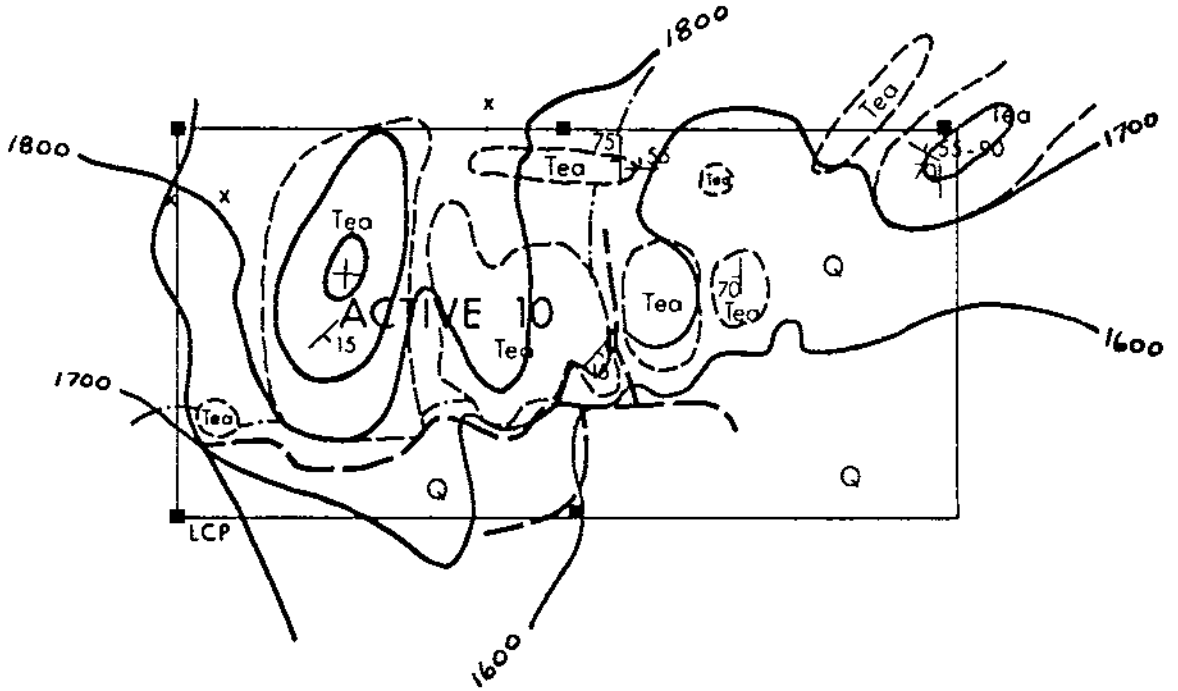
EDMONTON, ALBERTA

Fig. 1.1 Location Map

ACTIVE CLAIMS, KELOWNA AREA

SCALE: 1:8,000,000

Kilometres 0 100 200 300 400 500 Kilometres



Symbols

Road (all weather) ———————————

Trail (dry weather) — — — — — —

(located) ■

Area of almost continuous outcrop ⊂——⊃

See Fig. 5.1 for other symbols and legend.

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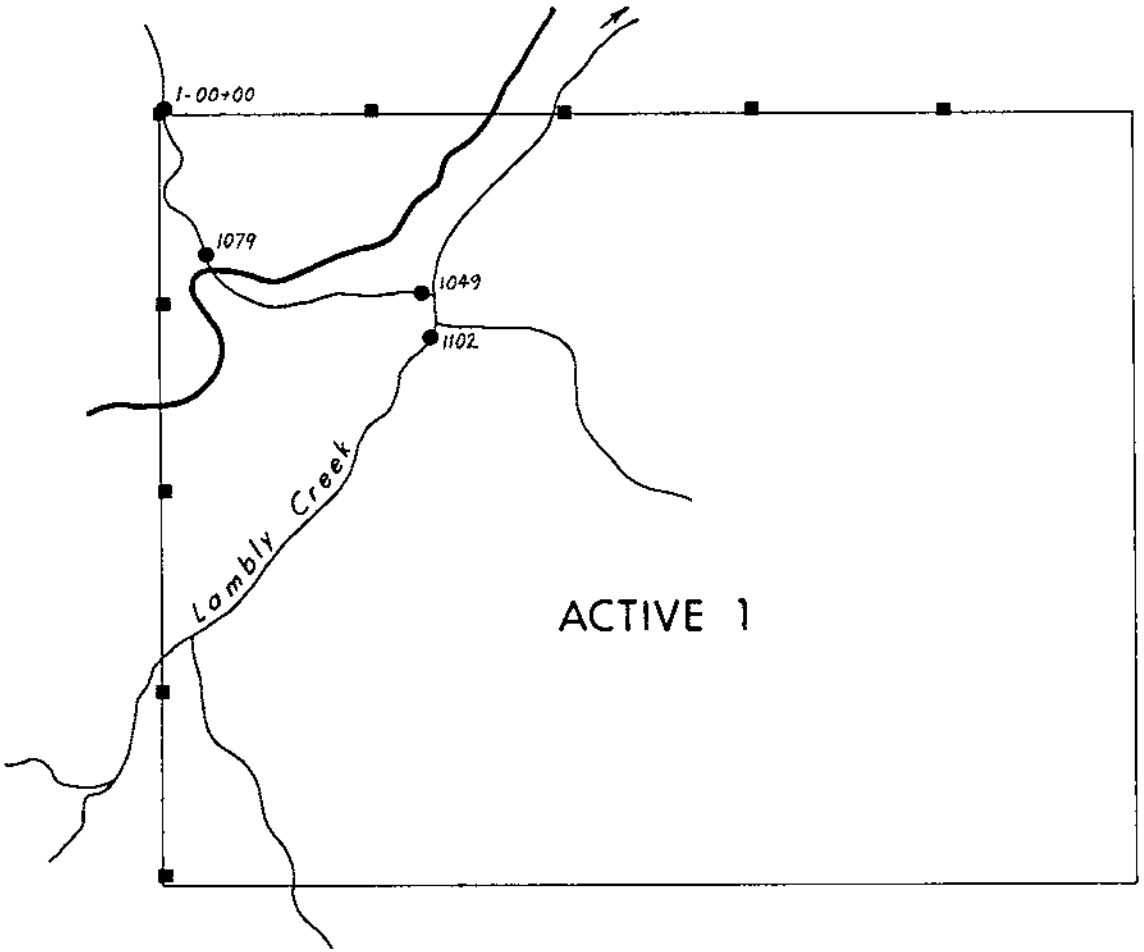
Fig. 5.2 Geological Map of Active 10

ACTIVE CLAIMS, KELOWNA AREA

Scale 1:10,000

Metres 0 100 200 300 400 500 600 700 Metres

JG 1978.04



Claim posts located by chain and compass.
See Fig. 6.2 for symbols.

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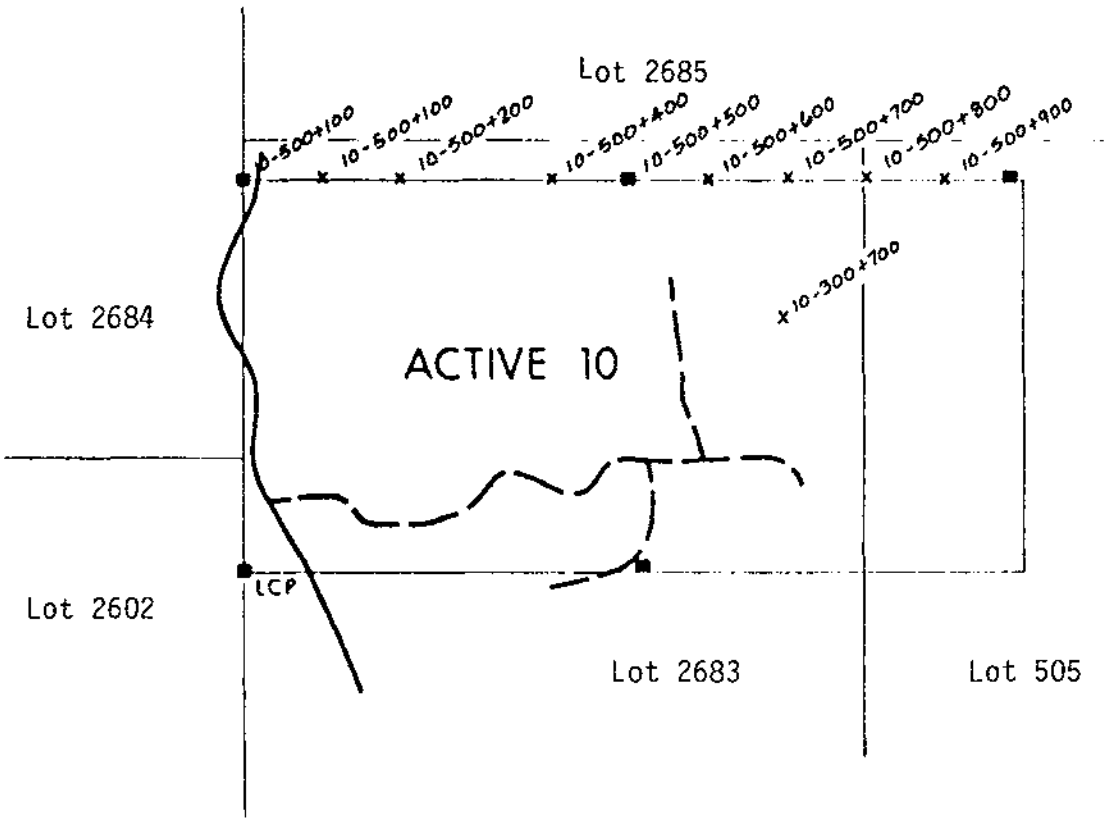
Fig. 6.1 Locations of Geochemical Samples on Active 1

ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:20 000

Metres 0 200 400 800 1000 1200 1600 1800 Metres

JG 1978.04



Symbols

Road (all weather) ———————

Trail (dry weather) — — —

Claim post (located) ■

Soil sample with number x

Claim posts located by chain and compass and on air photos.

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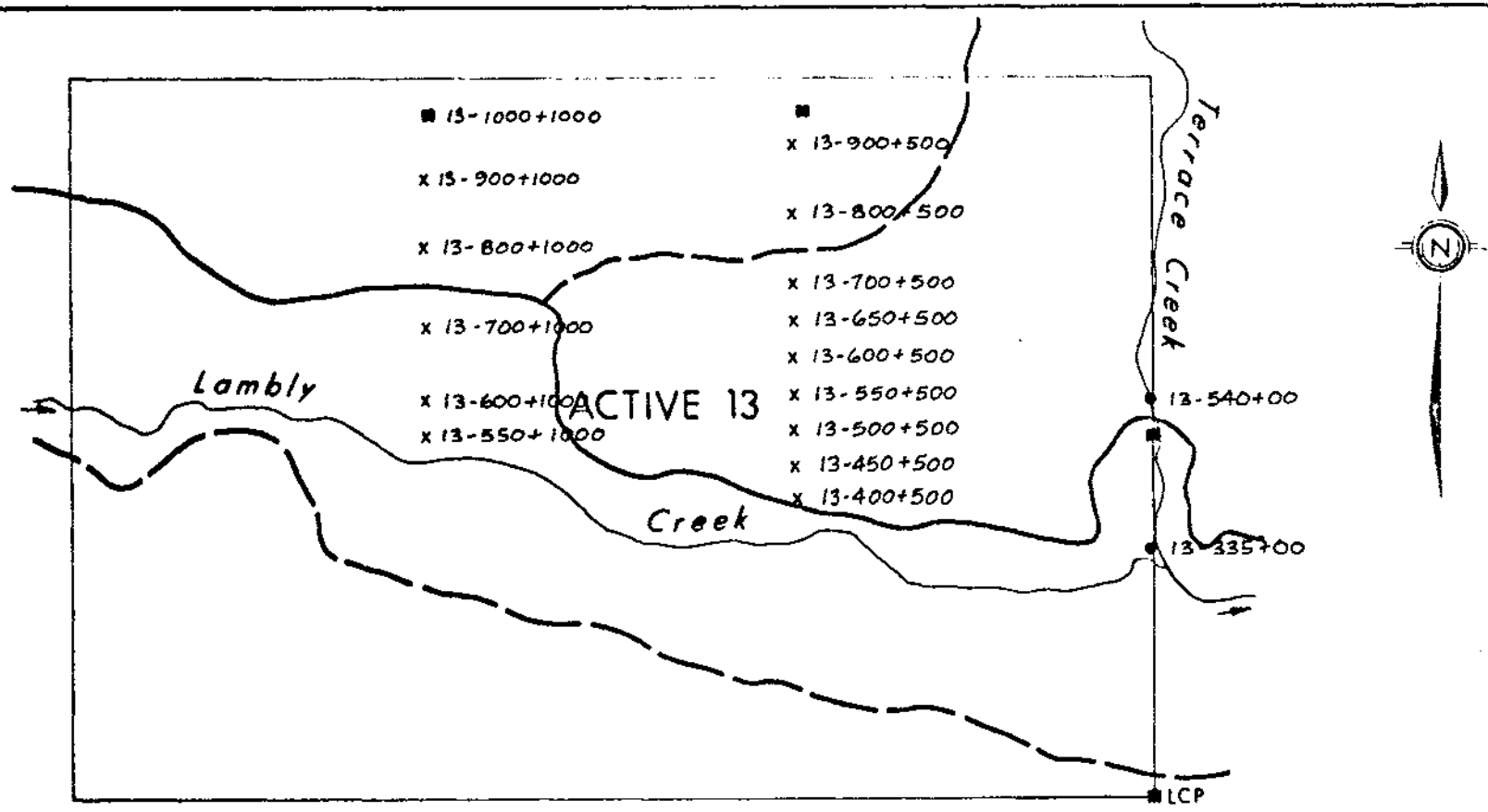
Fig. 6.3 Locations of Geochemical Samples on Active 10

ACTIVE CLAIMS, KELOWNA AREA

Scale 1:10,000

Metres 0 100 200 300 400 500 600 700 Metres

JG 1978.04



Symbols

Road (all weather) ——————————

Trail (dry weather) – – – – – –

Creek ~~~~~~~~~~

Claim post (located) ■

Soil sample with number x

Water sample with number ●

Claim posts located by chain and compass and on air photos.

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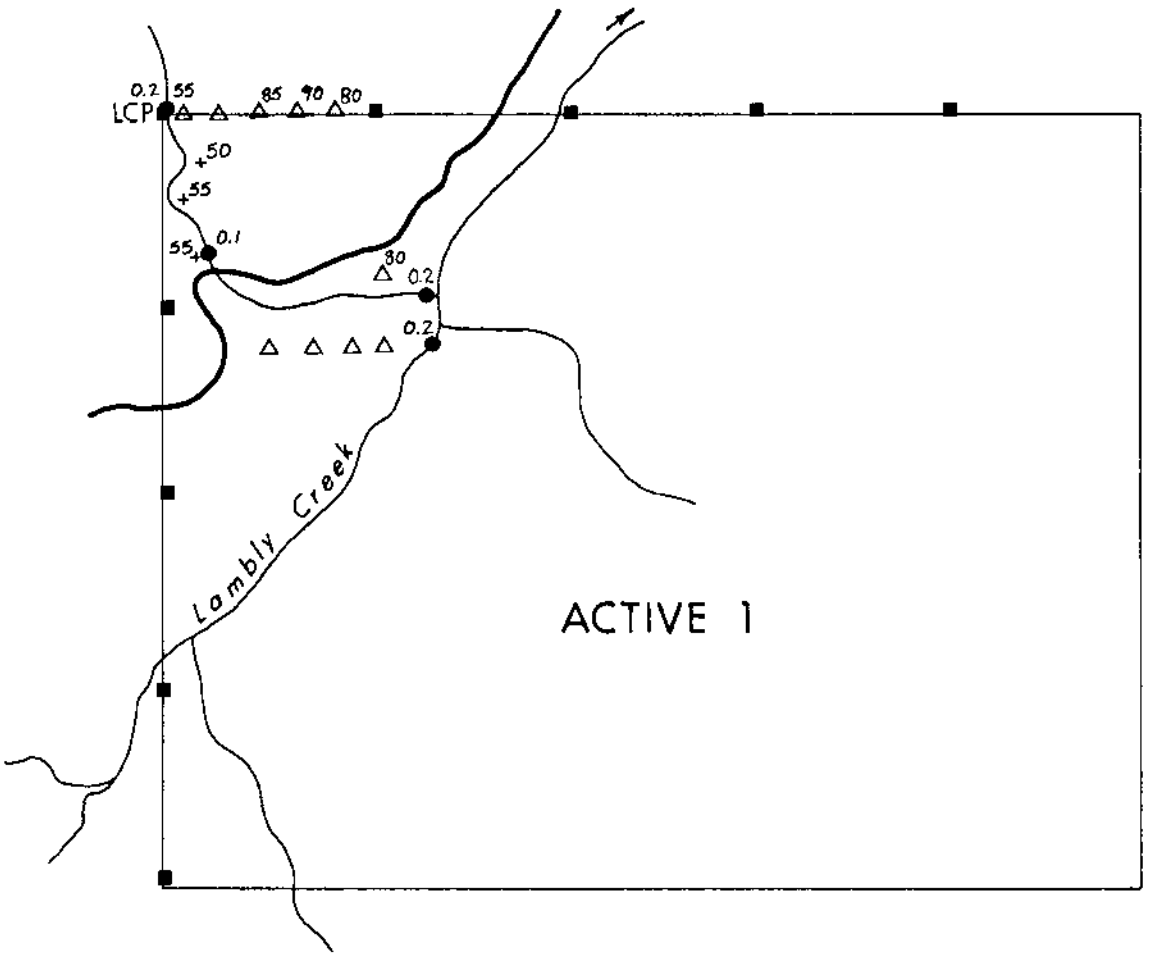
Fig. 6.4 Locations of Geochemical Samples on Active 13

ACTIVE CLAIMS, KELOWNA AREA

Scale 1:10,000

Metres 0 100 200 300 400 500 600 700 Metres

JG 1978.04



See Fig. 6.6 for symbols

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Fig. 6.5 Geochemical Survey of Active 1

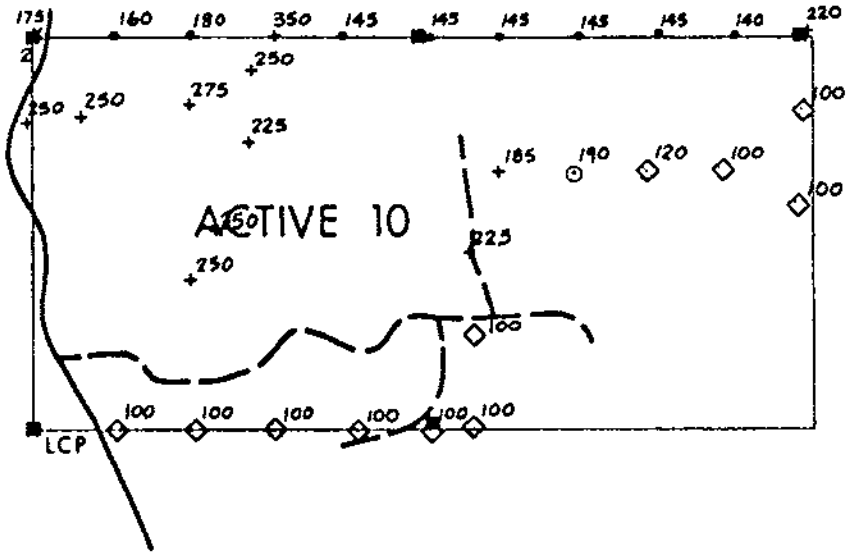
ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:20 000

Metres 0 200 400 800 1000 1200 1600 1800 Metres

JG

1978.04



Symbols

Road (all weather) ———————

Trail (dry weather) — — — —

Claim post (located) ■

Glacial overburden (no soil sample) ◇100

See Fig. 6.6 for other symbols.
All scintillometer readings are in counts per second.

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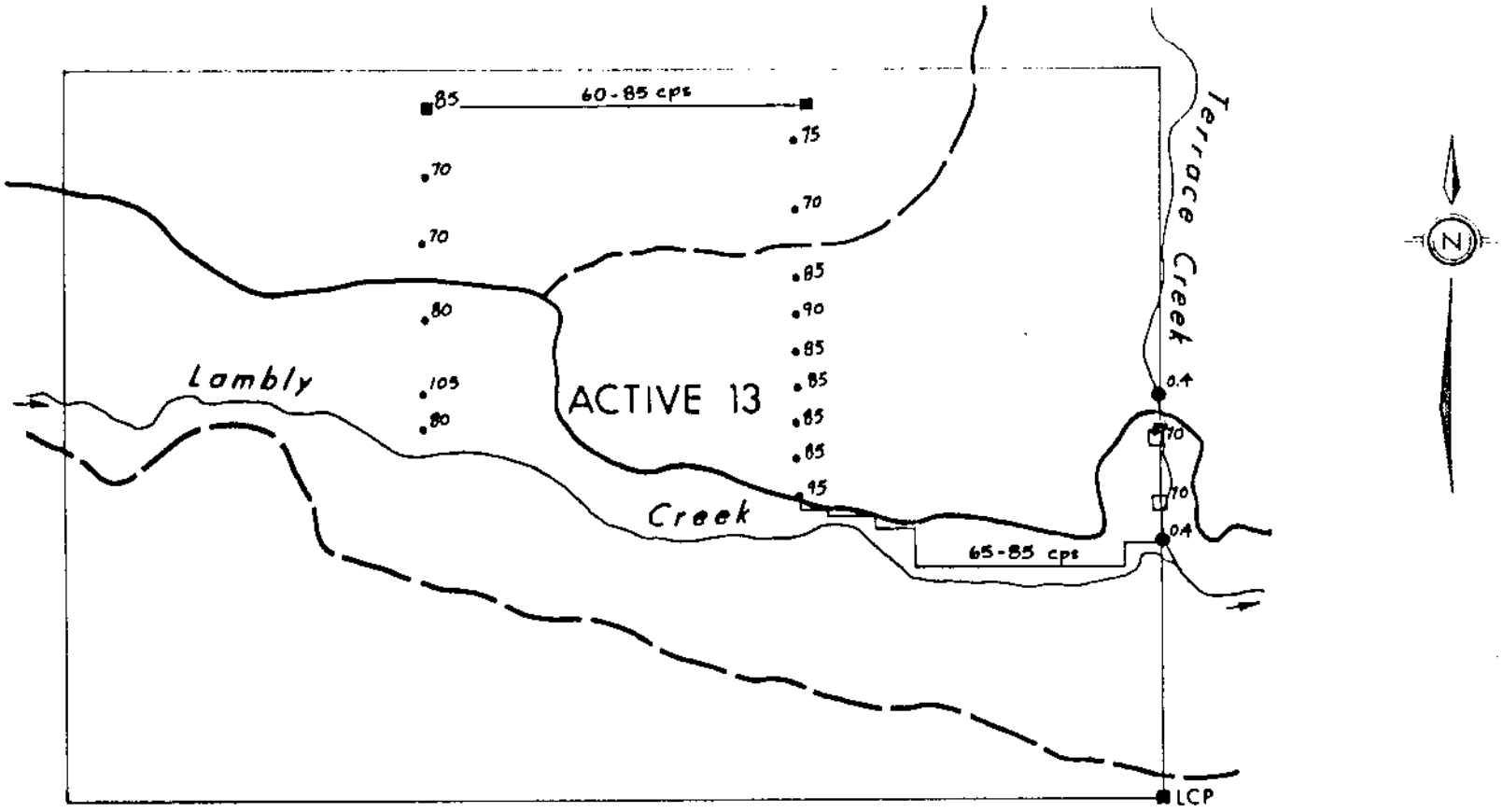
Fig. 6.7 Geochemical and Scintillometer Survey of Active 10

ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:10,000

Metres 0 100 200 300 400 500 600 700 Metres

JG 1978.04



Symbols

Road (all weather) ——————————

Trail (dry weather) — — — — — —

Creek ~~~~~~~~~~~~~~~~~~~~~~~~~~

Claim post (located) ■

Water sample (Uppb) ●0.4

Soil sample (U<0.4ppm), scintillometer reading (cps) ●85

Heavy organic cover (no sample), scintillometer reading (cps) □70

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Fig. 6.8 Geochemical and Scintillometer Survey of Active 13

ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:10,000

Metres 0 100 200 300 400 500 600 700 Metres

JG

1978.04

CHEMEX

CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 465-9877 TELEX 037-41596

CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

Halferdahl & Associates Limited

DATE April 28, 1978

PROJECT NO. 663-1-151

URANIUM GEOCHEMICAL ANALYSES

THE FOLLOWING SAMPLES LISTED IN THE SAMPLE DESCRIPTION WERE NOT RECEIVED:

3+2000+200
13+550+1000
5+2500+1100
3+00+500A
10+300+700
2+1100+2000
2+2000+1500
2+2000+1200
5+500+830

ADDITIONAL SAMPLES NOT LISTED WERE RECEIVED:

5+500+820
5+2000+1500
3+2500+200
3+00+800
3+550+1000

AND 2 UN-NUMBERED SAMPLES ASSIGNED UN-NUMBERED 1
UN-NUMBERED 2

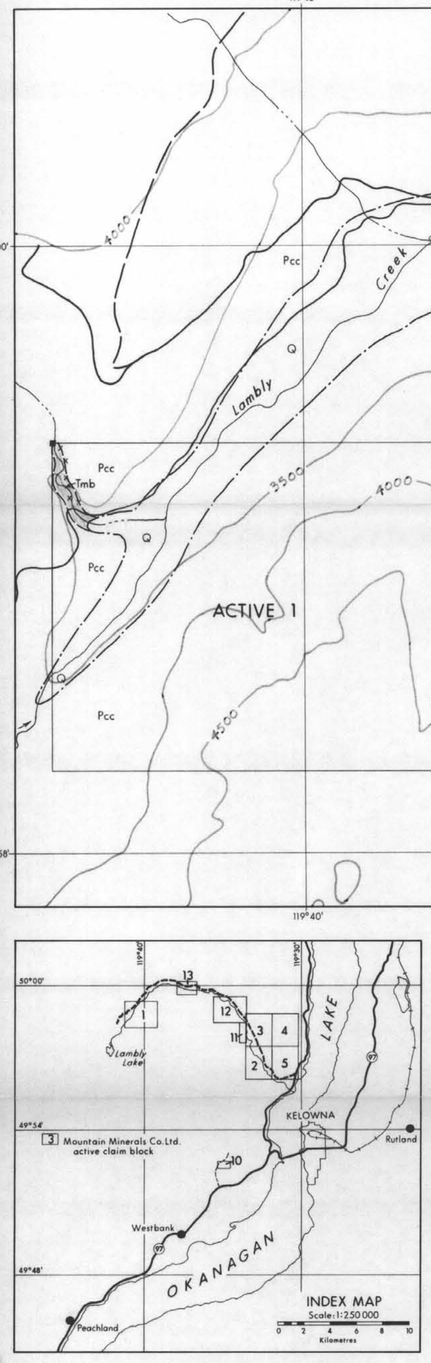
Certified by

9.4 Itemized Cost Statement

a)	J. Gorham, geologist - 33½ days @ $140 March 27 - April 29, 1978		$ 4 690.00
	L.B. Halferdahl, geologist - 4 days @ $250 March 28, 29, April 10, 28, 1978		1 000.00
	R. Marsh, geologist - 15 days @ $125 March 31 - April 15, 1978		1 875.00
	J. Sefton, assistant - 20 days @ $110 March 31 - April 28, 1978		2 200.00
	R. Tyson, assistant - 15 days @ $115 March 31 - April 15, 1978		1 725.00
b)	Food and Accomodation 4 men x 15 days (March 31 - April 15, 1978) motel accomodation @ rates from $13.00 to $19.00 4 men x 15 days (March 31 - April 13, 1978) restaurant meals and lunches @ average rate of $27.75/day		1 664.70
c)	Transportation 4-wheel drive truck rental 15 days mileage 1828 miles @ 18¢ travel to Kelowna & return (1 man) car rental 13 days @ $20 gas air express - scintillometer, air photos	$350.00 329.04 150.00 260.00 177.17 76.00	1 342.21
d)	Scintillometer rental 2 for 15 days each		250.00
e)	Not Applicable		
f)	255 samples analyzed for uranium @ $2.50 240 sample preparations @ 35¢ Total including discount		685.50
g)	Report preparation - typing, drafting, reproduction, assembly		1 147.40
h)	Telephone Air photos	$ 77.78 32.50	109.28
			$16 689.09

9.5 Qualifications

John Gorham graduated from the University of Calgary with a Bachelor of Science degree in Geology in 1976. He has worked summers, and full time prospecting, geochemical sampling, geological mapping, and doing research studies, since 1970. He has conducted several programs of mapping and geochemical sampling. His work on the Active claims was under the direction of L.B. Halferdahl, P. Eng.



LEGEND

QUATERNARY

- Q — Glacial drift

TERTIARY

- Tmb — Miocene?: vesicular basalt
- Ted — Marron Formation: dacite dyke
- Tea — Marron Formation: mainly porphyritic hornblende-andesite to biotite-trachyte flows
- Tet — Marron Formation: mainly hornblende-andesite tuffs with minor agglomerate

CRETACEOUS

- Kng — Nelson granite

PENNSYLVANIAN?-PERMIAN

- Pcc — Cache Creek Group

Geological contact (observed, inferred, assumed)
Bedding (horizontal, inclined)
Outcrop observation point
Fault (inferred, assumed)
Paved highway
Main logging road
Road or cart track
Intermittent stream
Contour (interval 500')
Legal corner post (located)

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Fig. 5.1 Geological Map of Active 1 to 5 and 11 to 13

ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:20 000
Metres 0 400 800 1200 1600 Metres

JG 1978.05

Fig. 5.1

119°35'

119°33'

119°30'

49°59'

ACTIVE 12

ACTIVE 11

ACTIVE 3

ACTIVE 4

ACTIVE 2

ACTIVE 5

TCP

TV Antenna

Lambly Creek

49°58'

49°57'

Symbols

Road (all weather) ——————

Trail (dry weather) — — — —

Stream (intermittent or dry) ——— ———

Powerline ——— ——— ———

Claim post (located) ■

Soil sample with number ----------x

Water sample with number ----------●

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
6734
NO.

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Fig. 6.2 Locations of Geochemical Samples on Active 2,3,4,5, 11 and 12

ACTIVE CLAIMS, KELOWNA AREA

Scale: 1:10,000

Metres 0 200 400 600 800 Metres

JG 1978.05

Fig. 6.2

119°35'

119°33'

119°30'

49°59'

ACTIVE 12

ACTIVE 11

ACTIVE 3

ACTIVE 4

ACTIVE 2

ACTIVE 5

Lomby Creek

TV Antenna

LCP

49°58'

49°57'

Symbols

Road (all weather) ——————

Trail (dry weather) — — — —

Stream (intermittent or dry) ~~~~~

Powerline ——— ——— ———

Claim post (located)** ■

Observation point: water sample ●$^{0.7=U_{ppb}}$

Observation point: soil sample

U<0·4 ppm (scintillometer reading)* •^{65}

U>0·4 ppm (scintillometer reading)* ×$^{65}_{2=U_{ppm}}$

Observation point: no soil sample

outcrop or talus (scintillometer reading)* +^{65}

snow (scintillometer reading)* △^{65}

heavy organic cover (scintillometer reading)* □^{65}

sample lost (scintillometer reading)* ○^{65}

*The scintillometer reading (in cps) appears above each observation point symbol.

**Boundary posts were located by a chain and compass survey and by air photographs.

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Fig. 6.6 Geochemical and Scintillometer Survey of Active 2,3,4,5,11,and 12

ACTIVE CLAIMS, KELOWNA AREA

Scale 1:10,000

Metres 0 200 400 600 800 Metres

JG 1978.05

Fig. 6.6