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REPORT TO

NORPAX NICKEL MINES LIMITED,

PURDEX MINERALS LIMITED,

AND

PEMBERTON PROSPECTING & MINING SYNDICATE

ON THE

SALAL CREEK MOLYBDENITE PROPERTY

LILLOOET MINING DIVISION, B.C.

Vancouver Office,
November, 1965.

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SUMMARY

The Salal Creek Molybdenite Property is located 100 miles north of Vancouver, B.C. Southwest Potash Corporation has an agreement with Norpax Nickel Mines Limited and associates to explore the property. To date, 134 claims are involved including 56 staked by Southwest Potash Corporation. Expenditures to October 15th, 1965 are between $45,000 and $50,000 (Canadian).

The Salal Creek area is rugged, and elevations range from 4500 to 8000 feet. The nearest road is at Pemberton Meadows, 30 miles southeast of the property. The British Columbia Forestry Department intends to construct a road on the south side of Lillooet River that will pass 10 miles to the south. A bush air strip suitable for light aircraft is four miles north of the property.

Climatic conditions limit exploration to the summer months. Steep slopes, loose rock, and occasional rockfalls make caution mandatory.

Molybdenite at the property occurs in a granite stock situated in a favourable structural site at the east flank of the Coast Range plutonic complex. The stock covers an area of 25 square miles, has discordantly intruded granitic rocks of the Coast Range complex and is typical of shallowly emplaced granite plutons. Two facies of leucogranite make up the body, a coarse grained margin and a fine grained, locally porphyritic core.

Aplite, porphyry and late basalt dykes intrude the granite. Much of the stock is obscured by volcanic rocks, glacial sediments, glaciers and till.

Prominent joints and shears are the most common molybdenite-bearing structures. The main joints on both the north and south sections of the stock are inward dipping features. Stockworks of molybdenite and quartz have formed in areas of highly fractured rock, particularly at the boundary between fine grained and coarse grained granite. Hematite, hematite + magnetite + pyrite, and magnetite + pyrite occupy separate zones in the stock. Almost all of the molybdenite occurrences are found in two large areas within the magnetite + pyrite zone. The southernmost of these areas covers 3½ square miles and the northern area 3/4 of a square mile. The amount of molybdenite found in these zones varies from barren and weakly mineralized rocks to more intensely mineralized areas. Mineralized granite containing significant amounts of molybdenite, exposed for widths of 100 to 600 feet, was observed at seven widely spaced localities. The lengths and depths of the mineralized rock at these localities is unknown, but it is possible that mineralized granite extends under a cover of volcanic rocks from Float Creek to Cornice Creek, a distance of 5000 feet. Similarly, mineralized rocks at Mud Lake, Logan Ridge and Glacier Island appear to be a continuous belt 10,000 feet long and 300 feet wide. The molybdenite is fine grained and occurs in quartz-pyrite veins (often multiple and banded), quartz vein stockworks, as coatings on joint planes and shears, and as disseminated coarse grained molybdenite. Twenty feet of mineralized stockwork near Mud Lake assays 0.21% MoS_2. Assay values of 0.48% over 30 feet were obtained from Float Creek, 0.15% over 30 feet from Cornice Creek, and 0.20% MoS_2 over 10 feet from Float Ridge have been obtained from widely spaced samples in the southern area. Two bulk samples (about 50 lbs. each) of disseminated molybdenite from Glacier Island contain 0.33% and 1.15% MoS_2. Fine grained molybdenite in quartz and pyrite veins, which is the most common mode of occurrence, generally assays 0.01 to 0.05% MoS_2. An average of results from surface chip samples from the northern part of the stock is 0.05% MoS_2 over 380 feet. Assays in the same order of magnitude were obtained in the south. It was observed that surface chip samples tend to give lower assay results than bulk samples taken from freshly blasted trenches. Bulk samples from Upper Float Creek gave assay results of 0.04, 0.07, 0.09% MoS_2 over 3 consecutive 50 foot lengths compared with 0.01, 0.02, 0.01, 0.01,0.01, 0.01, 0.01, and 0.03% MoS_2 obtained previously from surface chip samples over an equivalent eight consecutive 20 foot lengths.

INTRODUCTION

Location

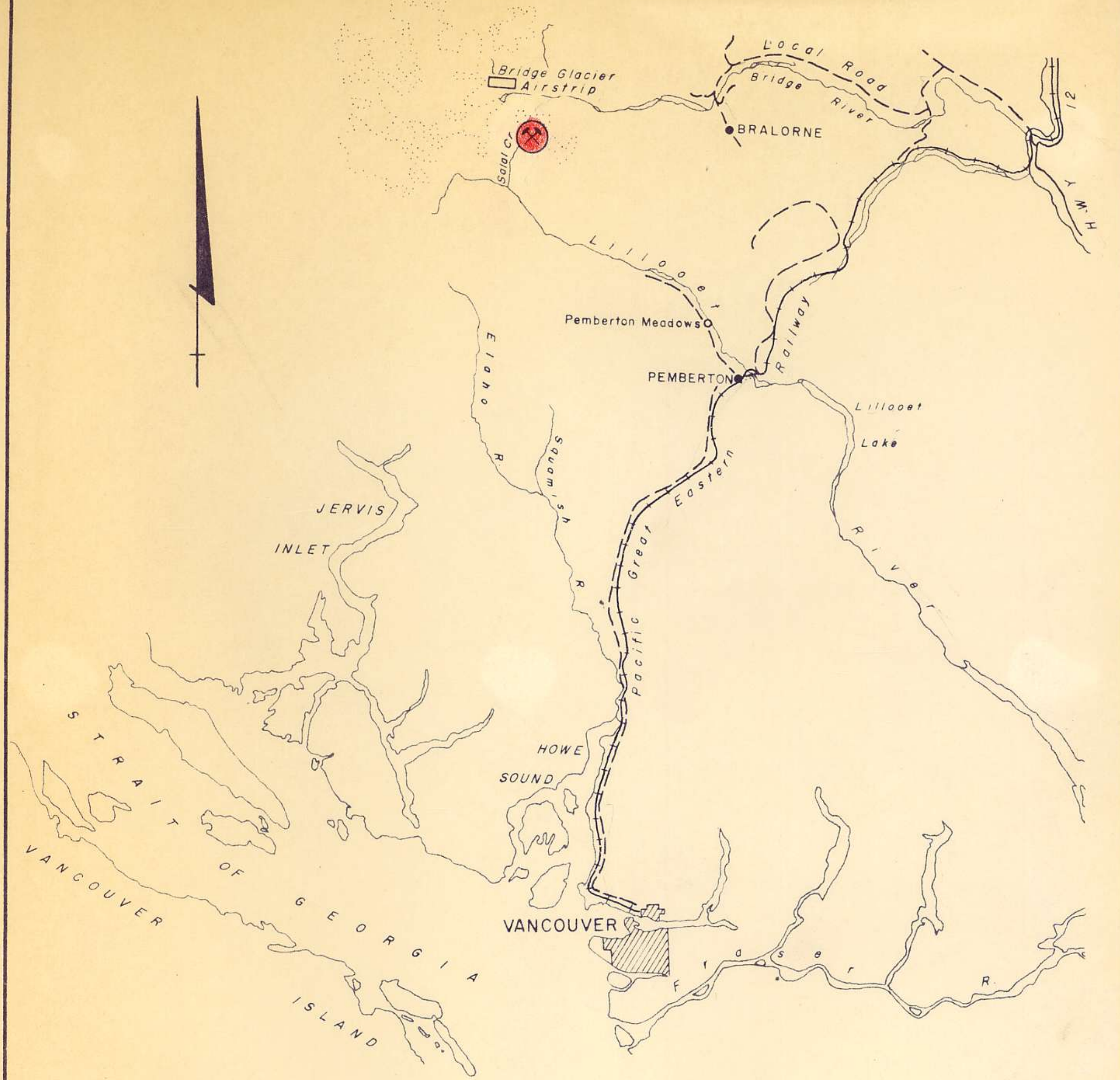
Latitude N50°45', Longitude 123°25'E. The Salal Creek Stock occupies an area of about 25 square miles, and lies at the upper reaches of Salal Creek, a tributary of the Lillooet River, about 100 miles north of Vancouver, B.C. The area is generally rugged and precipitous and within the property, elevation varies from about 4500 feet to over 8000 feet. Heavy snowfall in winter restricts prospecting to summer months.

Much of the high ground is covered by ice and glacial debris and valley sides are mantled with talus. Water and timber are plentiful in the lower valleys.

Access

Access to the property has been by helicopter from Pemberton or the Bridge Glacier airstrip. There is no road to Salal Creek. A provincial road, with gravelled surface, will be extended from Pemberton Meadows through the Hurley Pass towards Bralorne. This road will pass about 28 miles southeast of the property. Bralorne lies 30 miles east of Salal Creek, and Pemberton is 40 miles southeast of the stock. Pemberton is on the Pacific and Great Eastern Railway, 95 rail miles from Vancouver.

A bush airstrip, which has been used by light aircraft, lies to the east of the Bridge Glacier four miles north



SOUTHWEST POTASH CORPORATION

SALAL CREEK MOLYBDENITE PROPERTY

LILLOOET MINING DIVISION — BRITISH COLUMBIA

LOCATION MAP

SCALE 1" = 20 MILES

Vancouver — H. P.

FIG. 1 92 J 14

of Salal Creek. This strip could be easily prepared to accomodate larger aircraft.

The Pemberton Forestry authorities are planning to build a logging road from Pemberton Meadows northeast to Meagre Creek, which is about 10 miles south of the Salal Creek Property.

Within the property movement is restricted by steep slopes, gullies, and loose rock.

History

In 1960, the first claims were staked on a prominent stain zone in the Salal Creek stock by Phelps Dodge Corporation during airborne reconnaissance of the region. Phelps Dodge Corporation carried out prospecting in the claims including blasting and sampling a trail from upper Trail Creek towards upper Float Creek. MoS_2 assays in the range 0.03 to 0.07% were reported from this work. In 1962 Pemberton Prospecting and Mining Syndicate restaked the area.

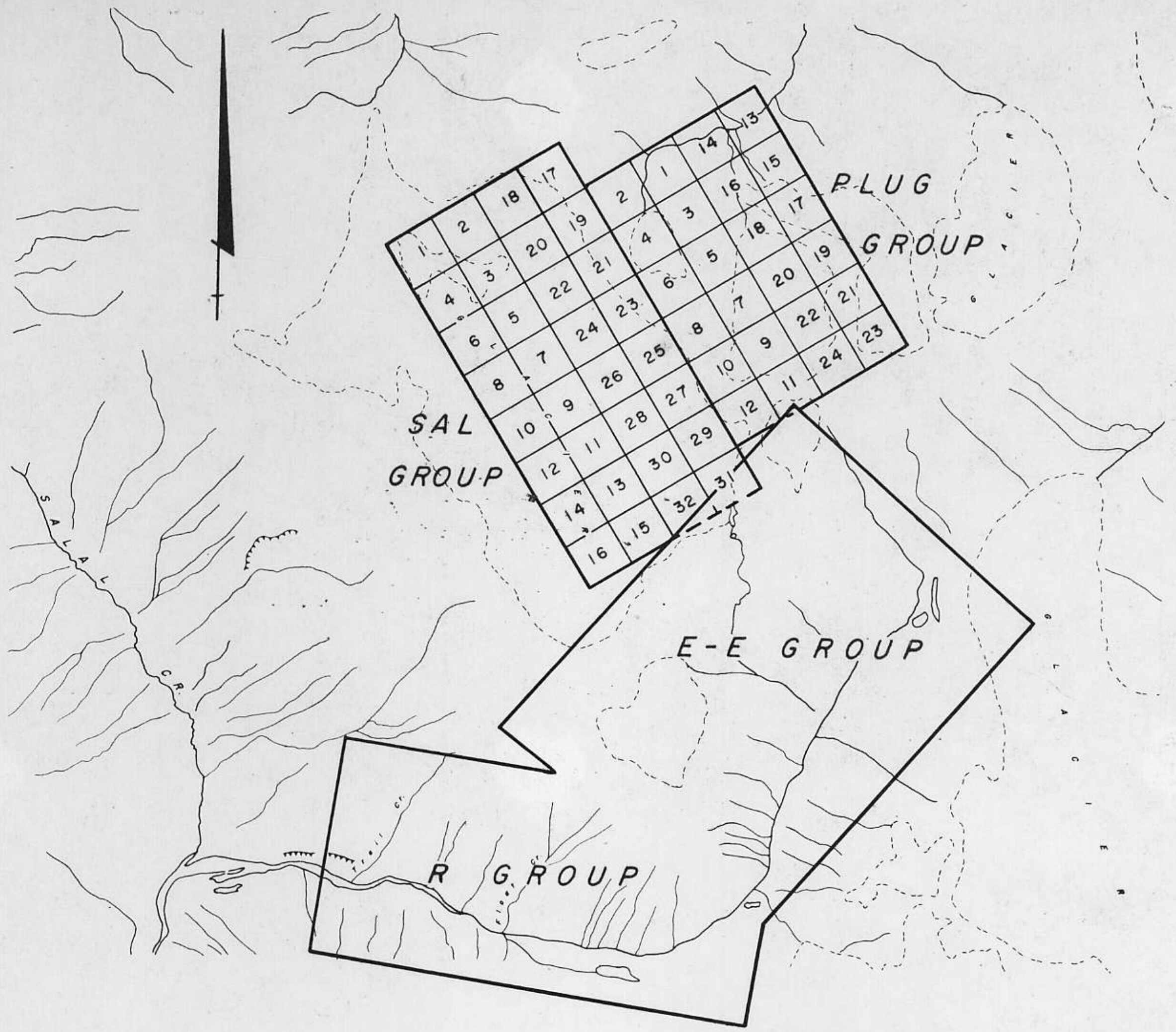
Under terms of an agreement, Norpax Nickel Mines Limited undertook to explore and develop 32 Pemberton Syndicate claims and an additional 47 claims staked by Norpax. In 1964 Norpax explored the claims, concentrating mainly on the upper part of Float Creek. Surface sampling, under difficult conditions, indicated a zone possibly continuous for at least 250 feet. Samples gave results varying from 0.03 to 0.22% MoS_2 and averaging 0.13% MoS_2 over 87 feet. Two diamond drill holes were started because surface sampling was considered unsatisfactory and too dangerous. The first was sited on the left side of the lower Float Creek gully and penetrated about 80 feet before rock slides forced the drill to be withdrawn. A second site was prepared at the base of the mountain, east of Float Creek. High water pressures and difficult ground resulted in the completion of only 779 feet of a proposed 3000 feet. No significant results were obtained from the drilling.

Norpax and associates entered into an agreement, during 1965, with Southwest Potash Corporation concerning the exploration and development of the Salal Creek Property.

Mapping and surface sampling was started by Southwest Potash personnel in July 1965 on the property. This work was extended in August to include all of the Salal Creek stock. As a result, an additional 56 claims were staked in the north part of the stock to cover new molybdenum showings.

Two staff geologist, two senior and three junior assistants, and two prospectors were engaged on the property.

Adequate survey control was not available. For mapping purposes, base maps were prepared on a scale of 1" = 200 feet from National Topographic Series Sheet (92J Pemberton 1:250,000), a topographic map of the southeast edge of the stock by Hunting Survey Corporation Limited, (Scale 1" = 1000 feet), a plan of the Salal Creek stock area by Norpax Nickel Mines Limited,



Sal Group (32 claims) and Plug Group (24 claims) staked by Southwest Potash Corporation. E-E Group (46 claims) staked by Norpax-Purdex. R Group (32 claims) staked by Pemberton Syndicate.

SOUTHWEST POTASH CORPORATION

SALAL CREEK MOLYBDENITE PROPERTY

LILLOOET MINING DIVISION — BRITISH COLUMBIA

CLAIM MAP

SCALE 1" = 1 MILE

Vancouver —

H. P.

FIG. 2

(Scale 1" = $\frac{1}{2}$ mile) and air photographs (Lockwood Survey Corporation Numbers A13324/114-117, scale approximate 1" = 1 mile).

A plane table survey of Glacier Island was made during the working period. Barometer elevations were used to control mapping in steep draws.

REGIONAL GEOLOGY

General

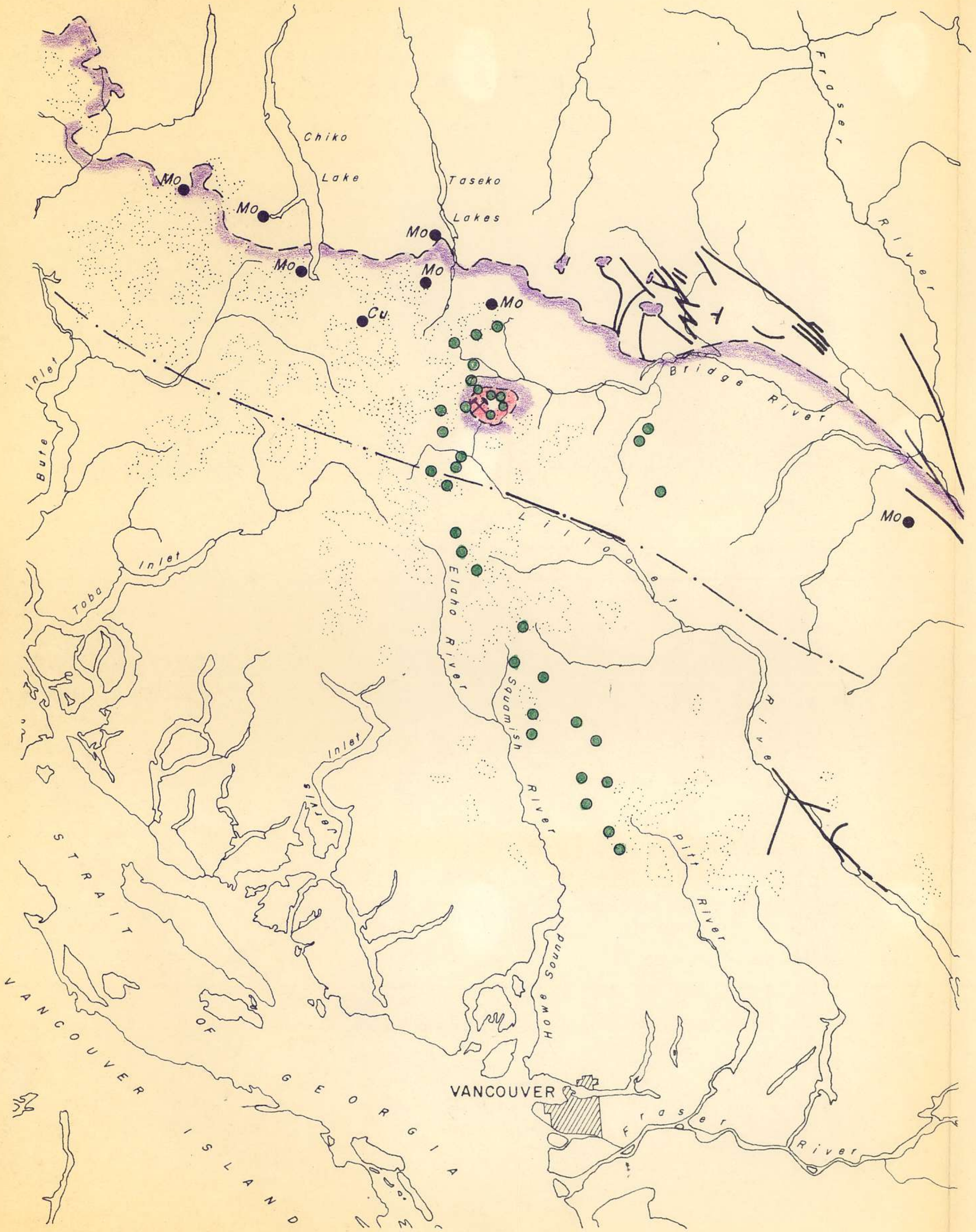
There are no geological maps available of the area surrounding Salal Creek. The location of the Salal Creek Stock on the eastern flank of the Coast Range complex is considered a favourable one for the occurrence of mineralization.

Structure

The Salal Creek granitic stock is situated near the intersection of two major lineaments. A line of Tertiary volcanic centres runs 70 miles north from Squamish to Salal Creek. A major lineament extends from Pemberton Meadows northeast for 40 miles along the north side of the Lillooet River valley. This lineament is believed to have been active as a fault in recent times. A map prepared by the Geological Survey of Canada shows an apparent flexure at the edge of the complex and some cross faults thirty miles to the east of Salal Creek.

Mineralization

A number of molybdenite and copper-molybdenite pros-



LEGEND

	Coast Range Plutonic Complex.
	Salal Creek Stock.
	Tertiary volcanic centres.
	Faults.
	Edge of Coast Range Complex.
	Lillooet River lineament.
	Major lineament.
	Prospect, generaly associated with acid intrusives.
Cu, MoS_2	Copper, Molybdenite.
	Salal Creek Molybdenite Property.

NOTE — Faults and Edge of Coast Range Complex after a map by the Geological Survey of Canada (Geological Map of British Columbia 932 A 1" = 20 miles) by H. W. Little. Volcanic Centres and Lillooet Rive Lineament after Bulletin no. 48 British Columbia Department of Mines and Petroleum Resources (Landforms of British Columbia a Physiographic Outline) by S. S. Holland.

SOUTHWEST POTASH CORPORATION

SALAL CREEK MOLYBDENITE PROPERTY

LILLOOET MINING DIVISION — BRITISH COLUMBIA

REGIONAL SETTING MAP

SCALE 1" = 20 MILES

Vancouver — H. P.

FIG. 3

pects generally associated with acid stocks lie along a line running northwest through the Salal Creek stock.

GEOLOGY OF THE SALAL CREEK PROPERTY

Lithology

General Statement

Molybdenite at the Salal Creek Property occurs in a granitic stock. The stock is oval in plan, covers an area of 25 square miles, and consists predominently of leucogranite. It is typical of shallowly emplaced granites that belong to Buddington's class of epizonal plutons. There are two main facies in the body: a coarse grained granite at the margin, and a fine grained granite core. Dykes of aplite and porphyry intrude the above units, and these in turn are cut by basaltic dykes. The latter are believed to be related to necks and basaltic lavas that are widespread in the area.

Fine Grained Granite

Fine grained granite (locally quartz monzonite) covers 10 square miles of the central part or core of the Salal Creek stock. These rocks are massive, equigranular, and have a mean grain size of 1 mm. This unit is typically aplitic in appearance but is frequently found to be porphyritic near the coarse grained facies. Tabular feldspar phenocrysts and aggregates of quartz up to 4 mm. long make up 30% of the porphyritic variety, the remainder being a fine grained matrix of quartz and feldspar. Another fine grained variety, which is exposed at the head of Windy Glacier, consists of a quartz vein stockwork in a dense, fine grained leucogranite. The quartz veins are up to 1/8th inch thick, and form a stockwork five to ten veins per foot.

Minor quantities of epidote, sericite, and biotite are present in the fine grained unit.

Coarse Grained Granite

The marginal facies of the stock is a coarse grained rock ranging in composition from granite to quartz monzonite. In plan, this unit is about one mile wide and includes an area of 15 square miles. This body is notably thinner at the southwest margin than elsewhere. It is a massive equigranular rock having a mean grain size of 4 mm. and consists of 40% quartz, 40% perthitic orthoclase, and 20% well twinned albite. These rocks are biotite-rich at the margin of the stock where biotite makes up 5% of the rock. Accessory minerals include hornblende, epidote, sericite, and chlorite.

Rounded mafic-rich inclusions are locally abundant in the coarse grained unit. These bodies are generally 18 inches in diameter and are most abundant near the contact with granitic rocks of the Coast Range complex. Identical bodies, however, were found in the interior of the stock at the 6800 foot elevation point in Lost Creek, and in fine grained granite at an elevation of 7300 feet near the southeast corner of Windy Glacier.

Dykes

A sequence of porphyry dykes has been recognized in the stock. Dykes generally occur in swarms and are most abundant at the margin. The dykes are usually a few inches thick although larger bodies up to a few feet thick have been observed. The following lists a typical dyke sequence in coarse grained granite near Pinnacle Creek.

Basalt dyke	(youngest)
Grey aphanitic dykes	
Dark brown quartz-feldspar-biotite porphyry	
Aplite dyke	
Dark grey quartz-feldspar-biotite porphyry	
Light grey quartz feldspar porphyry	
Aplite dyke	(oldest)

Two generations of aplite occur within the sequence suggesting that the aplite and porphyry dykes are closely related in time.

Glacial Sediments

Varved sediments and till cap the Salal Creek stock and underlie columnar basalts at two localites. In the vicinity of Float Creek, the sediments dip 30° north underneath flat lying lavas. On Logan Ridge, about 30 feet of glacial material is exposed between fine grained granite and basalt capping the ridge.

Volcanic Rocks

Lavas, agglomerates, and associated dykes and small plugs are abundant in the area. Basalt is by far the most common type but more acid rocks are present including obsidian dykes exposed near A and B Creeks. The lavas and related volcanic features are younger than the glacial material, hence probably Tertiary-Recent in age.

Structural Geology

Geological Boundaries

Little is known of the vertical extent of the Salal Creek stock. The contact between the stock and country rock is poorly exposed and visible in only a few localities. Where exposed, the contact is sharp and discordant to folation in the Coast Range complex. Judging from the outline of the stock, the contact appears to extend down valleys leading away from the centre of the stock. This implies that the walls of the mass dip outward.

The boundary between the main rock units within the stock is gradational over a distance of a few inches. Irregular bodies of the coarse grained unit are frequently found in the fine grained core both near the facies margin as well as in the interior of the core.

Joints and Shear Zones

Prominent joints, shear zones and breccia zones control the molybdenite distribution except for a few localities that contain disseminated molybdenite. These facts are demonstrated by limited detailed work done to date, for example on Glacier Island (Figure 5). It was noted that prominent molybdenite-bearing joints on both the north and south margins of the stock are inward dipping features. Further work may indicate that these joints are also concentric to the centre of the stock.

North-south shear zones are prominent structural features in the area and many of the creek valleys have formed along these zones. Basalt dykes are frequently found parallel to the shears and most of the volcanic necks appear to lie along north-south lines.

Alteration

Rocks vary from fresh unaltered granite to highly brecciated rocks rich in sericite, quartz, and yellow clay minerals. Silicification of the granite along prominent fracture planes and the deposition of molybdenite and pyrite are closely related processes. Chlorite, epidote, rhodonite, manganite (?), rhodocrosite (?), clay minerals, and sericite are all locally abundant in molybdenite-bearing rocks, but information to date is insufficient to enable the use of altered rocks as a guide to locating molybdenite - rich zones.

ECONOMIC GEOLOGY

A widespread stain of iron oxide is the most obvious feature in the area. Intensely stained rocks are evident in the area around Float Creek, Logan Ridge, and at the head of Plug Glacier. Rocks in the western part of the stock are lightly stained except for a few prominent stain zones exposed in gullies.

Sampling Procedures and Problems

During the season, 231 samples were collected for assay (See Figure 7). These include 181 surface ship samples, 16 continuous chip samples, 5 random chip samples, 23 grab and 6 bulk samples. The arithmetic mean of the assay results for the various sample types are: surface chip - 0.03% MoS_2, continuous chip - 0.04% MoS_2, random chip - 0.04% MoS_2, grab samples - 0.56% MoS_2 and bulk samples - 0.33% MoS_2 (See Appendix I).

Procedures

The following description defines sample types and procedures used.

Surface chip sample: chips broken from rock surfaces every one to 5 feet over 20 to 100 feet. About five pounds of material were collected per sample.

Continuous chip sample: contiguous fragments chipped with hammer and moil from surface rock over a linear distance of 15 feet or less.

Random Chip sample; rock chips collected at randomly distributed sites within a given area. Samples are usually three - five pounds.

Grab sample: three to five pounds of selected mineralized material. Many of these samples represent float.

Bulk sample: material obtained from freshly blasted pits and trenches up to 150 feet long. A plugger was used to drill holes to depth of 18 inches. Holes were spaced two to three feet apart. After blasting, broken blocks were reduced to hand-sized specimens and about fifty pounds taken and sent for assay.

Problems

Obtaining a representative sample involved a number of problems. These included (1) the physical difficulty of collecting rock chips over a regular interval. Mineralized rocks exposed on cliff faces and in smooth, water worn gullies were particularly difficult to sample; (2) inexperience of the sampler; (3) mechanical and chemical impoverishment of surface rock.

Assays of surface chip samples from upper Float Creek were lower than visual estimates of grade. Three bulk samples were collected over a distance of 150 feet for comparison with eight surface chip samples previously taken from the same site. Results are compared in Table I.

Table I

Comparative Sampling of Float Creek Area

Surface Chip Sample			Bulk Sample from Equivalent Line		
Number	% MoS_2	Interval	Number	% MoS_2	Interval
7534	0.01	20'			
35	0.02	20'	7679	0.04	50'
36	0.01	20'			
37	0.01	20'			
38	0.01	20'	7680	0.07	50'
39	0.01	20'			
40	0.01	20'	7681	0.09	50'
41	0.03	20'			
	0.014	160'		0.067	150'

Large samples of fresh material give higher assays than chips taken from surface rock. It appears that chip samples are limited to indicating the presence or absence of molybdenite in most cases. Unfortunately, for an initial examination in difficult terrain chip samples are the only practical means of sampling.

Geochemical Sampling

Few geochemical samples were collected because surface showings are invariably indicated by the presence of float within the numerous draws, and much of the area is covered by transported glacial debris. Although a program of geochemical reconnaissance was considered unnecessary in the initial examination, targets now exist which can be more closely outlined by the analysis of closely spaced samples using geochemical techniques.

Mineral Zoning

It has been found possible to draw a map of the Salal Creek stock showing mineral zones based on rocks containing hematite, hematite + magnetite + pyrite, and magnetite + pyrite (Figure 6). The common association of molybdenite + pyrite, occasionally with magnetite, was plotted on the same map. The resulting map (Figure 6) shows that molybdenite occurs almost entirely within the magnetite + pyrite zone, and is absent from rocks containing specular hematite.

The molybdenite distribution map shows two main zones, one in the south and one in the north part of the stock. These two bodies and associated smaller ones form a discontinuous ring within the stock that follows the boundary between the core and marginal facies.

Occurrence of Molybdenite

Much of the molybdenite in the stock occurs in the two large areas noted above. The amount of molybdenite found in these zones varies from barren and weakly mineralized rocks to more intensely mineralized areas described below. Molybdenite is fine grained and occurs in quartz-pyrite veins many of which are multiple or banded veins, mineralized stockworks, and on joints and shears. Medium to coarse grained material is found disseminated in fine grained granite and as coatings and rosettes on fractures. Varieties transitional between veins and stockwork are common. By far the most common mode of occurrence is in quartz-pyrite veins. These are zones of highly silicified granite formed along prominent fracture planes. The veins generally occur in parallel sets and vary from a few inches to a few feet thick. Structural styles, which are closely associated with the above features, change inwards from shears to quartz-pyrite veins to mineralized stockworks. These observations probably reflect changing structural styles from the walls of the stock inward and from the roof downwards.

(1) Float Creek (See Figures 4 and 6)

Float Creek lies in the southern part of the stock and contains the main known molybdenite-showing on the Salal Creek Property. Most prospecting activity was drawn to this area by abundant molybdenite found in loose blocks in a large alluvial fan at the bottom of the draw.

Fine grained molybdenite is found throughout the length of the creek, a vertical interval of some 1500 feet. In the lower reaches, it is associated with shears, and in the upper reaches above 6200 elevation with veins and mineral stockworks over a vertical distance of some 600 feet. This zone does not appear to extend beyond Plug Creek, which is 1000 feet to the west. The mineralized rock was not traced to the northeast due to difficult topography and a cover of volcanic rocks, but it may be continuous with the Cornice Creek area which lies about 5000 feet northeast.

On weathered surfaces, the presence of mineral veins is not easily recognized but veinlets can be seen where the creek has washed the rock surface clean. Fine grained molybdenite occurs with quartz and pyrite often forming selvages of small milky quartz veins. It is also found as a coating on fracture surfaces. Veins up to ½-inch thick occur up to 12 per square foot.

Chip samples, generally over 50 foot lengths were collected in accessible draws. Assays from surface chip samples are generally low, all averaging about 0.03% MoS_2 with a high of 0.48% MoS_2 over 30 feet. (However see Table I).

Float Creek presents serious problem of access due to the steep and loose nature of the rock and the occurrence of slides and rock falls.

It is considered that further work should be done to determine, more accurately, near surface grade before spending large amounts on preparing possible drill sites in this area.

<u>(2) Float Ridge</u> (See Figures 4 and 6)

Float Ridge, 2500 feet north of the headwaters of Float Creek, extends from the volcanics above Float Creek north to Salal Glacier. Much of this area is covered by ice and scree. Molybdenite-bearing rocks were found on the lower slopes on the west and east sides of the ridge but none were found on the crest.

At its highest elevation on the west side of the ridge, molybdenite is present in shears. Lower, at about the 7000 foot level, fine grained, vein and stockwork type molybdenite, with some galena, was observed over a horizontal distance of about 350 feet. Chip samples over this distance gave an average assay value of 0.025% MoS_2. A continuous chip sample carefully taken over 10 feet of stockwork in the same area gave an assay of 0.20% MoS_2.

A grab sample of talus about 200 feet farther down gave an assay value of 5.86% MoS_2, the highest assay to date. This sample contained fine grained molybdenite on joint faces and disseminated coarse, deuteric molybdenite.

There is little exposure on the east side of the ridge. A grab sample of float at the edge of an ice field gave a value of 3.54% MoS_2 and a second grab sample of float give a value of 0.20% MoS_2 with values of 0.96% oz. silver, 4.19% lead, and 3.37% zinc. Secondary copper stain was also noted in this area.

More detailed work is required in this area to define and evaluate these mineral occurrences.

(3) Cornice Creek - Big Creek (See Figures 4 and 6)

Unlike the other areas described above, the Cornice Creek-Big Creek area apparently lies within the coarse grained granite some horizontal distance from the main fine-coarse grained granite contact. However, there are a number of dykes of fine grained granite and swarms of silicic dykes in the area indicating that this contact may be near surface.

Towards the margin of the stock, molybdenite is generally associated with shears but towards the interior it occurs in separated quartz stockworks and highly fractured and brecciated rocks, the extent of which have not been defined. In the breccias, fine grained molybdenite is associated with yellow clay minerals and rhodonite (?). Much of this area is covered by glacial debris.

The average assay value of all chip samples collected in this area is 0.03% MoS_2 in which 30 feet of stockwork, at the head of Cornice Creek contains 0.15% MoS_2. More surface work remains to be done in this area before a drilling target is outlined.

<u>(4) Lost Creek</u> (See Figures 4 and 6)

A series of stain zones varying in width from 3 feet to 15 feet and associated with steeply dipping shears, some of which contain minor quantities of molybdenite, occur in the lower portion of Lost Creek. The shears are separated by an average of 20 feet of massive coarse grained granite. At the headwaters of the Creek, in an area of extensive float, veins and stockworks containing minor amounts of fine grained molybdenite and galena are exposed over a few square feet. A few hundred feet north, outcrops contain well developed quartz-vein stockworks. A similar stockwork is particularly well developed in fine grained leucogranite on the ridge between the head of Lost Creek and Windy Glacier. This stockwork contains 5 to 10 veins per foot, and is exposed over an area of 200 x 1000 feet. Although molybdenite was not observed in this stockwork, fine grained molybdenite is found on faces of glacial rock debris 800 feet north of the ridge. More surface work is required here to evaluate the stockworks.

(5) Mud Lake (See Figures 4 and 6)

Outcrops near Mud Lake consist of east- and north-facing cliffs, and occur 4000 feet north of the headwaters of Lost Creek. Much of this area is obscured by a thick mantle of glacial debris. The cliff faces form an outcrop 500 to 600 feet long. The north-facing cliffs are the most intensely mineralized but access for sampling purposes is difficult. Molybdenite is fine grained and occurs in easterly-striking quartz and pyrite veins, stockworks, and coatings on joints. The veins, are commonly multiple types one to two feet thick, and are bounded by intensely silicified coarse grained granite. Stockwork material, which is exposed over twenty square feet of a north-facing cliff, occurs in highly fractured rock.

Nineteen surface chip samples were collected along a north-south line extending 380 feet across the exposed rock. Assays from the north end of the outcrops indicate 0.08% MoS_2 over a distance of 100 feet, which includes 20 feet of 0.21% MoS_2 in stockwork. Samples from the southern end have assay values of 0.13% MoS_2 over 80 feet. An average of all samples gives a value of 0.05% MoS_2. For drilling purposes, the Mud Lake area is a good target. The area is accessible and should be clear of snow early in the summer. Sufficient water is nearby. Surface grade is promising and warrants further exploration at depth.

(6) Logan Ridge (See Figures 4 and 6)

Logan Ridge is located 5000 feet west of Mud Lake and is on strike with veins and prominent joints in the Mud Lake Area. It thus appears to be an extention of the same mineralized zone. An intense iron oxide stain marks the mineralized rocks, which are exposed for about 400 feet along the flanks of the ridge. Molybdenite-bearing veins were first found below the ridge on its west side. The veins, which are 20 to 100 feet apart are steeply dipping bodies up to two feet thick consisting of numerous seams of fine grained molybdenite parallel to the walls of the vein. A grab sample of vein material contained 0.41% MoS_2. A number of veins are exposed for a vertical distance of 100 feet but do not extend to the crest of the ridge. In general, they increase in size and abundance downwards. Some of this zone was sampled but steep ground and broken rock prevented adequate sampling. The east side of the ridge is more accessible and more intensely veined than the west side. Up to 15 veins per 100 feet were observed, and weakly developed stockworks occur in areas of intense fracturing.

Surface chip samples were collected for 340 feet along a north-south line, which includes the most intensely mineralized area. A broken, rubbly surface allowed rock chips to be collected every foot, and a sample interval of 20 feet was used. Assay results do not bear out the impressive structural and mineralogical development of the area. The average of results obtained is 0.03% MoS_2, samples range from 0.01 to 0.05%. In view of problems encountered with surface chip samples (see previous discussion), more work, preferably by drilling, is needed to properly assess Logan Ridge.

(7) Glacier Island

Glacier Island is 3000 feet west of Logan Ridge. The area is covered by a thin, discontinuous mantle of glacial debris. Vein type molybdenite is not as extensive here as elsewhere, nor is the degree of silicification as high as Logan Ridge and Mud Lake. Medium grained molybdenite occurs disseminated in fine grained granite at two localities. An assay of 0.33% was obtained from a 50 pound bulk sample of disseminated material from the south tip of Glacier Island. Nine hundred feet northwest, an assay of 1.15% MoS_2 was obtained in similar material. The most intensely mineralized veins occur in a 100 x 200 foot area 800 feet north of the southernmost tip of the Island. Up to 20 veins are present in the 100 foot width. Surface chip samples of this vein-type material taken over 50 foot lengths vary from 0.01 - 0.05% MoS_2. Again, assay values appear to be low compared to visual estimates of 0.10% MoS_2.

Other Areas

Two areas of small extent occur in the westernmost part of Salal Creek stock. A random chip sample taken from a gossan 60 feet wide at an elevation of 5900 feet in "A" Creek yeilded 0.12% MoS_2. No molybdenite is visible in this gossan but loose blocks in the creek bed contain minor amounts of molybdenite. A similar gossan occurs in Spread Creek at an elevation of 5500 feet. An assay of 0.03% MoS_2 was obtained from a surface chip sample from this zone.

Near the east edge of the stock, large talus blocks on the west side of Red Hill Glacier contain minor quantities of coarse grained rosette molybdenite.

Other Minerals

The following minerals were noted in association with the Salal Creek Stock.

Galena - Samples of float material from Float Ridge and near Salal camp contained 4.19% and 0.79% Pb respectively.

Small amounts of galena accompany molybdenite in stockwork at Float Ridge and Upper Lost Creek. Silver values of 0.96 oz. and 0.20 oz. respectively were obtained from the above samples. The source of these samples was not discovered.

Sphalerite - Zinc is present as sphalerite in the foregoing samples. Assay values were 3.37% and 2.74% respectively. No other occurrences were found.

Chalcopyrite - Small amounts of copper, present as chalcopyrite, were noted in lower Lost Creek and mid Float Creek areas. A small patch of secondary copper stain was seen on the north side of Float Ridge. Assays of copper in four samples ranged from 0.02 to 0.14% from four samples.

Scheelite - Under a U.V. lamp, minute quantities of scheelite were visible in rock specimens associated with molybdenite. The only assay for tungsten showed only a trace but further checks should be made.

Gold - It is reported that placer gold was mined from Salal Creek. Only traces of gold were reported in assays of quartz-pyrite veins from the stock.

D. K. Mustard

Vancouver Office
November, 1965.

P. E. Fox

APPENDIX I

SALAL CREEK, B.C.
Assay Results

Sample No.	Location	Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7451	Lower Float Cr	Surface chip(1')	10	0.01	0.01	0.01	
52	"	"	10		0.01		
53	"	"	10		0.01		
54	"	"	10		0.01		
55	" (bottom)	"	10		0.01		
56	Float Cr (Lower Trail)	Surface chip(2')	20	0.01		0.01	
57	" "	"	30	0.07		0.11	
58	" (E. gully)	Surface chip(3')	100	0.02		0.03	
59	" "	"	100	0.01		0.01	
60	" "	"	100	0.01		0.01	
61	" "	"	100	0.01		0.01	
62	" "	"	100	0.01		0.01	
63	" "	"	100	0.02		0.03	
64	" "	"	100	0.01		0.01	
65	" "	"	100	0.01		0.01	
66	" "	"	100	0.02		0.03	
67	Pinnacle Creek	Grab		0.05		0.08	Au-Tr
68	"	"		0.02		0.03	
69	Bottom E.of Trail Cr	"		0.01		0.01	Au-Tr
70	Float Cr (Upper Trail)	"		0.01	0.01	0.01	Cu-0.06%
71	" "	Surface chip(2')	30	0.01	0.01	0.01	Cu-0.04%
72	Pinnacle Cr	Grab			0.04		Au-Tr
73	Float Cr	Surface chip(2')	50		0.02		
74	"	"	50		0.02		
75	"	"	50		0.03		
76	Lost Cr	Grab			1.39		

APPENDIX I

Sample No.	Location	Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7477	Near DDH 2	Continuous chip	10		0.01		
78	"	"	10		0.02		
79	"	"	10		0.01		
80	"	"	10		0.03		
81	"	"	10		0.08		
82	"	"	10		0.01		
83	"	Surface chip(1')	30	0.06	0.09	0.10	
84	Top Lost Cr	Random chip		0.01	0.02	0.01	
85	"	"		0.01	0.01	0.01	
86	Lost Cr	Continuous chip	5		0.01		
87	"	"	15		0.09		
88	"	"	10		0.06		
89	"	"	3		0.04		
90	"	"	12		0.06		
91	"	"	3		0.01		
92	"	"	9		0.01		
93	"	"	15		0.01		
94	"	"	6		0.01		
95	"	Surface chip(2')	50		0.02		
96	Float Ridge (W. side)	Random chip			0.02		
97	" "	Surface chip(1')	40		0.02		
98	" "	"	25		0.02		
99	" "	"	35		0.03		+ galena
7500	" "	Surface chip(5')	150		0.03		
01	Float Cr (1st gully)	Surface chip(1')	30	0.34	0.48	0.57	
02	1st Gully E.of Float Cr	Surface chip(5')	100	0.01		0.01	
03	" "	"	200	0.02	0.02	0.03	
04	2nd Gully E.of Float Cr	"	300	0.11		0.18	
05	Above DDH 2	Grab		0.16	0.26	0.27	
06	1st Gully E.of Float Cr	"		0.01		0.01	
07	Gully W.of Float Cr	"		0.03	0.01	0.05	

APPENDIX I

Sample No.	Location	Sample Type(Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7508	Gully W.of Float Cr	Surface chip(2')	50	0.02	0.02	0.03	
09	" "	Grab		0.01	0.01	0.01	
10	" "	"			0.01		
11	Float Cr (Top down)	Surface chip(1')	20	0.01	0.01	0.01	
12	" "	"	20		0.02		
13	" "	"	20		0.02		
14	" "	"	20		0.02		
15	" "	"	20	0.01	0.01	0.01	
16	" "	"	20		0.02		
17	" "	"	20		0.06		
18	" "	"	20		0.02		
19	" "	"	20		0.01		
20	" "	"	20		0.01		
21	" "	"	20	0.03	0.05	0.05	
22	" "	"	20		0.02		
23	" "	"	20		0.01		
24	" "	"	20		0.01		
25	" "	"	20		0.01		
26	" "	"	20		0.01		
27	" "	"	20		0.02		
28	" "	"	20		0.01		
29	" "	"	20		0.01		
30	" "	"	20		0.02		
31	" "	"	20	0.02	0.02	0.03	
32	" "	"	20		0.01		
33	" "	"	20		0.01		
34	" "	"	20		0.01		
35	" "	"	20		0.02		
36	" "	"	20		0.01		

APPENDIX I

Sample No.	Location	Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7537	Float Cr (Top down)	Surface chip(1')	20		0.01		
38	" "	"	20		0.01		
39	" "	"	20		0.01		
40	" "	"	20		0.01		
41	" "	"	20	0.03	0.03	0.05	
42	Above DDH 2	Grab		0.04	0.06	0.07	WO_3 - Tr
43	Salal Creek	"		0.01	0.01	0.01	Cu - 0.02%
44	Float Creek (5770')	"		0.01	0.02	0.01	
45	" (5080')	Surface chip(1')	12	0.02	0.02	0.03	
46	Lower Float Cr	"	10	0.01	0.02		
47	"	"	10		0.01		
48	"	"	10		0.01		
49	"	"	10		0.02		
50	"	"	10		0.01		
51	Trail Cr from 7000'	Surface chip(5')	150		0.02		
52	" "	"	150		0.02		
53	" "	"	150		0.01		
54	" "	"	150		0.04		
55	" "	Surface chip(1')	75		0.02		
56	" "	"	50		0.01		
57	" "	"	50		0.01		
58	" "	"	50		0.03		
59	" "	"	50		0.02		
60	Trail Cr to 5460'	"	50		0.02		
61	Plug Creek	Grab			0.02		
62	Cornice Creek	Surface chip(1')	20		0.01		
63	"	"	25		0.01		
64	"	"	50		0.03		
65	"	"	25		0.02		
66	"	"	30		0.15		

APPENDIX I

Sample No.	Location		Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7567	Cornice Creek		Surface chip (1')	20		0.01		
68	"		"	20		0.01		
69	"		"	15		0.03		
70	"		"	15		0.01		
71	"		"	13		0.05		
72	Big Creek		"	30		0.02		
73	"		"	30		0.02		
74	"		"	20		0.01		
75	"		"	10		0.03		
76	"		"	5		0.09		
77	"		"	15		0.02		
78	"		"	35		0.02		
79	Plug Creek(Plug down)		Surface chip (5')	100		0.01		
80	"	"	"	100		0.01		
81	"	"	"	100		0.02		
82	"	"	"	100		0.01		
83	"	"	"	100		0.01		
84	"	"	"	100		0.01		
85	"	"	"	100		0.01		
86	"	"	"	100		0.01		
87	"	"	"	100		0.01		
88	"	"	"	100		0.01		
89	"	"	"	100		0.01		
90	"	"	"	100		0.01		
91	"	"	"	100		0.07		
92	Plug Cr(Upper contact down)		"	100		0.01		
93	"	"	"	100		0.02		
94	"	"	"	100		0.01		
95	"	"	"	100		0.03		
96	"	"	"	100		0.03		

APPENDIX I

Sample No.	Location	Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7597	Spread Creek 7970'	Random chips	50	0.005		0.01	Au - Tr
98	" 5900'	Grab		0.01	0.02	0.01	Au - Tr
99	" 5550'	Surface chips(1')	40	0.02	0.03	0.03	Au - Tr
7600	Round Creek 6270'	Grab		0.01		0.01	Au - Tr, Cu 0.14%
01	Lost-Big Cr Area, 00	"		0.09		0.15	
02	" 300 NE	Surface chip(5')	300	0.01	0.01	0.01	
03	" 550 NE	"	100	0.01	0.01	0.01	
04	" 1050 NE	"	450	0.01	0.01	0.01	
05	" 4100 SW	"	130	0.01	0.01	0.01	
06	" 4100 SW	"	150	0.02	0.03	0.03	
07	" 4250 SW	"	400	0.02	0.02	0.03	
08	Gully E.of Trail Creek	"	100		0.02		
09	" "	"	100		0.01		
10	" "	"	100		0.01		
11	" "	"	100		0.01		
12	" "	"	100		0.01		
13	" "	"	100		0.04		Tr - Au
14	" "	"	100		0.01		
15	B Creek	Surface chip(1')	30		0.01		Tr - Au
16	"	"	20		0.01		
17	Logan Ridge W. side	Grab		0.25	0.41	0.42	Tr - Au
18	" "	Surface chip(2')	50	0.02	0.02	0.03	
19	" "	"	100	0.01	0.01	0.01	
20	" "	"	20	0.01	0.01	0.01	
21	" "	"	120	0.01	0.02	0.01	
22	" "	"	12	0.005	0.01	0.01	
23	Salal Camp	Grab					Pb-0.79%, Zn-2.74%, and Ag-0.20 oz.
24	Glacier Island	Surface chip(2')	50	0.01	0.02	0.01	
25	"	"	50	0.01	0.01	0.01	

APPENDIX I

Sample No.	Location		Sample Type (Chip intervals feet)	Sample Length Feet	Mo %	MoS2 %	eMoS2 %	Remarks
7626	Glacier Island	W. Pit	Bulk	50	0.01	0.01	0.01	
27	"	E. Pit	"		0.20	0.33	0.33	
28	Logan Ridge	E. side	Surface chip(1')	20	0.02	0.03	0.03	
29	"	"	"	20	0.03	0.05	0.05	
30	"	"	"	20	0.01	0.01	0.01	
31	"	"	"	20	0.01	0.02	0.01	
32	"	"	"	20	0.01	0.01	0.01	
33	"	"	"	20	0.02	0.03	0.03	
34	"	"	"	20	0.01	0.01	0.01	
35	"	"	"	20	0.01	0.01	0.01	
36	"	"	"	20	0.03	0.05	0.05	
37	"	"	"	20	0.03	0.05	0.05	
38	"	"	"	20	0.01	0.01	0.01	
39	"	"	"	20	0.01	0.01	0.01	
40	"	"	"	20	0.02	0.02	0.03	
41	"	"	"	20	0.01	0.01	0.01	
42	"	"	"	20	0.02	0.02	0.03	
43	"	"	"	20	0.01	0.01	0.01	
44	"	"	"	20	0.01	0.01	0.01	
45	Mud Lake		"	20	0.10	0.11	0.17	
46	"		"	20	0.01	0.01	0.01	
47	"		"	20	0.25	0.38	0.42	
48	"		"	20	0.03	0.03	0.05	
49	"		"	20	0.01	0.01	0.01	
50	"		"	20	0.01	0.01	0.01	
51	"		"	20	0.01	0.01	0.01	
52	"		"	20	0.01	0.01	0.01	
53	"		"	20	0.01	0.01	0.01	
54	"		"	20	0.02	0.01	0.03	

APPENDIX I

Sample No.	Location	Sample Type(Chip intervals feet)	Sample Length Feet	Mo %	MoS_2 %	$eMoS_2$ %	Remarks
7655	Mud Lake	Surface chip(1')	20	0.02	0.01	0.03	
56	"	"	20	0.01	0.02	0.01	
57	"	"	20	0.04	0.05	0.07	
58	"	"	20	0.02	0.02	0.03	
59	"	"	20	0.02	0.02	0.03	
60	"	"	20	0.14	0.21	0.23	
61	"	"	20	0.11	0.12	0.18	
62	"	"	20	0.03	0.03	0.05	
63	"	"	20	0.03	0.03	0.05	
64	Glacier Island	Surface chip(2')	50		0.01		
65	"	"	50		0.03		
66	"	"	50		0.01		
67	"	"	50		0.01		
68	"	"	50		0.02		
69	"	"	50		0.05		
70	"	"	50		0.01		
71	"	"	50		0.01		
72	"	"	50		0.02		
73	"	Bulk		0.85	1.15	1.42	
74	Float Ridge NW side	Grab of float		0.12		0.20	Pb-4.19%, Zn-3.37%, and Ag-0.96 oz.
75	" SE side	"			5.86		
76	" "	Continuous Chip	10		0.20		
77	Logan Ridge	Grab of float			3.54		
78	A Creek	Random chip	60		0.12		Au - Tr
79	Float Creek	Bulk	50	0.03	0.04	0.05	
80	"	"	50	0.04	0.07	0.07	
81	"	"	50	0.07	0.09	0.12	

APPENDIX I

Total Samples	Number	Arithmetical Average MoS_2 %
Surface chip	181	0.03
Continuous chip	16	0.04
Random chip	5	0.035
Grab	23	0.33
Bulk	6	0.56

SOUTHWEST POTASH CORPORATION

SALAL CREEK MOLYBDENITE PROPERTY
LILLOOET MINING DIVISION — BRITISH COLUMBIA

GEOLOGICAL MAP
— GLACIER ISLAND —

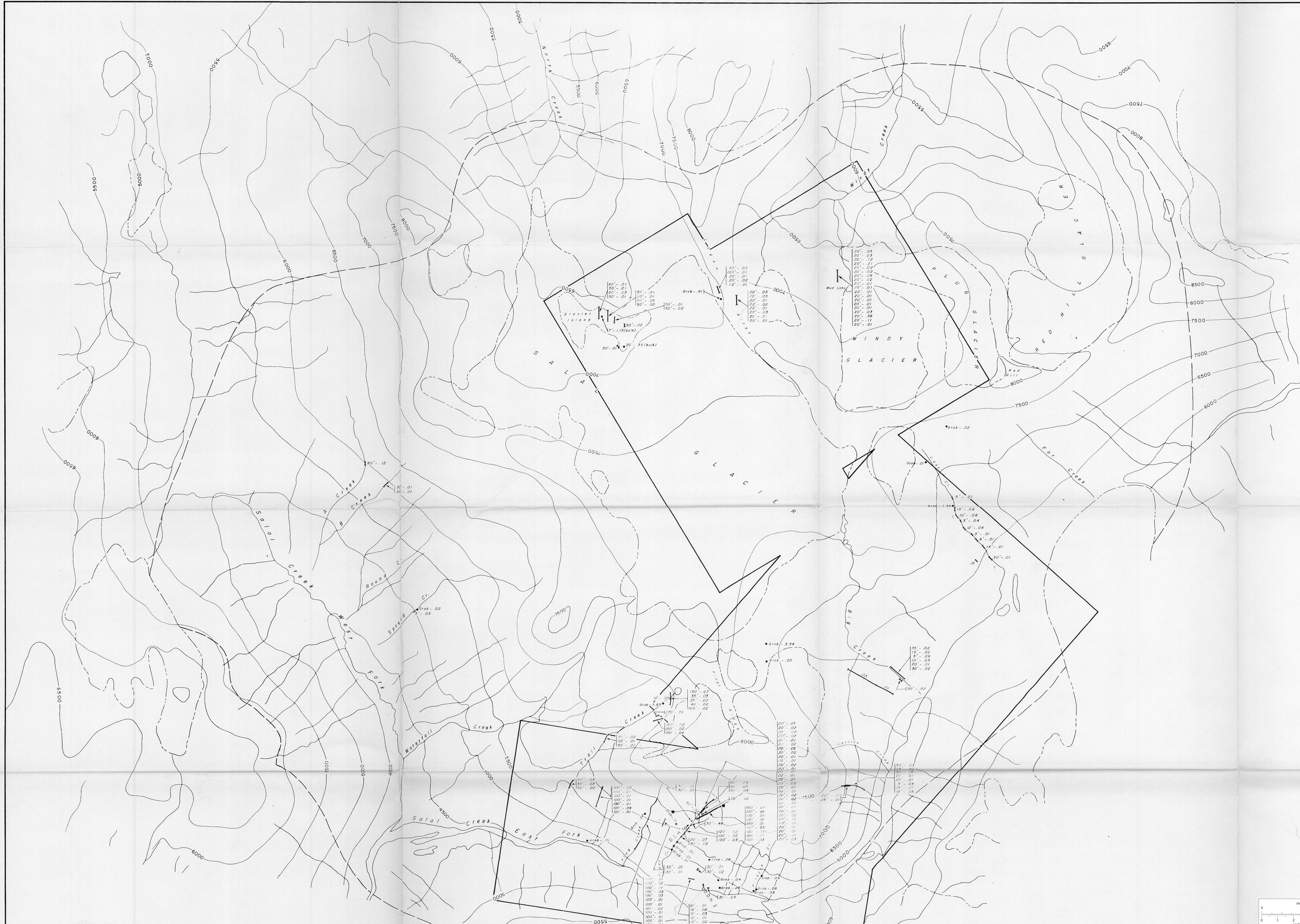
SCALE 1" = 100'

To accompany report "SALAL CREEK MOLYBDENITE PROPERTY - 1965" by: D. K. Mustard. P. E. Fox

NOV 1965

Vancouver —— H. P.

FIG. 5



NOTE — Topography after a map by Norpax Nickel Mines Limited.
Topographic contours after a map by Hunting Survey Corporation Limited, and National Topographic Series (sheet 92 J Pemberton 1:250,000) by Surveys and Mapping Branch, Department of Mines and Technical Surveys.

L E G E N D

Approximate boundary of the Salal Creek Stock.

Approximate boundary of the Salal Creek Molybdenite Property.

30'-.09 Chip sample (footage - % MoS_2).

Grab - .41
20'-.33(bulk) Grab or bulk sample (footage - % MoS_2).

D.D.H. 2 Diamond drill hole (Norpax Nickle Mines Limited, 1964) location, direction indicated.

Helicopter pad.

7500 Topographic contour (contour interval 500').

Glacier boundary.

SOUTHWEST POTASH CORPORATION

SALAL CREEK MOLYBDENITE PROPERTY

LILLOOET MINING DIVISION — BRITISH COLUMBIA

inches
0 1 2
0 1 2 3 4 5
centimetres
BRITISH COLUMBIA GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

SAMPLING MAP

SCALE 1" = 1/4 MILE = 1320'

To accompany report "SALAL CREEK MOLYBDENITE PROPERTY - 1965" by: D. K. Mustard.
P. E. Fox.

Vancouver — NOV 1965

H.P.

FIG. 7