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Map No. 1	Conover Creek Showings - 1" = 200'
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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 591 MAP.....

1046/12E

16 July 1964

PRELIMINARY GEOLOGICAL REPORT

ON

CONOVER CREEK GROUP

57° 131° N.W.

SUMMARY

Following report summarizes recent investigations of the Conover Creek ground which is part of the "Scud Venture" arrangement with Silver Standard.

The old showings were found to be a series of transverse quartz-carbonate fracture veins containing negligible gold and silver values and only small amounts of lead, zinc, copper sulphides. These veins are too small, low grade and discontinuous in character to be of any economic interest whatsoever. They occur principally in a conspicuous silicified and pyritized replacement zone in volcanics which alteration, etc. are earlier in age than the fracturing and contain nothing else of apparent value.

PERSONNEL AND PROGRAM

Party consisted of G.A. Dirom and C.A.R. Lammle, Asarco geologists, and R. Watson and L. May, prospectors.

Field project covered period June 26th to July 10th. Initial camp was set up by Watson and May on June 26th; Lammle arrived on June 27th, and Dirom on June 28th. Move to lower camp, near old Jackson workings, was made by helicopter on July 6th. Dirom and Lammle returned to Galore Creek base camp on July 10th and Watson and May, the same day, to a new prospecting area in the vicinity of Scud glacier.

June 29th to July 2nd were spent by Lammle, Watson and May in checking Silver Standard's claim locations and in staking some additional claims. During the balance of time Lammle was largely engaged in 500-scale mapping and Watson and May in prospecting. Dirom largely concentrated on 100' and 200'

scale mapping of the areas of the known showings. Our program was mainly confined to the ridge on the north side of Conover Creek as nothing of interest was known or indicated on the south slope of the Creek. However, Lammle and the prospectors each spent a day on upper Conover Creek around the east end of the claims; and Dirom made a reconnaissance trip across Conover Creek and around the top end of the creek canyon.

A set of five topog maps on a scale of 1"=200' were prepared by V. Zay Smith Associates Ltd., Calgary, from available government photographs and from these a set of 1"=500' maps was obtained by reduction. These latter were used in our 500-scale mapping, but their 200-scale counter-parts were not used in the field in the larger scale mapping because of lack of adequate picture points and the apparent existence of photogrammetric errors. Larger scale mapping instead was controlled by Brunton and tape traverses, supplemented by pace traversing.

Lammle has posted his reconnaissance mapping on a set of 500-scale topog maps which are now at our Galore Creek base camp. These will be put in final shape at the end of this season at which time a supplementary report will be written covering the background geology of this property. Present report reviews this briefly only and essentially concerns itself with an appraisal of the known showings and a negative conclusion regarding exploration possibilities.

#### LOCATION AND ACCESS

Property is located on Conover Creek on the eastern end of Conover Mountain which lies in the southwest angle between the Stikine and Chutine Rivers. Present access is by helicopter. An old trail, still in good shape at the upper end, extends up Chutine river and Conover creek to this ground. All the showings occur on the mountain spur forming the north side of Conover Creek. Elevations on the property range between 1500' and 4500'. The showings are between 3000' and 4000'.

#### PROPERTY

Group staked by Silver Standard on the snow earlier this year consisted of 24 claims staked two deep along Conover

Creek for a distance of over three miles.

#### ADJOINING PROPERTIES

Extensive search was made for some claims that were purported to lie immediately to the north of the west end of the Conover Group and to have been staked subsequent to the above. No sign of these was found along the ridge north of Conover Creek, but they could have been staked from well down on the Chutine side of this ridge.

#### HISTORY OF GROUND

The showings were discovered in 1929 and were staked as the Jackson Group on the east and as the Lady Jane Group, adjoining on the west. Prospecting and open cutting continued to 1935 after which apparently little or no work was done and the ground was allowed to lapse. Information is provided by the Annual Reports of B.C. Minister of Mines for 1929 and 1931 and by G.S.C. Memoir 246 (pp. 76 and 77).

#### GEOLOGY

Regional geology is provided by G.S.C. Memoir 246 and Map 309-A, which accompanies the latter. Conover Mountain and Conover Creek are largely underlain by Triassic volcanics and minor clastic sediments. These Triassic rocks seem to occupy a series of northeasterly trending folds which in the general area of Conover Creek dip steeply northerly and could be tightly overturned. The main east contact of the Coast Range batholith lies four miles and further southwest of the property but a small intrusive body lies about a half mile south of the western end of our claims. No dykes or sills related to the Coast Range intrusives were observed by us anywhere in the areas mapped but it is not unlikely that some occur somewhere on our group, perhaps in covered areas or at no great depth in the vicinity of some of the silicified and pyritized zones.

Rock Types - The ridge along the north side of Conover Creek consists predominantly of tuffs and agglomerates with some interbedded flows. The slopes and main ridge overlooking the creek on the south side chiefly seem to be a massive unit of

basaltic flows which extend to creek level at the top end of the creek canyon.

The series of tuffaceous rocks on the north ridge are predominantly sandy grained types, some of which are probably greywackes or greywacke tuffs. They also include some minor chert and also some locally related dense fissile beds. A large part of these sedimentary rocks are somewhat calcareous and Lammle has mapped some limestone horizons toward the eastern and western limits of his mapping. Some good pecten shells were found in a limestone horizon toward the western end of our ground.

The flow rocks on the north ridge are predominantly andesitic and frequently somewhat porphyritic. There also is at least one minor horizon of dacitic or rhyolitic composition.

Structure - The northeasterly trend of the rocks on the north side of Conover Creek is topographically expressed by the north ridge as a whole and by elongated crests and depressions. Dips seem to be about  $55^{\circ}$  and steeper to the north. The north slope of the ridge is a steep to precipitous dip slope.

Token mapping on the south side of Conover Creek failed to indicate any important structural features in the massive basaltic flows which seem to be predominant on this side of the creek.

Based on his mapping, Lammle tentatively has concluded that the north ridge rocks lie in a tight overturned syncline. If this is the case then these bedded rocks probably stratigraphically overlies the massive flows on the south side of the creek and would be the upper part of the G.S.C. #11 unit (Map 309-A) or the lower part of #12 unit.

No major shear zones were observed in our mapping of the north ridge and certainly nothing of the sort implied by Kerr in Memoir 246. However, there is evidence of a complex zone of faulting at the top end of the canyon on Conover Creek where individual fault planes are both parallel and transverse to the creek valley. There is also abundant evidence of transverse faulting across the crest of the north ridge and some fissile beds and draws suggest at least some strike faulting. The transverse faulting observed or implied

strikes northwesterly, northerly and northeasterly.

Alteration Zones - There is a conspicuous zone of silicification and pyritization at least 1000' wide which trends northeasterly and outcrops along the north ridge. This zone includes both flows and pyroclastics. Alteration and pyritization vary widely. There is no obvious structural control, for example, extensive or intensive shearing and/or shattering and brecciation. Alteration, etc., may be due to proximity to underlying hidden intrusives which have selectively altered and pyritized certain horizons in the general area of the axial plane of the assumed tight syncline. The alteration also seems to be locally controlled by transverse fault structures. Sulphide mineralization is confined to pyrite which occurs as disseminations and on joint planes. Minor barren or pyritized quartz gashes and bunches are scattered throughout these zones of alteration. Grains of accessory magnetite occur in the less altered tuffs and flows but progressively decrease with the degree of alteration. Weathering and forest fires have accentuated the pyritized zones into rather conspicuous, rusty outcrops.

Silicified and pyritized zones of this sort are quite common in near proximity to batholithic rocks in the Coast Range. Kerr does not describe them elsewhere in the Stikine River area but he does briefly discuss them on page 56 of G.S.C. Memoir 248 or Taku River Map Area. In this he classifies certain zones of this sort as irregular replacements of Triassic rocks formed by solutions migrating along some fracture or passageway, which, when they reached a rock suitable for replacement, at a suitable temperature, formed a deposit that has no visible relation to pre-existing structures. I personally have seen these extensive replacement zones in the Taku and Unuk River areas and my general feeling is that none is of economic interest unless a later period of fracturing introduces enough metal of value.

Fracturing - A system of northeasterly to northwesterly fracturing transversely cuts the north ridge rocks and seems to be best developed in the silicified and pyritized zones. These fractures are definitely later than the latter and are essentially quartz and carbonate filled breccia zones where one wall and sometimes both are rather indefinite. It is felt that these fractures are associated with the system of minor transverse faults and actually occupy some of these transverse shears.

Quartz predominates over carbonate and is generally earlier. It varies from quartzose to poorly crystalline. The carbonate minerals are calcite, ankerite and probably dolomite.

The vein quartz is sparsely mineralized with pyrite, chalcopyrite and galena; the carbonates, with galena and sphalerite. These sulphides occur only as scattered grains and blebs and nowhere in solid fashion. ~~They are distinctly~~ They are distinctly fracture filling and not replacement.

The veins are up to 6' wide but pinch and swell in short distances. The greater widths are made up principally of included wall rock. In many cases the fragments are bits of the pyritized and silicified zone material. This confirms that these veins are later than the latter; also no lead, zinc, copper has been found in these altered zones other than in the later fractures.

The known veins occur within a distance of one mile between 2900 and 3900' elevations. The Lady Jane vein on the west has been traced for a distance of 1000' and a vertical range of about 300'. The system of Jackson veins on the east occur within a belt a half mile wide but individually have not been traced any distance. At best the quartz-carbonate in these veins is discontinuous and erratic in occurrence. Some of the carbonate filling (dolomite) seems to be later than any sulphide mineralization.

#### MINERALIZATION AND VALUES

As mentioned above, mineralization directly associated with the siliceous replacement zones is limited to pyrite which occurs as disseminations and along joint seams. Lead, zinc and copper mineralization is associated only with the later fracturing which as a whole appears to be irregular and discontinuous.

Four rough chip samples of pyritized and silicified zone material in the Jackson area indicate an average value of Tr Au, 0.80 oz Ag, 0.05% Pb, Tr Zn, 0.05% Cu for this sort of replacement mineralization. There is no reason to expect that values will be any higher elsewhere, for example, around the Lady Jane vein structure.

Arithmetic calculation of Lady Jane vein samples indicates average values of Tr Au, 0.05 oz Ag, 1.2% Pb, 0.6% Zn and 0.4% Cu. Similar calculation for Jackson vein indicates average values of Tr Au, 0.75 oz Ag, 0.4% Pb, 0.3% Zn and 0.15% Cu. Vein widths vary from 1' to 6'. Best assay obtained was from a selected sample which ran 0.02 oz Au, 4.25 oz Ag, 7.90% Pb, 0.03% Zn and 0.58% Cu.

#### DESCRIPTION OF SHOWINGS AND WORKINGS

Relative locations, geology and assay returns are all shown on the accompanying 1" = 200' Geology and Assay" map.

Lady Jane - vein has been explored by a series of open cuts for a strike distance of 1100' and vertical range of just under 300'. Main open cut is at 3600' elevation. There is evidence that a tunnel was started 50' southeast of this to crosscut this showing at about 25' depth but the tunnel is caved and probably was short of its objective. Some cuts on the southern projection of the vein apparently failed to pick up any strong extension in this direction, although these cuts are now partially covered. To the north the various workings, some in poor shape, show the irregular nature of the quartz-carbonate and sulphide mineralization. Although irregular in detail the trace of this vein is amazingly straight and hence it is felt that it follows a minor transverse fault structure. Maximum average width of vein would be less than 5' and average value not more than 0.005 oz Au, 0.50 oz Ag and 2% combined Pb, Zn, Cu. Both extensions are drift covered but there is no reason to expect anything better than already exposed. Average strike of vein is northerly and dip about 60° westerly. The only other fracture material in the Lady Jane area are some inconsequential occurrences which seem to go nowhere. The silicified and pyritized replacement alteration hereabouts is of no economic importance.

For the sake of description, the Jackson Showings are considered to include all those east of the crest of the ridge around 3800' elevation, that is, those in the eastern half of the map. Three unimportant veins, under 0.5' in width at best as exposed, occur in the western 900' and show typical gangue and sulphide mineralization. Several veins occur 500' to 1300' further east and have been explored by open cuts which are now partly sloughed. The strongest of these (Sample No. 87) has not been traced beyond the single open cut on it. In this several lenses and stringers of typical vein filling occur in



twisted fashion with no assurance that these extend any distance. On a bluff 500' east of the above series of fractures, there is a vague zone up to 100' wide made up of a discontinuous main vein up to 5' wide (Samples 91, 92 and 93) and some minor, likewise discontinuous fractures. About 500' northeast of this there is a bunchy occurrence of typical vein material. The majority of the Jackson veins strike northwest to northerly in contrast to the Lady Jane where the strikes are generally northerly to north northeast.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "G.A. Dirom".

G.A. Dirom, P. Eng.

GAD:sm

SUPPLEMENTARY GEOLOGICAL REPORT

ON

CONOVER CREEK GROUP

57° 131° N.W.

INTRODUCTION

This report gives a description and interpretation of the background geologic setting of the Conover Creek property which was examined early in July of this year by G.A. Dirom and myself. It is intended to be read as a geologic supplement to Mr. Dirom's preliminary report on the subject, dated July 16, 1964, in which a complete introduction to the property is given.

This report is based on the reconnaissance geologic map of the property attached, and interpretation of data and Map 309A from G.S.C. Memoir 246. Control for the attached map was the 1" to 500' topographic maps prepared by V. Zay Smith Associates. These latter maps were found deficient in detail and accuracy, and hence they restricted accurate map control. The claim post locations are based on the topography and are therefore approximate at best.

REGIONAL GEOLOGY

The eastern margin of the Coast Intrusions is very irregular in outline, being characterized by large roof pendants and deeply embayed masses of older rocks set in the complex intrusives. The Conover Creek group lies several miles from the main contact in an area dominated by Triassic volcanic and sedimentary rock. These are underlain by distinctive Permian limestone and older metamorphic rock, and overlain by Jurassic and Cretaceous sediments. The intrusive rocks consist largely of quartz monzonite and granodiorite.

In the vicinity of the claims the volcanics and sediments have been deformed into a series of northeast trending folds. An anticline along Chutine River is described in G.S.C. Memoir 246, p. 25, to account for the relationship of the Permian and pre-Permian rocks there. A complimentary syncline can be interpreted to account for Triassic and Jurassic sediments in the Stikine River valley a few miles east from the claims.

The westerly extension of the axial plane of this syncline projects near to and parallel with Conover Creek. To the south another anticline can be interpreted on Conover Mountain near a small plug of intrusive rock, and further south, another syncline (along the ridge of Missusjay Mountain.).

#### LOCAL GEOLOGY

Near the property the rocks are chiefly volcanics having both extrusive and tuffaceous origin. Relatively thin beds of dark coloured limestones occur in the tuff.

The extrusive rocks are chiefly dark coloured types. Forming the steep northerly slopes of the ridge north of Conover Creek are medium to coarse grained, porphyritic andesites consisting of phenocrysts of phagioclase, hornblende and augite in a dense matrix. Basalts in the canyon of Conover Creek are amygdaloidal; those on the mountainside south of the creek are of a more dense character and are weakly serpentized.

The tuffaceous unit consists of fairly light coloured, fine grained rock types with distinct sandy textures in places. The tuff immediately south of the northern belt of porphyritic andesites is a 10' to 15' layer of a brown, fissile, fine grained rock. The bulk of the unit of volcanic sediments, however, is a light brown, fine to medium grained lithic tuff with a sandy texture and limy matrix. Several 5' layers of a fine cherty breccia were noted in the lithic tuff.

A bed of impure fossiliferous limestone occurs along the ridge near the western part of the property. It is a soft dark brown, sandy rock. In places it is quite black and seems to be petroliferous. Fossils consisting of pelecypods and gastropods are very well preserved. A few outcrops of a brown, limonitic limestone, distinct from the sandy type, were mapped in two areas towards the eastern part of the property, but it is not known if these represent a continuous bed.

#### STRUCTURE

The most conspicuous structural feature shown by the reconnaissance mapping is the volcanic sequence striking east-northeast and dipping 55°-60° to the north. Systems of northerly and northeasterly faults with small displacements can be

observed along the ridge. Very little evidence was found to support the premise of a strong fault or shear zone along Conover Creek.

As mentioned earlier, the axial plane of a syncline can be projected to lie near to and parallel with Conover Creek. Convincing evidence to support this interpreted syncline was not found in the course of the preliminary mapping. However, several outcrops were found showing graded bedding which suggested that the top of the beds face the south, and hence, that the volcanic sequence is overturned. Fissility in several of the map units could be caused by folding of this sort. Supporting this interpretation, also, is the description of the Triassic rocks in Memoir 246, which indicates the lower sub-division of the Triassic to be chiefly flows, and the upper sub-division to be chiefly sediments. Differential erosion of a trough of soft sediments lying in more resistant extrusive rocks could account for the linear character of Conover Creek valley.

#### MINERALIZATION

The nature of the mineralization and its relation to structure and alteration has been described in detail by Mr. Dirom. The reconnaissance mapping has yielded nothing to add to this picture. Indeed, the only occurrence found during preliminary mapping (other than at the Jackson and Lady Jane showings) was a single hand-sized specimen containing a little chalcopyrite. This came from an altered outcrop on KIB 17 mineral claim. The prospectors described the upper end of Conover Creek valley as "dead". No sign of mineralization was found in outcrop or float in this part of the valley, nor was any found at the eastern end of the property.

Respectfully submitted,

*Chas. A. R. Lammle*

Chas. A.R. Lammle.

CARL:sm

24 February 1965

TO ACCOMPANY      Supplementary Geological Report on Mineral  
Claims BIK 197 to BIK 220 Inclusive, herein  
called the Conover Creek Group, Liard Mining Division, B.C.

BY:            Charles A.R. Lammle


DATED:        30 December 1964

QUALIFICATIONS OF AUTHOR

OF

SUPPLEMENTARY REPORT

Charles A.R. Lammle is a graduate of the University of British Columbia (B.A.Sc. in Geological Engineering, 1962) and has been employed by the Vancouver exploration office of American Smelting and Refining Company for the past thirty-three months.

  
\_\_\_\_\_  
Keith Whiting, P. Eng.,  
(B.C. Reg. No. 4284)  
Supervisor.

EVIDENCE OF EXPENDITURES INCURRED

SALARIES

G.A. Dirom	15 days @ \$35.00/day	\$ 525.00
C.A.R. Lammle	16 days @ \$525.00/mo	280.00
R. Watson	16 days @ \$450.00/mo	240.00
L. May	16 days @ \$400.00/mo	<u>213.00</u>
Total Salaries		\$ 1,258.00

LIVING EXPENSES 387.63

ASSAYING SAMPLES 144.37

HELICOPTER 17 hrs. @ \$130.00 2,210.00

TOTAL EXPENDITURES \$ 4,000.00

Declared before me at the  
443 of \_\_\_\_\_, in the  
province of British Columbia,  
this 12 of 1965, A.D.



W. St.C. Dunn

Sub-mining Recorder

APPROX LOC<sup>3</sup>  
 LOWER FLY CAMP & HELIPAD  
 ON CREST OF RIDGE @ 3180' ELEV. (=3100' TOPOG. MAP)

(M)

APPROX LOC<sup>3</sup>  
 UPPER FLY CAMP & HELIPAD  
 @ 4425' ELEV.  
 ON CREST OF RIDGE



ROUGH CHIP SAMPLES ONLY

FR	Zn	Cu	Ag	As	Bi	Mo	W
0.05	TR	0.05	94	50.0	0.005	0.70	
			95	50.0	TR	0.45	
			96	30.0	0.005	1.35	
			97	50.0	TR	0.75	

SHOWINGS & WORKINGS

NS	Width	AS	Ag	%Pb	%Zn	%Cu
89	2.5'	0.005	1.45	0.10	TR	0.15
89	1.0'	TR	0.50			
87	6.0'	0.005	0.85	1.07	1.03	0.20
91	5.5'	0.005	1.15	0.06	0.03	0.10
92	2.5'	TR	0.75			
93	Picked	0.02	4.25	7.90	0.03	0.58
88	Picked	0.01	3.50	1.00	1.05	0.27

OLD "LADY JANE" VEIN & WORKINGS

NS	Width	AS	Ag	%Pb	%Zn	%Cu
84	3.0'	0.025	0.20			
86	6.0'	TR	0.35	0.82	TR	0.17
85	5.0'	TR	0.35			

77	Picked	0.005	0.70			
78	4.0'	0.015	1.15			
79	Picked	0.03	3.35	2.19	1.30	0.66
80	6.0'	TR	0.25			
81	5.0'	0.005	0.85			
82	4.0'	0.01	1.15	0.62	0.09	0.28
83	6.0'	0.015	0.45			

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 591 MAP 1

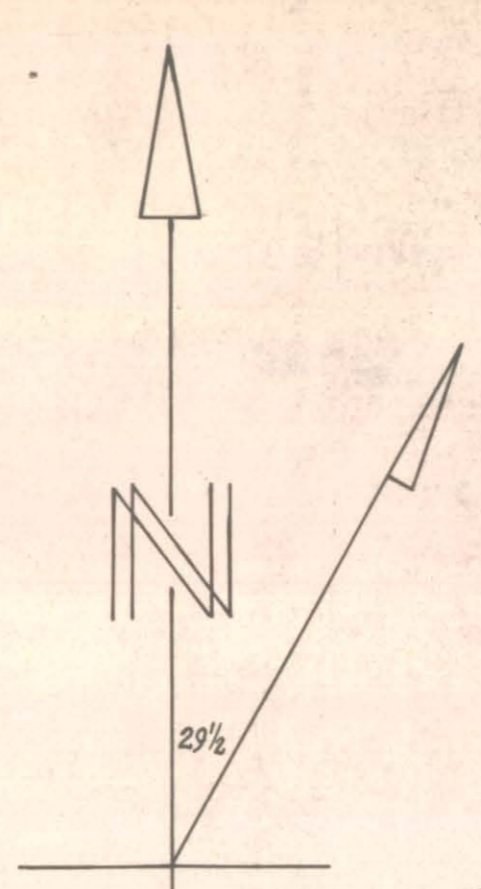
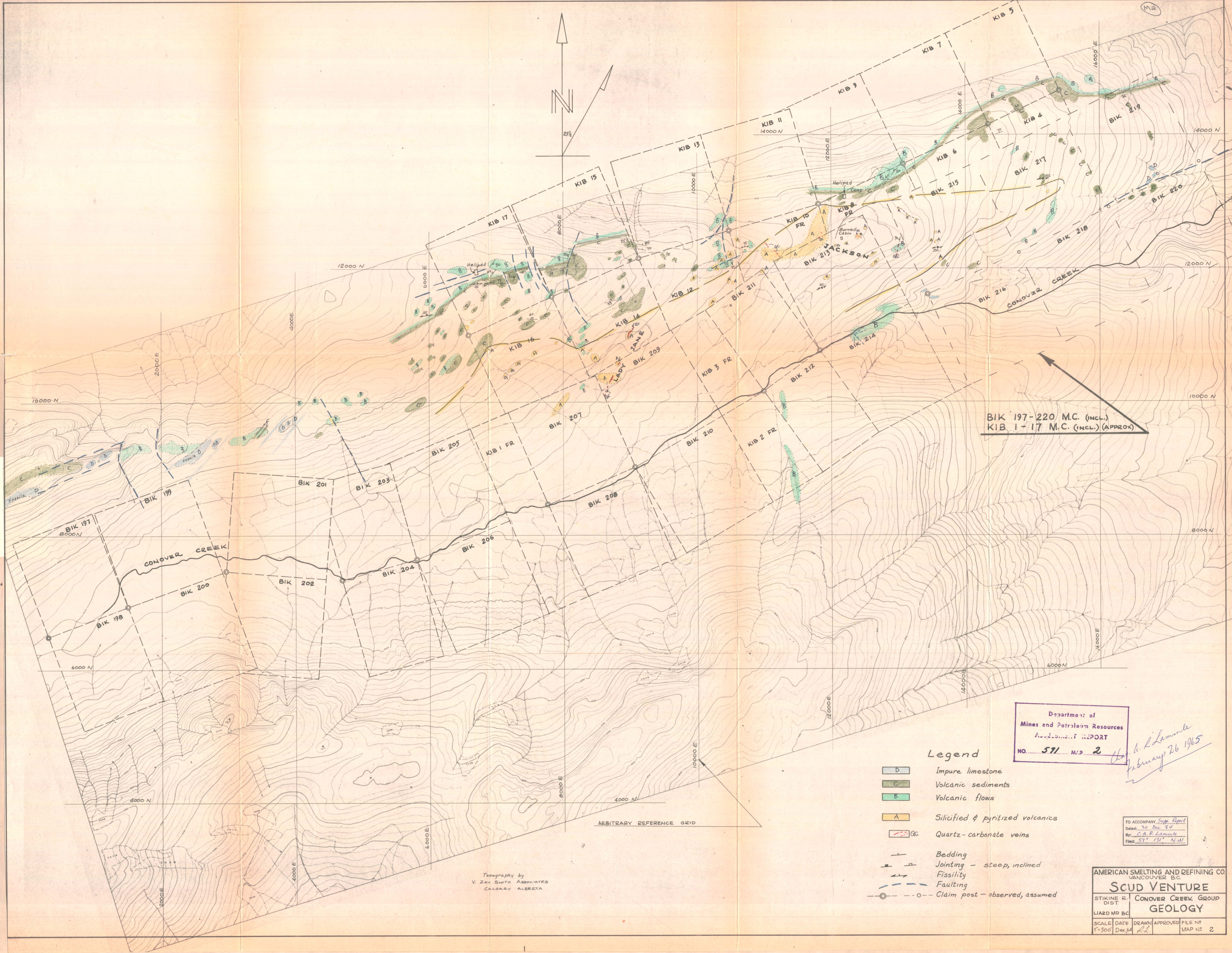
TO ACCOMPANY Prelim. Report  
 Dated: July 16, 1964  
 By: G. A. Dirom  
 Filed: 57° 131° N.W.

MAP BASIS:  
 VICINITY OF WGS - REDUCTION OF 1"-100' COMPASS & TAPE  
 REMAINDER - PACE TRAVERSING  
 ELEVATIONS - BY ANEROID RELATIVE TO UPPER CAMP  
 NOTE: V. SHAY SMITH TOPOG. MAPS SHOW AT LEAST 100'  
 GREATER ELEV. RANGE THAN E. & W. LIMITS OF THIS MAP

ASARCO VANCOUVER OFFICE			
CONOVER CREEK SHOWINGS GEOLOGY & ASSAYS			
SCALE: 1" = 200'	DATE: JULY, 1964	BY: G. A. DIROM	MAP NO. 1

591

G. A. Dirom  
 Feb. 26, 1965



BIK 197-220 M.C. (INCL.)  
 KIB 1-17 M.C. (INCL.) (APPROX)

Department of  
 Mines and Petroleum Resources  
 ANNUAL REPORT  
 NO. 571 M.P. 2

*h. L. Lemmle*  
 February 26 1965

**Legend**

- D Impure limestone
- C Volcanic sediments
- B Volcanic flows
- A Silicified & pyritized volcanics
- QC Quartz-carbonate veins
- Bedding
- Jointing - steep, inclined
- Fissility
- Faulting
- Claim post - observed, assumed

Topography by  
 V. ZAV SMITH ASSOCIATES  
 CALGARY ALBERTA

TO ACCOMPANY *Supp. Report*  
 Dated: 30 Dec 64  
 By: C. A. B. Lammle  
 File: 571 131 N.W.

AMERICAN SMELTING AND REFINING CO.  
 VANCOUVER B.C.  
**SCUD VENTURE**  
 STIKINE R. DIST. CONOVER CREEK GROUP  
**GEOLOGY**  
 LIARD MD BC  
 SCALE DATE DRAWN APPROVED FILE NO  
 1"=500' Dec. 64 *L.L.* MAP NO. 2