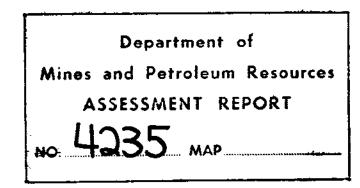
Ē ì SUMMARY GEOLOGICAL AND GEOCHEMICAL STUDY JAG GROUP \mathcal{N} 16 MILES WEST OF MARYSVILLE 49° 33' 40" NORTH AND 116 • 18' 55" WEST KIMBERLEY MINING DIVISION, B.C. NTS 82 - G



SUMMARY GEOLOGICAL AND GEOCHEMICAL STUDY JAG GROUP 16 MILES WEST OF MARYSVILLE 49° 33' 40" NORTH AND 116° 18' 55" WEST KIMBERLEY MINING DIVISION, B.C.

NTS 82 - G

by N. C. Lenard, G. V. Lloyd Exploration Ltd. Calgary, Alberta.

September - October, 1972

G.V.LLOYD P. Geol.

SUMMARY

GEOLOGICAL AND GEOCHEMICAL STUDY

JAG GROUP

KIMBERLEY MINING DIVISION, B. C.

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REPORT ON THE JAG CLAIMS MEACHAM CREEK CRANBROOK MINING DIVISION BRITISH COLUMBIA

INTRODUCTION

Purpose of the Report

This report presents the results of the ground geological examination of the JAG Claims conducted in late fall, 1972, by G. V. Lloyd Exploration Ltd. The survey was conducted at the request of I. C. Christopher Ltd., Consultants, Toronto, Ontario. The purpose of the survey was to obtain detailled geological mapping and sampling of showings, in order to appraise the economic and geologic value of existing showings and to determine the potential for further development.

Location

Geographically, the property is located on the meridians 49 degrees 33' 40" North latitude and 116 degrees 18' 55" West longitude, occupying the southeast corner of the junction between Meacham (Whitefish) Creek and Fiddler Creek. Meacham Creek enters the St. Mary River approximately 16 miles west of Marysville, British Columbia. The claims extend 6,000 feet easterly downstream from the confluence of Meacham and Fiddler Creek. The summit of Mount Evans marks roughly the southeast corner, whereas Fiddler Creek lies directly west of the western claim boundary.

Accessibility

Access to the property is at present difficult. From a point 16.5 miles from Highway 95A, near Marysville, along the St. Mary River allweather road, a good logging road leads across the St. Mary River (elevation 3,250 feet) and across Meacham Creek to a logged area south of Meacham Creek. From here a rough (four-wheel drive) access road leads to a point two miles northeast of the property, from which a trail can be followed to a trapper's cabin (elevation 4,050 feet) on the JAG 4 claim.

Trails also lead from this cabin to the Good Hope adit (elevation 5,700 feet) and into Pollen Basin (elevation 6,000 to 7,000 feet) below and north

of Mt. Evans peak (elevation 8,950 feet).

It was learned confidentially that Canadian Forest Industries plans to construct a logging road in 1973 along Mescham Creek, past Fiddler Creek. Preliminary surveying of the route has already been completed.

Topography

The subject property lies in steep mountainous terrain and the elevations vary from 4,000 to 8,950 feet above sea level. The majority of the claims (34 of 58) lie at an altitude above 6,000 feet. Meacham Greek occupies a Ushaped glacial valley. Steeply plunging streams drain cirques and basins near the timber line (approximately 7,000 feet). Cliffs and steep talus slopes, which are in most places forested, predominate the hillsides.

Method of Study

This field report is primarily a presentation of a sampling and soil geochemical study and ground geological study of the JAG claims, as well as a sampling and structural survey of existing underground workings and trenches. The mapping and geochemical sampling was done in order to examine structure and rock types, to search for new mineralization beyond existing workings, and to evaluate the results.

The field program was undertaken in September, 1972 and field work was terminated by a heavy snowfall in late October, 1972.

The mapping and sampling was done by S. Greene, geologist, assisted by M. Torontow, engineer. Field supervision was conducted by Neal Lenard, P.Eng. (B.C.).

Field transportation was provided by a 4 x 4 panelled vehicle and a 3/4 ton Crew Cab. Main base of supplies was at Kimberley, B. C.

Bacause of the weather at this time of year, it was considered best to conduct the survey from an easily accessible base camp on the St. Mary River (elevation 3,250 feet) and drive and hike into the property each day.

Geochemical sampling and geological mapping and prospecting along the lines were carried out after construction of each chained line. The autumn weather conditions and difficult access to the lines slowed the operation somewhat. Ground at higher elevations above 6,000 feet was not surveyed because of previous snow cover. Some prospecting was carried out on the south slope of Mt. Evans and in Pollen Basin (base line 36 South - 81 South).

HISTORY

Reference to showings on the property appear in annual reports of the B. C. Minister of Mines, dating as far back as 1900 for the <u>Faller Showing</u>, 1901 for the Good Hope Showing, 1916 for the <u>Evans Showing</u>, and 1920 for the Whitefish <u>Showing</u>. Although it was previously reported that veins rich in copper and lead sulphides occurred locally in the Pollen Basin (Evans Showing), it was also stressed that hand sorting would be necessary to make shipment of the ore economic from the showing (B. C. Minister of Mines, 1916 p. K112). In the same report it is indicated that the Good Hope showing held little encouragement for further development (p. K112).

OPERATIONAL DATA

<u>Claims</u>

A base line was established trending in a 152 degree direction approximately 300 feet east of the trapper's cabin, for work intended mainly on the lower claims (JAG Nos. 1 - 32). The cross lines surveyed in a 062 degree direction, were intended to cross several faults exposed along the valley sides and to cover a 2,000 foot vertical section of sills, dykes and metasedimentary strate.

Lines were surveyed by chain and compass at a distance of 400 feet apart, with stations marked at 100 foot intervals. Within the grid area mineral occurrences were mapped and tied to the cross lines.

Before the property became inaccessible due to snow, about 56,500 feet of line was surveyed, chained, flagged and prospected. About 51,500 feet of this amount was also mapped and sampled.

The four major mineral occurrences (Evans, Good Hope, Faller and Whitefish) and three minor occurrences were inspected, out of the 13 known showings on the subject property. The adits and trenches were mapped and channelsampled across vein widths and in some places across the adit breadths. Where feasible, dump samples and additional soil samples were taken. Grab samples of the best mineralization were also collected.

GEOLOGY

Regional Geology

TABLE OF FORMATIONS

Proterosoic	Purcell or (?) later	Moyie Intrusions	Mets-diorite, mets-quartz- diorite.		
	Purcell	Aldridge Formation	Upper:	rusty, weathering, laminated argillite, siltstones and quartz- ites.	
			Middle:	grey quartaits and siltstones, argillite, rusty weathering silt- stones, argillaceous quartaites.	
			Loveri	rusty weathering grey quartzites, siltstones and argillites.	

Lithology

Within a five mile radius of the center of the property the main rocks are of Proterozoic (Purcell) to late Proterozoic age.

The middle division of the Aldridge Formation is characterised by massive and generally light weathering quartzites, siltstones and argillite, grey quartzite with fine dark laminations, commonly cross-bedded and argillaceous. Similar rock of the upper division of the Aldridge Formation outcrop four to five miles south of the property, north of the St. Mary Fault. Middle Aldridge rock is the predominant rock type in the approximately 80 square mile area. The other common rock types are Proterozoic Upper Purcell (?) or later dioritic Moyie Intrusions. In the middle Aldridge Formation these intrusives occur in the upper strate and are generally sill-like. Locally the diorites transect bedding, gently as a rule, but steeply in places and also in a few places become dykes. Apparently the upper sills were fed through lower ones.

Structure

Three major faults, St. Mary, Hall, and Moyie, which cut the Purcell geanticline, divide the general area into three blocks of contrasting structures. The largest block, within which lies the area of the prospect, is

underlain chiefly by competent Aldridge strata, intruded by Moyie diorites and characterized by open, north-trending folds. This block contains numerous, mostly small, steep north-striking faults, with generally the west side downdropped (Geological Survey, Canada, Map 15 - 1957) relative to the eastern side.

Economic Geology

Lode deposits in the region are of three main types: replacement in sedimentary rocks not localized along fractures (Example: Sullivan and North Star Mines); wein and replacement not restricted to particular rock formation; and deposits related to the Moyie intrusions.

In the area of interest, lode deposits are characteristically associated with the Moyie Intrusions. Deposits of this type are quartz-calcite lenses and viens in diorite, in and adjacent to which occur pyrrhotite, pyrite and chalcopyrite and less commonly minor amounts of galena and sphalerite. These deposits characteristically occur in the upper parts of sills and pinch out upward at or near the sill roof and also pinch out downward in diorite. The veins are generally lenticular, horisontal to vertical.

Two types of ore bodies within the sills have been recognized: irregular bodies which have been formed by differentiation of cooling magmas (Schofield, 1915); and viens which are roughly perpendicular to the plane of the sills. Only the latter type were found on the prospect.

The chief groups of workings in intrusive related deposits are near Mt. Evans and near Alki and Pyramid Creeks.

Local Geology

Geologically, the prospect is set in an area of broadly folded quartrite and argillite beds and diorite sills and dykes are intercalated, or cut across these beds. North-trending, steeply dipping faults are visible along the valley sides.

Rock Types

The main rock types encountered in the survey area are as follows:

 Dark grey to light-grey, banded to unbanded, quartrites and argillaceous quartrites. The weathered surface of these rocks may have a grey or rusty appearance. On fresh surfaces, cross-bedding and

slump-bedding (Hassock Structure) are in places visible. Individual beds vary from six inches to several feet in thickness. Near diorite intrusions some barren quartz veins occur in the quartzites.

- 2. Slatey to quartzitic, brown to light-green argillite. The argillites may be weathered to a grey or rust colour. The rocks exhibit slatey cleavage which may or may not be para-liel to the bedding. Cleavage planes may be slightly chloritized. Beds are found between layers of quartzite in sections several to hundreds of feet in thickness.
- 3. Dark green phaneritic, hypidiomorphic-gramular hornblende diorite is the only intrusive rock type found. These rocks range in grain size from medium-fine to medium. Green hornblende is found as long, needle-like crystals in a matrix of anhedral or rounded crystals of grey to lightgrey plagioclase. Chloritisation of hornblende is rare except near quarts veins and faults. Weathering of hornblende and trace amounts of hematite and iron give the rock a reddish to rusty-dark appearance. Hornblende crystals are in general randomly oriented, except in one locality near the contact with a large fault where the crystals were aligned in a direction parallel to the strike of the fault.
- 4. Quartz and calcite veins. Whereas quartz is white to vitreous, non-crystalline and glassy, calcite is generally white, coarsely crystalline and colloform to encrusting. The veins occurred generally in diorite, although they have been found extending short distances into quartzite. Epidote veinlets are closely associated with quartz veins and can be found within or adjacent to the quartz veins, or in the close vicinity. Quartzfeldspar veins are also common in the vicinity.

Structure

The main structural features have relationships both to faulting and folding and to dioritic intrusion. Tectonism, as faulting, folding and

intrusion, finds expression locally in joints, shears, and tension cracks and faults in the diorites and the attitude of beds in the quartsites and argillaceous-quartzites.

Statistically, attitudes of shears and tension faults in diorite fall into three distributions:

- 1. 150 degrees to 160 degrees and dipping 60 degrees west to vertical.
- 2. 120 degrees to 140 degrees and dipping vertically.
- 3. 100 degrees and dipping vertically.

Joint patterns fall into wider ranges:

- 65 degrees to 100 degrees, dipping 60 degrees north to 80 degrees south.
- 120 degrees to 130 degrees, dipping 80 degrees west to vertical.
- 140 degrees to 160 degrees, dipping 50 degrees to 60 degrees west.

Attitudes of quarts-calcite veins fall into three narrow ranges:

- 1. 85 degrees to 90 degrees, dipping 85 degrees south to vertical.
- 155 degrees to 160 degrees, dipping 60 degrees west to 80 degrees west.
- 3. 120 degrees to 135 degrees vertical.

The attitude of sedimentary beds varies. 150 degrees to 160 degrees dipping 25 east to 60 west. The common factor in these figures is the 150 degrees to 160 degrees/60 west to vertical strike/dip. This roughly coincides with the Fiddler Creek major fault striking spproximately 160 degrees. It is likely that a number of conjugate and sub-parallel faults associated with the Fiddler Creek Fault are reflected also in the above distribution.

The attitude of the quarts calcite veins in the diorites have ranges that coincide approximately with those of the shears, tension faults and major faults, indicating that there is a structural relationship between veins and faults.

The attitudes of the sedimentary beds reflect assymetrical anticlines with beds on the west dipping more steeply than those on the east. Similarly the faults are down-dropped on the western side, relative to the eastern side.

The diorite intrusions occur as sills which were apparently fed by feeder dykes. No dykes were discerned in the diorite intrusions. However, grain sizes of the diorites distinguish those types that cooled quicker along the margins from those in the slower cooling centers, presumably into which rock material was injected.

The contacts between quartzites and diorites exhibit chilled margins, but wall rock alteration was not observed.

Foliation in the intrusive rock was also not seen, all crystals having a random orientation. However, near fault contacts and as much as fifty feet from the contact, hornblende crystals were observed oriented directly parallel to the strike of the fault.

The relationships between the above structural features indicate that intrusion, folding and faulting occurred contemporaneously. Intrusive activity possibly persisted through the folding and faulting. The sequence of events may be as follows: Formation of the broad Purcell gennticline; flexure, tension, and anticlinal folding accompanied by igneous intrusion; faulting during late intrusion and late folding; deposition of quartz and quartz-calcite veins after faulting and during late cooling of intrusive rock.

Alteration

Little alteration of rock was observed, either in the quartzites, argillites, or diorites, indicating that little intra or post-intrusion metamorphism took place. Some chloritisation of hornblende and minor serifixation occurs at the fault contacts and adjacent to quartz veins.

Mineralization

Mineralization at the various showings is summarized as follows:

Showing No. 1. Location: Grid 36+508, 25+00E; Claim Host rock - diorite The mineralized zone, two to three feet in width, occurs in a shear (165 degrees/80W). Mineralization is found in a quartz-chlorite schist, with quartz veins one to four inches in thickness. Veins extend approximately 50 feet northward and end at a cliff 20 feet to the south. The zone may be a continuation of Showing 3. Only malachite and iron-staining were visible.

found in the east side of a quarts vein one- to two-feet in thickness. Iron and hematite-staining

Showing No. 3. Location: Whitefish Adit, Grid 32+508, 0+70W; Claim. Host rock: diorite A mineralized zone occurs in a shear (125/90). The shear may extend to Showing No. 1. No surface veining beyond the adit was observed. Mineralization is confined to the eastern side of the shear across a one foot width. Malachite and asurite-staining in quartz is associated with chlorite, hornblende, pyrite and epidote. The rock face at the adit entrance is iron-stained.

are found adjacent to the vain system.

Showing No. 4. Location: Good Hope Adit, elevation 5,700 feet, Faller Creek; Claim. Host rock: diorite A one foot to four foot wide quarts-calcite vein follows an irregular fault some (70-140/90), traceable for 300 feet underground, but is talus covered on the surface. No mineralization was observed.

Showing No. 5. Location: Grid 12+50S, 20+00W.; Claim. Host rock: diorite Pyrite mineralization was observed in a 6 foot tension zone. Only iron-staining was visible. Because of overburden the extent of the zone could not be observed.

Showing No. 6. Location: Grid 11+50S, 16+00W; Claim. Host rock: diorite A thin calcite vein (1" in thickness) lies in a 6 foot wide shear and tension zone (120/90). Zone extends 20 feet in diorite southward beyond which it is covered by overburden. Fracturing and rusting was observed, but there is no mineralization visible.

Showing No. 7. Location: Evans Trench, Grid B.L. 76+00S; Claim. Host rock: diorite The mineralized zone occurs in a tension fault occupied by a one foot to four foot quartz-calcite vein or vein system (085 degrees to 090 degrees, dipping 85S-90). Calcite is encrusted along the eastern surface of the quartz vein. Pyrite and chalcopyrite and small amounts of galena were found in amounts ranging in size from thumb-size in calcite to palmsize in quartz. The mineralization is better along the east side of the vein system. A minor tension zone (140 degrees/45W) is mineralized with pyrite.

Mineralization that has been examined in the subject claims is confined to quartz and calcite veins. These veins vary from several inches to as much as four feet in thickness. At the outcrops they occur almost exclusively in diorite at or near the surfaces of sills or dykes. These veins also thicken and thin along strike, are sub-parallel and are anastomosing in a single system. Calcite forms as crusts on the quartz or as separate smaller veinlets, also parallel to the main vein.

Minerals found in the veins are chalcopyrite, galena and some sphalerite. In three of the five localities where copper sulphides were found, the sulphides occurred on the east side of the vein, presumably toward the sill top. The sulphides occur as disseminations from thumb-size and palmsize in calcite and in quarts, respectively. Other than minor pyrite, no sulphide mineralization was seen away from the vein systems. That is, the dioritic host rock is apparently barren in the subject claims examined.

Epidote is associated with both the sulphide mineralization and quartz veins and serves as an indicator of hydrothermal activity.

The sharp boundaries between diorite and the quartz-calcite veins plus the common strong sub-parallel linearity of the veins suggests that these quartz-calcite veins were deposited from solutions migrating through and into fractures that must have formed after the diorite consolidated.

The calcite, usually mineralized, is confined to the quartz veins in the Moyie diorite and was not found in the unmineralized quartz veins in the Aldridge Formation. A close relationship is suggested between the Moyie Intrusion and the mineralization. Possibly the mineralization is a latestage phenomenon in which hydrothermal fluids travelled through fractures in sills and feeder dykes to enter tension cracks and shear zones in the cooling dioritic rock. The mineralization decreased away from the fractures and veins and since the diorites outside the vein zones are barren, the origin of mineralized solutions is postulated to be from some source other than the diorite.

GEOCHEMISTRY

Soil Sampling

Soils in the area are immature and typical of mountain terrain, but horizons are generally clearly developed, the depth and degree depending on the altitude. The A₁ horizon is comprised of decaying moss and wood material. The A₂ layer is generally strongly-leached to a depth of as low as ten inches. The B₁ horizon is brown to rusty in colour, often contains rock fragments and is found at depths ranging from six inches to one foot. No B₂ horizon was found. The soils are underlain by a layer of rock fragments ranging in size from several inches to one foot in diameter, which likely represents a mantle of talus on the hillsides. Generally the B₁ horizon was sampled.

Cold extraction tests from copper and Total Heavy Metals were carried out on samples, using .01% dithizone and copper and THM buffers. Some isolated minor anomalies were found, using this method, but these at present have no geologic correlatives, except those anomalies near major showings.

Atomic absorption tests on the soils and the contouring of these results reveal several areas of anomalous copper and lead values. Silver and zinc values are of background intensity. The anomalous areas usually occupy areas of outcropping diorite and generally conform to a linear direction roughly parallel to the major faulting.

Copper values range from background (25 p.p.m.) to 290 p.p.m. The peak values in the copper anomalous areas are in the 100 to 170 p.p.m. range. Five areas of anomalous copper content in soils have been outlined by atomic absorption value contours. Lead values range from background (20 p.p.m.) to 130 p.p.m. The peak lead values in these anomalous areas lie between 40 to 60 p.p.m. Corresponding roughly to the location of the anomalous copper area, four areas of anomalous lead content in soils occur. The shape, size and extent of these anomalies are depicted on the contour maps of the atomic absorption values accompanying this report.

Rock geochemical samples gathered over outcrops of diorite have copper values ranging from 50 to 142 p.p.m. These values correspond to, or are less than, the average copper content of diorite (copper content in mafic igneous rock, 140 p.p.m. - Vinogradov, 1959). One anomalous value of 290 p.p.m. occurs at L.48S, 5W. Lead values are generally anomalous compared to the average lead content of diorite (lead content in mafic igneous rock, 8 p.p.m. -Vinogradov, 1959). Values range between 17 and 44 p.p.m. One highly anomalous value occurs at L48S, 5W.

AIRBORNE GEOMAGNETICS (Map 8473G)

The relative geomagnetic intensity variance over the property is less than 40 gammas. Thus, no magnetic anomalies, other than a broad magnetic low over Fiddler Creek, exist on the property.

CONCLUSION

Results of the atomic absorption tests on the geochemical soil samples show a number of copper and lead anomalous areas, restricted largely to diorite rock. They occur mainly in areas of known mineralization where extensive exploration and trenching have already been carried out prior to the present program. The mineralization in these areas is restricted to quartz and quartz-calcite veins.

The four major showings and three of the nine minor occurrences which were inspected revealed no mineralization outside the quartz-calcite vein systems. Overall, the diorite is barren of sulphide mineralization. Further, it was demonstrated that mineralization was likely derived from a source other than the diorite, though closely related in time to the intrusion. Since no mineralization as a magma differentiate was found, an epigenetic rather than syngenetic origin of mineralization is postulated. The physical control of mineral deposition appears to be superimposed features, such as tension faults and shears. Other than some silicification and chloritisztion and local sericitization of the diorite immediately adjacent to the quartz veins, diorite wall rock alteration is minor. The absence of s gnificant alteration precludes the possibility of a mesothermal or "porphyry" type deposit in the diorite. It is more likely that the minerals in the prospect area were deposited by cooled hydrothermal solutions injected into a shallow, cooled environment.

The mineralized veins seen and examined were of much smaller size than previously reported, however, there are several of these veins that carry high copper values. There are also several known showings, plus a substantial part of the claims that could not be examined, due to a covering of snow. A new logging road is to be constructed into the subject claims in 1973, the route for which has already been surveyed.

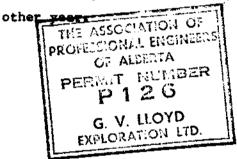
RECOMMENDATIONS

It is our opinion, on the basis of known mineral occurrences and related geological and geochemical evidence, that the JAG claims, which are the subject of this report, warrant continued exploration.

A substantial part of the claims were not seen during our recent examination, due to snow. There are indications that additional copper-bearing veins could be present, in addition to those now known.

The continued exploration would involve a brief program of examination by geologist and assistant. This would have to be done between mid-July and late August when the ground could normally be expected to be barren of snow.

Assessment work for the first year has been conducted as reported here~ in. The JAG claims could be formed into two groups and the work credits applied for, which would keep the subject claims in good standing for an-



January 12, 1973. Calgary, Alberta.

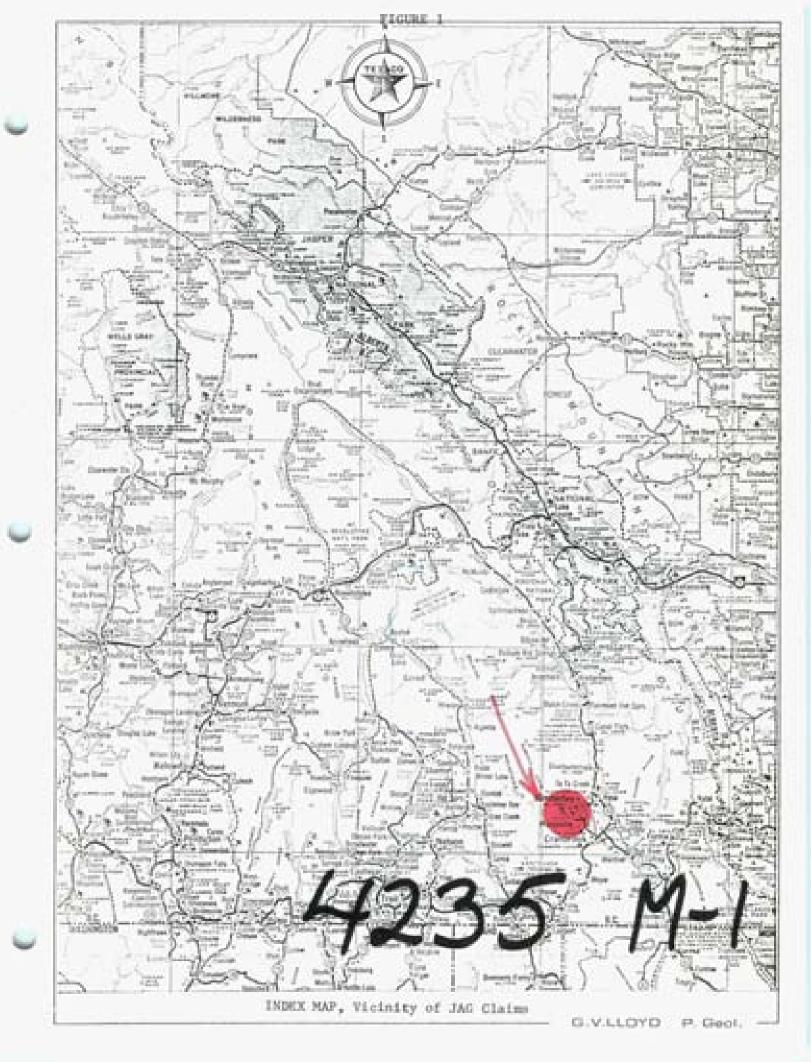
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G. V. Lloyd, P. Geol.

M. C. Lanard Neal C. Lenard, P. Eng.



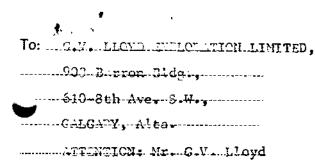
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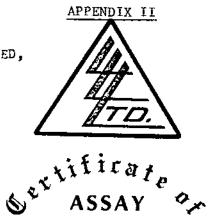






Department of Mines and Petroleum Resources ASSESSMENT REPORT No. 4235 MAP #1





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File No
DateCerober 31, 1972.
SamplesChipa
Project NO. 5772

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4 1933	.06	.41	.01	
-++ 1934	-38	2.16	.02	*
+ 1935	-18	1.15	.03	
н 1936	.08	1.36	.01	
3 1937	.06	.96	.01	**
4 1938	.06	.16	.01	*
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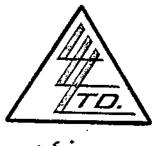
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Licensed Assayer of British Columbia

NOV 7 1972

To: G.V., LLOYD, EXPLOYATION, LIMITED,
903-Barron-Bldg-,
610-8th Ave. S.W.,
CALGARY, Alta

ATTINTION: Mr. G.V. Lloyd



File	No.	5963
Date		October 31, 1972
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ASSAY The

LORING LABORATORIES LTD.

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L4N	20W	45	48	0	
L4N	21W	40	23	0	
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L4N	25₩	30	39	0	
B.L.	8N	14	15	0	
L8N	2W	19	23	0	
l8N	3₩	16	15	0	
L8N	6W	56	29	1	
l8N	8₩	30	45	0	
L8N	9W	39	26	0	
LSN	10W	146	65	0	
LSN	11W	26	29	0	
LSN	12W	17	21	0	
LSN	13W	36	29	0	
LSN	14W	32	20	0	
L8N	15W	91	51	0	
			UPON THE HEREIN DESCR		

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance,

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Licensed Assayer of British Columbia

TO: G.V. LLOYD EXPLORATION LIMITED,

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903 Bar	ron-Bldg-,
.610-8th	Ave. S.W.,
CALGARY,	Alta.

:

. .

ATTINTION: Mr. G.V. Lloyd



DateOctober 31, 1972.... SamplesGeo-chems------

Ser ASSAY or

PFOJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

-2-

SAMF	PLE No.	ppm Cu	ррт РЬ	ppm Ag	
L8N	20W	43	23	0	
L8N	21W	36	20	0 -	
L8N	22W	30	26	Ō	
L12N	0+00	22	29	Ō	
L12N	411	27	31	0	
L12N	5W	69	130	0	
L12N	6W	25	29	0	
L12N	7W	20	20	0	
L12N	8W	36	23	0	
£12N	9W	29	26	0	
L12N	10W	31	23	0	
L12N	11W	34	33	0	
L12N	12W	43	20	0	
L12N	13W	124	29	0	
L12N	14W	62	28	0	
L12N	15W	51	33	0	
L12N	18W	27	29	0	
L12N	19W	23	23	0	
L12N	20W	17	26	0	
L12N	21W	20	28	0	
L12N	22W	25	29	0	
L12N	23W	31	39	0	
L12N	24W	34	33	0	
L12N	25₩	18	26	0	
L16N	1+00w	58	21	0	
L16N	SW	27	26	0	
L16N	6W	18	20	0	
L16N	711	18	20	0	
L16N	8₩	18	25	0	
L16N	9W	38	23	0	
L16N	10W	30	28	0	
			ertify that the above E upon the herein descr		

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

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Licensed Assayer of British Columbia

To: G.V. MAGYD-HARLONATION-LIMITED,
903- Darron-Bldg.
610-8th Ave. 3.W.,
CALGITY, Alta.
ATTINICH: Mr. G.V. Lloyd



File No.	5958
Date	October-31, 1972
	Geo-chens

LORING LABORATORIES LTD.

-3--

SAMP	LE No.	ppm Cu	ppm Pb	ppm <u>Ag</u>	
L16N	11W	30	28	0	
L16N	12W	30	25	1.	
L16N	13₩	133	33	1	
L16N	14W	117	29	1	
L16N	16W	36	33	0	
L16N	17W	39	40	0	
L16N	18W	16	26	0	
L16N	19W	14	21	0	
L16N	20+00W	25	26	1	
L16N	21+00W	29	33	0	
L16N	22+00W	23	65	1	
L16N	23+00₩	36	48	0	
L16N	24+00W	26	29	0	
L16N	25+00W	15	28	0	
L20N	0+00	14	48	1	
l20N	15	27	29	ì	
L20N	217	20	29	0	
L20N	317	34	31	0	
L20N	4W	25	25	0	
L20N	5W	20	20	0	
L2ON	6W	18	25	0	
1.20N	7N	15	21	0	
L20N	8₩	15	21	0	
L20N	9W ·	20	26	0	
L20N	11W	34	39	0	
L20N	12W	29	33	1	
L20N	1.3W	27	28	1	
L2ON	17W	27	29	0	
L20N	18W	16	20	0	
L20N	19W	20	26	0	
		J Hereby C	ertify that the above Upon the herein descr	RESULTS ARE THOSE	

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

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Licensed Assayer of British Columbia

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619-8th-Ave5.W.y	•••
CALGEY, Alta.	-

ATTINTION: Mr. G.V. Lloyd



Date _____Cctober 31, 1972 Samples Geo-chema

FOJECT 5772

IC-Christopher

LORING LABORATORIES LTD.

SAMP	LE No.	ppm Cu	ppm Pb	ppn Ag	
L20N	21W	69	65	1	·
L20N	221	69	58	2	
L20N	23W	40	57	1 .	
L24N	2W	28	25	0	
L24N	44	31	23	0	
L24N	51	17	23	1	
L24N	6W	20	23	1	
L24N	7W	16	23	0	
L24N	8W	14	23	0	
L24N	91/	23	34	0	
1241	107	27	29	0	
L241	11W	25	29	0	
L24N	121/	32	38	0	
L24N	173	213	45	0	
L24N	18W	21	26	0	
L24N	1977	20	28	0	
L24N	20W	16	23	0	
124N	2177	25	23	0	
L24N	22W	29	36	1	
L83	0+00	28	20	0	
L83	1W	34	20	0	
L83	25/	35	23	1	
L33	317	34	21	0	
LSS	4₩	15	26	0	
L83	5W	37	26	0	
L83	7W	22	33	0	
L83	8W	28	29	0	
L8S	9W	27	25	0	
L33	10W	25	23	0	
L83	11W	27	23	0	

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

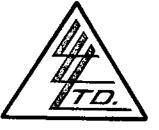
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Licensed Assayer of British Columbia

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To: G.V. LLCYD ENFLORATION LIMITED	,
903 Barron Bldg.,	
-610-8th Ave. S.V.,	
CALGATY, Alta.	



File No. <u>5968</u> Date <u>October 31</u>, 1972 Samples <u>Geo-chema</u>

ATTENTION: Mr. G.V. Lloyd Stificate ASSAY PROJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

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SAMPL	E No.	ррп Сц	ррт РЪ	ppm Ag	
L8S	12W	19	20	0	
L8S	13W	14	20	õ.	
L8S	14W	12	17	õ	
L8S	15W	64	21	ō	
L8S	16W	49	25	ō	
L8S	17W	49	14	ō	
l8s	18W	32	23	1	
l8s	19W	20	23	0	
L85	2017	32	17	0	
L8S	21W	36	26	0	
L8 S	220	56	33	0	
L83	23W	18	25	0	
l8s	24W	29	20	1	
L12 3	0+00	18	21	1	
L125	1₩	34	21	1	
L123	212	28	23	0	
L123	3W	17	23	0	
L123	717	31	21	0	
L12S	8W	25	23	0	
L123	917	18	17	0	
L123	10W	37	20	0	
L12S	11W	43	20	0	
L12S	12W	23	18	0	
L 12 S	13W	29	20	0	
L12S	14₩	21	18	0	
L12S	15W	16	17	0	
L12S	16W	17	18	0	
L12S	21W	64	20	0	
L12S	23W	27	17	0	
L12S	244	21	17	0	
			THAT THE ABOVE		

Rejects Retained one month.

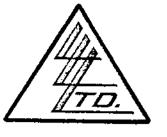
Pulps Retained one month unless specific arrangements made in advance.

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Licensed Assayer of British Columbia

To: G.V. MOYED SKREET TICH LIMITED,
903-Borron-Bldg.y
610-Sth-Ave3.W.,
GALGARY, Alta.
ATTENTION: Mr. G.V. Lloyd

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Servificate ASSAY or

File No. 5968 Date October 31, 1972 Samples Coorcheme

> PROJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

-6-

SAMPI	LE No.	pra 	ppm Pb	ppn hg	
L123	25W	40	17	0	
L165	0+00	31	20	0	
L163	1W	13	14	0	
L16S	21/	31	20	0	
L16S	3W	38	20	0	
L165	40	14	14	0	
L163	6W	30	33	0	
L165	714	40	21	1	
L163	814	27	20	0	
L163	917	31	17	0	
L163	105	30	17	1	
L16J	110	26	17	l	
L165	12W	26	17	0	
L163	1377	29	14	0	
L163	140	47	20	0	
L163	150	57	21	0	
L163	16W	20	17	0	
L163	171	21	18	0	
L163	187/	23	23	0	
L165	1977	31	20	0	
L16S	20W	18	26	0	
L163	21W	46	28	0	
L163	221	57	29	0	
L163	24W	19	15	0	
L165	25W	20	20	0	
L203	0+00	26	17	1	
L205	1W	48	18	0	
L20S	4W	16	14	0	
L205	SW	19	20	0	
L203	6W	52	20	0	
		I Hereby Co assays made by me	ertify that the above upon the herein descr	RESULTS ARE THOSE IBED SAMPLES	

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

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Licensed Asseyer of British Columbia

To: G.Y. LLCYD ENFLOYATION LIMITED,
610-8th Ave. S.W.,
CALGARY, Alta.
ATTINTION: Mr. G.V. Lloyd



Date _____Getober 31, 1972

Servificate ASSAY 0× PROJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

-7-

SAMPL	.E No.	ppm Cu	pp n Pb	ppm Ag	
L205	8W	17	20	o	
L203	9W	18	20	0	
L20S	11W	29	20	0	
L20S	12W	34	21	0	
L20S	13W	19	23	0	
L203	14W	20	23	0	
L205	15W	16	29	0	
L203	16W	17	29	0	
L203	17W	15	23	0	
L203	18W	14	26	0	
L203	19W	29	26	0	
L205	20W	14	26	0	
L20S	21W	15	17	0	
L203	23W	36	29	0	
1203	24W	20	20	0	
L203	250	22	33	0	
L245	0+00	27	21	0	
L243	10	52	20	0	
L243	2W	61	21	0	
L243	4W	102	38	0	
L24S	5W	70	29	0	
L24S	6W	58	39	0	
L243	8W	135	50	0	
L243	10W	20	17	0	
L24S	11W	87	20	0	
L24S	12₩	25	33	0	
L245	14W	20	55	0	
L245	15W	29	31	0	
L24S	165	27	17	0	
L24S	17W	45	20	0	

Rejects Retained one month.

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Pulps Retained one month unless specific arrangements made in advance,

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Licensed Assayer of British Columbia

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To:	G.V. LLOYD EMPLOY ATION LIMITED,
	903 Barron Bldg+,
	610-8th Ave. S.W.,
	CALGARY, Alta.
	TTENTION: Nr. G.V. Lloyd.

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File No.	5968
Date	uctober 31, 1972
Samples	Geo-clens

PROJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

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Ser ASSAY

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18W 22W 23W 24W 25W 1W 25W 4W 5W 7W	53 40 20 18 17 49 290 31	33 20 26 21 23 21 26	0 0 0 0 0 0	
23W 24W 25W 1W 2W 4W 5V 7W	20 18 17 49 290 31	26 21 23 21 26	0 0 0	
24W 25W 1W 2W 4W 5W 7W	18 17 49 290 31	21 23 21 26	0 0 0	
25W 1W 2W 4W 5W 7W	17 49 290 31	23 21 26	0 0	
1W 2W 4W 5V 7W	49 290 31	21 26	0	
1W 2W 4W 5V 7W	290 31	26		
4W 5V 7W	31		n	
5V 7W		10		
7W	40	18	0	
	18	20	0	
	43	36	0	
85	52	20	0	
	22	23	0	
121/	20			
131/	7			
	9			
	22			
	133			
	138			
1	61			
	23			
	21			
	20			
	14			
	140	25		
	47			
	37	18		
	114	23		
		26		
714	59	20	0	
	13W 15W 16W 18W 19W 20W 21W 22W 23W 22W 23W 24W 25W 25W 25W 25W 25W 25W 25W 25W 25W 25	12W 20 13W 7 15W 9 16W 52 18W 22 19W 133 20W 138 21W 61 22W 23 23W 21 24W 20 25W 14 2W 140 3W 47 4W 37 5W 114 6W 162 7W 59	12W 20 23 13W 7 17 13W 9 17 15W 9 17 16W 52 17 18W 22 23 19W 133 20 20W 138 23 20W 138 23 21W 61 17 22W 23 26 23W 21 34 24W 20 28 25W 14 26 2W 140 25 3W 47 26 4W 20 28 25W 14 26 2W 140 25 3W 47 26 4W 37 18 5W 114 23 6W 162 26 7W 59 20 J Gereby Certify THAT THE ABOVE	12W 20 23 0 $13W$ 7 17 0 $15W$ 9 17 0 $15W$ 52 17 0 $16W$ 52 17 0 $18W$ 22 23 0 $19W$ 133 20 0 $20W$ 138 23 0 $20W$ 138 23 0 $21W$ 61 17 0 $22W$ 23 26 0 $23W$ 21 34 0 $24W$ 20 28 0 $25W$ 14 26 0 $3W$ 47 26 0 $3W$ 47 26 0 $5W$ 114 23 0 $5W$ 162 26 0 $7W$ 59 20 0

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

Licensed Assayer of British Columbia

To: .c.v. LLOYD THELOF ATION LIMITED,
903-Barron-Bldg.,
610-3th Ave. S.W.,
CALGARY, Alta.
ATTINTION: Mr. G.V. Lloyd

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Servificate ASSAY 0×

File No.	5943
Date	October 31, 1972
Samples	Gao+ch2ns

PROJECT 5772 IC-Christopher

LORING LABORATORIES LTD.

-9-

SAMP	LE No.	ppm Cu	ррт РЬ	ppm AG	
L32S	9W	174	62	0	
L32S	10W	18	25	0	
L32S	11W	26	18	0	
L32S	12W	40	13	0	
L32S	13W	59	20	0	
L32S	14W	101	17	0	
L32N	170	20	20	0	
L32S	18W	22	20	0	
L32S	20W	25	23	0	
_L32S	2117	25	20	0	
L323	221	11	20	0	
L32S	231/	29	26	0	
L323	241/	28	20	0	
L325	25W	28	20	0	
L365	411	32	20	0	
L363	SW	23	21	0	
L36S	71/	130	48	0	
L365	10W	. 69	15	0	
L365	11W	81	18	0	
L365	12W	12	14	0	
L36S	13W	12	17	0	
L363	14W	94	25	0	
L363	15W	31	23	0	
L36S	18W	37	26	0	
L365	19W	65	26	0	
L365	20W	170	5 0	0	
L363	21W	23	20	0	
L363	2.2W	39	26	0	
L36S	23W	51	28	0	
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Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

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Licensed Assayer of British Columbia

To: G.V. LLCYD EXPLORATION LINETED,	,
903-Barron-Bldg.,	
- 610-3th Ave. S.W.y	
GALGARY, Alta.	
ATTICH: Mr. G.V. Lloyd	

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File No.	
Date	
	Rock Gao+chema
PROJECT	5772
IC-Christ	opher

LORING LABORATORIES LTD.

-10-

SAMPL	E No.				
R-L485	5W	290	115	0	
E-L485	7W	142	44	Ĩ.	
E-L489	8W	122	29	Õ	
E-L485	9W	99	33	0	
R-L485	10W	73	26	Ō	
R-L485	11W	104	36	Ō	
R-1485	12W	53	20	1	
E-L483	13W	84	25	0	
r148 ≶	14W	107	23	0	
r-148\$	15W	11	17	0	
E-143≶	18W	112	23	0	
rl44 5	510	100	20	0	
L-144 3	1114	81	17	0	
E-L445	12₩	83	17	1	
E-L445	16W	92	17	0	
				·	
		I Hereby Ce assays made by me	UPON THE HEREIN DESCR	RESULTS ARE THOSE BED SAMPLES	

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

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Licensed Assayer of British Columbia

APPENDIX III

GEOCHEMICAL RESULTS

The geochemical investigation involved collection, preparation and analysis of soil material from the "B" horizon during the project. The investigation was conducted to determine the distribution of the Total Heavy Metals, copper lead and silver, in these soils to evaluate the effectiveness of soil prospecting techniques in vicinity of the known mineralized zones and to see if similar mineralized zones might be revealed in the soil covered areas.

The location of the work has been described elsewhere in this report, as have the methods of sampling. The samples were prepared by current methods, using sieving, drying and hot acid ingestion, with the analysis by Atomic Absorption.

It should be noted that the topography in the study area is steep. Some rock chip geochemical results were also taken and the analysis results are included herein.

STATEMENT OF QUALIFICATIONS

of

Sonni Greene

- I, Sonni Green, hereby certify that I am employed as a geologist with G. V. Lloyd Exploration Ltd., whose offices are at #903 - 610 8th Avenue, S.W., Calgary 2, Alberta.
- I am a graduate in Geology from the University of Calgary (B. Sc., 1969).
- 3) I have been employed as a minerals exploration geologist since that time and have had four previous summers' experience in this profession.
- I have no financial interest in the properties described herein.

Sonni Greene

Calgary, Alberta.

CERTIFICATION

I, N. C. Lenard, hereby certify:

- That I am a consulting mining and petroleum geologist resident in the City of Calgary, in the Province of Alberta.
- 2. That I am a graduate of the University of British Columbia with a Bachelor Degree in Honours Geology (1949).
- That I am a Member of the Alberta and British Columbia Association of Professional Engineers.
- 4. That I have been practising my profession for twenty-two years in Western Canada.
- 5. That I have no direct or indirect interest, nor do I expect to receive any such interest in the subject JAG Group Claims.

DATED at the City of Calgary, in the Province of Alberta, this 11th day of January, 1973.

M. C. Lenara

N. C. Lenard, P. Gool., P. Eng.



Expiry Date: Jan. 19, 1973

STATEMENT OF QUALIFICATIONS of G. V. Lloyd, P. Geol., P. Eng.

- I, Griffin V. Lloyd, hereby certify that I carry out a geological consulting practice, with offices at #903 -610 8th Avenue, S.W., Calgary 2, Alberta.
- 2) I am a graduate in Honours Geology from the University of British Columbia (1951) and have also studied postgraduate geology at the same University (1953).
- 3) I have been employed as a geologist since that time and have held responsible positions, including that of Exploration Manager of a medium-sized Canadian resource company.
- 4) I am a registered Professional Geologist in the Province of Alberta and am a member of the Alberta Society of Petroleum Geologists and the Society of Economic Paleontologists and Mineralogists. G. V. Lloyd Exploration Ltd. is licensed to practice as Professional Engineers in the Province of Alberta. I am also licensed as a Professional Engineer in the Province of Saskatchewan.
- 5) I have no financial interest in the properties described.

G. V. Lloyd, P. Geol.

SELECTED REFERENCES

B. C. Department of Mines	1916, 1919, 1920, 1923, 1924, 1927, 1928, 1933; Annual Reports
Hopkins, A. (1972)	Preliminary Report, Unpublished
Leach, G. B. (1957)	Geological Survey of Canada Map 15 - 1957
Rice, H. M. (1941)	Geological Survey of Canada Memoir 228
Schofield, S.J. (1915)	Geological Survey of Canada Memoir 76

LIST OF PERSONNEL

Personnel Duties and Rate of Pay	Address	Time on Project
Sonni Greene, Party Manager, Geologist, \$850.00 per month.	1827 24th Avenue, N.W., Calgary, Alberta.	9/27 - 10/31 35 days
Michael D. Torontow, Engineer, Asst. Gaologist, \$700.00 per month.	1696 Mallard Drive, Ottawa 5, Ontario.	9/27 - 10/31 35 days
G. V. Lloyd, Geologist	607 Willowbrook Dr. S.E., Calgary 31, Alberta.	
N. C. Lenard, Geologist and Engineer.	285 Greenwood Village, Calgary, Alberta.	

STATEMENT OF COSTS

1)	Transportation	\$1,037.50
2)	Fuel	151.86
3)	Equipment Rentals	
	Trailer Rental Camp and Field Hardware Prospecting Equipment	100.00 78.00 78.00
4)	Salaries and Wages	1,756.64
5)	Assays	727.75
6)	Mobilization/Demobilization	21.00
7)	Meals/Groceries	490.00
8)	Field Supplies (Expendables)	36.06
9)	Camp Fuel	40.39
10)	Maps	19,62
11)	Telephone	11.20
12)	Miscellaneous	
	Licenses Freight	5.00 10.50
13)	Engineering Supervision	996.99
14)	Report Compilation and Drafting	100.00
15)	Administrative Charges	566.05
		\$6,226,56

G. V. LLOYD EXPLORATION LTD.,

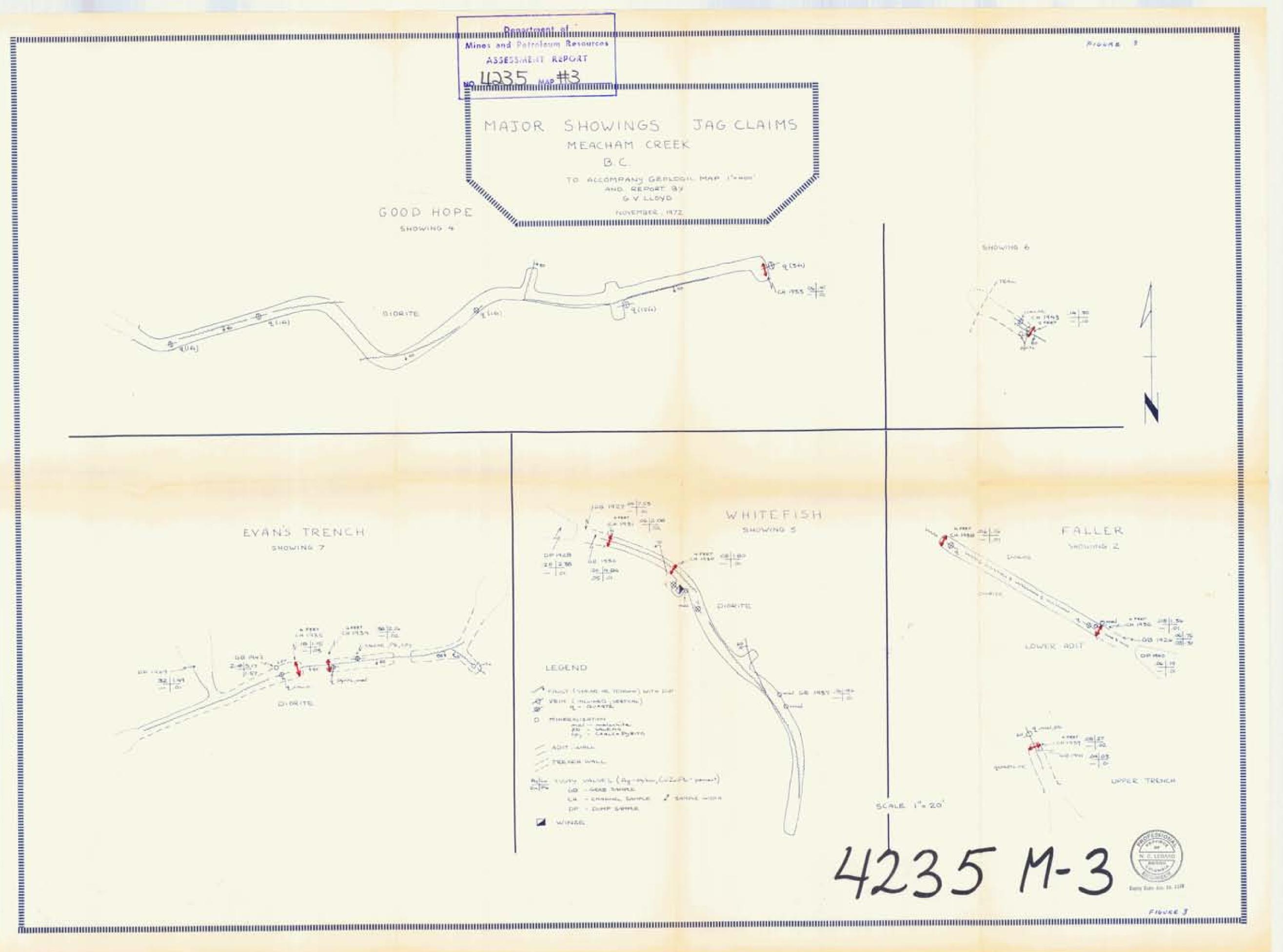
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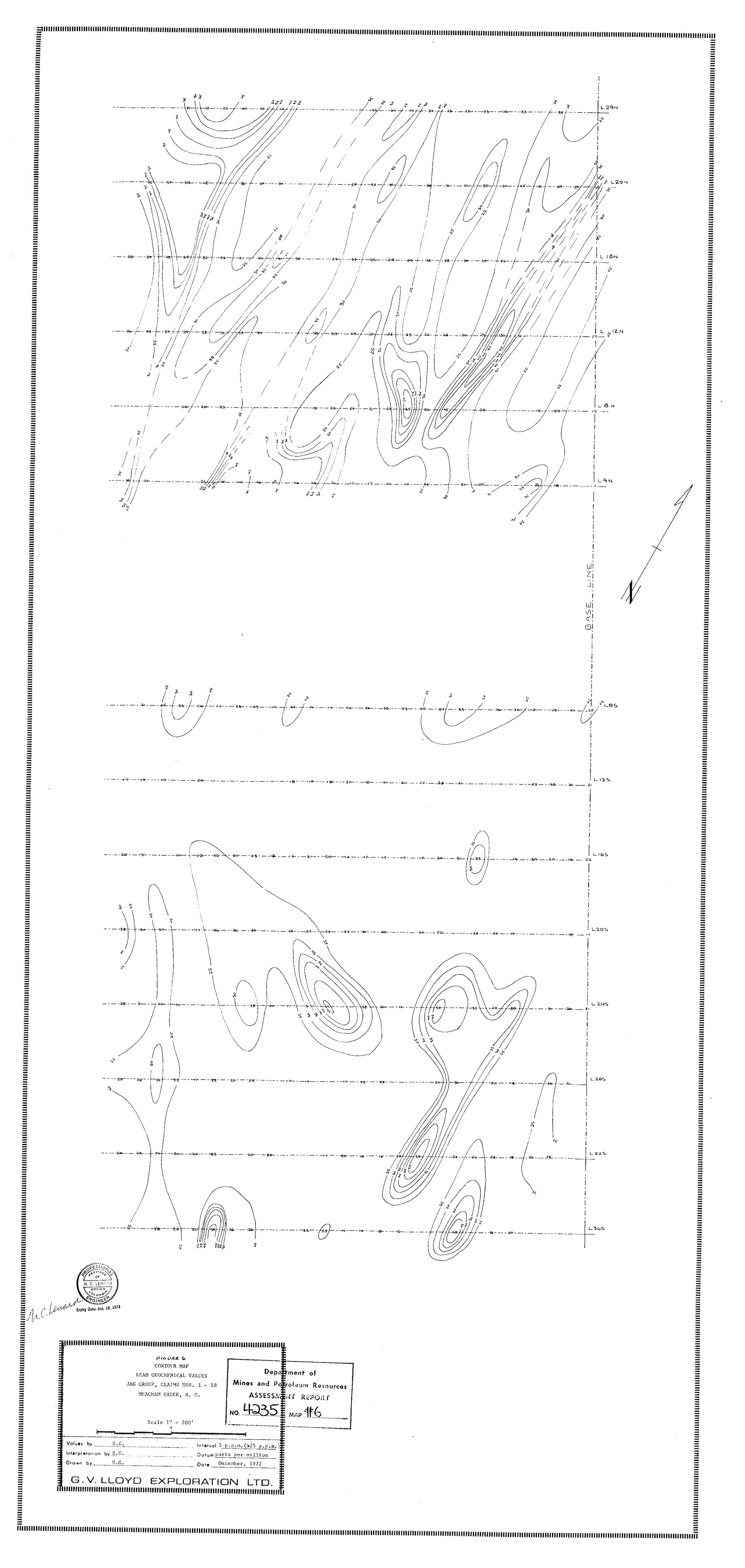
G. V. Lloyd, P. Geol.

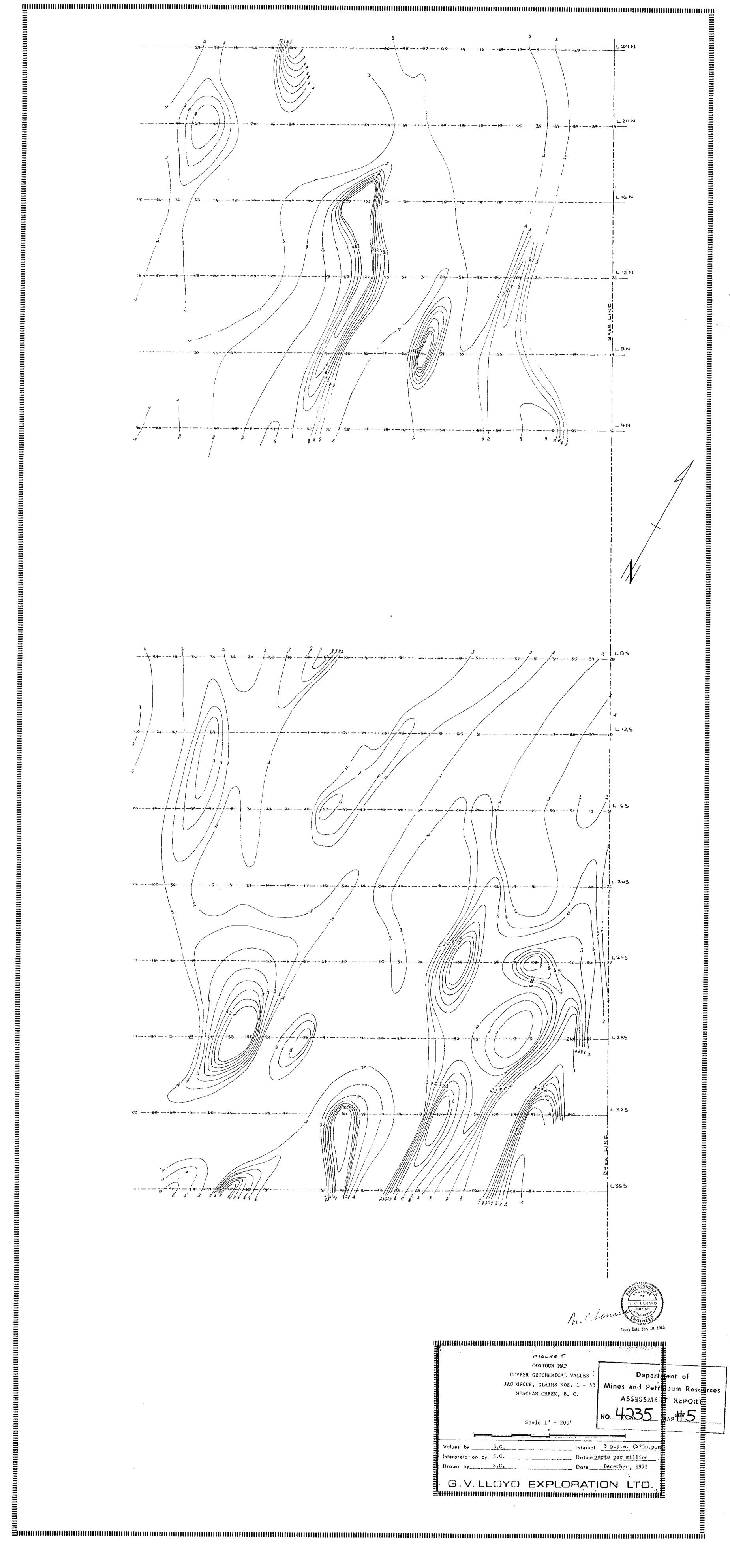
Claims on which work is to be applied

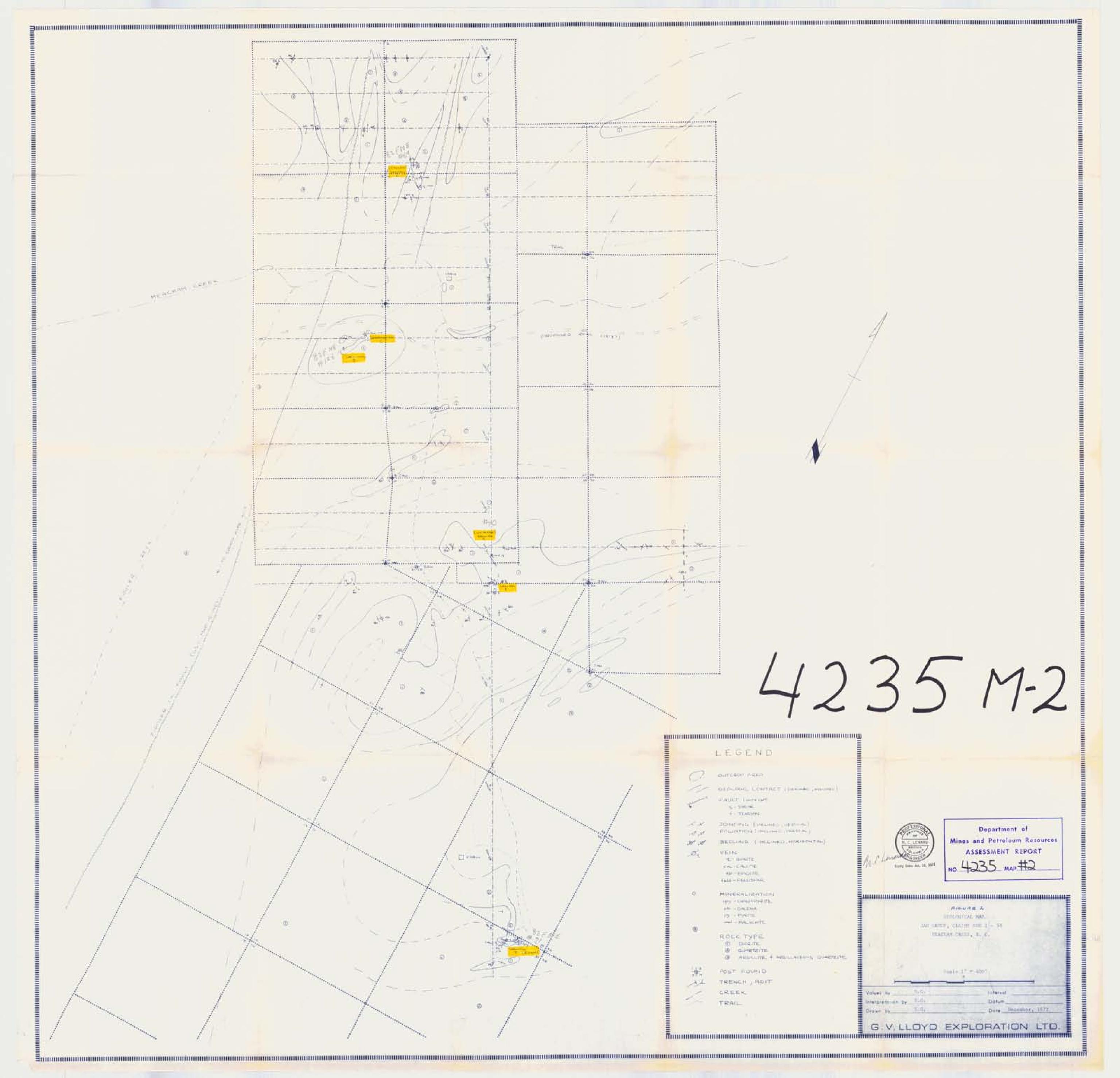
A total of \$2,300.00 is to be applied to Jag Group 1 A total of \$3,500.00 is to be applied to Jag Group 2

The total work credits applied for is \$5,800.00

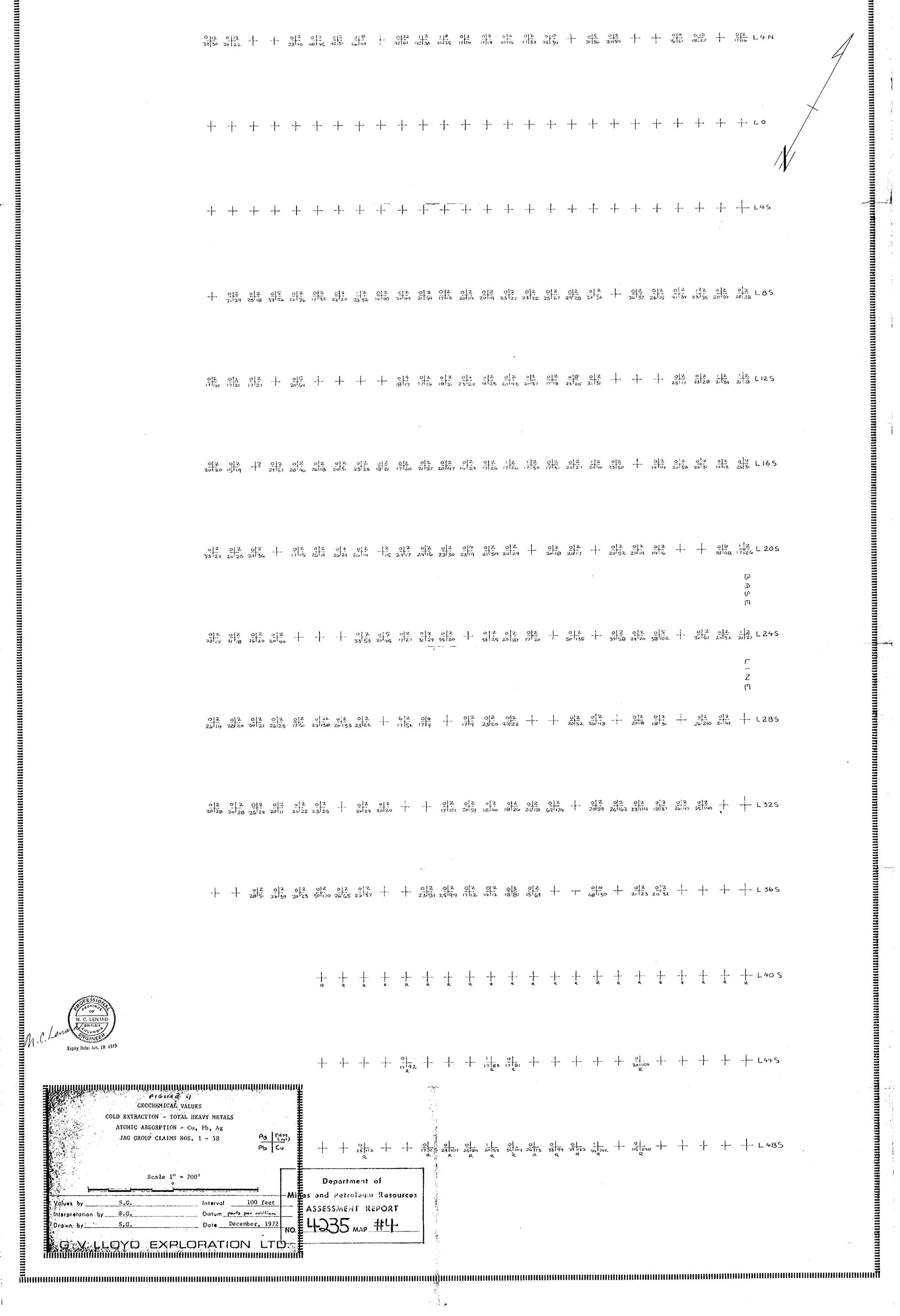








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$-\frac{1}{57160} \frac{214}{53169} \frac{112}{65169} + \frac{012}{26120} \frac{012}{2016} \frac{012}{24127} + \frac{114}{7} + \frac{114}{28124} \frac{112}{32129} \frac{012}{33127} + \frac{012}{26120} \frac{012}{2115} \frac{012}{25115} \frac{012}{25125} \frac{012}{25125} \frac{012}{3157} \frac{012}{29120} \frac{012}{24127} \frac{112}{4814} \frac{113}{2000} \frac{12}{24127} \frac{113}{4814} \frac{12}{2000} \frac{12}{24127} \frac{12}{4812} \frac{12}{2412} \frac{12}{2$	
$\frac{3}{55} \frac{012}{24126} \frac{010}{43156} \frac{112}{5123} \frac{012}{32129} \frac{012}{71425} \frac{012}{21114} \frac{012}{26116} \frac{012}{40134} \frac{012}{33136} \frac{112}{231177} \frac{112}{3311355} \frac{012}{25130} \frac{012}{23130} \frac{012}{25136} \frac{012}{25116} \frac{012}{20118} \frac{012}{26127} \frac{1}{1} + \frac{1}{1} + \frac{012}{21153} L 16 N$	
$\frac{2}{2} \frac{9}{23} \frac{2}{54} \frac{9}{31} \frac{9}{23} \frac{9}{23} \frac{9}{23} \frac{2}{23} \frac{9}{23} \frac{9}{23} \frac{2}{23} \frac{9}{23} \frac{9}{23} $	
$- + + \frac{212}{22130} \frac{214}{10126} \frac{212}{23143} + + + + \frac{212}{1014} \frac{212}{20152} \frac{212}{23136} \frac{212}{2017} \frac{212}{2426} \frac{211}{65166} \frac{212}{22156} + \frac{112}{22156} + \frac{112}{22156} + \frac{212}{2316} \frac{212}{2316} + \frac{212}{1516} + \frac{212}{2316} + \frac$	
$\frac{12}{39} \frac{012}{20122} + \frac{1}{23140} + \frac{012}{48145} \frac{012}{42151} \frac{018}{48145} + \frac{0122}{42151} \frac{118}{42161} \frac{012}{42126} \frac{012}{20125} \frac{012}{17114} \frac{012}{17132} \frac{014}{25136} \frac{012}{25134} \frac{015}{1732} \frac{012}{23156} \frac{012}{23156} + \frac{014}{23156} \frac{012}{23156} + \frac{015}{23156} \frac{012}{23156} + \frac{012}{23156} \frac{012}{17116} \frac{012}{1$	



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