

3503

MAGNETOMETER AND GEOCHEMICAL SOIL SURVEY

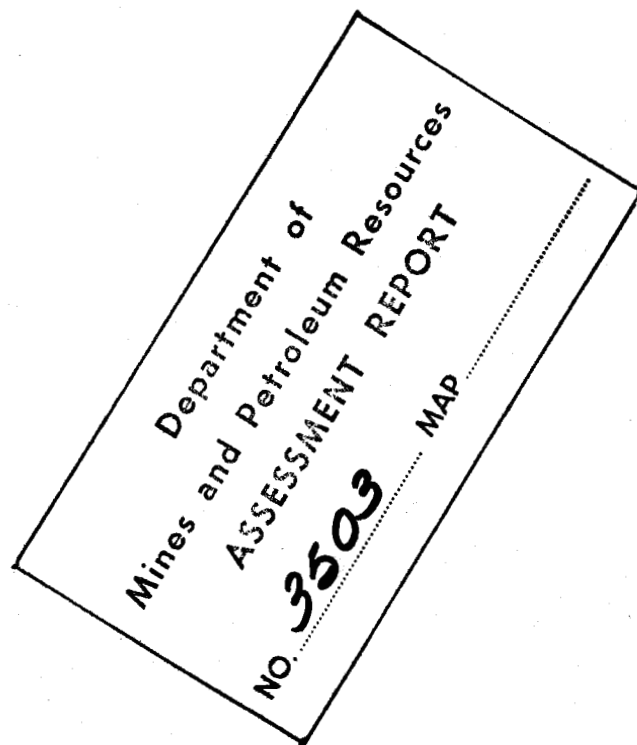
FFC and IOE Claims - Fife Group

Christina Lake - Greenwood Mining Division, B.C.

N.T.S. 82-E-1

By

Leo D. Kirwan



December 1971

Imperial Oil Enterprises Ltd.
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MAGNETOMETER AND GEOCHEMICAL SOIL SURVEY

FFC and IOE Claims - Fife Group

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MAGNETOMETER AND GEOCHEMICAL SOIL SURVEY

FFC + IOE CLAIMS - FIFE GROUP

CHRISTINA LAKE - GREENWOOD MINING DIVISION, B.C.

N.T.S. 82-E-1

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INTRODUCTION

Magnetometer and geochemical surveying was commenced on the FFC mineral claims during the summer season of 1970. During the autumn of 1970 the cut line grid was extended to the north, east and south. The area covered by these additional lines was covered by magnetometer and geochemical soil surveys in May 1971.

PROPERTY

The Fife Group consists of 84 FFC claims, 12 I.O.E. claims, and 3 mineral leases L1036, L120S and L121S. The 12 I.O.E. claims now replace the 12 FFC claim No.'s 95-106 which were allowed to expire.

The claim group is located immediately east of Christina Lake adjacent to and east of Highway No. 3 and the C.P.R. railway. The abandoned railway station of Fife is located on the property's west boundary. This area is approximately 15 miles east of Grand Forks, B.C. via Highway No. 3.

The major portion of the property is on a rough plateau with elevations between 2,500 and 3,500 feet which is 500 to 1,500 feet above the valley of Christina Lake. The highest point on the property would be approximately 4,500 feet. An old system of bush roads and trails

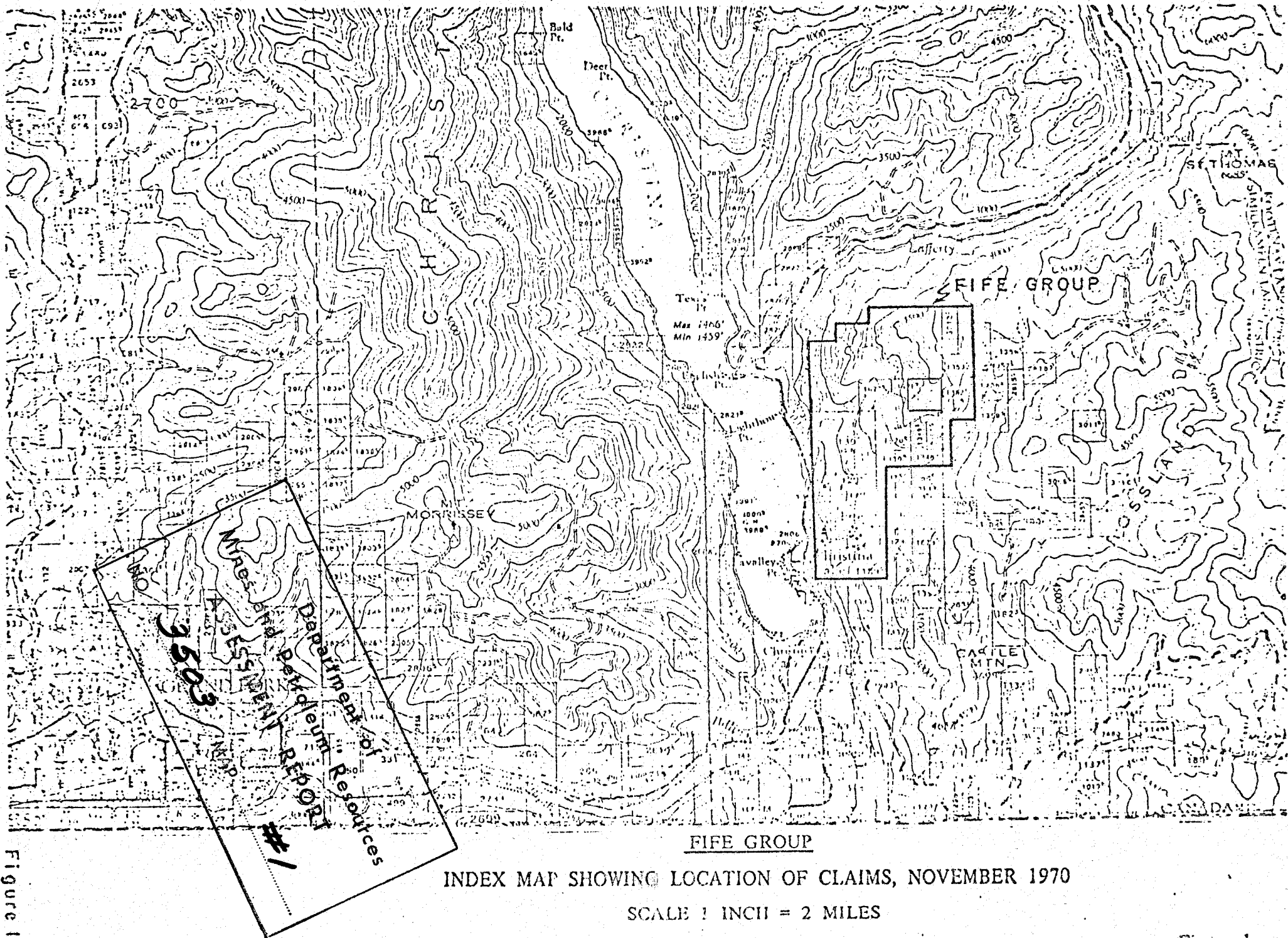


Figure 1.

Figure 1

gives access to all parts of the property by four-wheel-drive vehicle. Large portions of the property are barren outcrop areas with a scattering of tree cover. Other areas contain mostly overburden which is not believed to be excessively thick. Usually some outcrops may be located in the overburden covered areas. Generally speaking, overburden conditions are related to geological conditions. The intrusive rock areas are mostly outcrop while the sedimentary areas are mostly overburden.

GEOLOGY

The regional geology of the area is exhibited by G.S.C. Map 6-1957, 'Kettle River' at one inch to four miles. The map shows three areas of Mount Roberts formation sedimentary rocks extending northeastward from the east shore of Christina Lake. These sedimentary areas are surrounded by intrusive rocks of the Cretaceous Nelson intrusion and the Paleocene (?) Coryell intrusion. The Fife Group is located on the central sedimentary area mentioned above.

A band of sedimentary rocks consisting of greywacke and lesser amounts of limestone trends northeastward across the property. This zone is bounded on the southeast primarily by Nelson diorite and on the northwest by Nelson diorite and Coryell syenite. Narrow zones of granite and gabbro also of Nelson age exist along the south contact in the southwestern section. Most of the limestone exists adjacent to the southeast contact and consequently some minor scarn zones have been developed. The greywacke has been metamorphosed to a low grade quartz biotite gneiss in some areas. Dirty zones in this greywacke have produced some local pyrite mineralization. Numerous pits and trenches were emplaced by early prospectors on the sulphide occurrences. A few specks of chalcopyrite have been recognized

with the barren sulphides in a few places along the diorite-sediments contact area. Some magnetite has been observed in diorite in the northwest corner of the property.

MAGNETOMETER SURVEY

The grid system was covered by a magnetometer survey with readings at 100 foot intervals on lines 400 feet apart. The central portion of the grid was covered in 1970 and the north and south portions in 1971. The area without grid lines east of line '0' between base lines 0+00N and 30+00N is covered by the Dana Claims and is not part of the Fife Property.

The magnetic survey results have been plotted on Map No. 1. These results assist in interpreting the geology in areas of overburden cover. The area in the northwest where the magnetic intensities are between 1,500 and 2,500 gammas is underlain by intrusive rocks. The central portion of the property underlain by sedimentary rocks exhibits intensities between 800 and 1,500 gammas. The southeast portion shows values between 1,500 and 2,500 gammas generally over diorite with values around 3,000 gammas over gabbro intrusives.

High magnetic values on lines 48W and 52W north of baseline 40+00N are due to magnetite in diorite in this area. The very high magnetic dipole on line 8E-32N is due to magnetite and pyrrhotite in greywacke which is exposed by old trenches. This area is known as the 'Big Iron' occurrence. Moderately high values on lines 0, 16W, and 20W, are due to minor magnetite within the gabbro intrusive in this area.

GEOCHEMICAL SURVEYS

Copper

The geochemical soil survey was extended in 1971 to cover the new grid at 200 foot intervals along lines 400 feet apart. Also, additional sampling on a 200 by 200 foot grid was done where the 1970 grid at 400 by 400 feet gave some indications of anomalous copper (see Map No. 2).

The samples collected in 1970 were tested at a commercial laboratory while the samples collected in 1971 were tested by our own geochemical laboratory. The results of the commercial laboratory may be slightly higher than the background from our own laboratory. However, this difference is small and as the background varies from one rock type to another it is not an important factor.

The background values range between 20 and 50 ppm copper. Values between 75 and 100 ppm are considered possibly anomalous; 100 and 150 ppm probably anomalous, and over 150 ppm definitely anomalous.

Only ten isolated samples are in the definitely anomalous class. A number of possible and probable anomalous values occur along the contact areas between diorite and gabbro intrusives and sediments north of baseline 0+00N and between lines 4W and 30W. These values appear to be related to the gabbro. Three (3) rock samples were collected from the site of the high geochemical value at 2N - 22+00W and each sample assayed 0.01% copper and 0.01% zinc. Three isolated high values between baselines 20+00S and 40+00S were checked by additional sampling which did not substantiate the original high values.

A few isolated anomalous values occur in the northwest and northeast portions of the property. These values may be from the same source that gave the weak stream sediment anomalies in the Boundary Exploration survey (see Map No. 6). These values tend to occur near the north contact of the sedimentary rocks with the intrusives. One high sample occurs on line 40W - 40N. Adjacent samples are not anomalous. A rock sample from this area assayed 0.01% copper. Isolated single high samples of 182 and 162 ppm copper exist on lines 12E - 36N and 36E - 50N. Numerous pits have been put down on pyrite and pyrrhotite occurrences within the greywacke of this area.

Two isolated copper geochemical highs exist in the southeast area of the grid at 4E - 18S and 16E - 2S. This area contains abundant outcrop but no copper mineralization was observed.

Zinc

The same geochemical samples analyzed for copper were also tested for zinc. However some of the samples collected in 1970 were not tested for zinc (see Map No. 3).

The samples collected and tested in 1971 have background values between 40 and 80 ppm zinc. Values between 100 and 150 ppm are considered possibly anomalous; between 150 and 250 ppm probably anomalous, and over 250 ppm zinc definitely anomalous.

A scattering of possible and probable anomalous values exists in the area of the gabbro intrusives north of baseline 0+00N between 0W and 24W. These values are generally weak and not persistent over any areal extent.

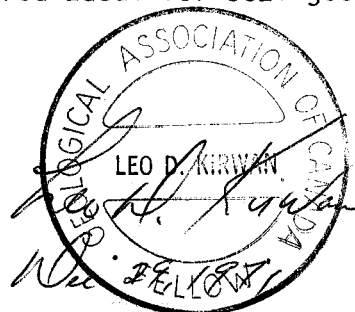
A considerable number of possible and probable values exist in the area along the north contact of the greywacke with the intrusives to the north. However, these values appear to be due to a higher background value from the commercial laboratory where these samples were tested. Samples collected and tested in 1971 from sample sites on the 40+00N baseline appear to be lower than adjacent samples collected in 1970. A comparison of these results are as follows, with the 1971 results followed by the 1970 results in parenthesis: 104 (226), 77 (154), 74 (200), 104 (93), 75 (93), 62 (270), 52 (81), 45 (111), 36 (190). Thus it is suspected that the 1970 zinc values are not anomalous in reality. In any event considering the ideal geochemical conditions and the rather low anomalous value of 100 to 250 ppm zinc, these samples cannot be considered to be truly anomalous.

CONCLUSIONS

The magnetic survey results assist in the interpretation of the geology of the property. The survey located two minor anomalies, one due to observed pyrrhotite and the other due to observed magnetite in diorite.

The geochemical soil surveys for copper and zinc did not produce any genuine anomalies. Isolated single sample anomalous values of 150 to 250 ppm copper were found but no truly anomalous areas were outlined. The anomalous values detected correlate with trace occurrences of chalcopyrite in the area of contact between the sediments and the intrusives. The overburden, soil conditions, and terrain are considered ideal for soil geochemistry.

LDK/gf
29/12/71



CERTIFICATE

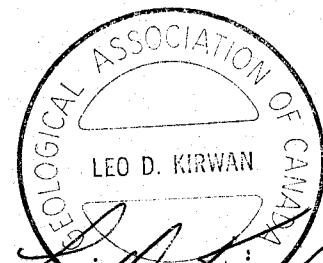
I, Leo D. Kirwan, of the City of Calgary, Province of Alberta,
do hereby certify that:

1. I am a geologist residing at 5039 Vanstone Crescent, Calgary,
Alberta.
2. I am a graduate of St. Francis Xavier University with a B.Sc.
degree in Geology as of 1952.
3. I have worked as a practicing geologist continuously since 1952,
and I am now employed in the Minerals Section of Imperial Oil Limited.
4. I am a member of the Canadian Mining and Metallurgical
Institute and a Fellow of the Geological Association of Canada.

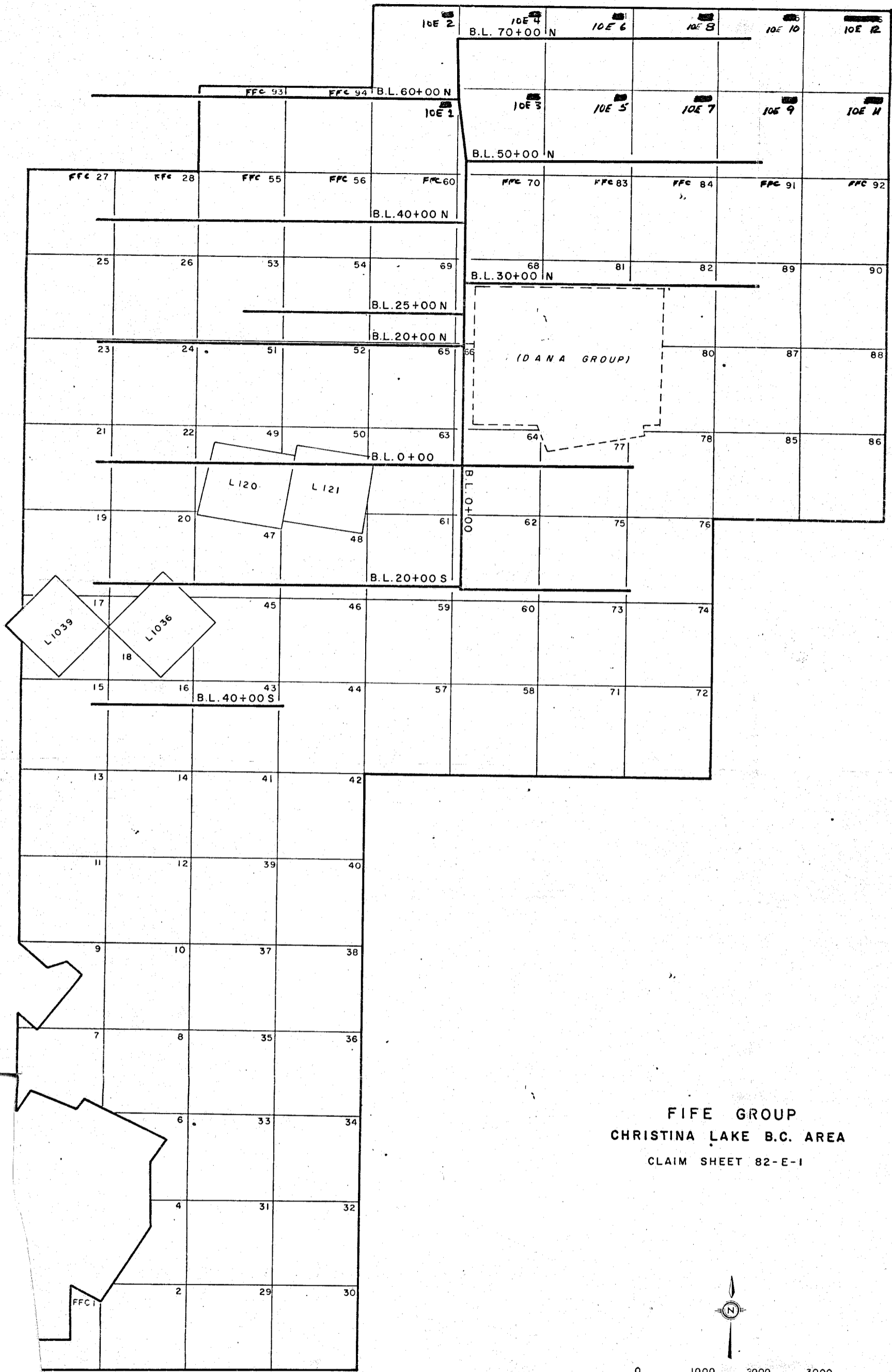
Dated at Calgary

This 29 day of

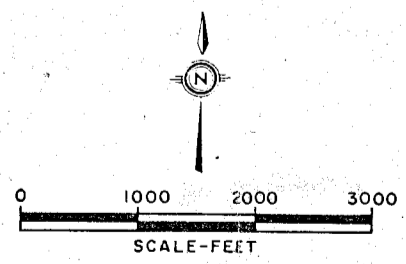
December 1971.



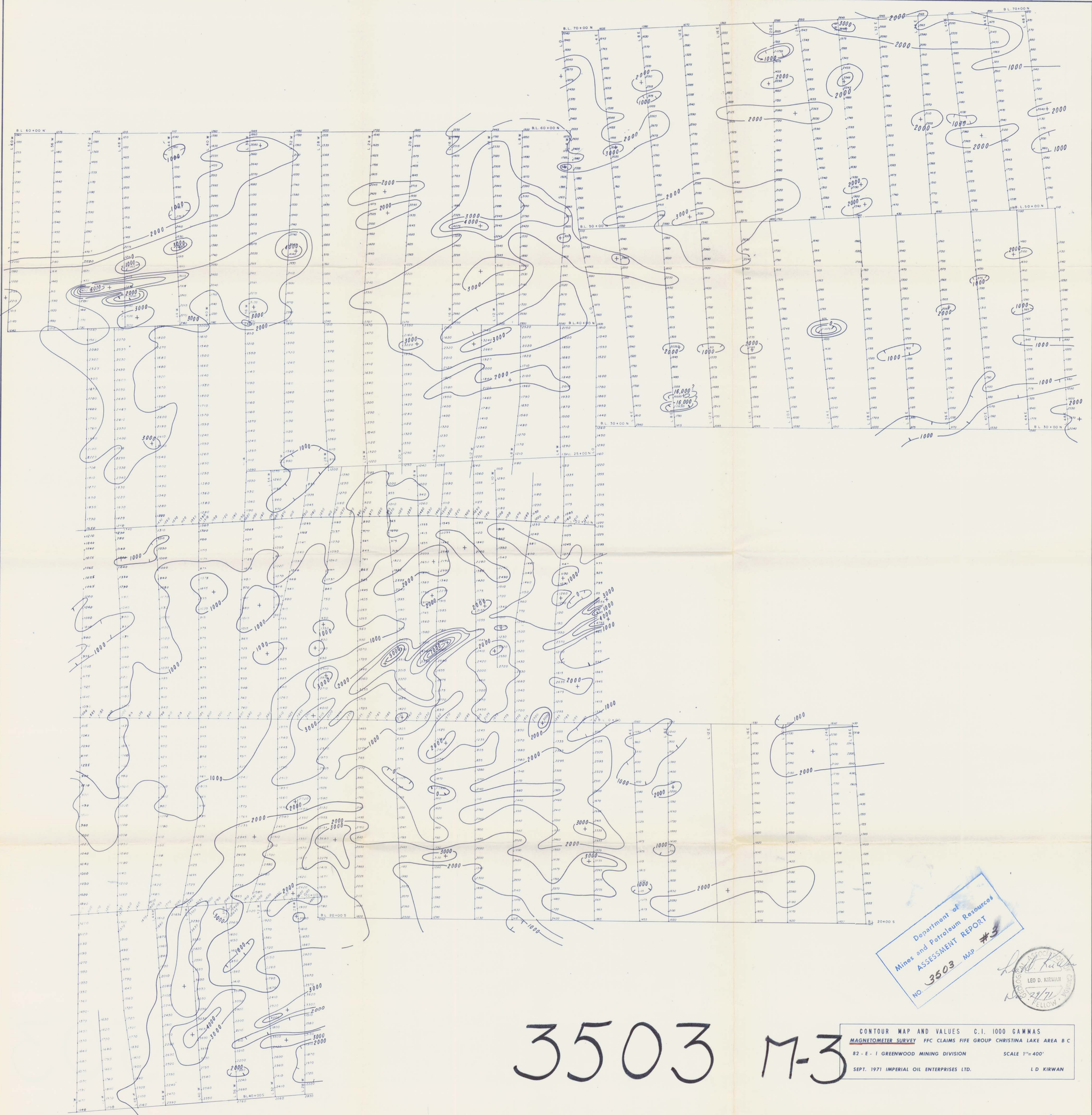
Leo D. Kirwan
Leo D. Kirwan



FIFE GROUP
 CHRISTINA LAKE B.C. AREA
 CLAIM SHEET 82-E-1



To accompany a report by R. Somerville
 Dated November 1, 1970

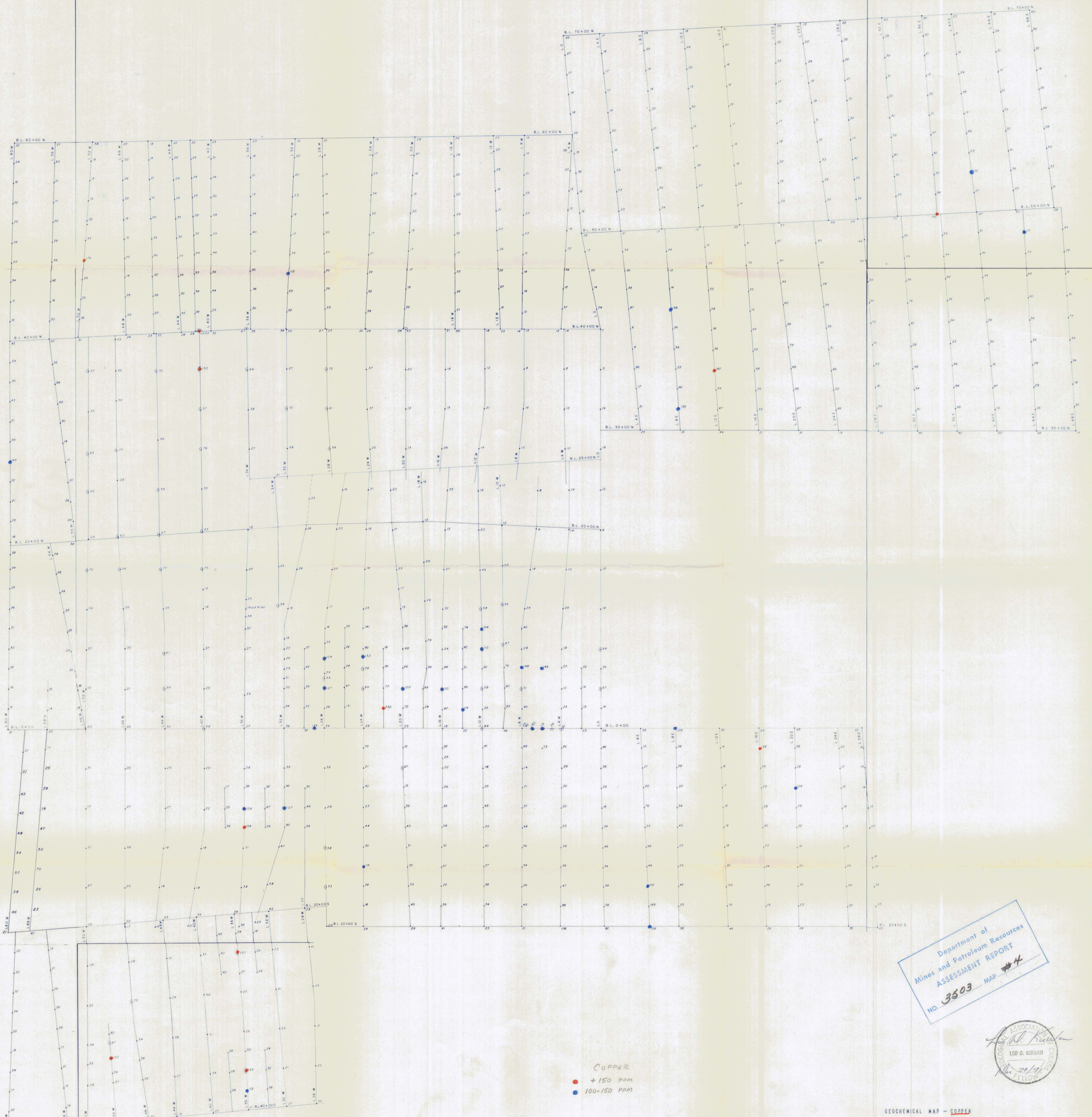


Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 No. 3503 Map #3



3503 M-3

CONTOUR MAP AND VALUES C.I. 1000 GAMMAS
 MAGNETOMETER SURVEY FFC CLAIMS FIVE GROUP CHRISTINA LAKE AREA B C
 82 - E - 1 GREENWOOD MINING DIVISION SCALE 1"=400'
 SEPT. 1971 IMPERIAL OIL ENTERPRISES LTD. L.D. KIRWAN



COPPER
 ● > 150 PPM
 ● 100-150 PPM

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 3503 MAP #4



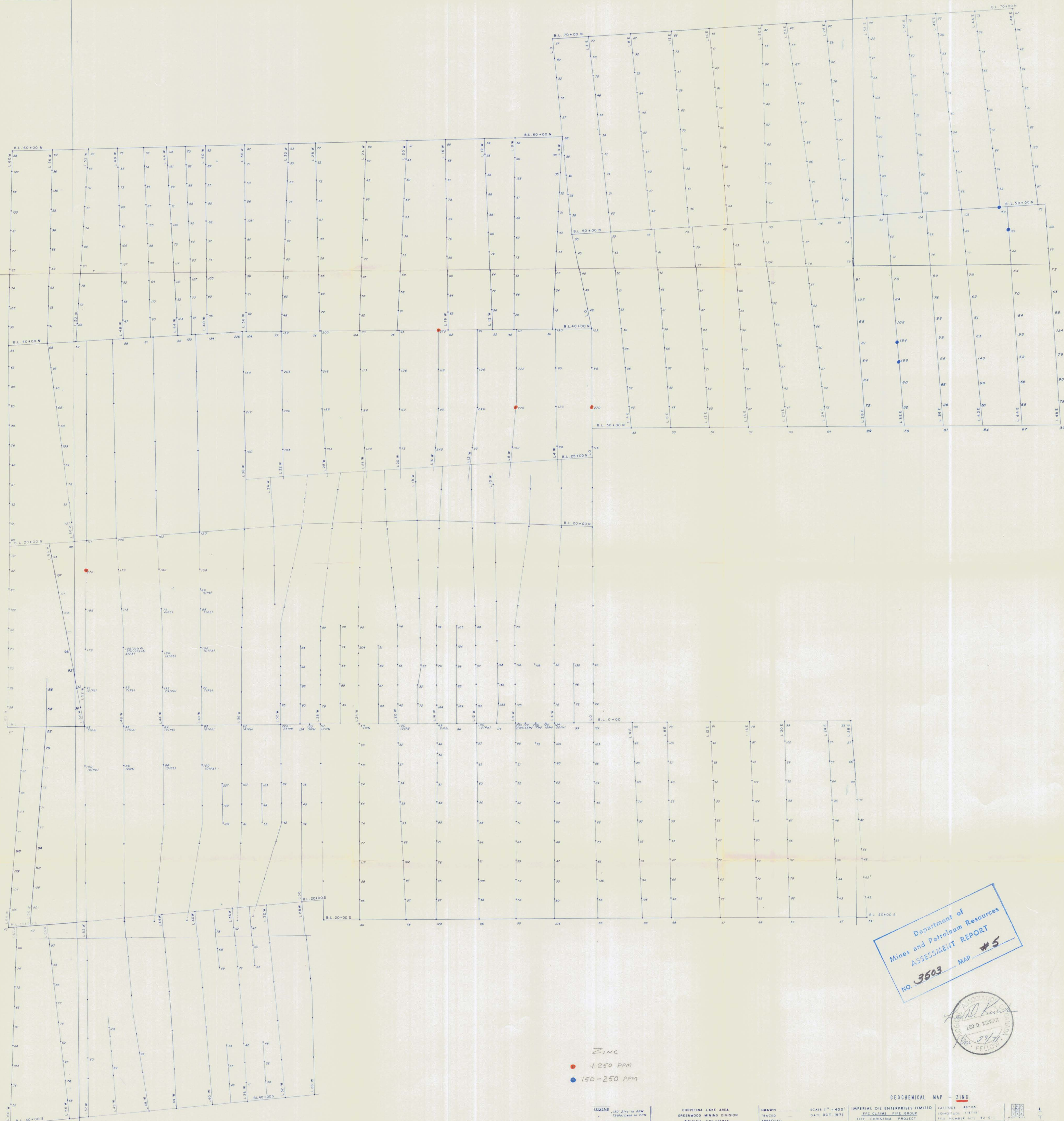
LEGEND
 1/4" = 100' PPM
 1/8" = 100' PPM
 1/16" = 100' PPM

CHRISTINA LAKE AREA
 GREENWOOD MINING DIVISION
 BRITISH COLUMBIA

SCALE 1" = 400'
 DRAWN BY: [Name]
 TRACED BY: [Name]
 DATE OCT. 1971
 APPROVED BY: [Name]

IMPERIAL OIL ENTERPRISES LIMITED
 P.C. CLAIMS - PIPE GROUP
 PIPE - CHRISTINA PROJECT

LATITUDE 49° 05'
 LONGITUDE 118° 15'
 FILE NUMBER M.L. 82 (E. 1)



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3503 MAP #5



Zinc
● + 250 PPM
● 150-250 PPM

LEGEND 1:50 Zinc in ppm
1989/1400 11 PM

CHRISTINA LAKE AREA
GREENWOOD MINING DIVISION
BRITISH COLUMBIA

DRAWN
TRACED
APPROVED

SCALE 1" = 400'
DATE OCT. 1971

IMPERIAL OIL ENTERPRISES LIMITED
PFC CLAIMS FIVE GROUP
FIVE-CHRISTINA PROJECT

LATITUDE 49° 05'
LONGITUDE 118° 15'
FILE NUMBER NTS 82 4 1