GEOPHYSICAL (MAGNETOMETER) REPORT

CAROL - NEIL GROUPS OF CLAIMS
4 Miles SW Cranbrook, B.C.
Latitude 49°, Longitude 115°, NW

PLACID OIL COMPANY, May - December, 1967

82G/5,12W

R.A. Buckley, P. Geol.

1178

GEOPHYSICAL (MAGNETOMETER) REPORT

Carol - Neil Group Claims

Latitude 49° Longitude 115°, NW

Cranbrook, British Columbia.

PLACID OIL COMPANY

Calgary, Alberta

R.A. Buckley, B.Sc., M.Sc.,P.Geol.

January 24, 1968

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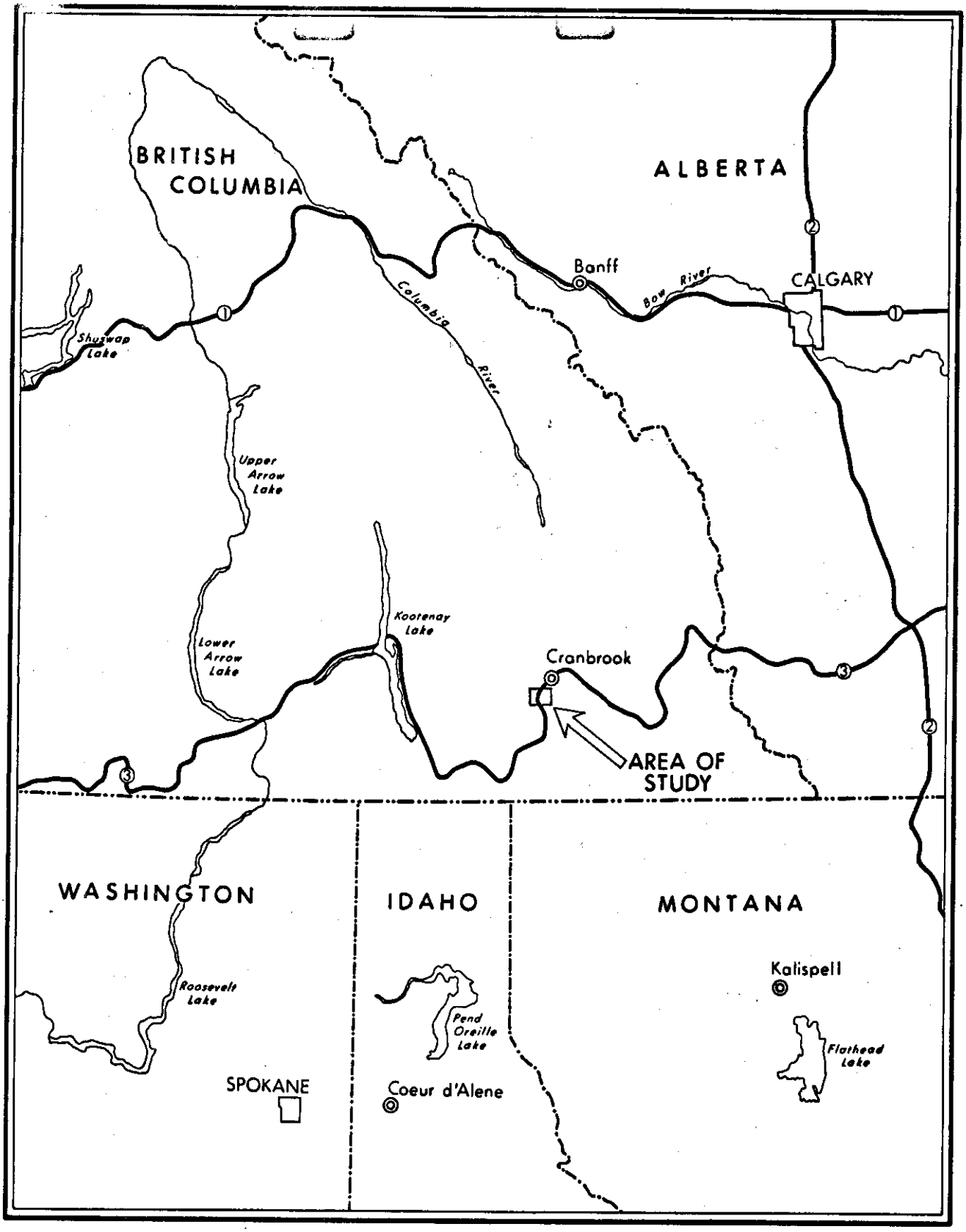
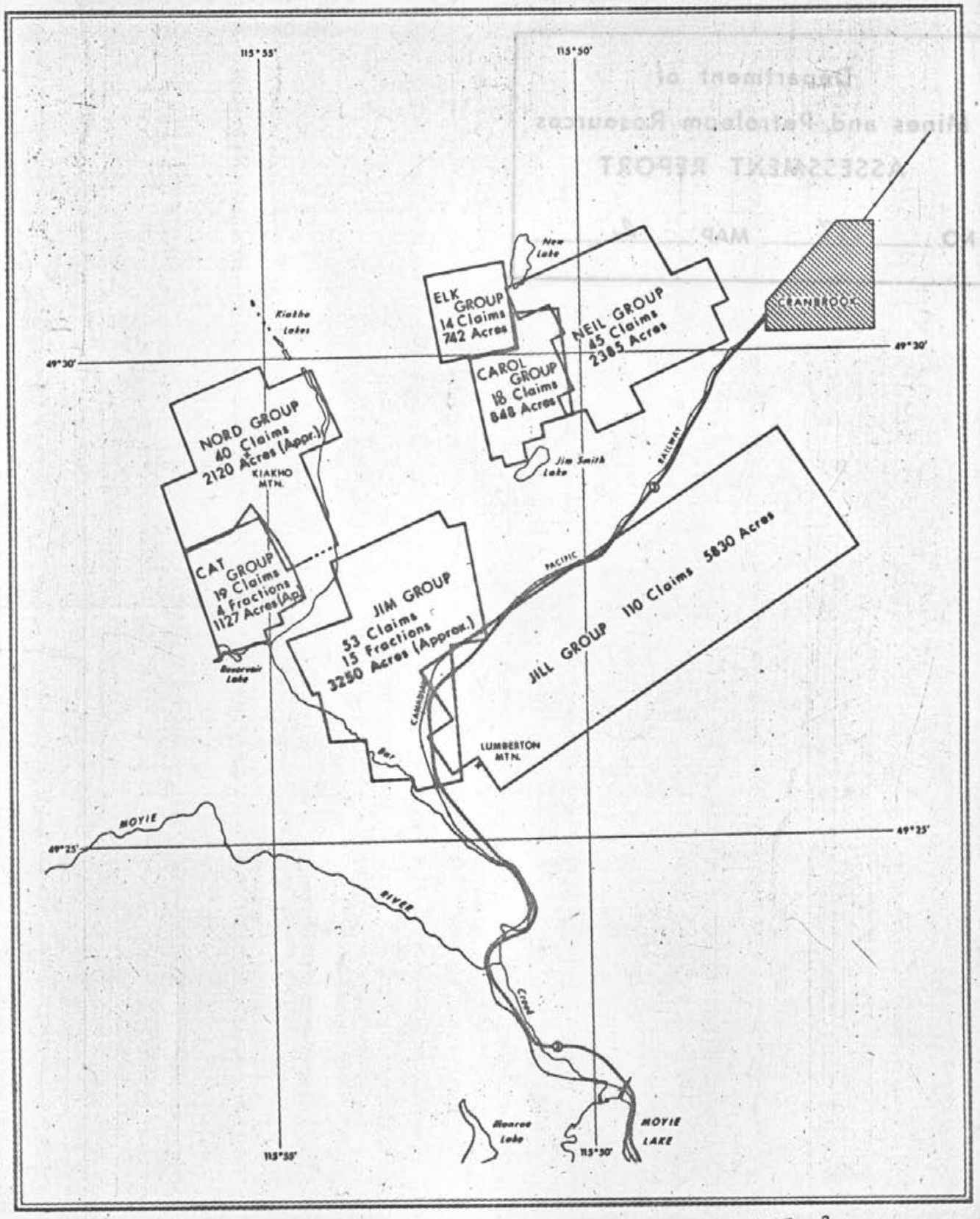


LOCATION MAP

PLATE 1



INDEX MAP

SHOWING

CRANBROOK PROJECT

CLAIM GROUPS

PLATE 2

GEOPHYSICAL REPORT - Carol and Neil Group of Claims
Cranbrook Project, Cranbrook, British Columbia.

INTRODUCTION

Placid Oil Company's claims in the Cranbrook area consist of 297 Province of British Columbia mining claims and 19 fractional claims covering an area of approximately 16,302 acres. Plate A indicates the general area in southeastern British Columbia where the Cranbrook Project is located with respect to the city of Cranbrook, the major highways, railways and lakes. The claims cover an area beginning on the western boundary of the city of Cranbrook and stretch westward a distance of seven miles. Plate 1 shows in more detail the exact configuration of each claim group.

The Carol group of claims is one of the group of claims included in the Cranbrook Project. This group consists of 18 claims, named Carol 1 to 18 inclusive, staked by R.A. Buckley as agent for Placid Oil Company on the 19th and 20th of January, 1967, and recorded in Cranbrook January 26, 1967.

The Neil Claims consist of 45 claims staked by Mr. E.J. Frost and R.A. Buckley, as agent for Placid Oil Company on September 12 to 14, 1967, and recorded on September 18, 1967 in Cranbrook.

During the past field season of 1967, the initial stages of an exploration program to evaluate these claims was inaugurated. The work consisted of establishing a north-south base line, and an east-west base line through the property using a transit. Line cutting was then conducted from these base lines. The initial survey consisted of an Induced Polarization Survey conducted by Canadian Aero Mineral Surveys of Ottawa. During the later stages of the Induced Polarization Survey, the survey indicated that additional land should be staked on the east side of the Carol Claims. These claims were staked and designated as the Neil Group, a group of 45 claims comprising 2385 acres. To date, only 12 claims of the Neil Group have had line cutting and surveying done on them. All known rock outcrops have been mapped geologically. The results of the geological survey are contained in a report by the author entitled "Geological Report on the Jim, Cat, Nord, Carol and Neil Claims Located Four Miles Southwest of Cranbrook, British Columbia, January 19, 1968".

The results of the Induced Polarization Survey are contained in a report to Placid Oil Company from Canadian Aero Mineral Surveys, Ottawa and dated December 28, 1967.

LOCATION AND ACCESSIBILITY

An inspection of the index map, Plate 2, shows that the Carol Claims are located south-southwest of the city of Cranbrook, immediately north of Jim Smith Lake and south of New Lake. Access to the property is by a paved highway which leaves Highway No. 3 at Cranbrook and goes to the Provincial Park at Jim Smith Lake. A good bush road leaves the Jim Smith Lake road and proceeds up the hillside intersecting Base Line "D" at Line 60+00E. The property has a network of good to fair logging roads giving access to all portions of the claim group. These roads are in generally good condition but need some clearing of underbrush if it is intended that large vehicles use these roads. The ground is well drained and dry. Vegetation consists of poplar, larch and small bushes with some of the higher elevations containing pine trees. A one-ton Chevrolet van, one-ton four-wheel drive GMC and later, when the snow cover made it difficult for these vehicles to move, a power toboggan (Sno-Cruiser) was used to support the various survey crews. Snow depth during the month of December was up to 3 feet deep. This necessitated the magnetometer crew using snow shoes.

OUTLINE OF WORK

Base Line "C" was turned off from the north tie line (Tie Line A) at the 50+00E position and driven north on an azmuth of 280°30', for a distance of 91+00' north. At a distance of 60+00N on Base Line "C", another Base Line (Base Line "D") was turned off normal to Base Line "C". This base line was driven by transit for a distance of 4000' west and 5000' east. Along this base line, at intervals of 500', picket lines were cut northward and southward. These picket lines constituted the control for the Induced Polarization, magnetometer and the geological mapping crews.

Magnetic readings were taken at 100' intervals along the base lines and the picket lines. The readings on the base lines were "levelled" and enough data taken to provide good diurnal and instrument drift corrections. A central magnetic base station was set up with the instrument being checked at this station morning and night. A complete record of these readings are recorded. The picket lines were surveyed with the crew returning to the base line at intervals not exceeding two hours. In this way, all corrections for instrument drift, diurnal and magnetic storms could be made.

The surveying crew consisted of one geological technician and an assistant. Interpretation was done by the author. The following is an outline of the days spent surveying the picket lines.

W. Kaiser - Senior Instrument Operator
A. Sanders - Technical Assistant

July 18, 19, 20 (Instrument unserviceable)

August 3, 4 (Instrument became unserviceable)

August 9, 10, 11, 14, 15 (Forest closure caused suspension of operations.)

November 21, 22, 27, 28, 29, December 1 (Instrument became unserviceable.)

December 5, 6, 7, 8, 9, 11, 12, 14 (Survey completed.)

INSTRUMENTATION

The survey was conducted using two different instruments, the Jalander Fluxgate and the Sharp MF-1 Fluxgate.

JALANDER FLUXGATE MAGNETOMETER

(Type 46-65, Serial No. 7225, Manufacturer - Optillinen Tehdas Oy, Helsinki, Finland.)

The Jalander Magnetometer is a hand-held, self-levelling instrument with an accuracy of better than 10 gammas, and a range of 250,000 gammas on five sensitivity scales. The instrument is built into an anodized, stream-lined aluminum case and weighs 3.2 pounds. It includes an oil-damped fluxgate which automatically levels itself in a vertical direction, thus measuring the vertical magnetic field. The electronic part is completely transistorized and fed by twelve 1.5 volt, easily available standard penlite batteries. Readings are obtained within a few seconds.

The instrument is temperature compensated up to one gamma per degree Fahrenheit. Each instrument is individually calibrated and the results of this survey are corrected for this instrument.

SHARP MF-1 FLUXGATE MAGNETOMETER

The second instrument was a Sharp MF-1 Fluxgate Magnetometer manufactured by Sharp Instruments, Toronto, Ontario. This instrument is quite similar to the Jalander instrument in that it is fully transistorized, temperature compensated, hand-held, and needs only coarse levelling and no orientation. It is a direct-reading, instrument with the galvinometer reading directly in gammas. Both instruments can be zeroed at a base station which greatly simplifies the operation. The Sharp instrument has a maximum sensitivity of 10 gammas per scale division with a readability of 5 gammas. The instrument has five sensitivity scales with a range of $\pm$ 100,000 gammas. Latitude may be adjusted from 10,000 to 75,000 gammas. The weight of the instrument is 9 pounds and is operated from a separate battery pack consisting of twelve "C" type flashlight cells. Both of these instruments were used to conduct the survey. The Sharp instrument was rented from Sharp Instruments, Toronto, while the Jalander instrument is owned by Placid Oil Company. Severe technical difficulties

were encountered with the Jalander magnetometer and this instrument had to be returned to the service department several times during the survey period and since the field season was nearing an end, it was necessary to rent the MF-1 Sharp instrument.

METHOD OF INTERPRETATION

The magnetic data obtained from the instruments was plotted in profile form. From these profiles, the data was then smoothed by visual inspection. The smoothing operation eliminates instrument errors and/or operator errors as well as short term diurnal variations. The remaining data is then in a workable form. Readings that are anomalous after the filtering and smoothing operation were then evaluated and the results posted on the map. In this way, information from both instruments was utilized. As a comparison, Base Line "D" was surveyed using both instruments to obtain a comparison of the readings by these two instruments. The data for Base Line "D" is included in this report and each profile is designated as to which instrument was used.

RESULTS

An inspection of the line profiles found in the pocket of this report represent the raw data as obtained in the field. Even in this form, an analysis of the profiles indicates that magnetic features can be carried from survey line to survey line.

Anomaly No. 1 is the most outstanding anomaly mapped by this survey. It is a positive anomaly from 30 to 150 gammas above normal background and is 4000 feet long and up to 1000 feet wide. This area is geologically mapped as being the Creston Formation. Additional work in the form of detail geological mapping should be done in an attempt to locate the cause of this anomaly. Anomaly No. 2 is a continuation of Anomaly No. 1.

Anomalies No. 3 and 4 are negative with respect to the regional map, elongated in habit and probably represent the surface expression of the Cranbrook Fault. The apparent bend in the Anomalies 3 and 4 is a result of topography.

Anomalies 5 and 6 both are conformable to the bedding of the Aldridge quartzites and represent a more magnetic character of the Aldridge sediments. The anomalies vary from 100 to 150

gammas above magnetic regional values. The short duration of the anomaly and coincidence with an induced polarization anomaly indicates that the magnetics could very well be mapping a metal sulphide accumulation.

Anomaly No. 7 is a negative anomaly with a maximum negative reading of 150 gammas below magnetic regional. It is unknown what this anomaly is mapping. The apparent bend in the anomaly is caused by topography. The anomaly represents a bed in the Aldridge sediments less magnetic than surrounding beds.

CONCLUSIONS

The magnetometer has assisted in the geological mapping of these claims by outlining the Cranbrook Fault (Anomaly 3, 4), two possible ore bodies (Anomaly 5, 6) and a third possible ore body (Anomaly 1, 2) or igneous intrusion associated with the Cranbrook Fault. The cause of Anomaly No. 7 is unknown and unexplained.

Respectfully submitted,

R.A. Buckley, P. Geol.

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R.A. Buckley — Qualifications

A. I, Ronald A. Buckley, am by profession a Geologist, residing in the City of Calgary, in the Province of Alberta.

B. I graduated in the year 1957 from Acadia University, Wolfville, Nova Scotia, with a Bachelor of Science Degree in Geology, with a minor in Chemistry and Physics.

C. I graduated in the year 1959 from McGill University, Montreal, in the Province of Quebec, with a Master of Science Degree in Geology.

D. Since graduation, I have been employed by a Mining Company, a Provincial Department of Mines, and two Oil Companies in the search for oil, gas and metallic minerals.

E. I am a member:
The Alberta Association of Petroleum Geologists
Mineralogical Association of Canada
Society of Economic Geologists
Society of The Sigma XI
Canadian Institute of Mining and Metallurgy
Association of Professional Engineers of Alberta.

F. I have applied for membership:
Association of Professiona Engineers of B.C.

R.A. Buckley, B.Sc, M.Sc., P. Geol.,

January 19, 1968.
Calgary, Alberta.

115°53' 115°52' 115°51' 115°50' 115°49' 49°32'

49°31'

49°30'

49°29'

NEW LAKE

BASE LINE C

TIE LINE D

BASE LINE D

TIE LINE C

BASE LINE B

TIE LINE A

Creek

Smith

Jim

Jim Smith Lake

JIM SMITH L. PROV. PARK

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1178 M. P. 3

ENCLOSURE I TO ACCOMPANY GEOPHYSICAL REPORT

MAGNETOMETER SURVEY

CAROL - NEIL CLAIMS
CRANBROOK B.C.

DATA IS IN GAMMAS

SCALE - 8 INCHES TO 1 MILE

JAN 23, 1968 R. BUCKLEY P.GEOL.

R. Buckley

MAGNETIC LOW

H MAGNETIC HIGH

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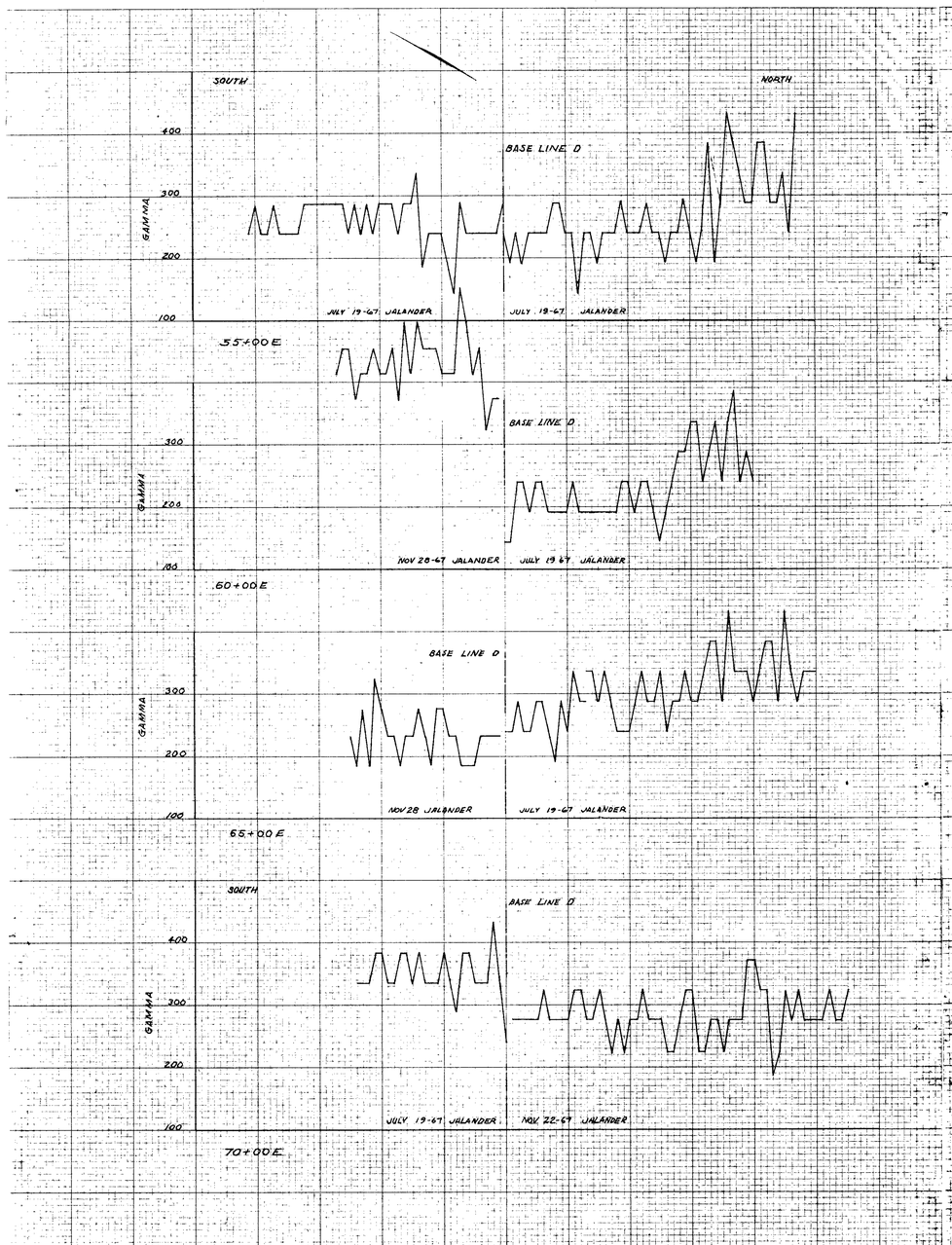

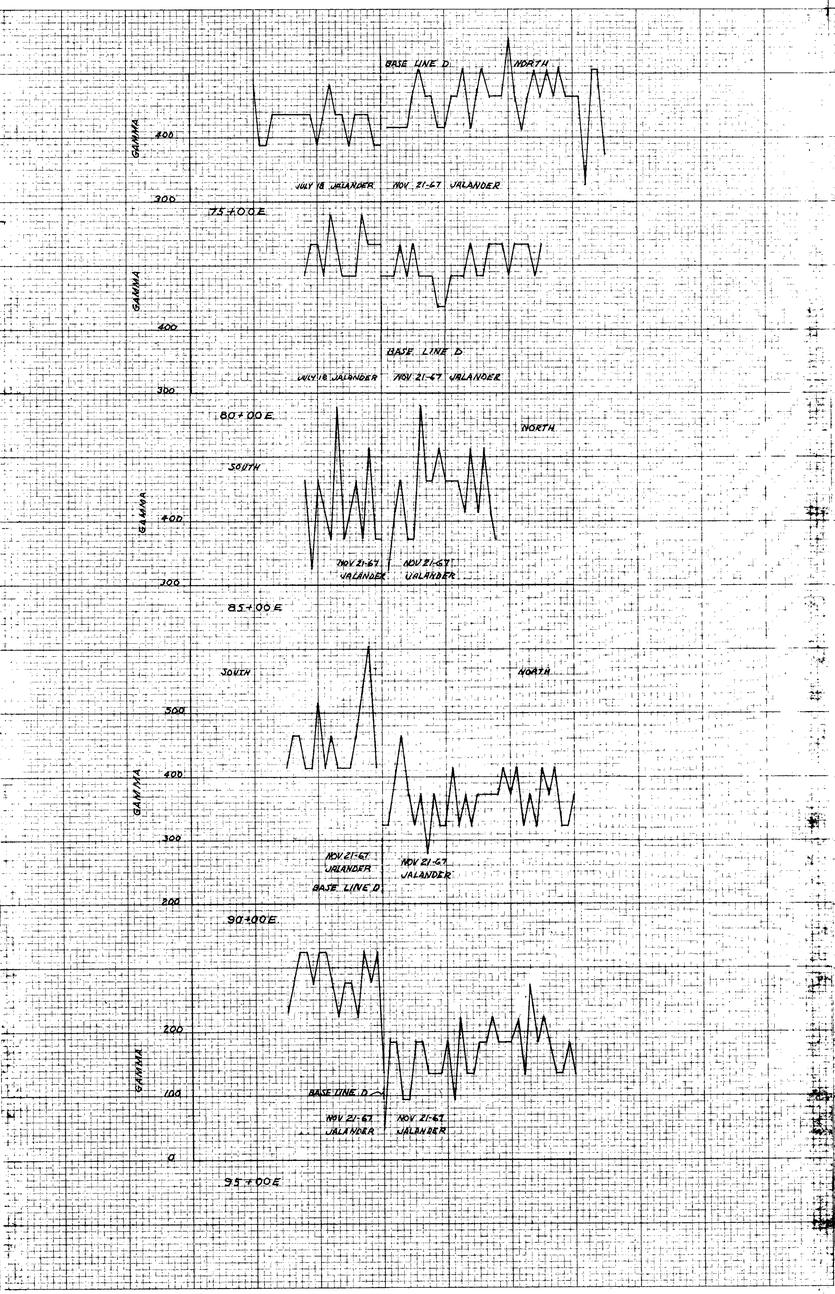

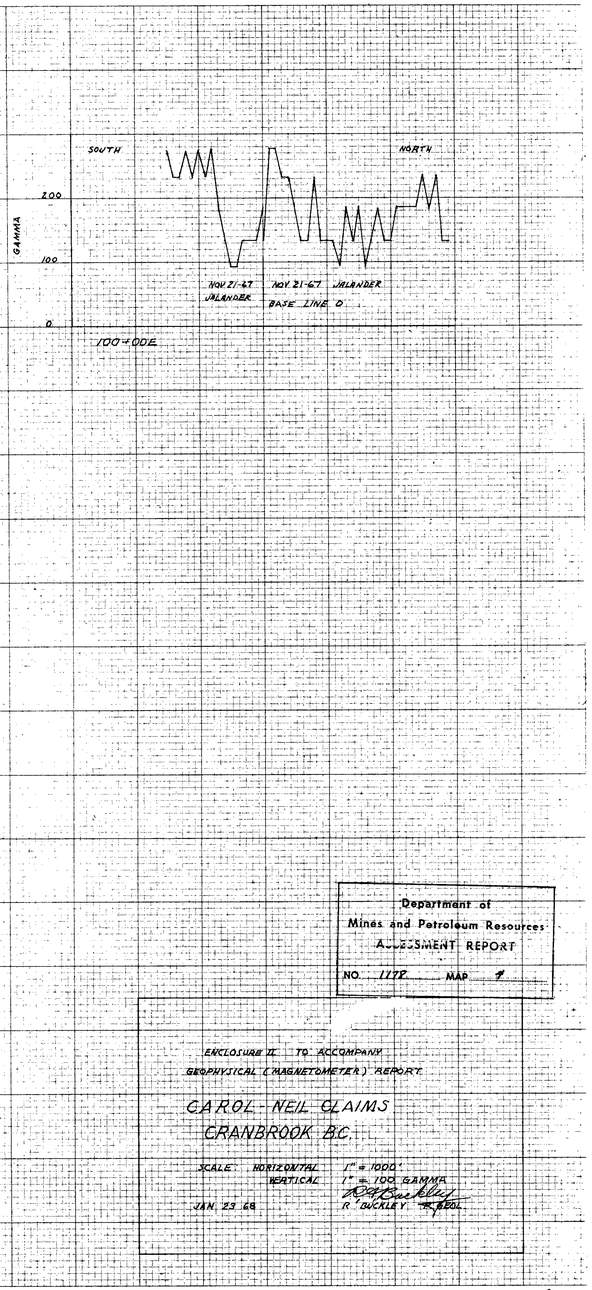

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ENCLOSURE II TO ACCOMPANY
GEOPHYSICAL (MAGNETOMETER) REPORT

CAROL - NEIL CLAIMS
CRANBROOK B.C.

SCALE: HORIZONTAL 1" = 1000'
VERTICAL 1" = 100 GAMMA

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R. BUCKLEY, B.A.SC.

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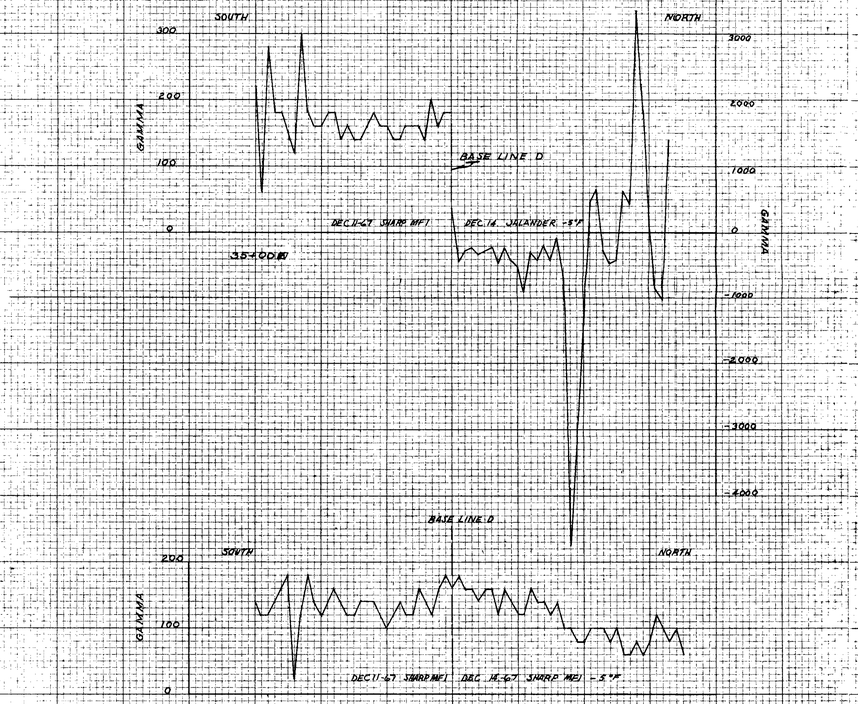

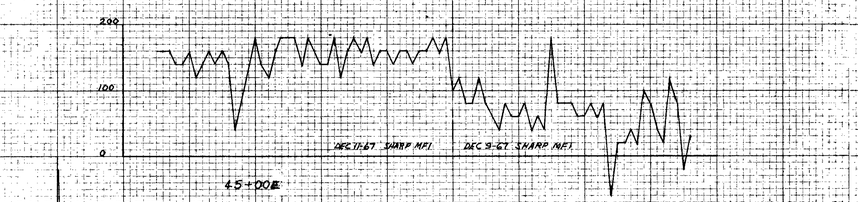

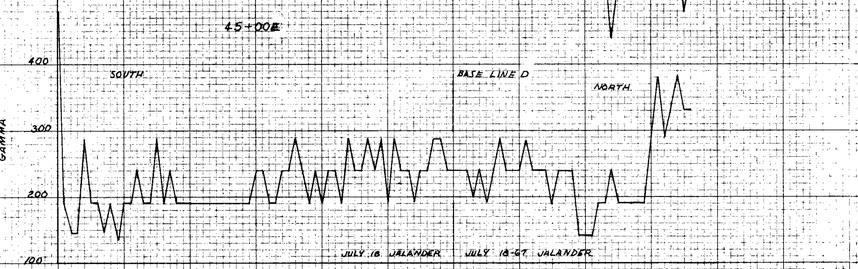

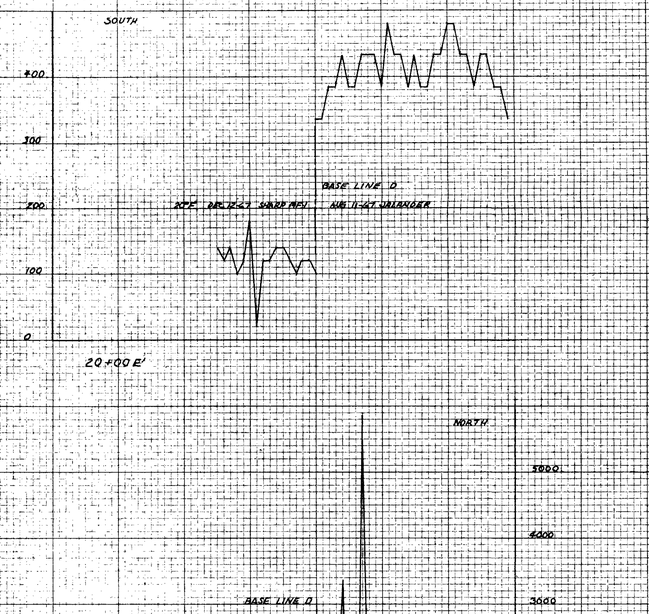

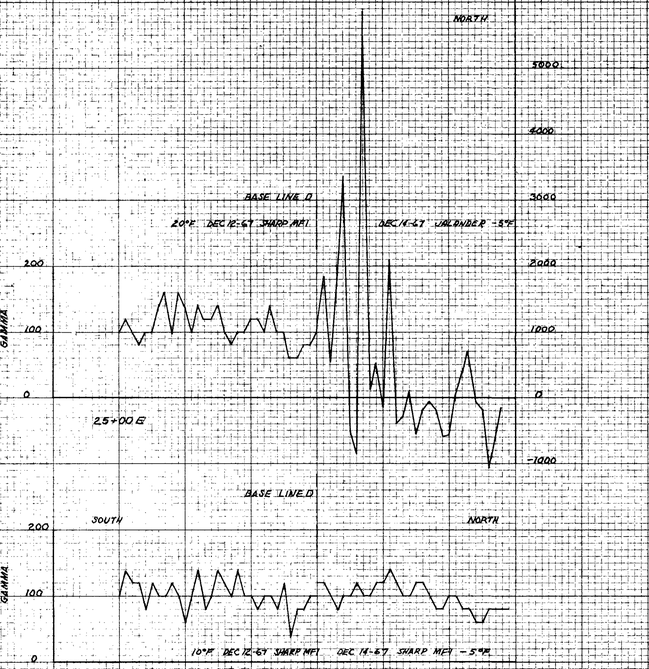

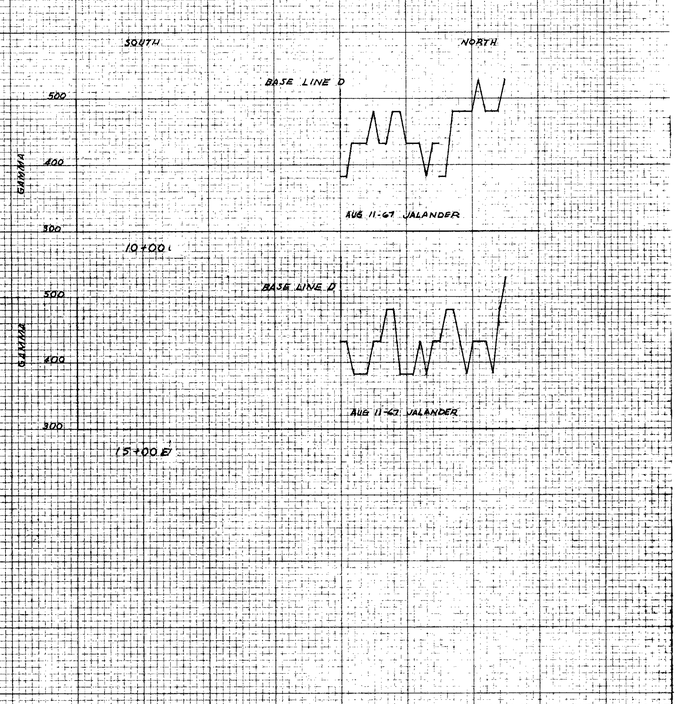

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ENCLOSURE III TO ACCOMPANY
GEOPHYSICAL (MAGNETOMETER) REPORT

CAROL - NEIL CLAIMS
CRANBROOK B.C.

SCALE: HORIZONTAL 1" = 1000'
VERTICAL 1" = 100 GAMMA

JAN 23 1968

R. BUCKLEY P.ENGR.

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NO. 1178 MAP 6

ENCLOSURE IV TO ACCOMPANY
GEOPHYSICAL (MAGNETOMETER) REPORT

CAROL-NEIL CLAIMS
CRANBROOK B.C.

SCALE HORIZONTAL 1" = 1000'
VERTICAL 1" = 100 GAMMA

JAN 23 1968

R. BUCKLEY, GEOL

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