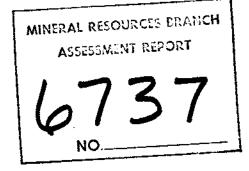
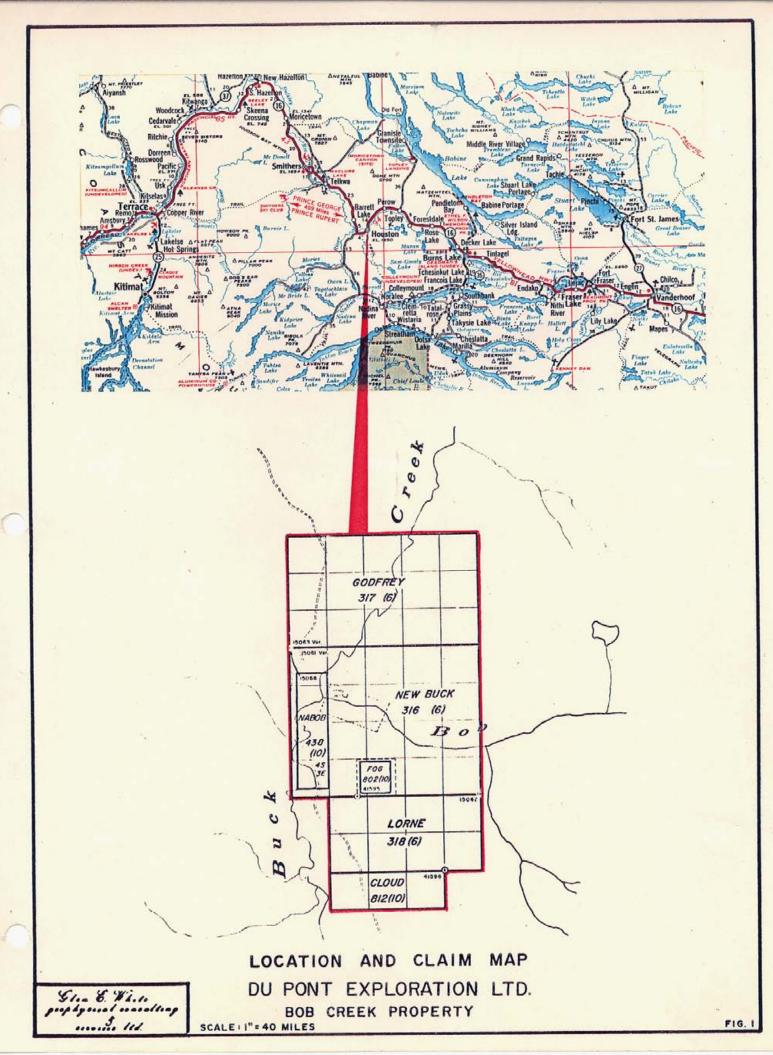
GEOPHYSICAL REPORT For DUPONT OF CANADA EXPLORATION LTD. On A PULSE ELECTROMAGNETOMETER SURVEY

Bob Creek property, Houston area, B. C. Onimeca Mining Division Lat. 54°18'N Long. 126°36'W N.T.S. 93 L/7 AUTHOR: Glen E. White, B.Sc., P. Eng. Geophysicist DATE OF WORK: January 16 - 30, 1978 DATE OF REPORT: February 9, 1978





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### INTRODUCTION

During the period January 16 - 30, 1978, a program of pulse electromagnetometer (PEM) surveying was conducted over a group of mineral claims known as the Bob Creek property, Houston area, B. C. on behalf of Dupont Exploration of Canada Ltd.

The purpose of the survey was to examine an area containing a large HEM electromagnetic anomaly detected by Lockwood Survey Corporation in 1969 and an induced polarization anomaly obtained in 1976, to try and detect any specific vertical or flat lying electromagnetic conductors.

#### PROPERTY

The Bob Creek property consists of mineral claims Godfrey, New Buck, Nabob, Fog, Lorne and Cloud; record numbers 317, 316, 438, 802, 318 and 812 respectively. The claims layout is illustrated in Figure 1.

## LOCATION AND ACCESS

The survey area is located at the junction of Buck and Bob Creeks some 7 miles south west along Buck Flats Road which leaves Highway 16 one mile west of Houston, B. C. Latitude 54°18'N, Longitude 126°36'W, N.T.S. 93 L/7. Omineca Mining Division, B. C. Access is by regular motor vehicle.

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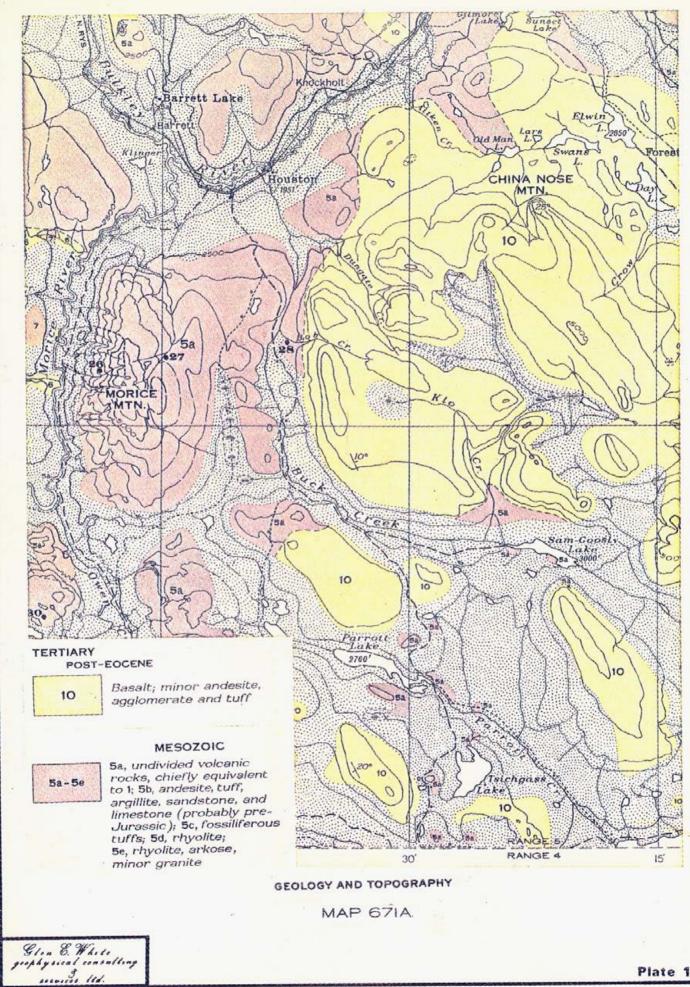
### GENERAL GEOLOGY

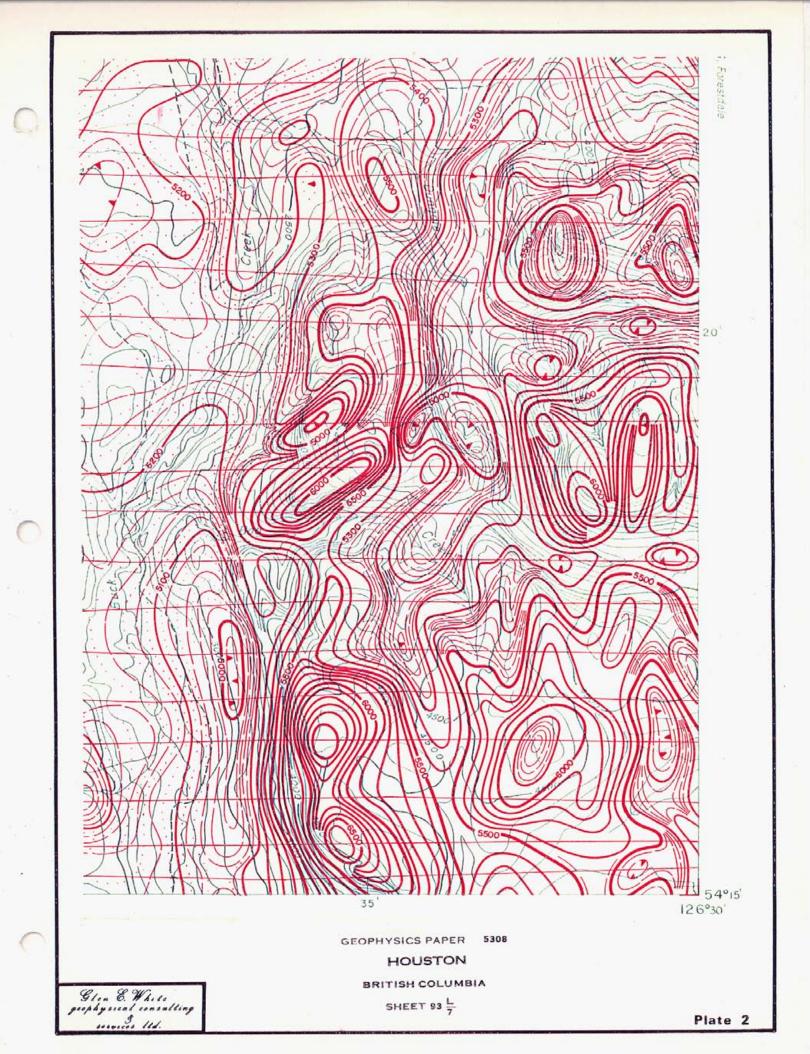
The general geology of the area is shown on geology map 671A as illustrated on Plate 1. The property is underlain by the Hazelton Group of volcanic rocks, andesite, rhyolite and dacite of Mesozoic age, with interbedded andesite, rhyolite tuffs, argillites and sandstones. This sequence is overlain to the west of the property by Tertiary basalts with minor agglomerates and tuff.

Geological mapping by Nevin Sadlier-Brown Goodbrand Ltd. shows the central area of the property to be underlain by andesites intruded by a small gabbro stock some 1300 feet in diameter. Rhyolites, dacites and related breccias occur in the northeast corner of the property.

Plate 2 illustrates the regional airborne magnetic intensity data which shows strong magnetic dipole effects associated with the Tertiary basalts. The gabbro stock does not appear to be reflected by the magnetic intensity data, though its emplacement may have been controlled by a zone of weakness possibly indicated by the pronounced magnetic low linear in this area.

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#### SURVEY SPECIFICATIONS

## Survey Grid

The survey grid was established previous to the PEM survey and consisted of east-west directed reconnaissance geochemical lines spaced from 1200 feet to 600 feet apart. For the purpose of the PEM survey, a number of intermittant lines were surveyed in. Some 8 miles of PEM surveying were completed.

### Pulse Electromagnetometer Survey

The PEM system is used primarily in the horizontal loop configuration. The transmitter consists of a transmit loop 6 meters in diameter that is laid out horizontally on the ground. The loop is energized by a pulse of 15 to 20 amps at 24 volts. The current is turned off by a special ramp circuit. The on-off time is 10.8 ms. The receive coil is generally spaced 25 -100 meters from the transmit loop. The signal on the receive coil is sampled, averaged and then stored during the reading interval. One sample is taken of the primary pulse and eight samples are taken of the secondary field during the off time. Time synchronization is by radio link or cable.

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The eight channels of secondary field information are equivalent to a wide spectrum of frequency information from approximately 2  $KH_z$  to 16  $H_z$  which allows for determination of overburden effects and penetration of conductive overburden. Since the secondary field is measured directly during the primary field off time, the pulse method is free of geometrical restrictions between the transmit and recieve coil positions, such as topography interference and coil alignment.

A separation of 200 feet was used for the survey.

### DISCUSSION OF RESULTS

Figure 2 shows the channel 1 electromagnetic response as a contour plan. The responses are negative typical of a flat lying conductor. A number of minor electromagnetic responses, possibly reflecting fault or shear zones, are also depicted.

Line R, the northernmost line, shows a pronounced low around 0 of -33 p.p.k. in Channel 1. Each of the profiles shows a general negative response of some 4 -10 p.p.k. which indicates weakly conductive overburden, likely glacial till with a relatively high clay content. Thus, the response at 0 would appear to be from possibly a weak formational conductor under slightly conductive overburden.

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Line LBC, a traverse along the Bob Creek trail, shows a weakly conductive broad formational response from 11E to 32E.

Line 30N: The area from 8E to 12E shows a definite increase in conductivity within the broader formational response to a value of -51 p.p.k. This negative trend is reflected weakly by Channel 2. The electromagnetic variations detected at 24E likely reflect a shear zone containing small fracture fillings of conductive materials.

Line 26N shows the strongest negative response, -75p.p.k. A detail vertical loop profile, which is a plot of the horizontal and vertical vectors obtained by a traverse across an anomalous area, was obtained over line 26N, Figure 17. Since the anomaly is a poor conductor, it responded only in Channels 1 and 2. Channel one shows a definite current axis at 7  $\neq$  25E at a depth of 170 feet. Channel two detected a slightly more conductive current axis at 7  $\neq$  75E at a depth of 350 feet. A possible interpretation is that both channels are reflecting current axes at the boundaries of a small graphite and/or mineral bearing distillate basin.

Line 22 / 5, Figure 7: Though it does not reach a strong negative value as Line 26N, it shows a definite negative response through to channel 6 at 6E. A moderately conductive flat easterly dipping source also occurs at 17E. Line 18N shows the broad formational effect which

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has decreased somewhat in conductivity; however, a multichannel inflection occurs at 16E which likely correlates with the moderate conductivity response on line  $22 \neq 5N$ at 17E. The strong electromagnetic response at 29 - 30Eis spurious in that it has a long decay factor. The field notes indicate a trench near 29N. The response appears to occur over two readings and thus may not be a noise spike. The response if valid would indicate a small excellent flat easterly dipping conductor of possibly cultural origin (drill steel) or a thin graphite or sulphide lense.

Lines 12N to 8.5N show a decrease in conductivity of the formational conductor from 4E to 8E.

Lines 8.5N and 2N show a number of lower channel oscillations which appear to relate to fault zones. Line 2N at 5E shows the south est extension of the large flat conductor.

Line 10S shows a definite flat lying conductor at 25E.

Line 15S and 20S are contrasting lines in that line 15S shows a quiet background response while line 20S has considerable variations. Line 20S follows a small stream and likely reflects variable conductive overburden and induced powerline noise.

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#### CONCLUSION AND RECOMMENDATIONS

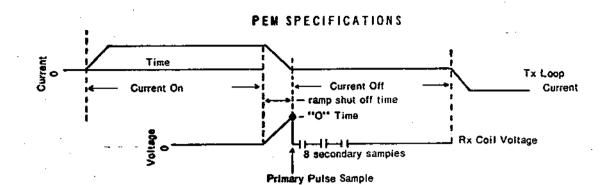
The pulse electromagnetometer survey detected a large flat lying conductor of poor conductivity in the northwest corner of the survey area. An old drill hole reportedly drilled near 8.5N at 5E off of the main conductor area intersected graphite. Thus, the strong negative electromagnetic responses may possibly outline a localized graphite-bearing basin. A vertical profile detected localized conductor axis at depths of 170 and 350 feet at  $7 \neq 25E$  and  $7 \neq 75E$  respectively on line 26N. Interesting electromagnetic variations were also obtained on lines  $22 \neq 50N$  at 17E and 10S at 25E.

The electromagnetic conductors detected by this survey can be classified as relatively poor conductors. However, conductivity is a function of mineral type and crystal interconnection. Thus, since the conductors are in favourable geological environment, it is recommended that the conductors on line 26N,  $22 \neq 50N$  and 10S be tested by diamond drilling.

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Respectfully submitted, GLEN E. WHITE GEOPHYSICAL CONSULTING ICES LTD.

Glen E. White Sc., P. Eng. Consulting Geophysicist



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Current Off time: 9.4 ms Current on time: 10.8 ms Current shut off (ramp) time: 1.4 ms Sample times (zero to centre of sample): .15ms, .45ms, .85ms, 1.45ms, 2.45ms, 3.75ms, 5.85ms, 8.85ms.

Sample width: 100 µs

Zero time set at drop off point of primary pulse

TRANSMITTER - Transmitter power and loop size may be increased to obtain increased penetration. Weight, portability and power capabilities of the control instrument are the limiting factors. The standard transmitter is designed to be carried by two men.

- minimum 4 meters (13 feet) Loop diameter Loop current - 15 to 20 amps Loop applied voltage 24 volts minimum 4500 amps x meter <sup>2</sup> Loop output Loop weight - 11.8 kilos (26 lb) Control unit weight - 10 kilos (22 lb) Control unit dimensions - 20.5cm x 25.5cm x 36.5cm (8" x 10" x 14.5") - 18.1 kilos (40 lb) Battery supply weight Battery supply - 2 of 12 volt, 14 to 20 ampere hour Timing control by radio synchronization

#### RECEIVER

- Receive coil dimensions: 55cm x 15cm (22" x 6")
- Receive coil weight: 4.5 kilos (10 lb)
- Preamplifier in coil
- Preamplifier batteries: 2 of 9 volt
- Receive coil tripod mounted
- Receiver measuring instrument dimensions: 28cm x 18cm x 21.5cm (11" x 7" x 9")
- Receiver measuring instrument weight: 6.3 kilos (14 lb)
- Timing control by radio synchronization
- Primary sample width: 100 ps
- Primary sample can be swept through primary pulse by means of a time calibrated pot
- Zero time set at primary pulse drop-off
- Secondary samples (eight of them) width: 100 µs
- Secondary samples time (zero to middle of sample): (1) .15ms (2) .45ms (3) .85ms (4) 1.45ms (5) 2.45ms (6) 3.75ms (7) 5.85ms (8) 8.85ms
- Automatic sampling for 5 seconds then all samples automatically stored
- Sample read out by means of meter
- Continuous sampling possible by switching function switch to "Continuous"
- Noise can be monitored by switching function switch to "Noise"
- Battery supply: 24 volt rechargeable, 2 of 12 volt Gel GC 12-15

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### STATEMENT OF QUALIFICATIONS

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Name:

WHITE, Glen E.

Profession: Geophysicist

Education: B.Sc. Geophysics - Geology University of British Columbia

Professional Associations:

Associate member of Society of Exploration Geophysicists.

Vice-President of B. C. Society of Mining Geophysicists.

Experience:

Pre-Graduate experience in Geology-Geochemistry - Geophysics with Anaconda American Brass.

Two years Mining Geophysicist with Sulmac Explorations Ltd. and Airborne Geophysics with Spartan Air Services Ltd.

One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W. P. McGill and Associates.

Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.

Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.

Six years Consulting Geophysicist.

Active Experience in all Geologic provinces of Canada.

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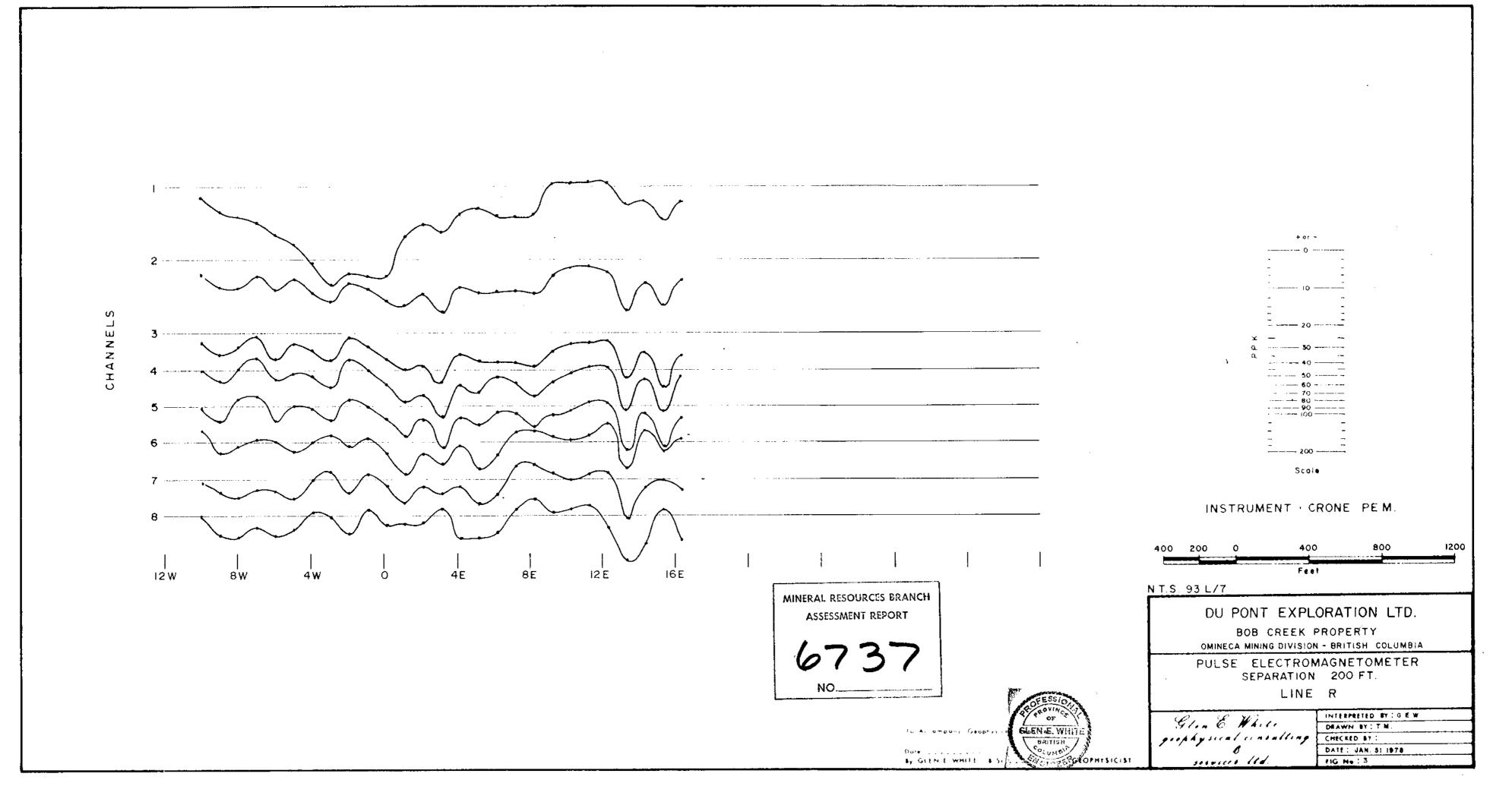
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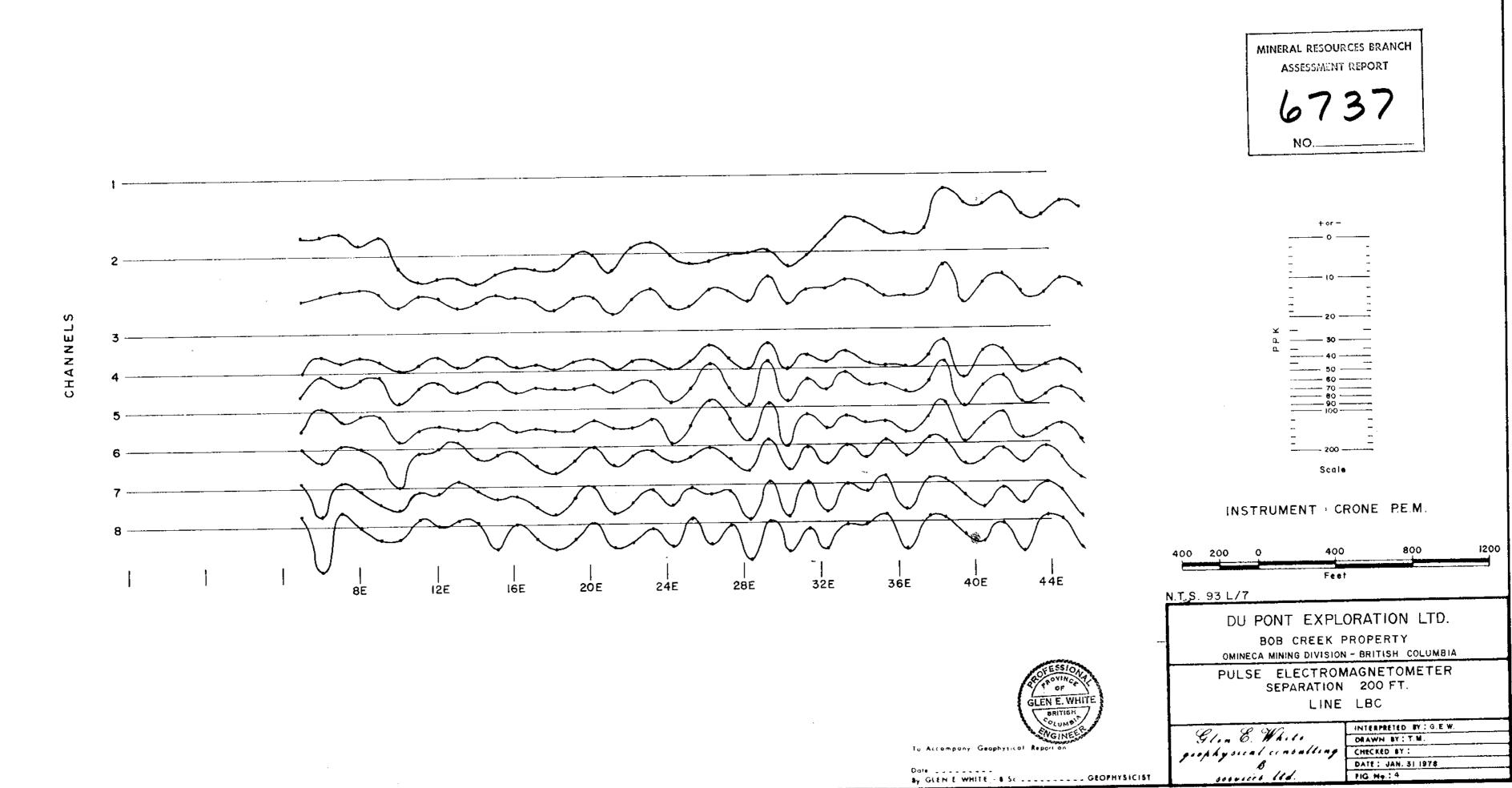
Personnel	Date	Wages	Total
C. Candy	Jan. 16-30,	/78\$98/day	\$1470.00
T. MacKenzie.	, <sup>18</sup> <sup>18</sup> .	90/day	1350.00
E. MacKenzie.	***************************************	90/day	1350.00
Meals and	accomodations (	© \$25/day/man	<b>1</b> 125.00
Instrument	t Lease		780.00
Vehicle 47	4 including gas	3	480.00
Interpreta	tion, drafting	maps and reports	
		Total	
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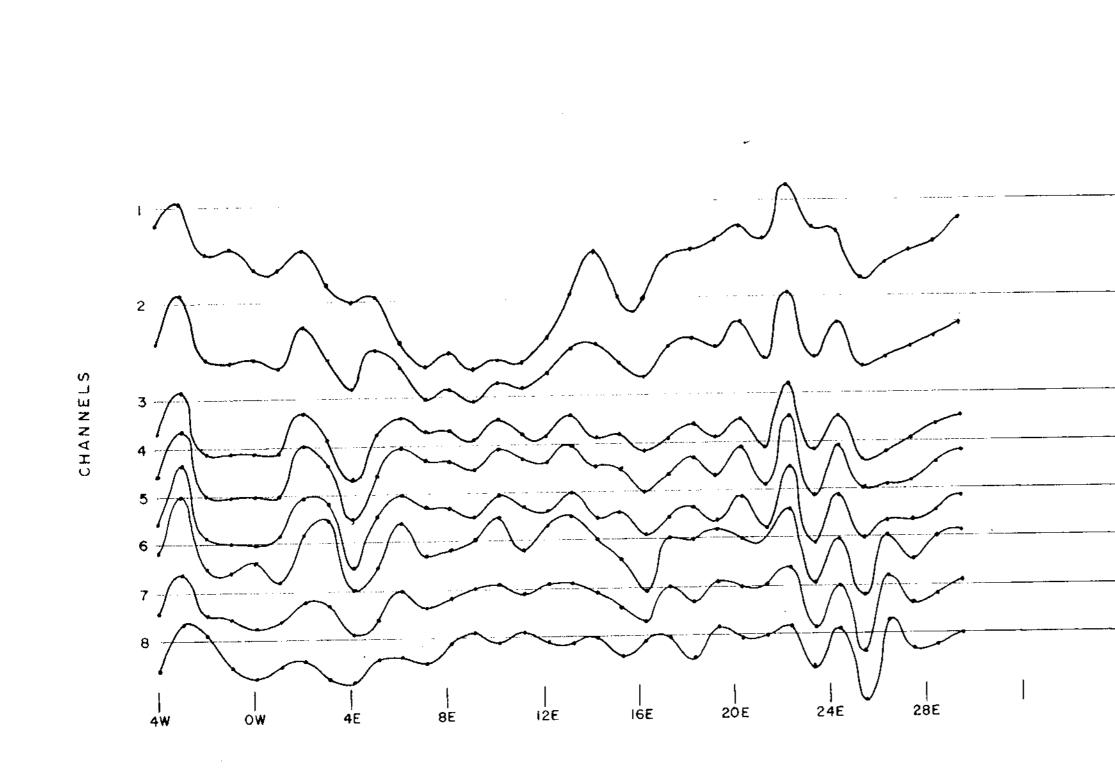
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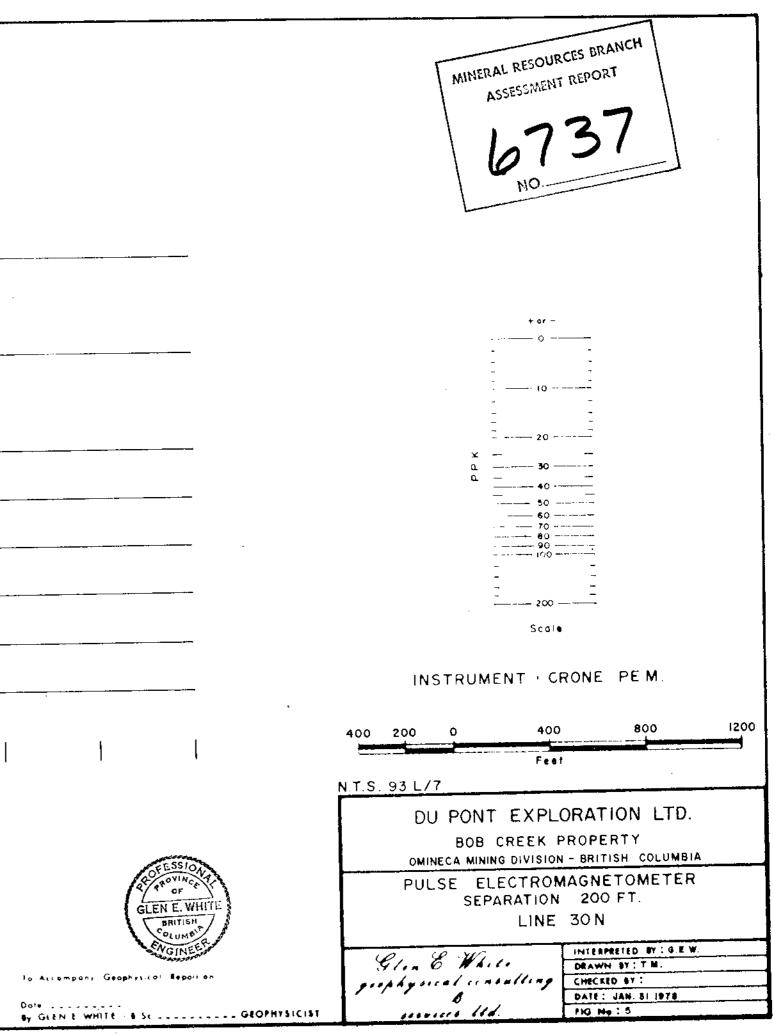
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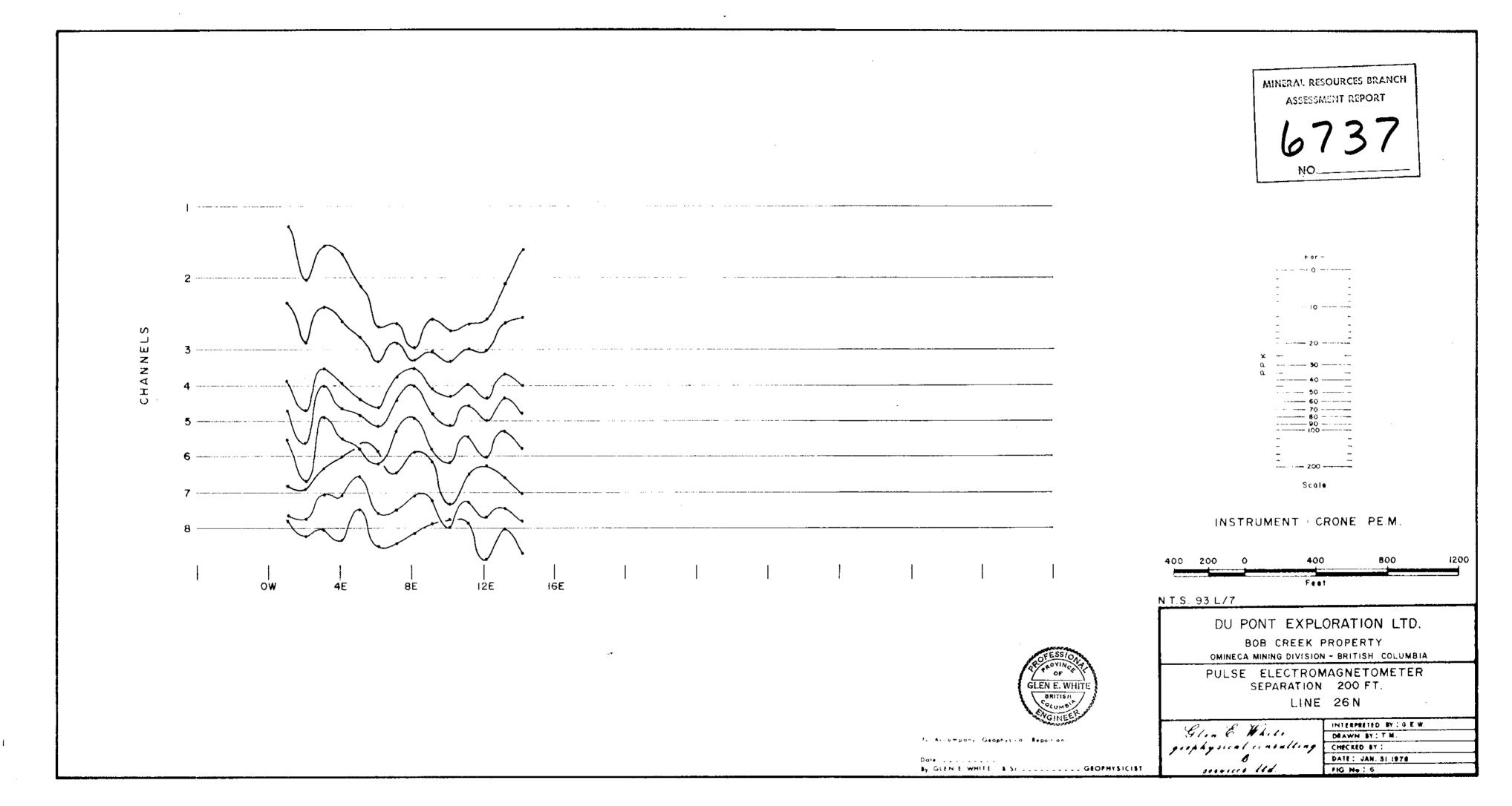
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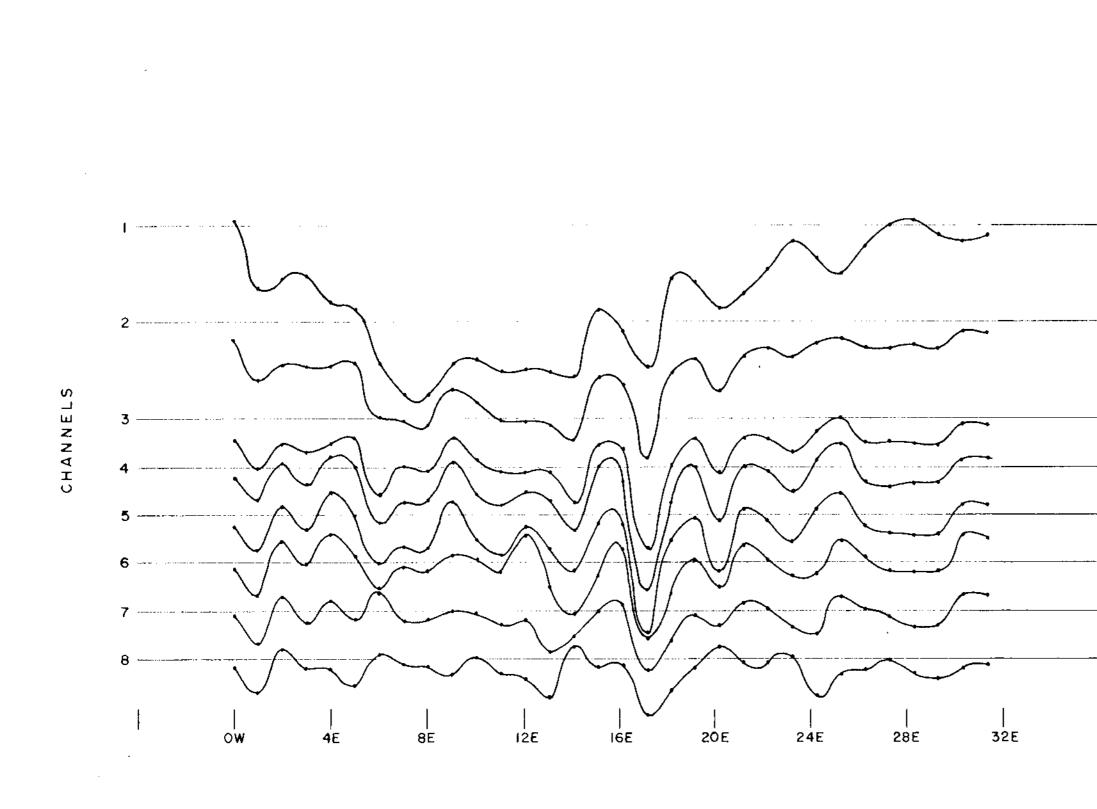


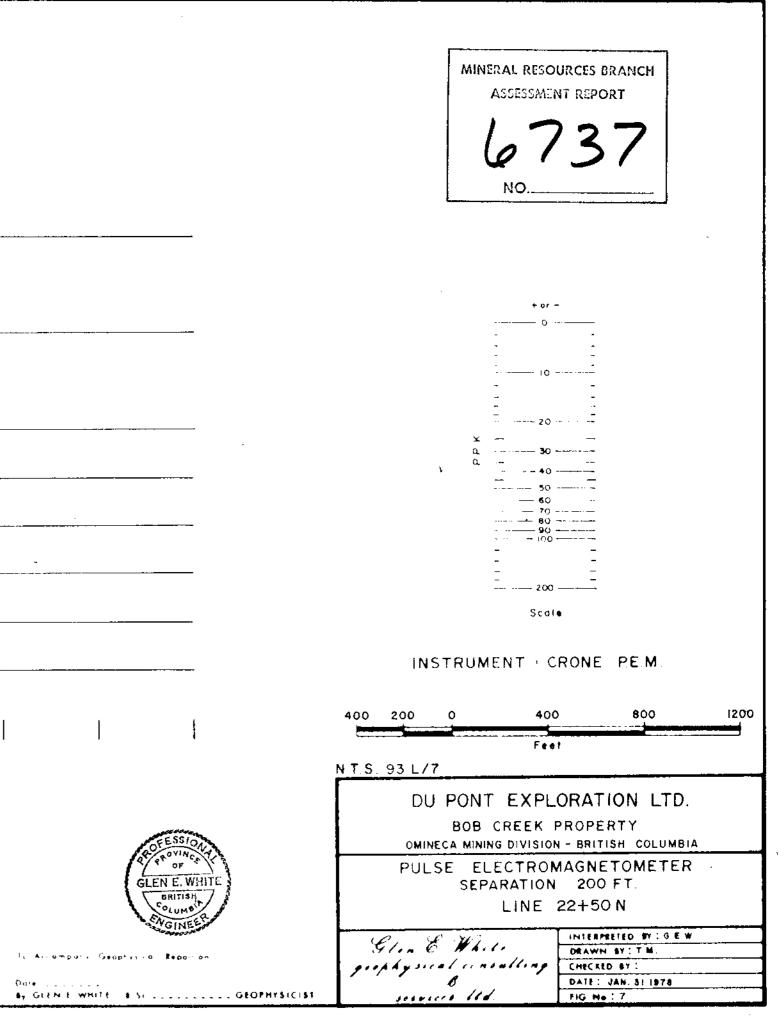


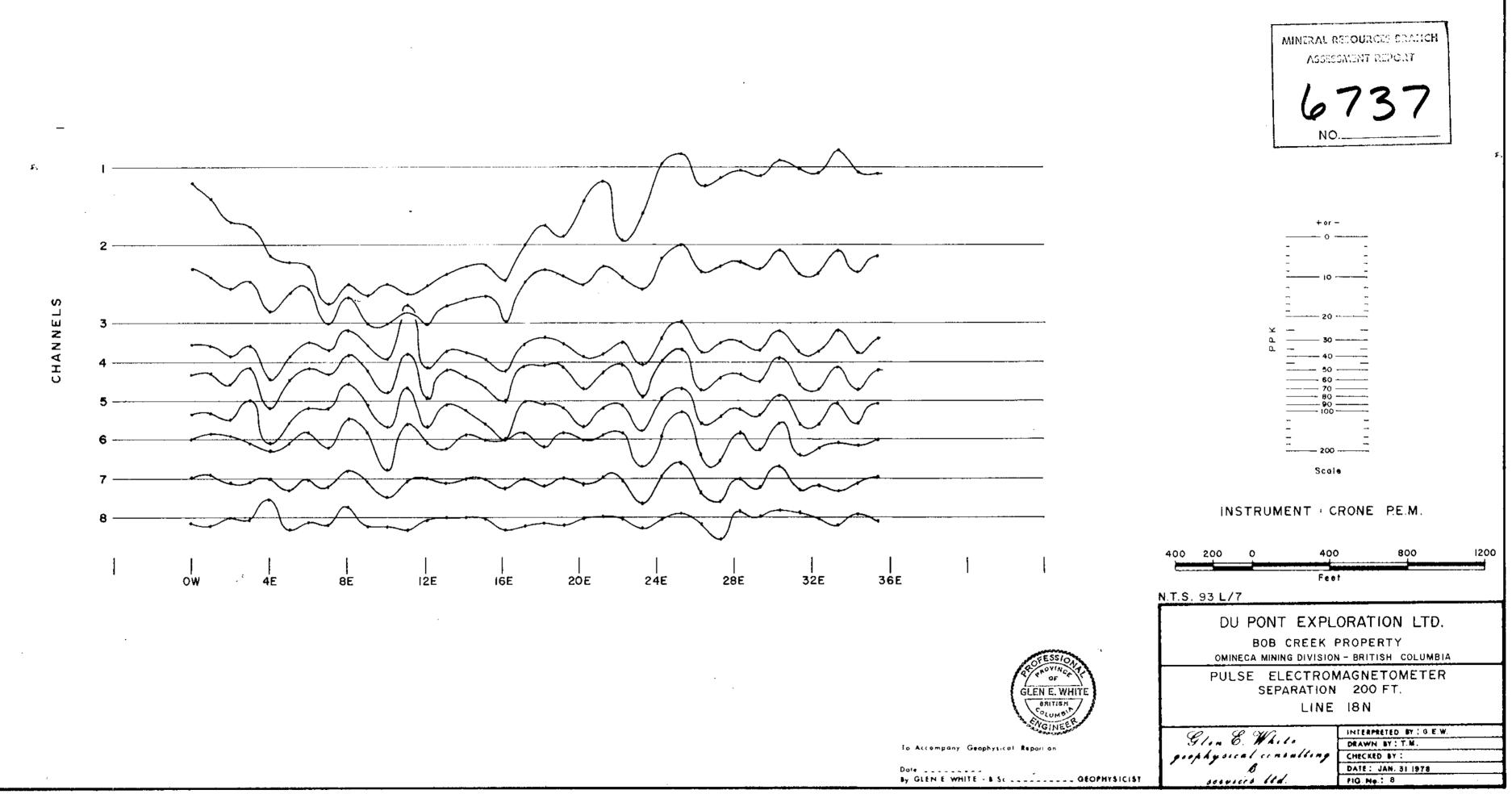


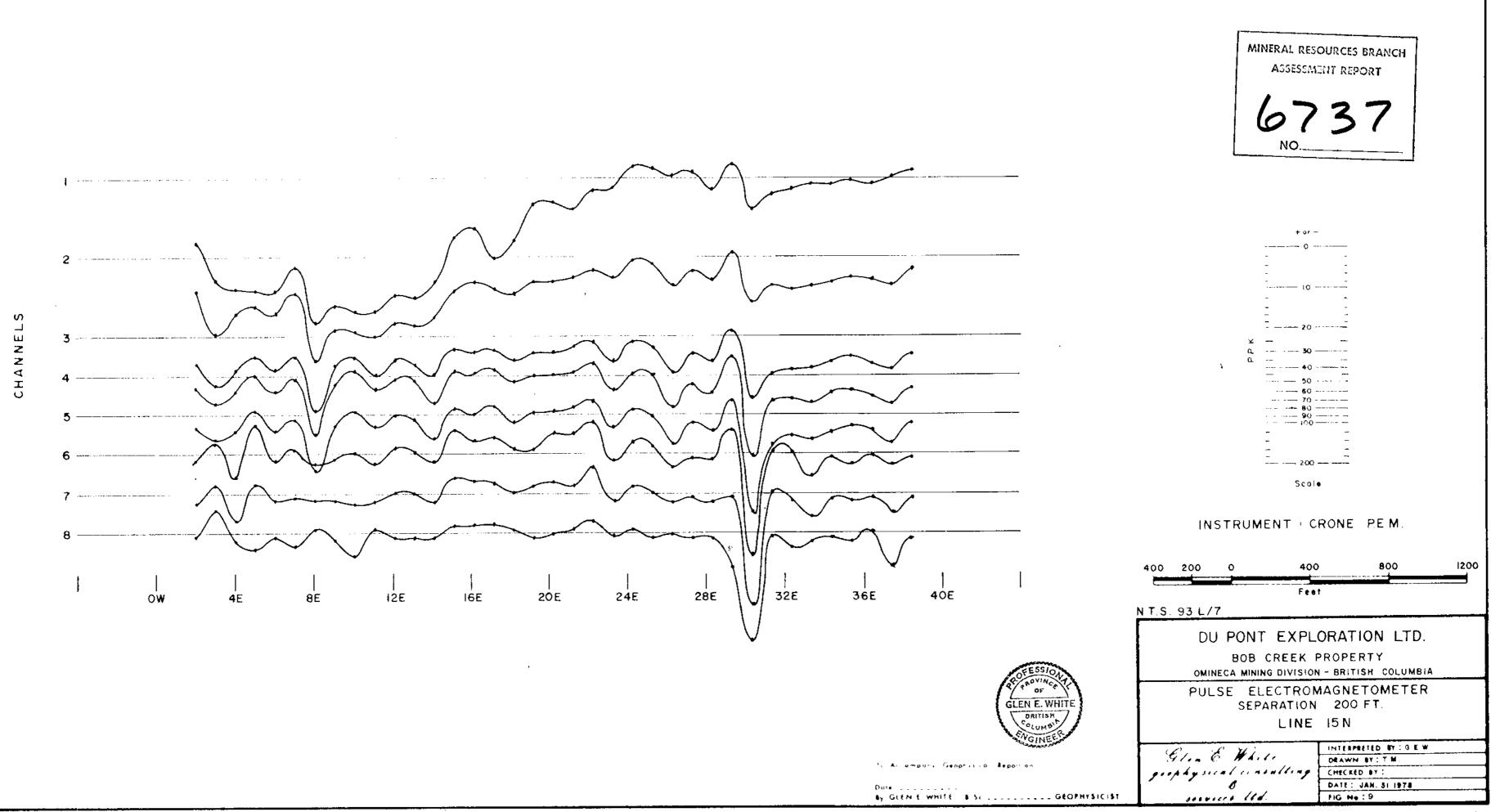


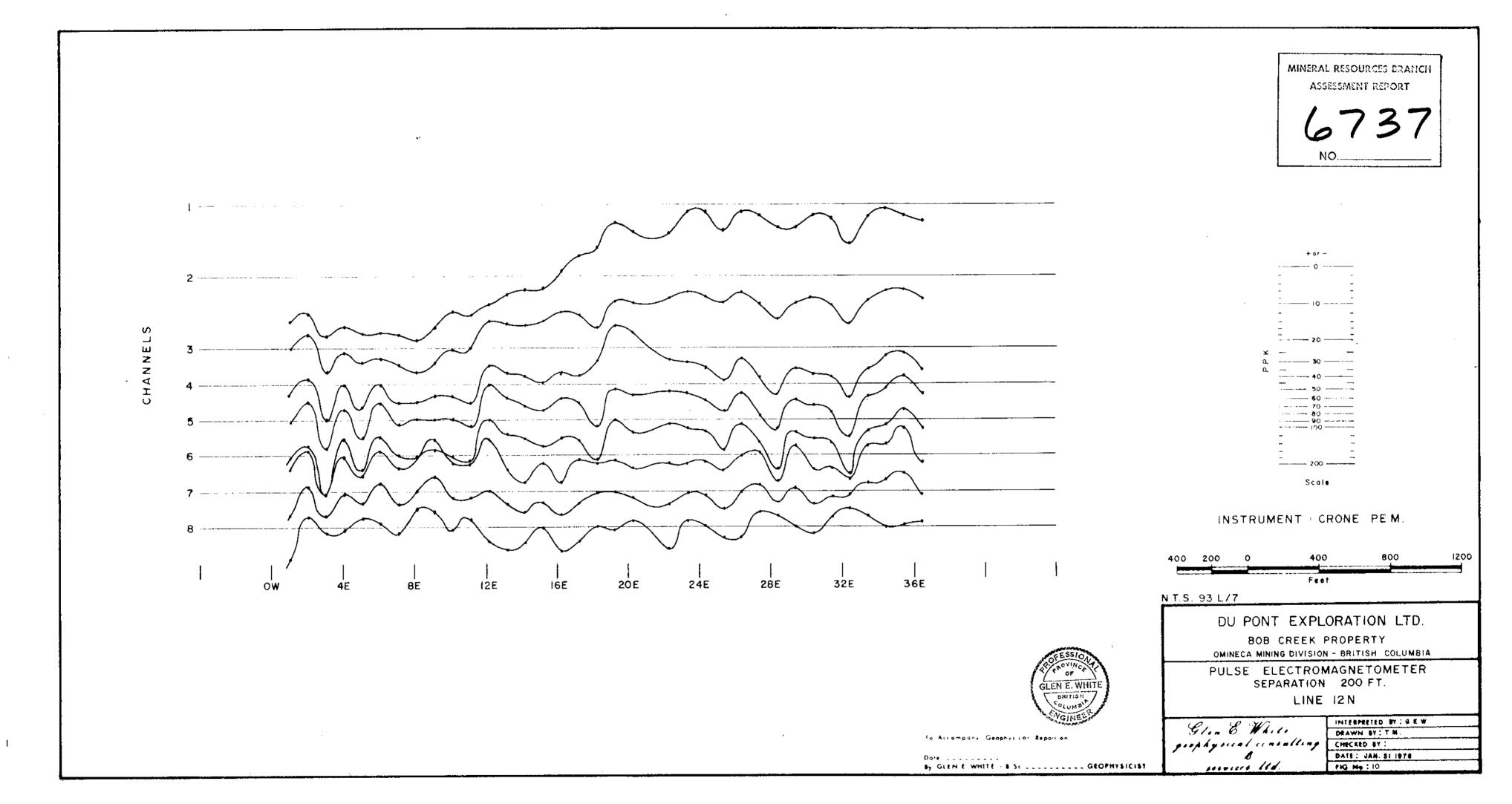


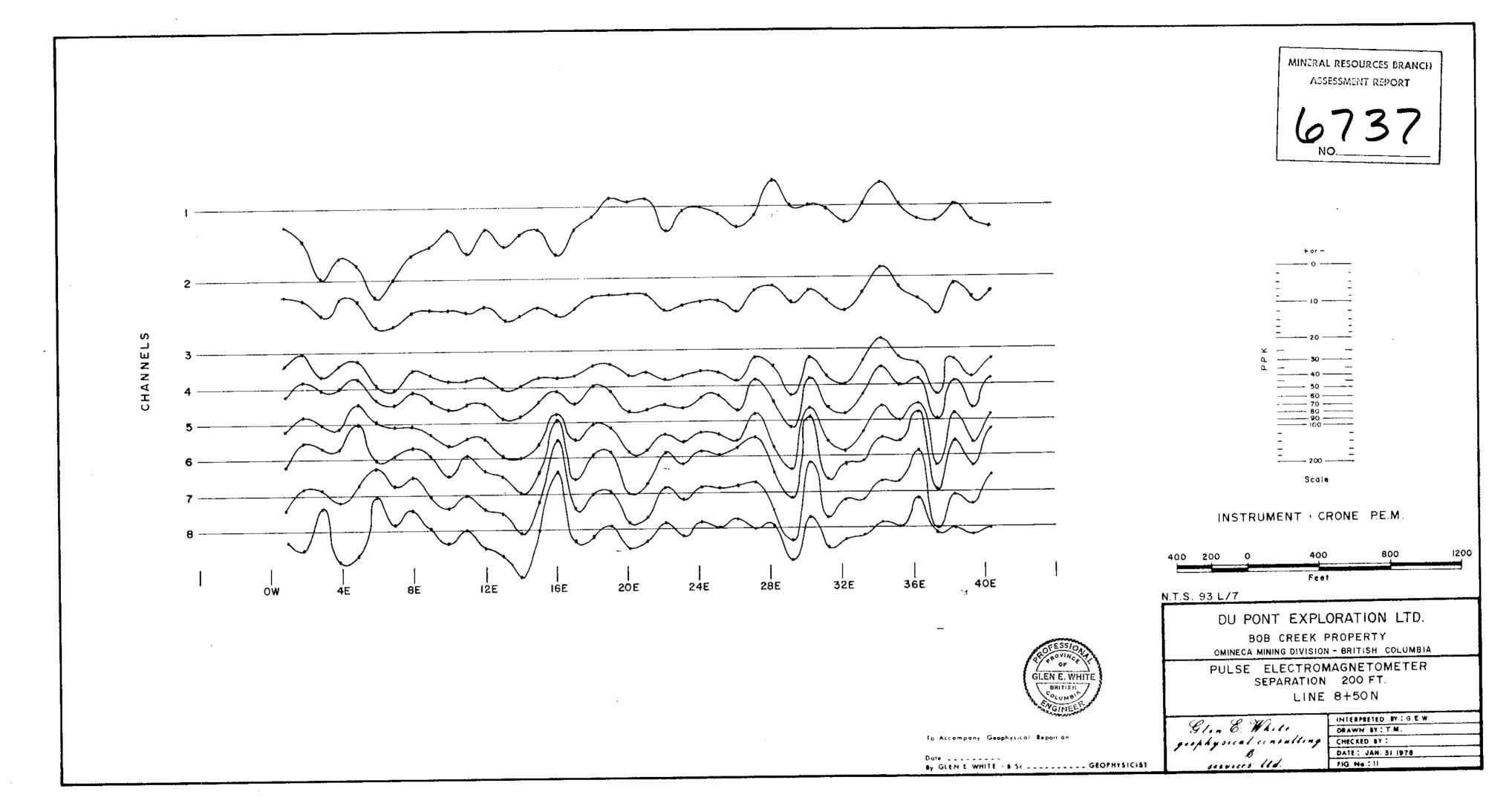


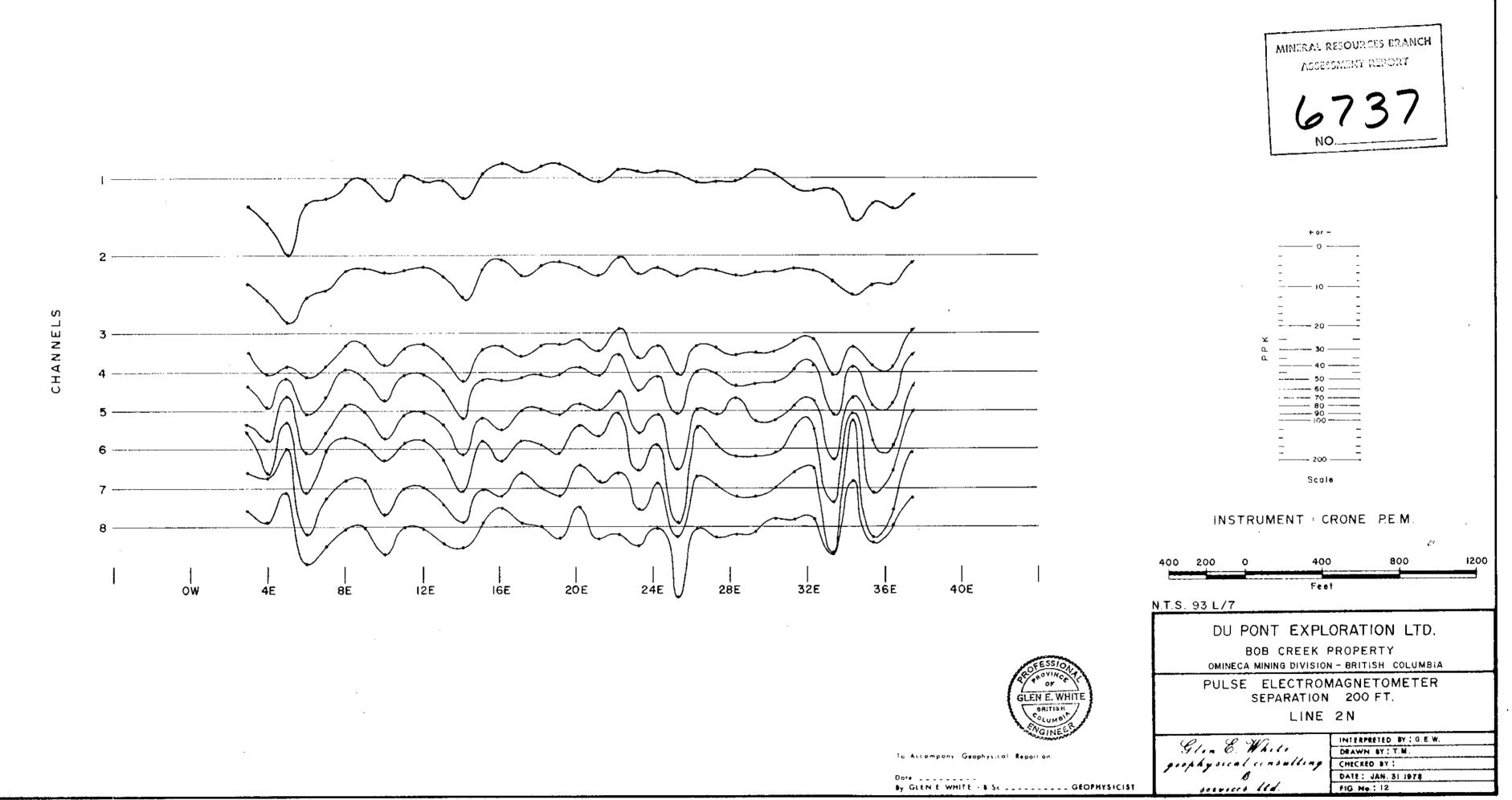


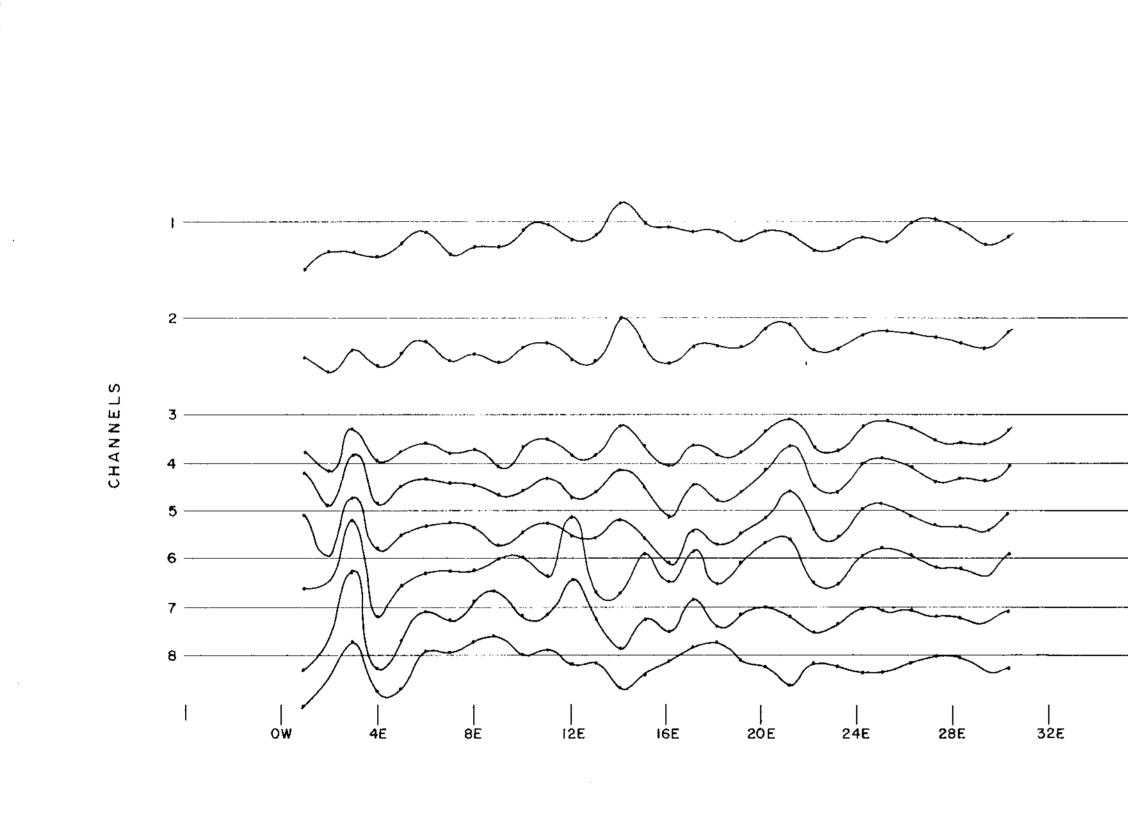


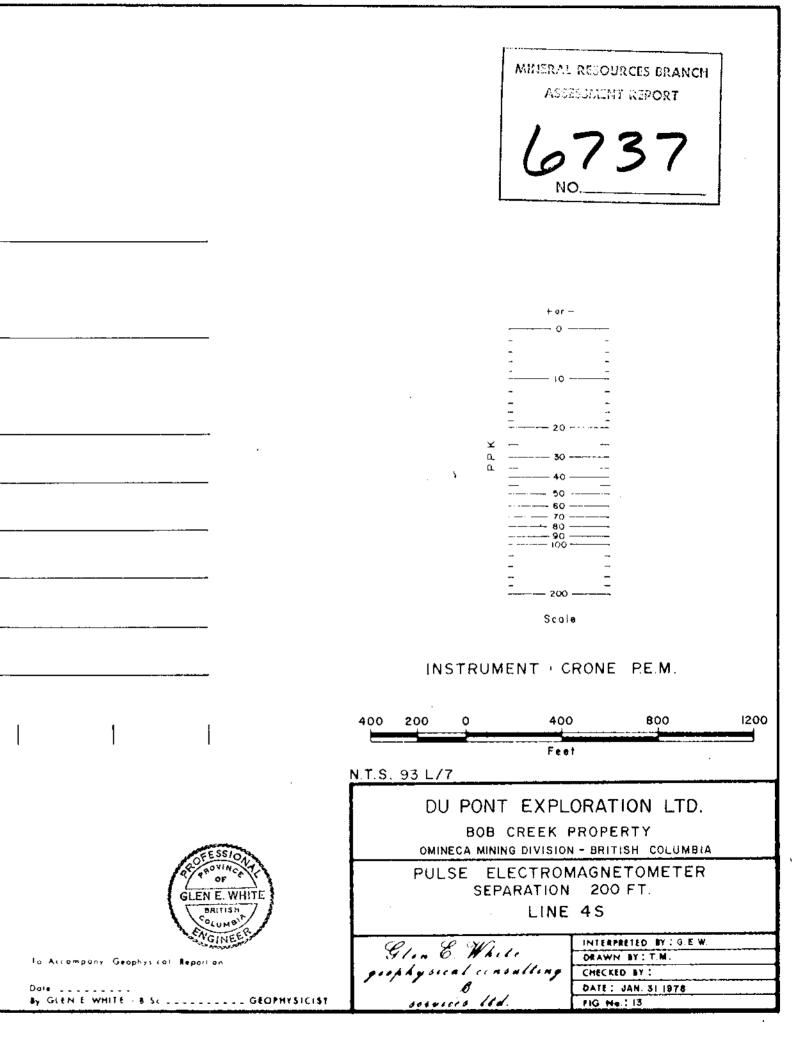


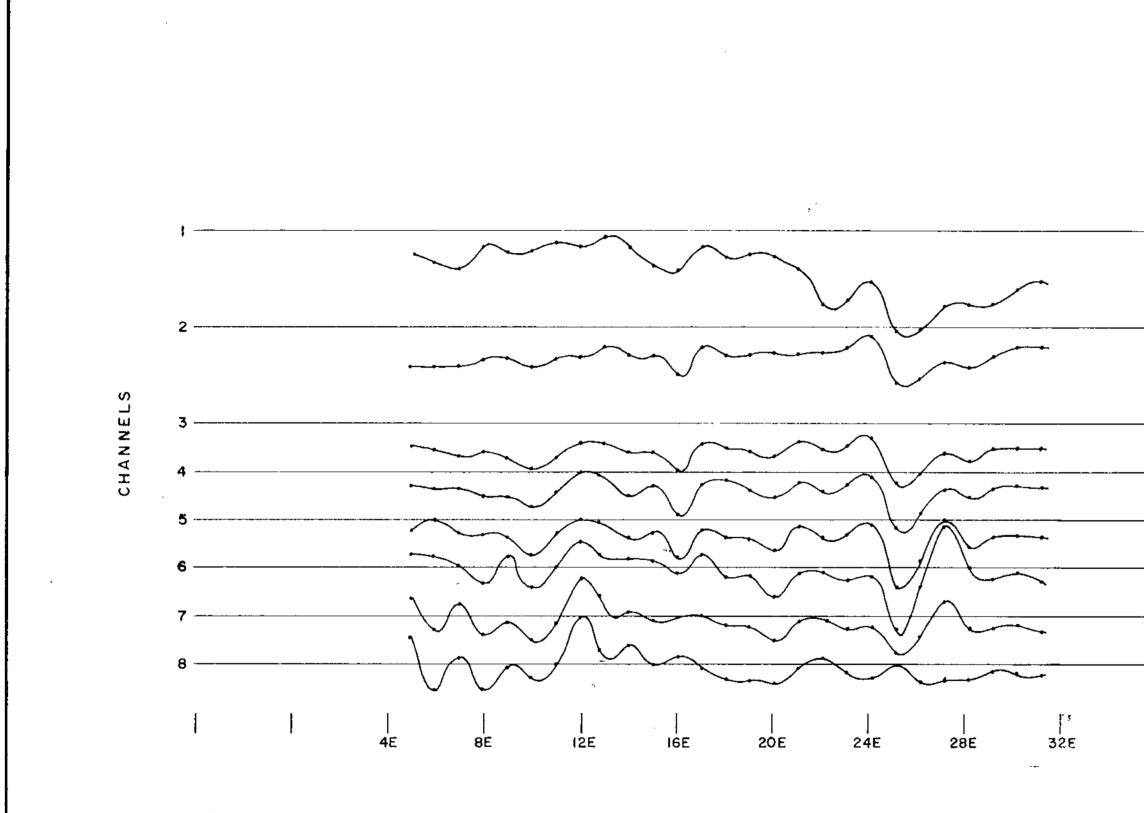


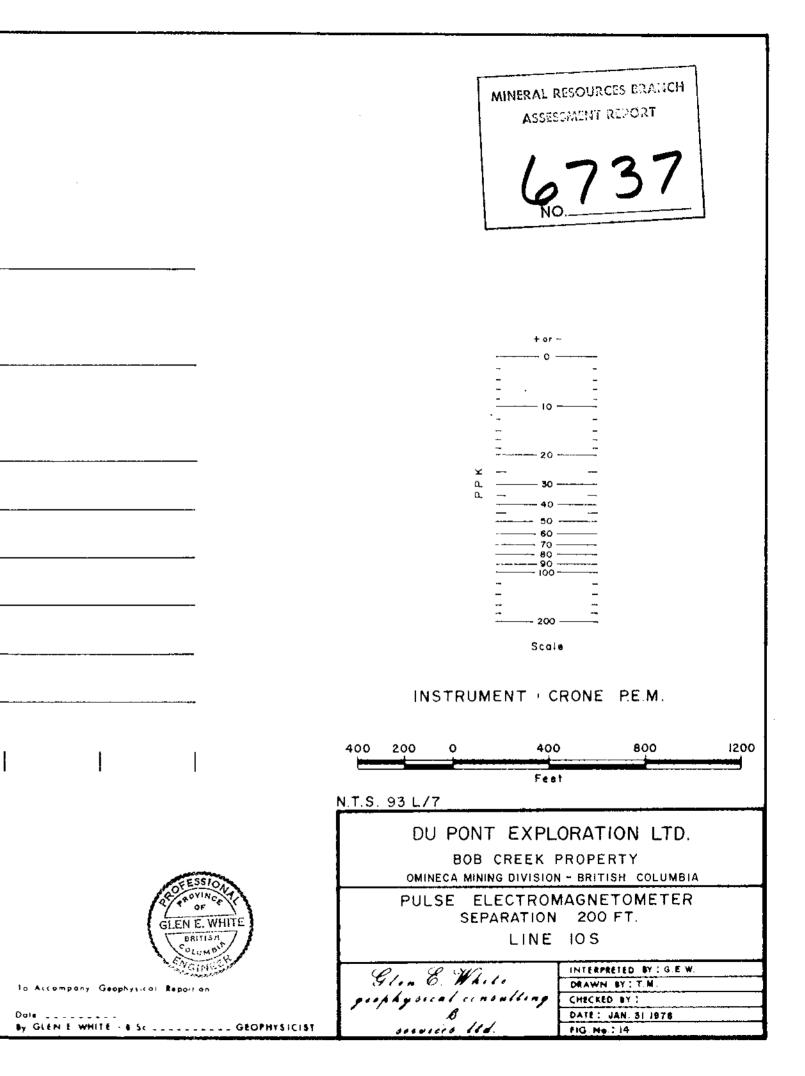


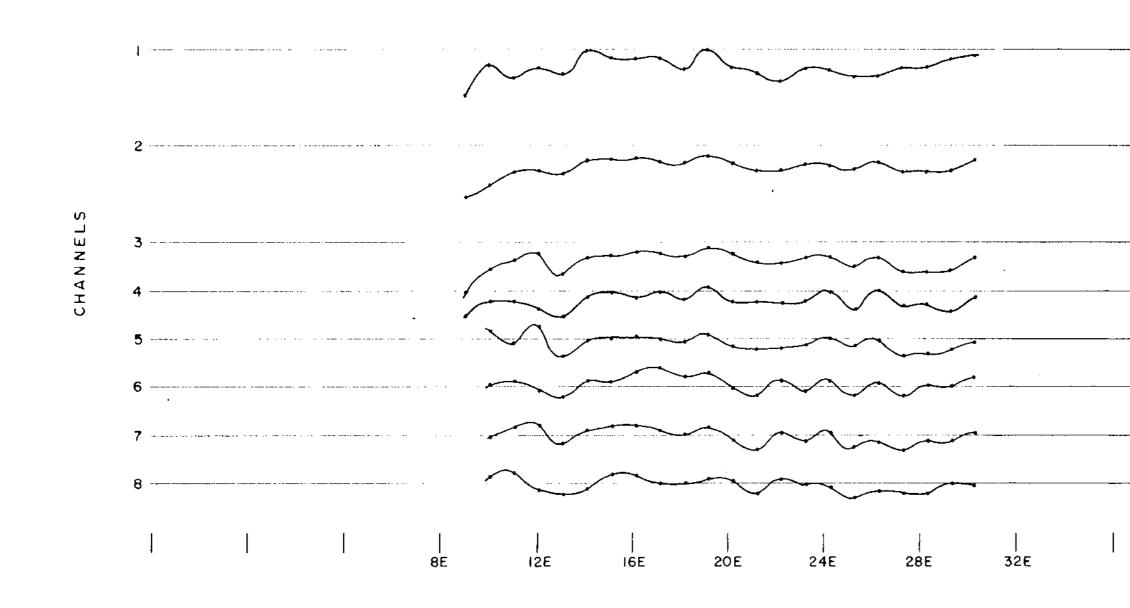


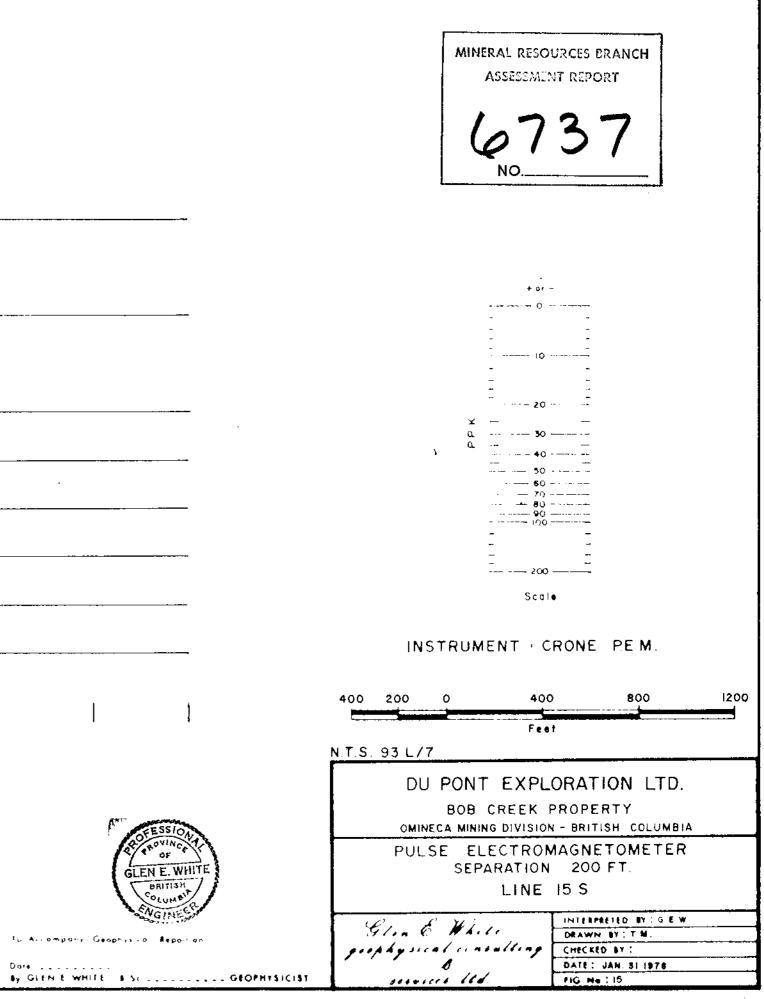


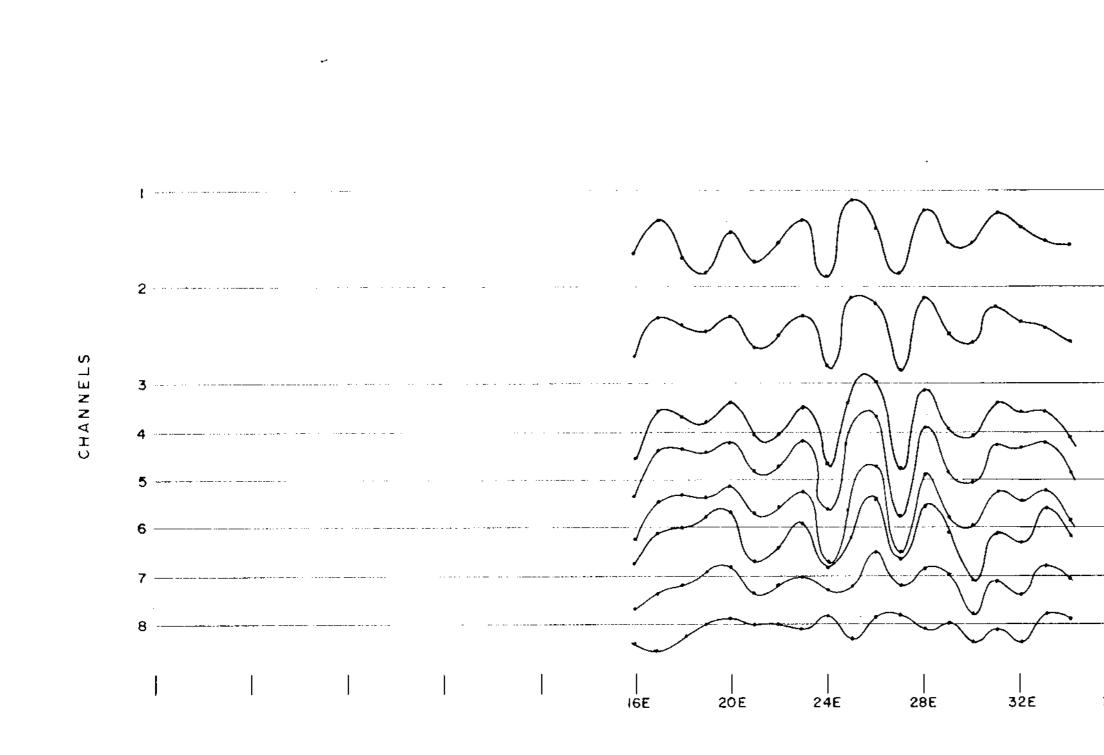












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