Cominco

EXPLORATION

EASTERN DISTRICT

NTS: 42-A-10

ASSESSMENT REPORT

DUN PROPERTY

UTEM

TIMMINS, ONTARIO

DECEMBER 1982

R.W. HOLROYD

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COMINCO LTD.

EXPLORATION — EASTERN DISTRICT

DUN UTEM

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DECEMBER 8, 1982

R.W. HOLROYD

SUMMARY

During the winter of 1982 a UTEM survey was carried out on Cominco's Dun property, near Iroquois Falls Ontario. The target was a deep massive sulphide body of the Kidd Creek type, below the thick overburden cover. The survey was performed by Cominco Ltd. personnel using the newly developed UTEM III system, a state-of-the-art time domain EM system which has the capability of great depth penetration.

The survey outlined several poor conductors which appear to be conductive overburden responses, though a long bedrock conductor was also detected. This bedrock anomaly was quite shallow (50 metres) and had been previously detected by a vertical loop survey and subsequently drill tested. Graphite was determined to be the source of the anomaly. No other bedrock conductors were detected.

Since the target of the survey was a highly conductive body at depth, below the limits of conventional geophysical methods, the survey was based on a line spacing of 300 metres. If such a body existed in the survey area, the lateral coverage of the system would have identified it at such a line spacing, though more detailed line spacing would be required over the anomaly to determine its full potential.

Therefore, the UTEM survey indicates that no significant massive sulphide body exists to a depth of 400-500 metres within the survey area.

INTRODUCTION

Cominco Ltd. acquired property in the established Timmins mining camp early in 1982. The objective was to utilize the newly developed UTEM III system to test for a Kidd Creek type orebody, along a possible projected extension of the favourable geology beneath a thick overburden cover. Previous geophysical systems employed in the area did not have the depth penetration or the interpretability of the UTEM system, and thus would have missed such a body at large depths.

During the period February 9 to March 2, 1982, Cominco Ltd. personnel carried out a UTEM survey over the Dun claims. Those involved in the survey were K.N. Hendry (geophysicist), R.W. Holroyd (geophysicist), E.T. Eadie (geophysicist) and D.D. Laronde (technician). A total of 32.4 km of lines were surveyed from 9 transmitter loops, and a 10th small loop was used to further define an anomaly.

EQUIPMENT AND PROCEDURES

The UTEM III system developed by Lamontagne Geophysics was used on the Dun property in order to achieve maximum possible depth penetration. UTEM (University of Toronto

Electro-Magnetometer) is a wideband, time-domian ground EM system which was designed to achieve the sensitivity and interpretability necessary to allow exploration in geophysically difficult area, such as at large depths, in conductive terrains, and in areas of significant cultural noise (powerlines etc.). The UTEM III system is microprocessor controlled and employs digital recording of the field data on a cassette tape.

The UTEM method utilizes a transmitted signal of low frequency and precise triangular waveform which is passed through a large fixed wire loop. The receiver sensor is a coil which, for this survey, measures the vertical magnetic component (Hz) of the local electromagnetic field and which responds to the time derivation of that field. The system is also capable of measuring other components, ie. the horizontal electromagnetic and electronic fields in the X and Y direction (Hx, Hy, Ex, and Ey respectively), but these components are usually used in specialized cases and are not used in standard surveying practice.

Since the transmitted current waveform is triangular, a square wave will be detected at the receiver coil in the absence of any anomalous responses. Any distortions from the perfect square waveform are due to local electrically conductive features (geological or cultural) and which constitute a UTEM anomaly. This distortion is measured at the receiver by determining the amplitude at 10 delay times which are the average over established time windows and which cover nearly the entire area between waveform transitions, ie. from positive peak to negative peak. The time channels are set up in a binary fashion with the earliest and narrowest being channel 10, and the latest and widest being channel 1. Channel 10 is typically not processed due to its noisy nature and susceptibility to slight instrument drifting. The higher numbered channels (short time) correspond to high frequencies whereas the lower numbered channels (late time) corresponds to low frequencies. Therefore responses on lower numbered channels reflect an increase in the conductivity of the anomalous body, such that a highly conductive body (massive sulphides or graphite) will respond on all nine channels.

The base frequency of the system is selectable, usually about 30 or 15 Hz, 0.5 Hz from a sub-harmonic of powerline frequency, causes the powerline interference to show up as slow beating in the received signal. An experienced operator can recognize this noise and average for a longer period of time to eliminate such effects and obtain a stable reading. The receiver is capable of sticking any pre-set number of cycles in order to increase the signal to noise ratio.

Five large fixed transmitter loops were used to carry out the survey, each consisting of single strand insulated wire, energized with current from a transmitter which is powered by a 1.75 kw motor generator. For logistical reasons the loops were not all of equal size but were in the order of 1500m x 1000m. A total of 9 loops were established with lines surveyed perpendicular to the south side of the loops. A small 10th loop was surveyed perpendicular to its north side in order to evaluate an anomalous response. Due to the capabilities of the UTEM system and the nature of the target the grid lines were 300 metres apare and readings were taken at 100 foot intervals.

A portable field computer which is part of the UTEM system, enables the processing, plotting and interpretation of the data to proceed during the survey. The data is digitally recorded by the receiver and is played back into the computer which remains in the base camp.

PRESENTATION OF DATA

The computer processing of the data produces profile plots of 9 channels for each line, though in order to properly interpret the data other specialized types of plots are required. Standard normalized plots (continuously normalized) provided for each line surveyed, and on lines with anomalous responses, point normalized and decay plots are plotted to aid in the interpretation of the anomaly.

As is a typical practice in UTEM surveys, data from channels 2 to 9 are normalized to the channel 1 data. This is done since the primary field intensity attenuates rapidly with increasing distance from the transmitter loop and thus the secondary field must be normalized to that component (Hz for this survey) of the primary field. In areas where the ground response vanishes at late time, the channel 1 value is a direct measure of the primary field and is used to normalize the value of the earlier time channels. A calculated value of Hz is used to normalize channel 1, but relies on the positions of the loop and the receiver being accurately known. The normalizing scheme used is as follows:

1. Standard normalization (continuously normalized)

   a) for channel 1:

   $$\% \text{ Ch1 anomaly} = \frac{(Ch1-P)}{P} \times 100\%$$

   where Ch1 - measured amplitude for channel
   P = primary field from the loop at that station

   b) for channels 2 to 9:

   $$\% \text{ Chn anomaly} = \frac{(Chn-Ch1)}{Ch1} \times 100\%$$

   where Chn = measured amplitude of channel n (n = 2 to 9)

2. Point normalized plots (normalized to a particular station)

   a) for channel 1:

   $$\% \text{ Ch1 anomaly} = \frac{(Ch1-Pa)}{Pa} \times 100\%$$

   b) for channels 2 to 9:

   $$\% \text{ Chn anomaly} = \frac{(Chn-Ch1a)}{Ch1a} \times 100\%$$

   where Chn - measured amplitude of channel n

   Ch1a = reduced Ch1 value at station 'A'

The standard (continuously normalized) plot provides a qualitative interpretation of the responses across a section line, ie. anomaly location, shape of conductor, approximate depth to top of the conductor and relative background conductivities. The point normalized plots display only the amplitude variation of the secondary field along the line, ie. only the magnetic field from the induced currents in the ground and thus provide a quantitative interpretation. Further quantitative interpretation, such as t's of the conductor, overburden and host rock, are done by means of specialized plots such as decay and time plots.

The UTEM data are plotted in profile form on three separate axes. Channel 1 data are plotted on the bottom axis, channels 2 to 5 on the middle axis, and channels 5 to 9 on the top axis. The channel 5 profiles are plotted on both the middle and top axes as a reference between early and late time channels since it is usually necessary to plot them on different vertical scales.

DISCUSSION OF RESULTS

Several anomalies resulted from the survey, but with only one apparently related to a bedrock source. The remainder are apparently due to conductive overburden. The bedrock anomaly, detected across the southern end of lines 18E to 30E at about 1400S, has a conductivity-width of 15-20 mhos and a depth of about 50 metres. This anomaly has been previously drill tested, intersecting graphite in felsic fragmentals and thus warrants no further investigation. A possible extension of this bedrock anomaly on lines 51E and 54E at about 1650S was further tested by loop 310, placed to the south of the anomaly. This test produced no anomaly and indicated that the anomaly is not a dyke-like bedrock body, but an edge of a flat-lying feature, probably conductive overburden.

The numerous other anomalies show typical overburden responses, ie. anomalous in only the earliest channels (9,8 and 7) which can be related to high frequency and hence low conductivity, and are quite shallow (50 metres). These anomalies have conductivity widths of less than 10 mhos. Such responses can result from a thickening of conductive overburden in a bedrock trough, or an accumulation of conductive clays in the overburden.

CONCLUSIONS AND RECOMMENDATIONS

A conductive massive sulphide body of the Kidd Creek type does not occur on the property, since such a deposit would have a t value of greater than 50 mhos. Even with the 300 meter line spacing, this system would detect the presence of such a feature.

Submitted by: R.W. Holroyd

R.W. Holroyd
Geophysicist
Exploration, E.D.

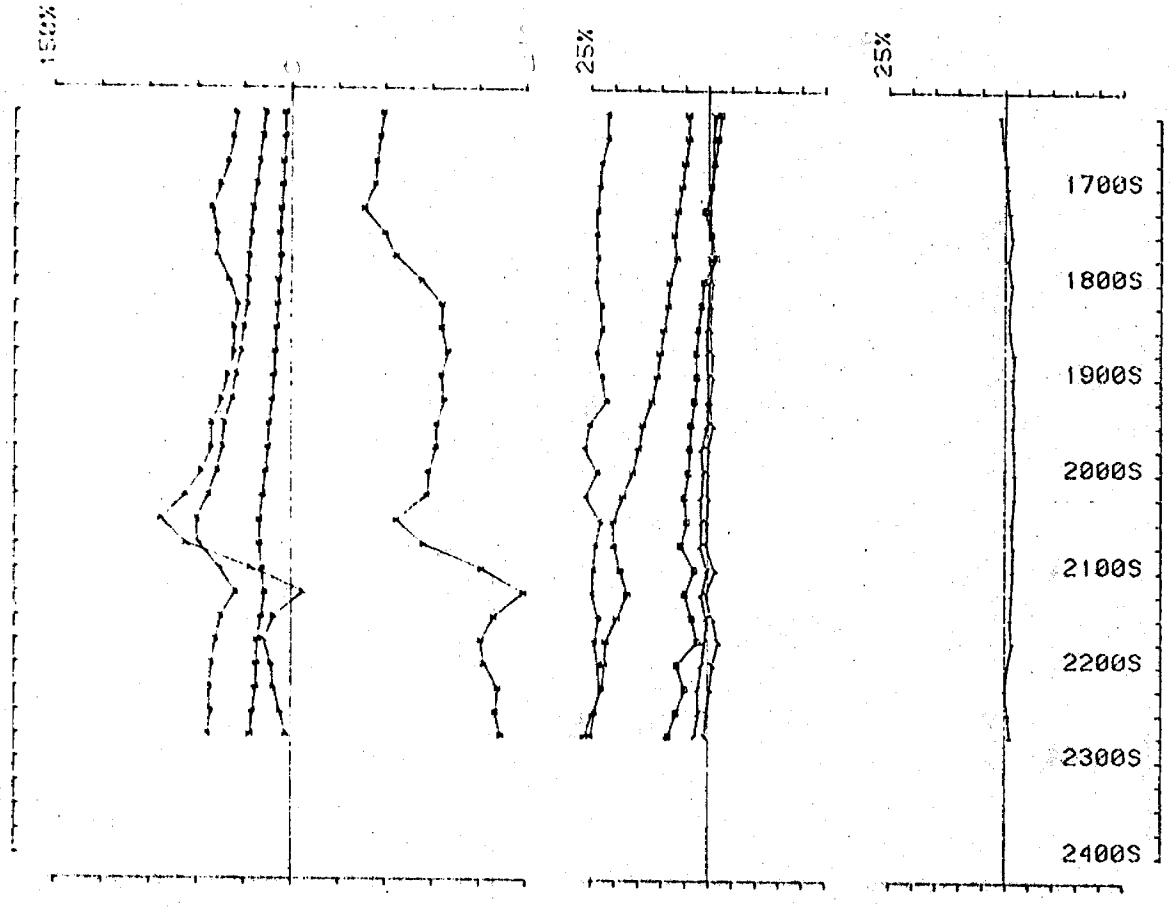
Endorsed by: R.B. Cook

R.B. Cook
Assistant Manager
Exploration, E.D.

Distribution:

Government .... (2)
Toronto Files . (1)

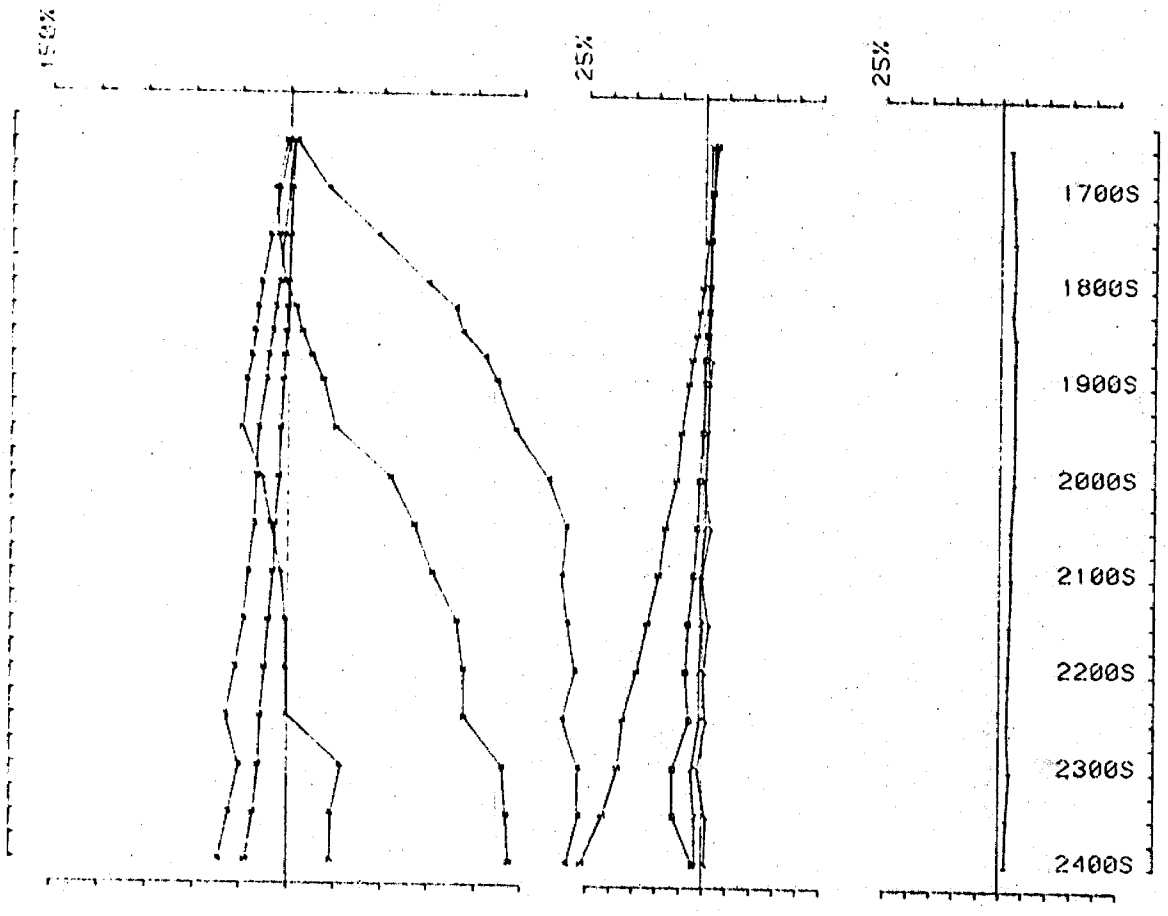
/ml



Area DUN Cominco Ltd operator B&K&T freq(hz) 30.496
Loopno 0301 Line 8100E component Hz secondary Ch 1 normalized

K. St. Holroyd

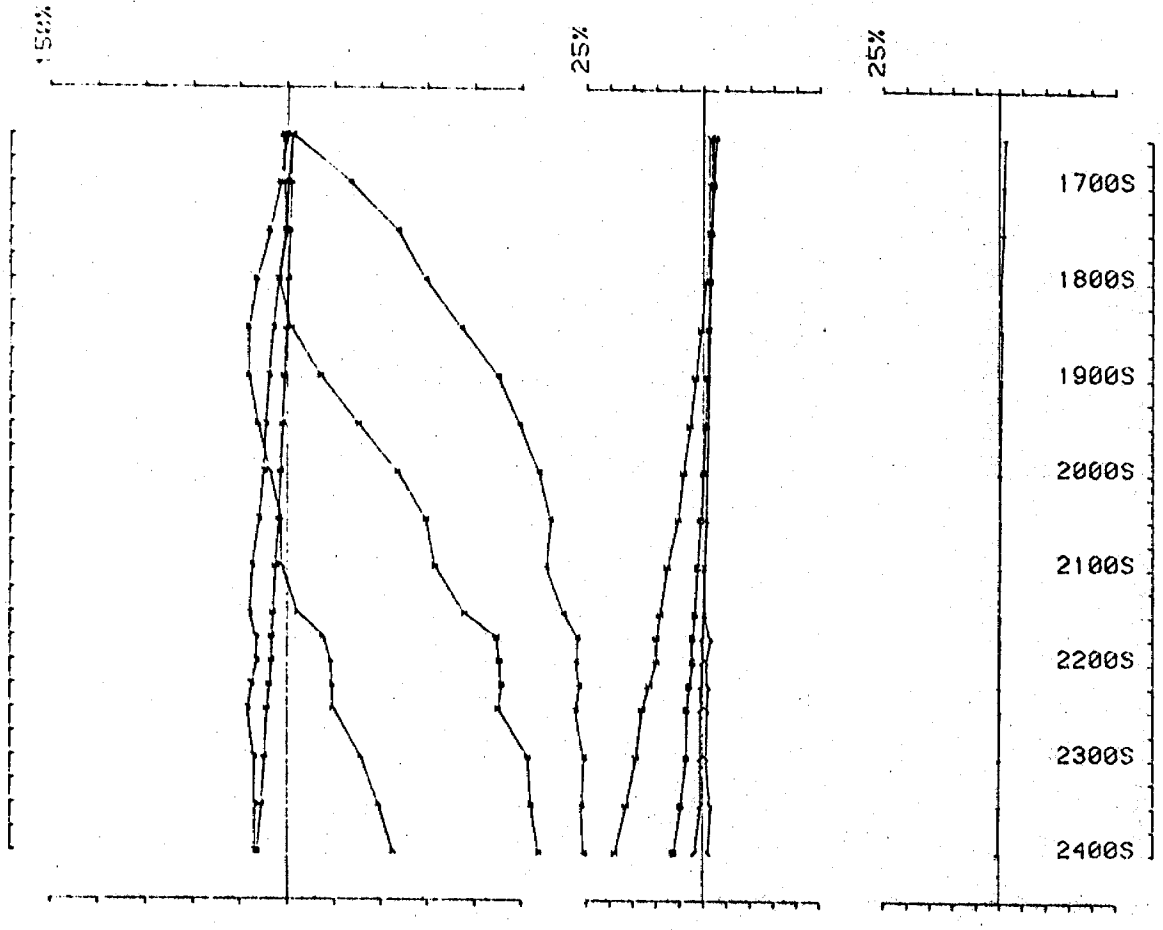
PLATE 3



Area DUN Cominco Ltd operator B&K&T freq(hz) 30.496
Loopno 0301 Line 7800E component Hz secondary Ch 1 normalized

R. St. Holroyd

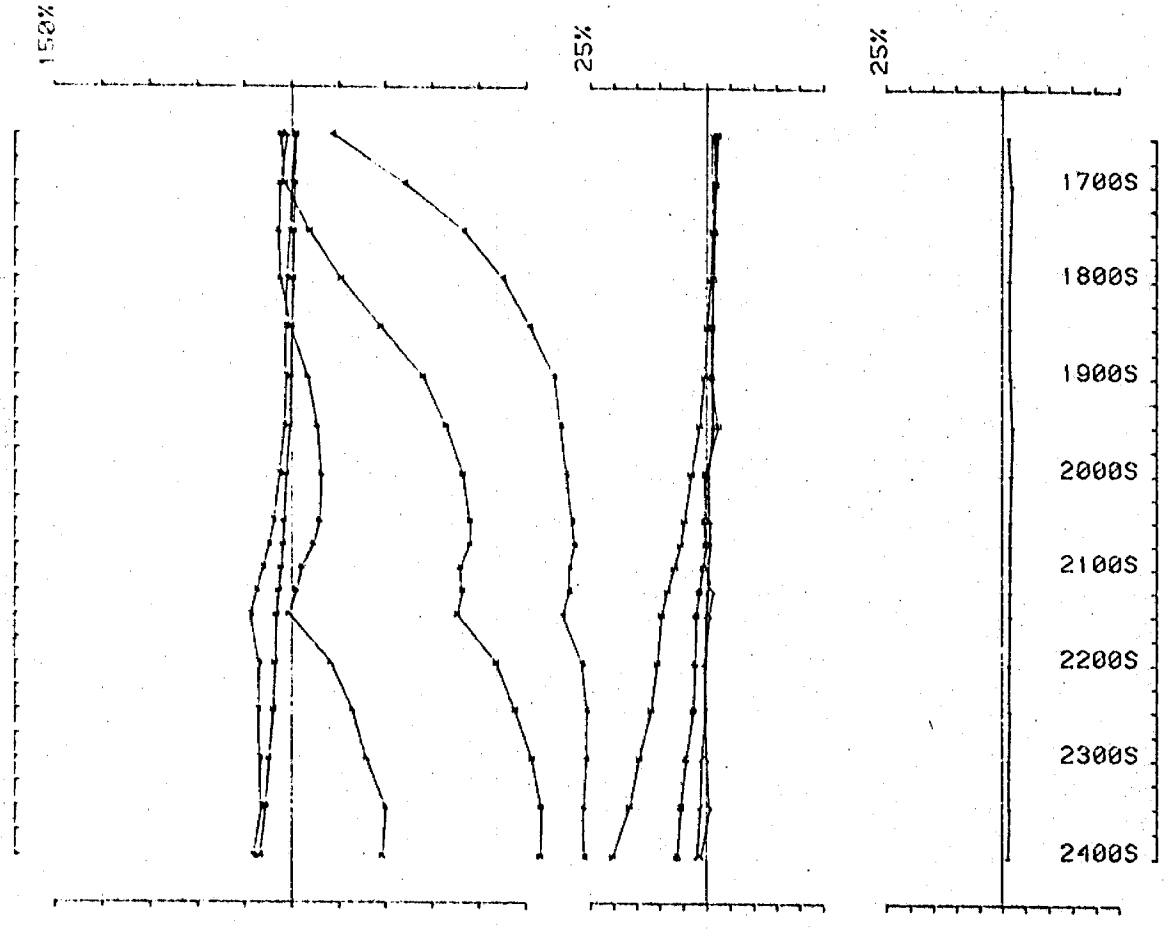
PLATE 4



Area Duri Cominco Ltd. operator B&K freq(hz) 30.496
Loop no 0301 Line 7500E component Hz secondary Ch I normalized

K. H. Holroyd

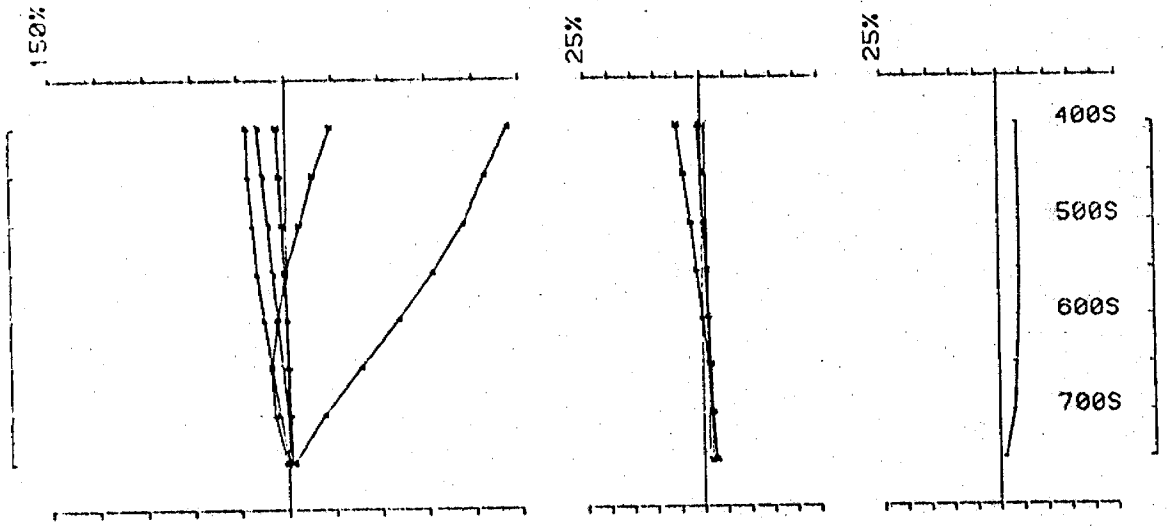
PLATE 5



Area Dun Cominco Ltd. operator B&K freq(hz) 30.496
Loop no 0301 Line 7200E component Hz secondary Ch 1 normalized

R. St. Holroyd

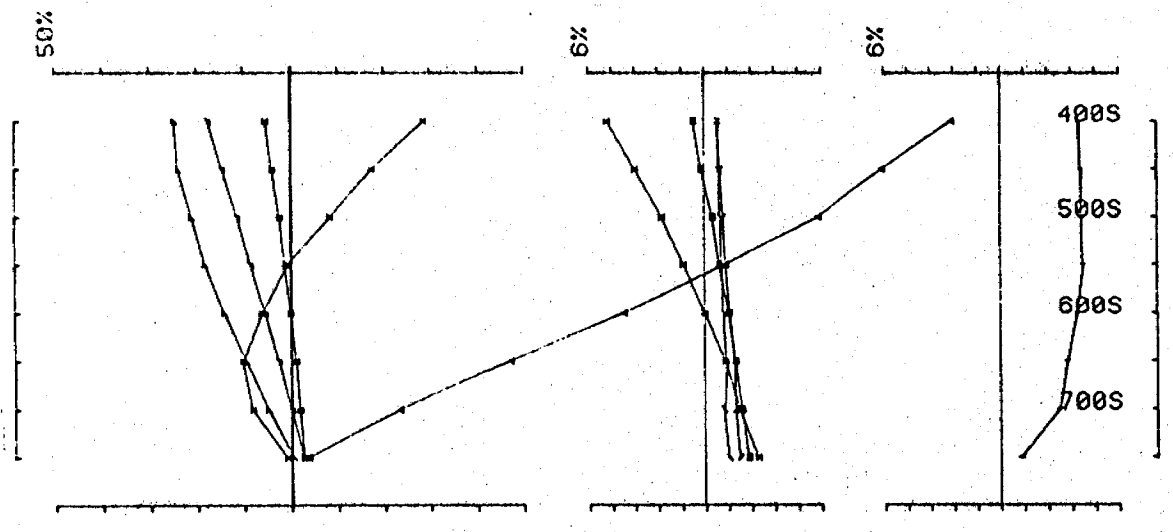
PLATE 6



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0301 Line 7800E component Hz secondary Ch 1 normalized

R. H. Holroyd

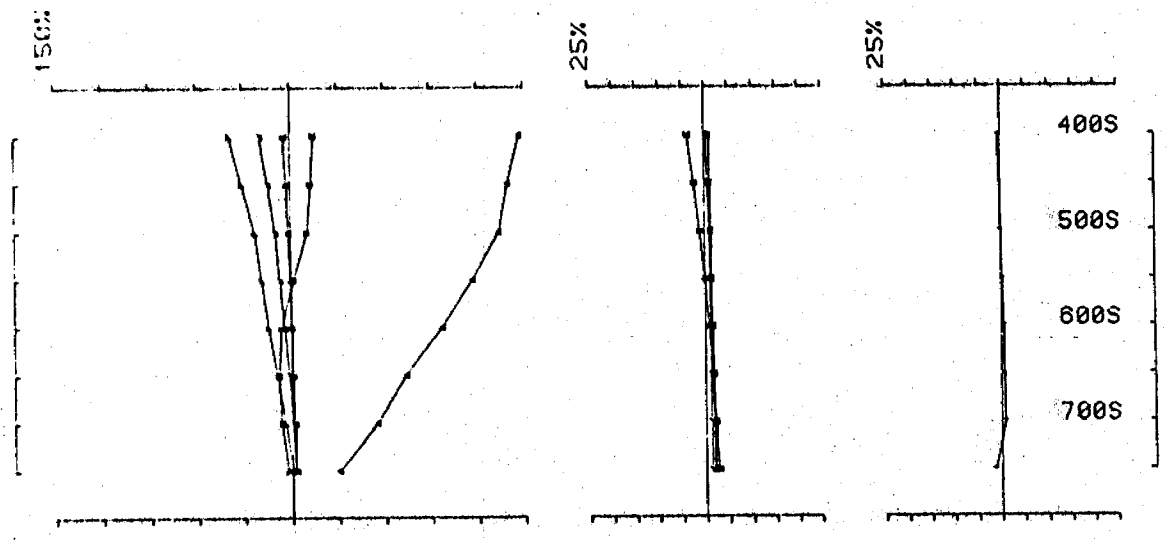
PLATE 7a



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0301 Line 7800E component Hz secondary Ch 1 normalized

R. St. Holroyd

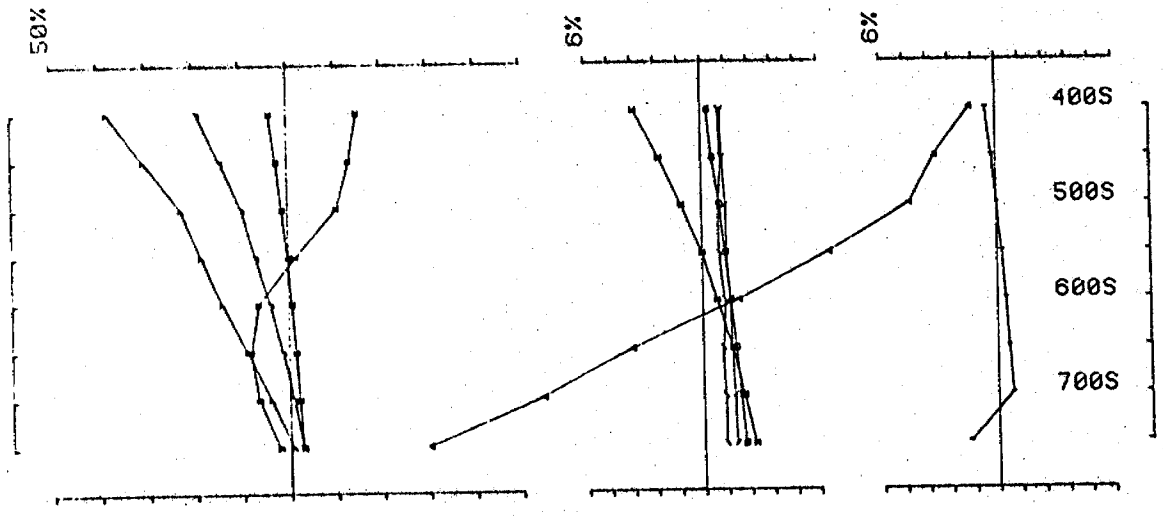
PLATE 7b



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0301 Line 7500E component Hz secondary Ch 1 normalized

R.H. Holroyd

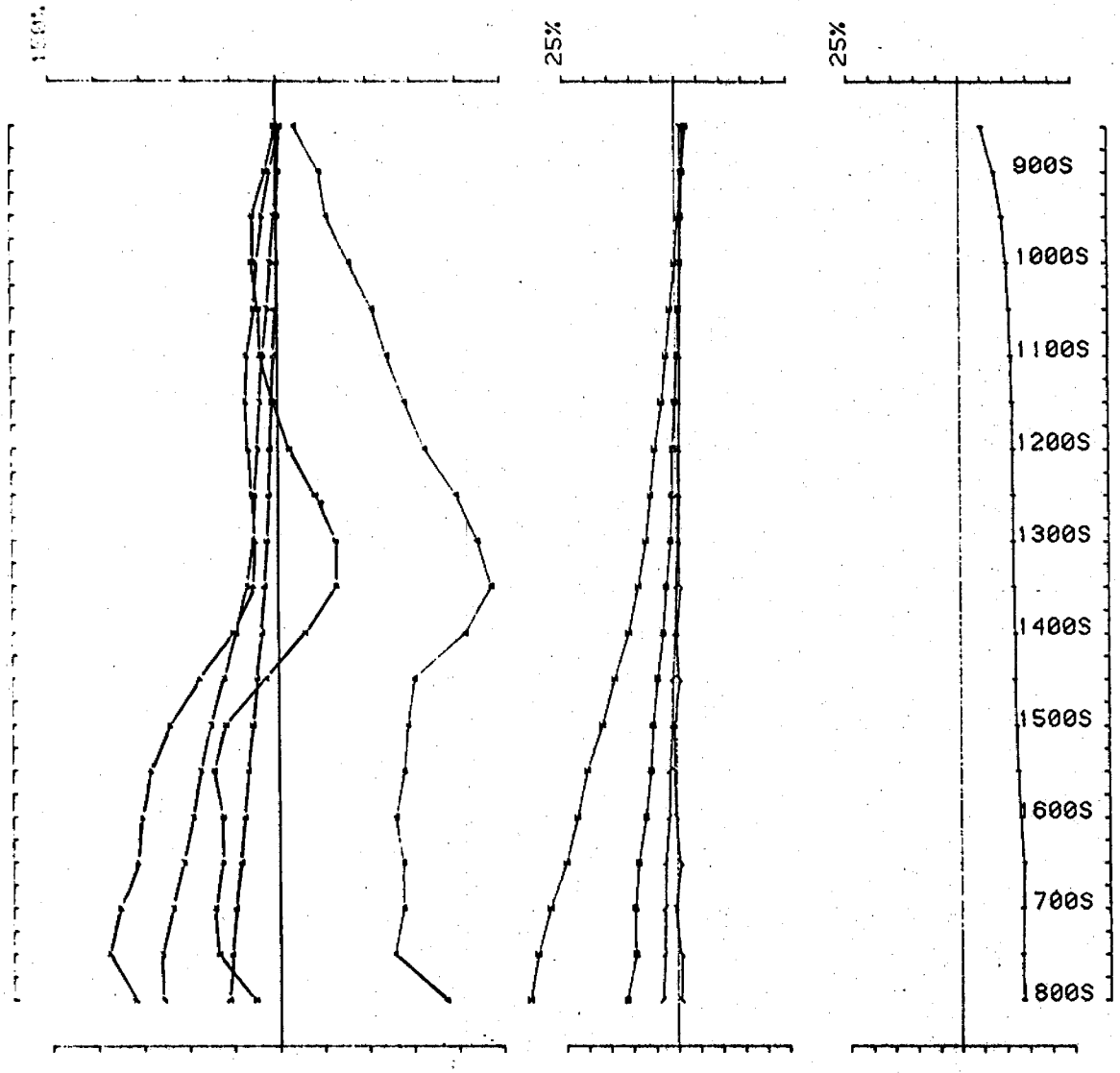
PLATE 8a



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0301 Line 7500E component Hz secondary Ch 1 normalized

R. H. Halcroyd

PLATE 8b

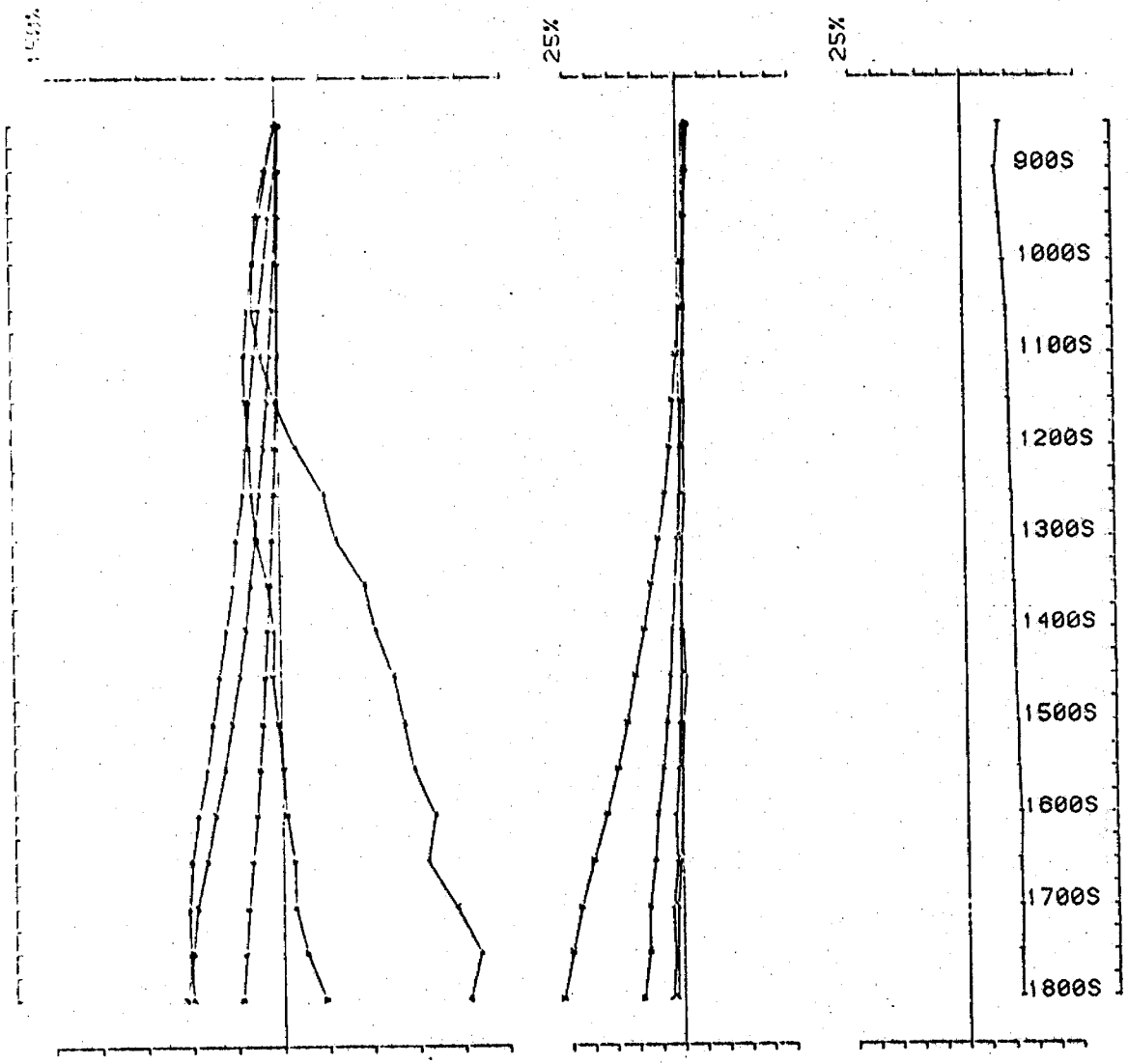


Area DUN Cominco Ltd. operator B&K freq(hz) 30.496

Loopno 0302 Line 8100E component Hz secondary Ch 1 normalized

R.H. Holroyd

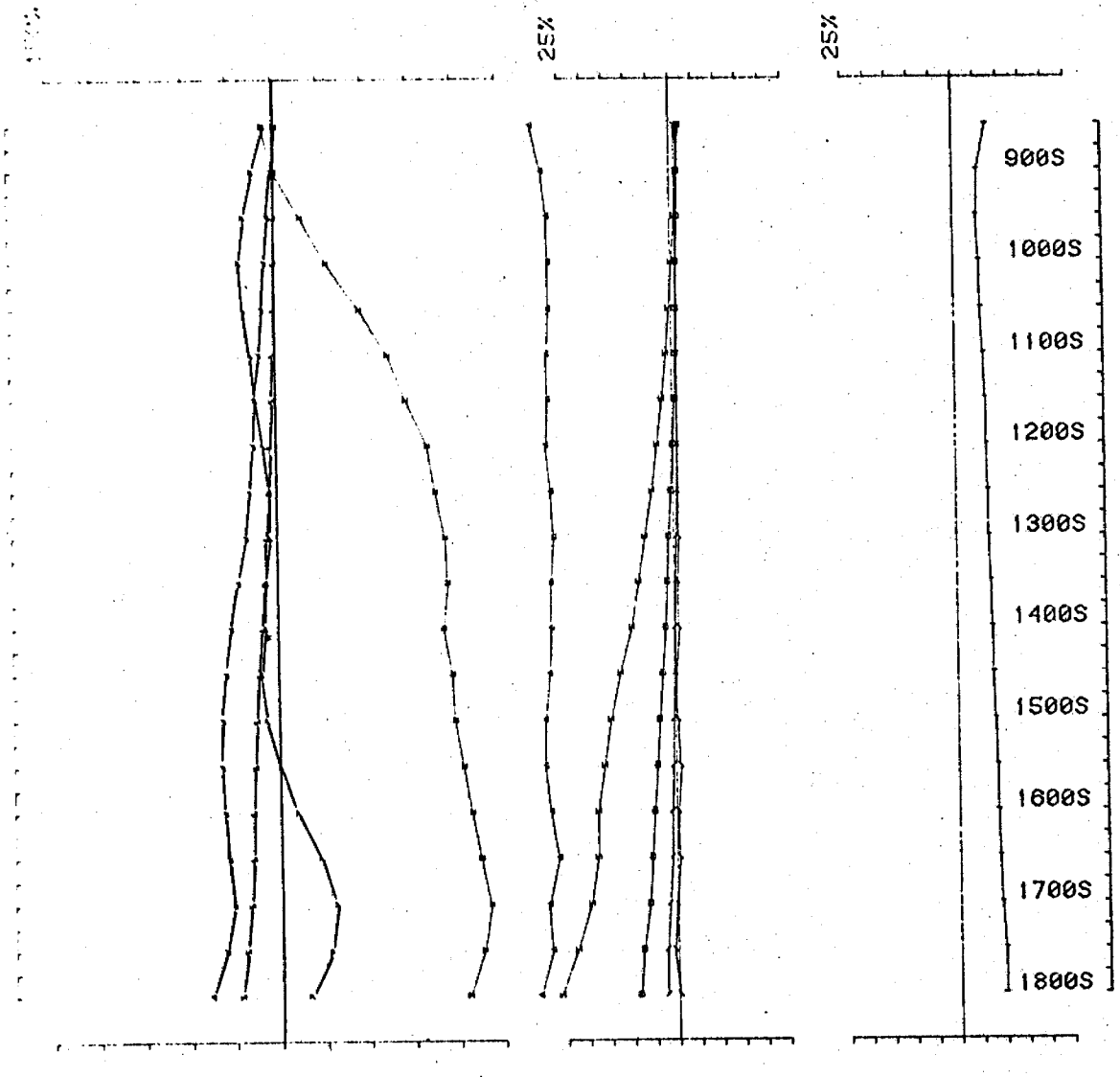
PLATE 9



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0302 Line 7800E component Hz secondary Ch 1 normalized

R. H. Holroyd

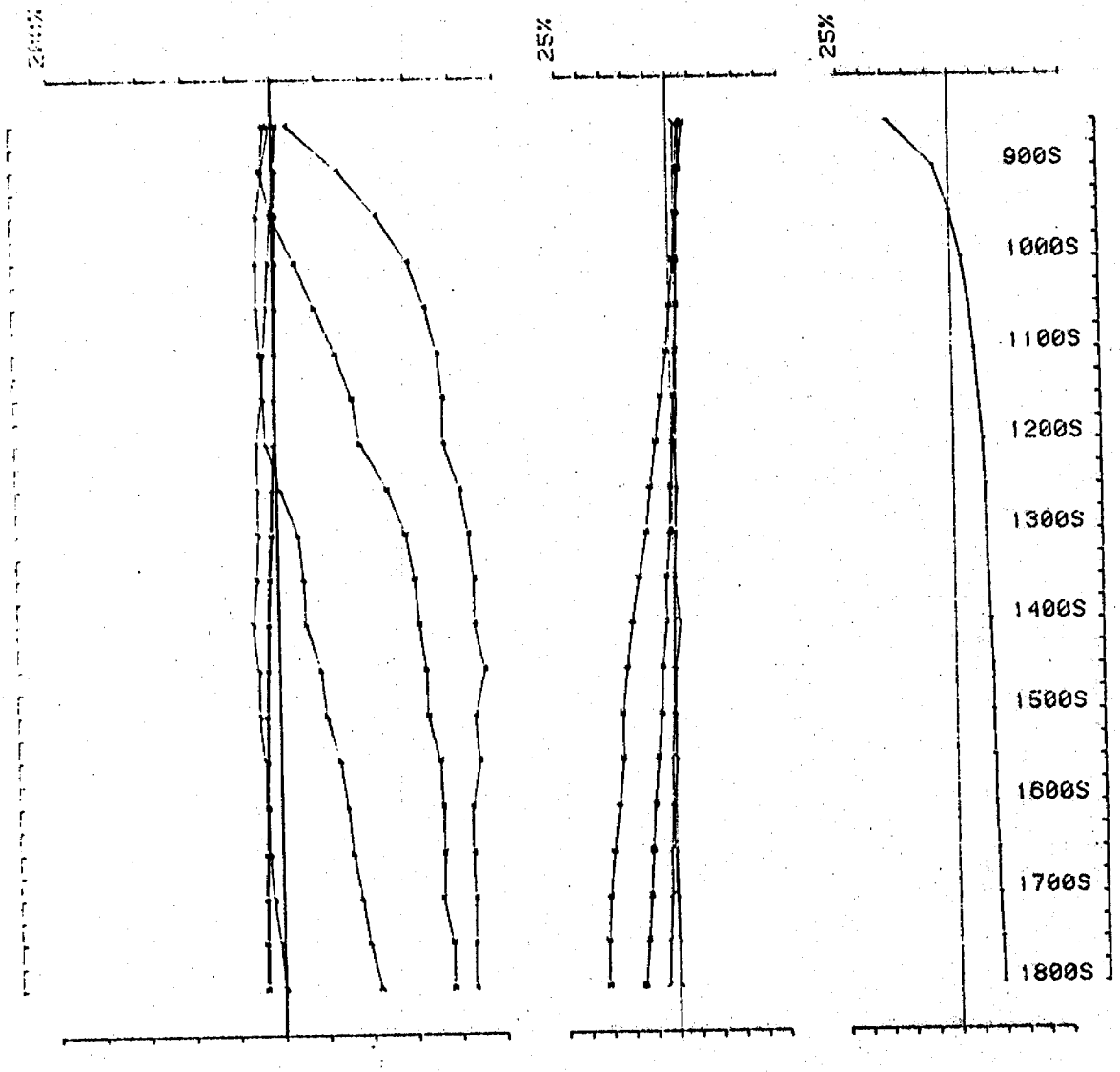
PLATE 10



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0302 Line 7500E component Hz secondary Ch 1 normalized

R. H. Holroyd

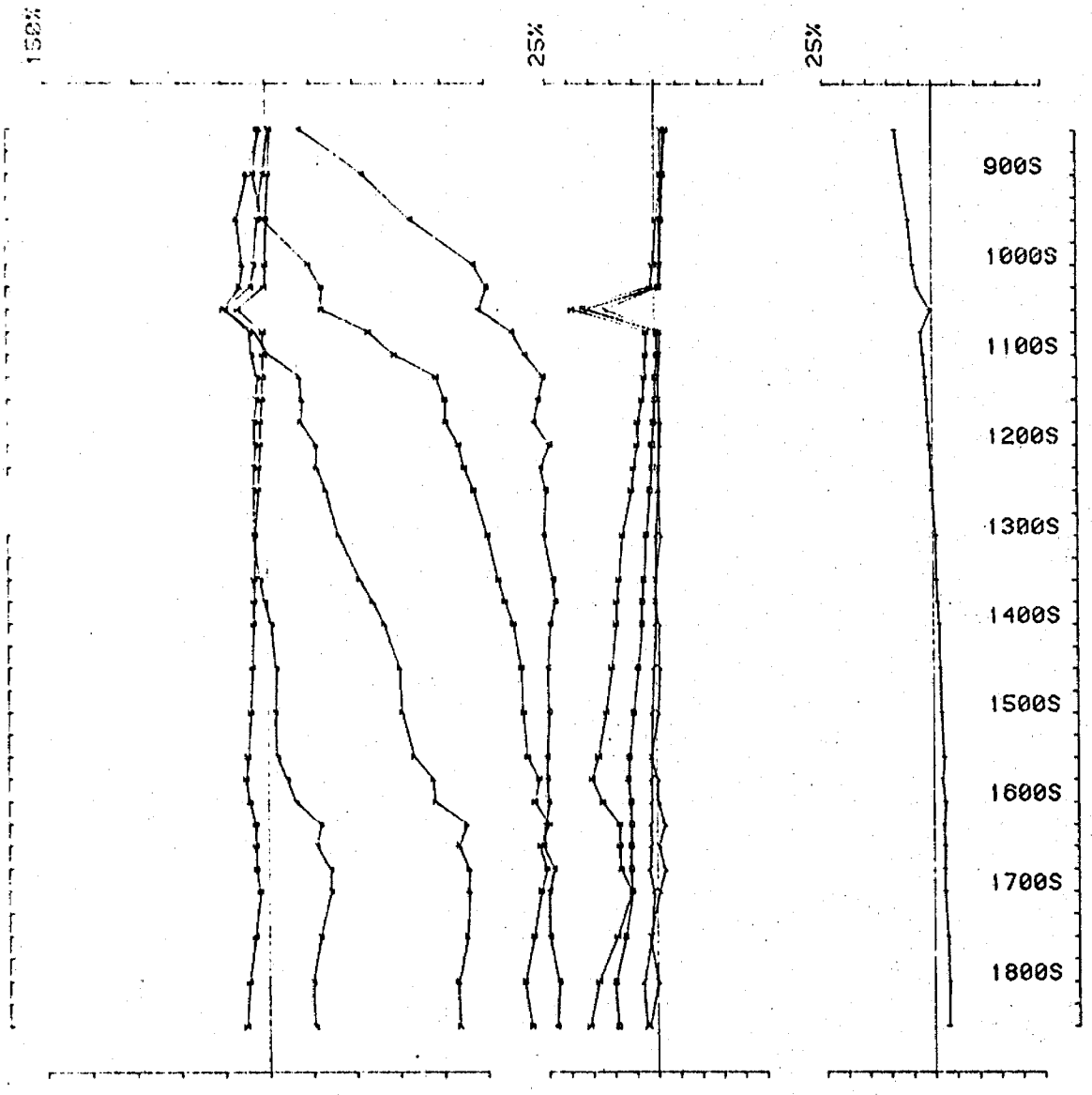
PLATE 11



Area DUN Cominco Ltd. operator K&B freq(hz) 30.496
Loopno 0302 Line 7200E component Hz secondary Ch 1 normalized

R. H. Holroyd

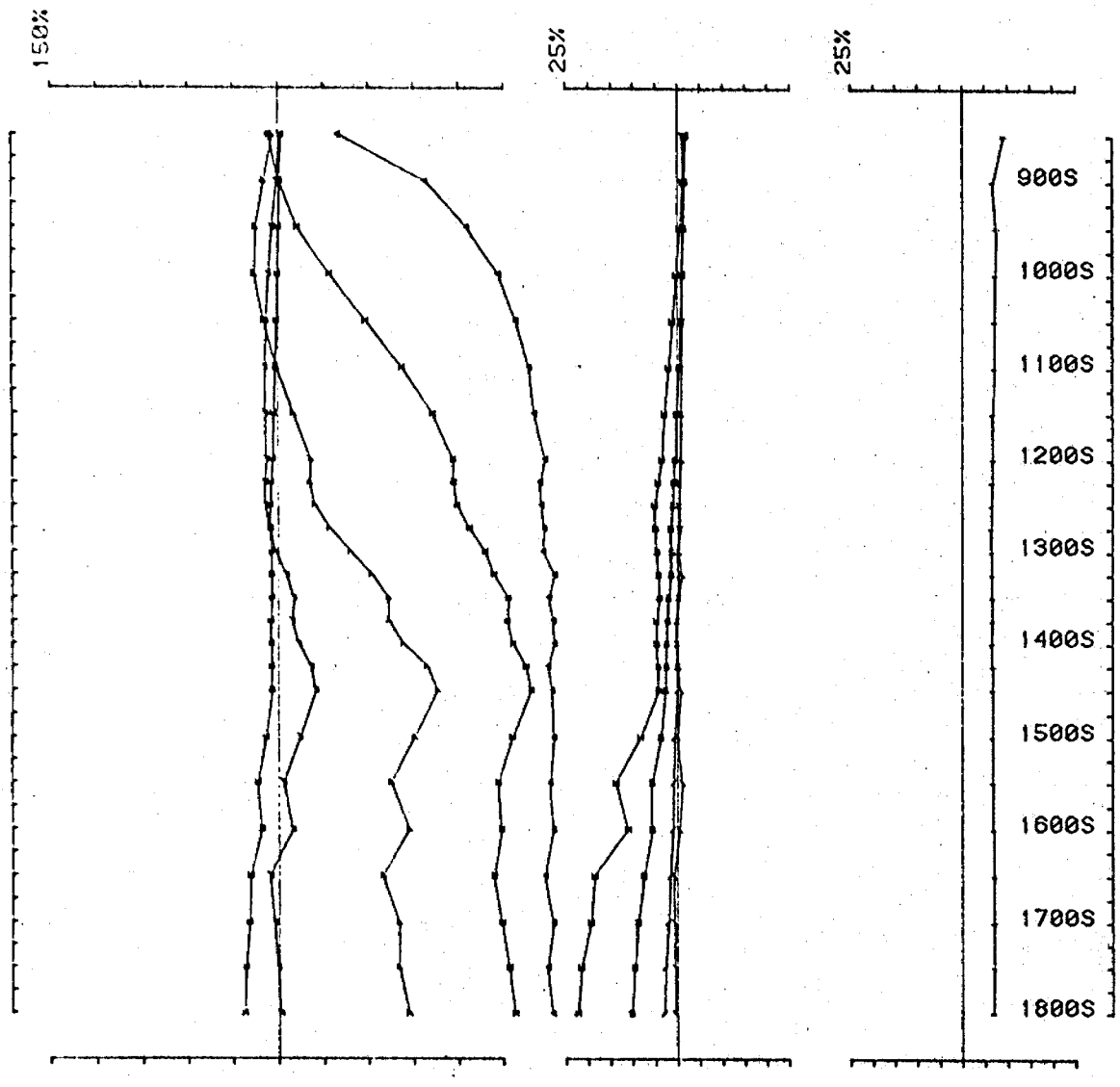
PLATE 12



Area DUN Cominco Ltd. operator B&K freq(hz) 30,496
Loopno 0303 Line 6900E component Hz secondary Ch 1 normalized

R. H. Holroyd

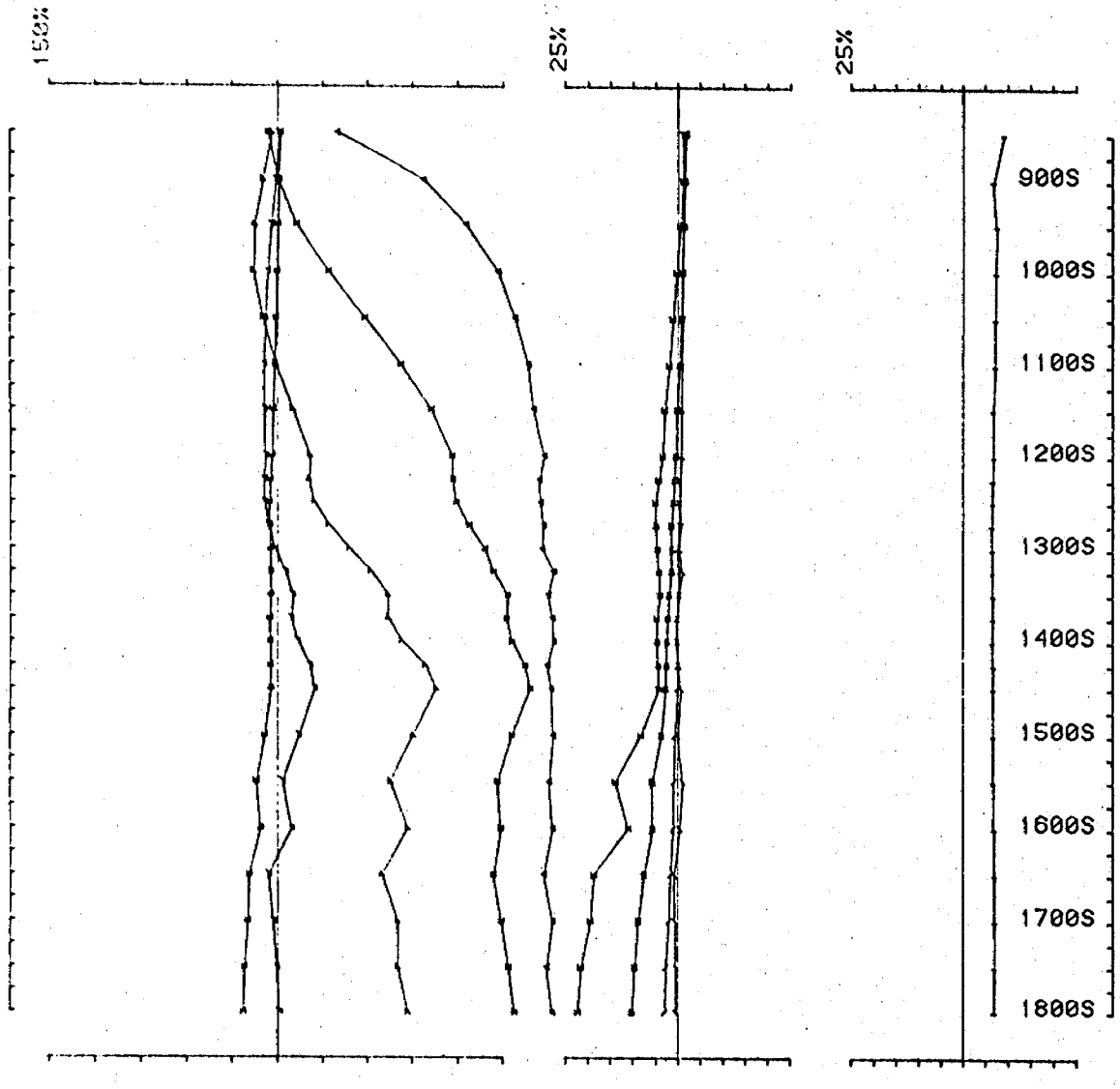
PLATE 13



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0303 Line 6600E component Hz secondary Ch 1 normalized

R.St. Holroyd

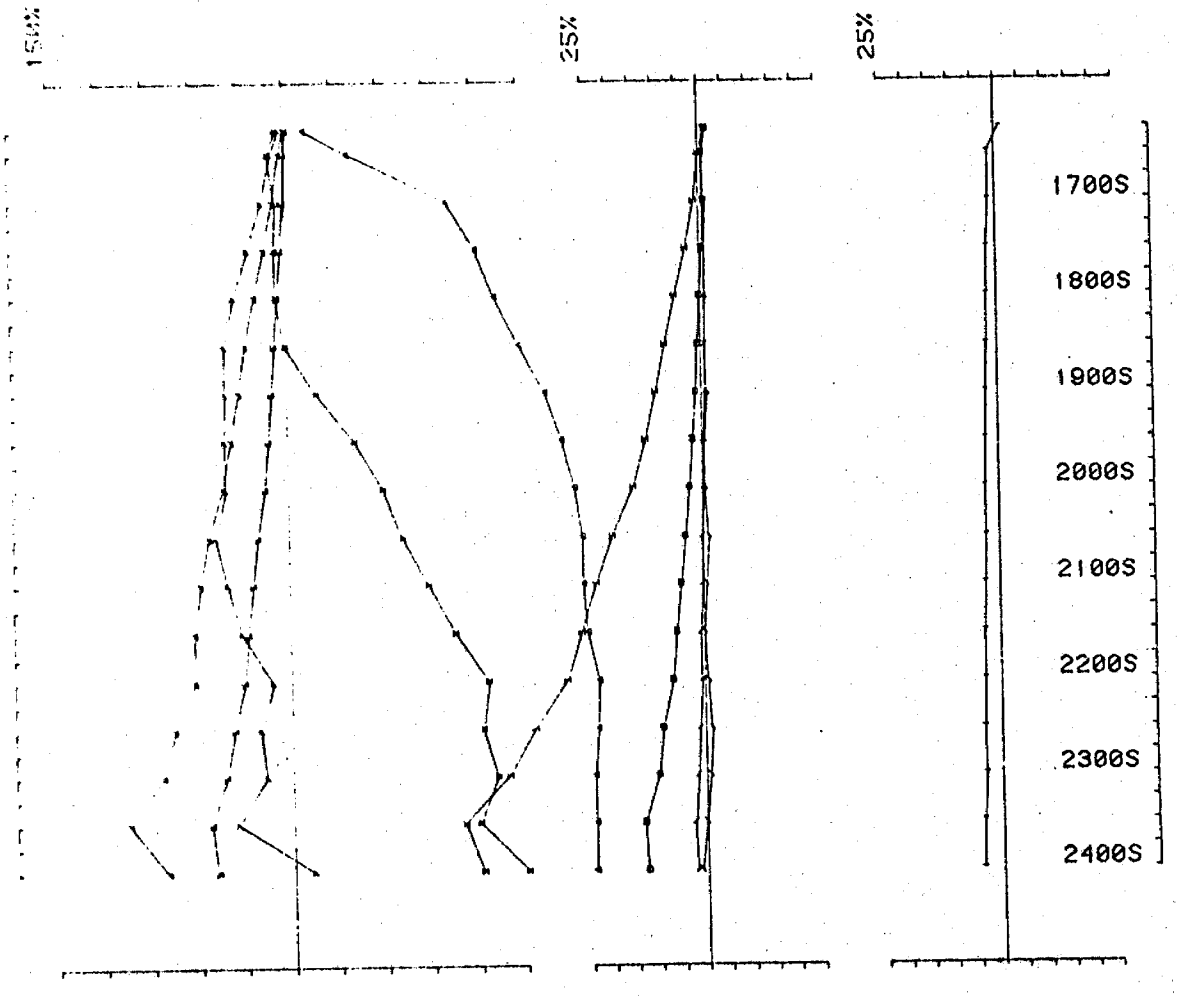
PLATE 14



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0303 Line 6600E component Hz secondary Ch 1 normalized

R. St. Holroyd

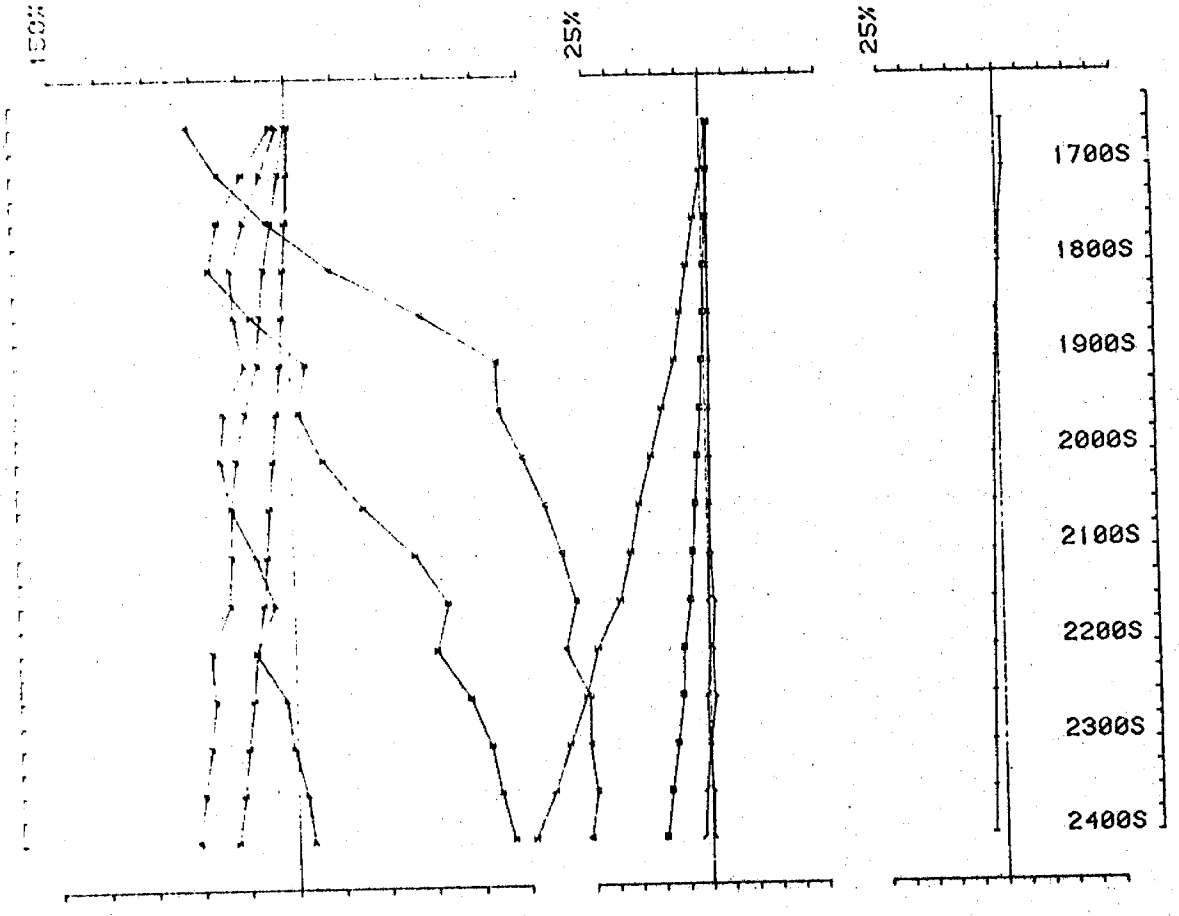
PLATE 14



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0304 Line 6900E component Hz secondary Ch I normalized

R. St. Holroyd

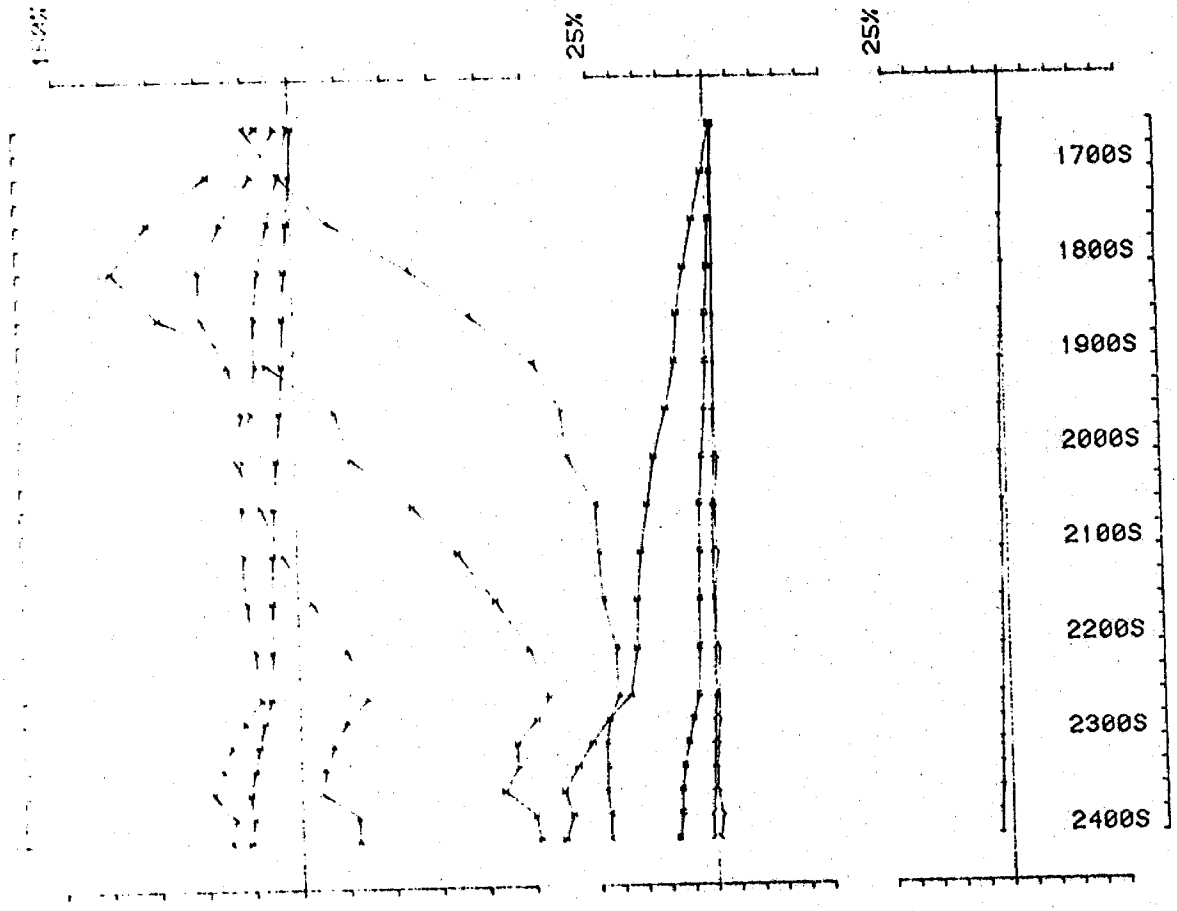
PLATE 15



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0304 Line 6600E component Hz secondary Ch 1 normalized

R. H. Holroyd

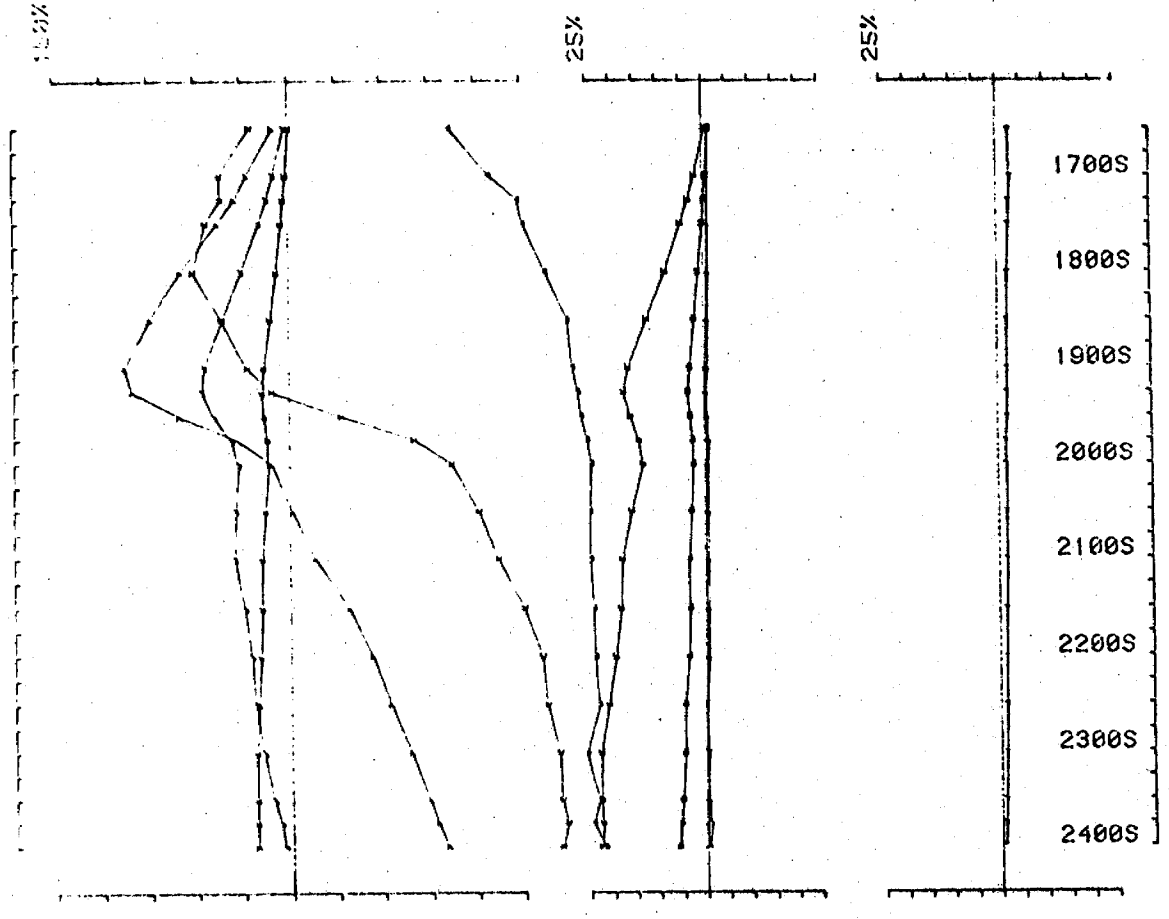
PLATE 16



Area DUN Cominco Ltd. operator K&B freq(hz) 30.496
Loopno 0304 Line 6300E component Hz secondary Ch 1 normalized

R. H. Holroyd

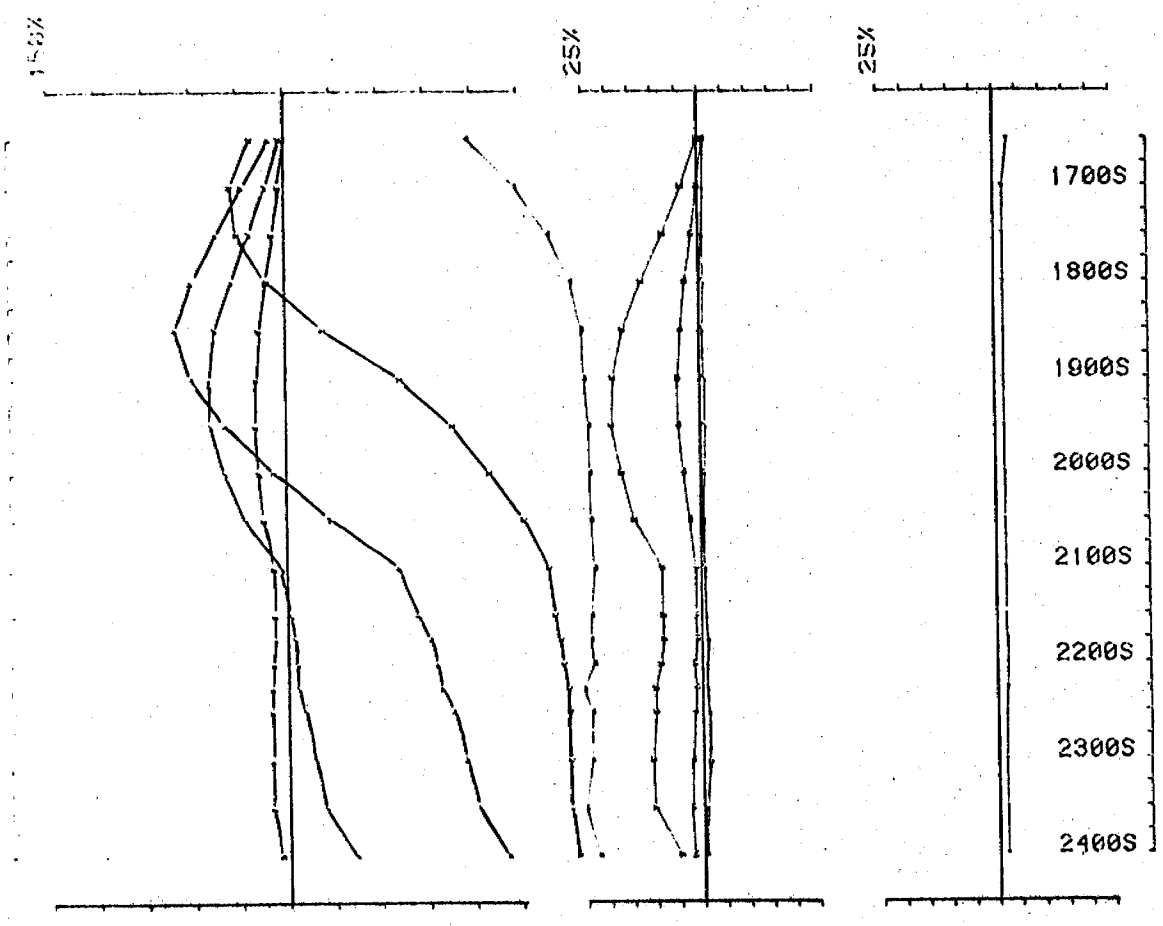
PLATE 17



Area DUN Coulnco Ltd. Operator K&B Freq(Hz) 30.496
Loop: 0304 Line 6000E Component Hz Secondary Ch 1 normalized

R. H. Holroyd

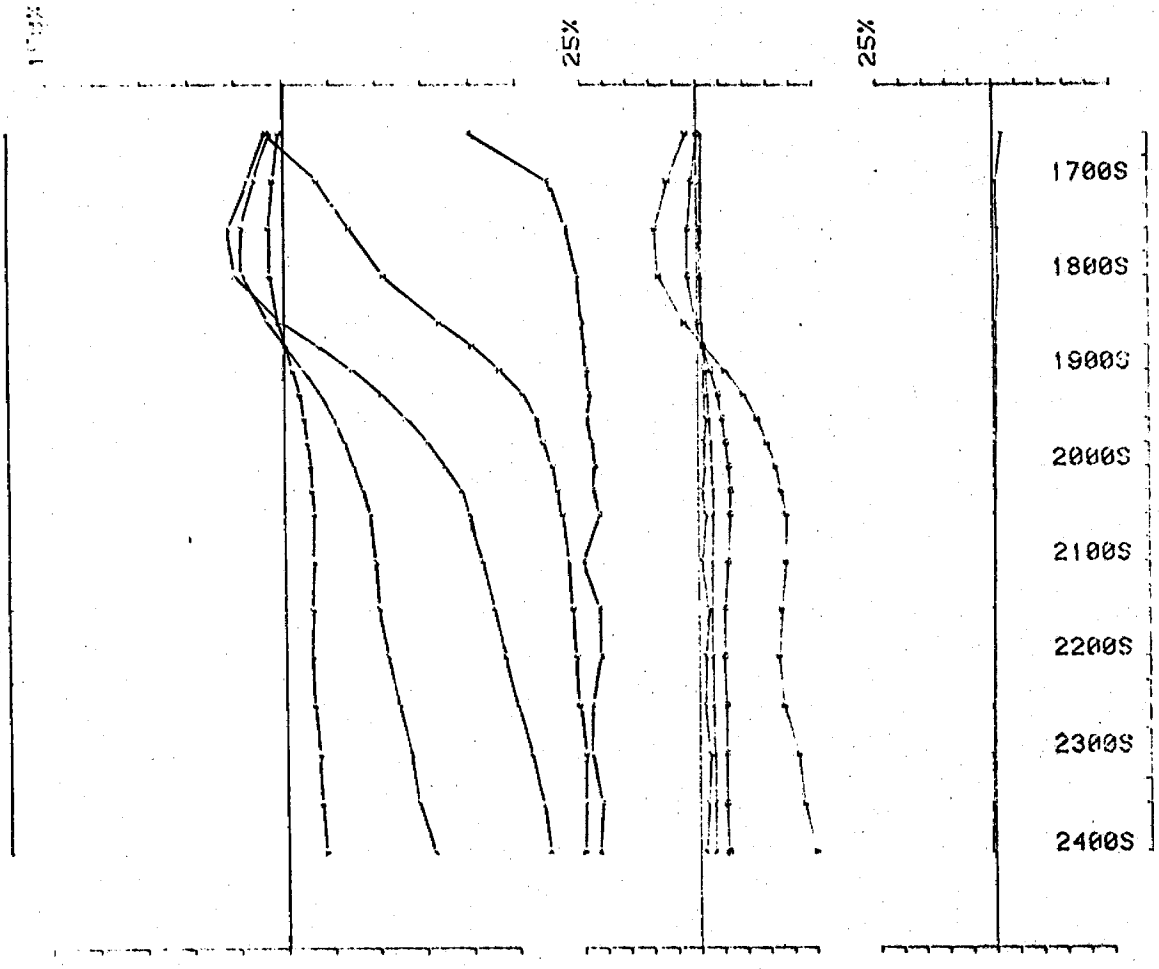
PLATE 18



Area DUN Contact Ltd. Operator K&B Freq(Khz) 30.498
Loop 0304 Line 5700E Component Hz Secondary Ch 1 normalized

R. H. Holroyd

PLATE 19

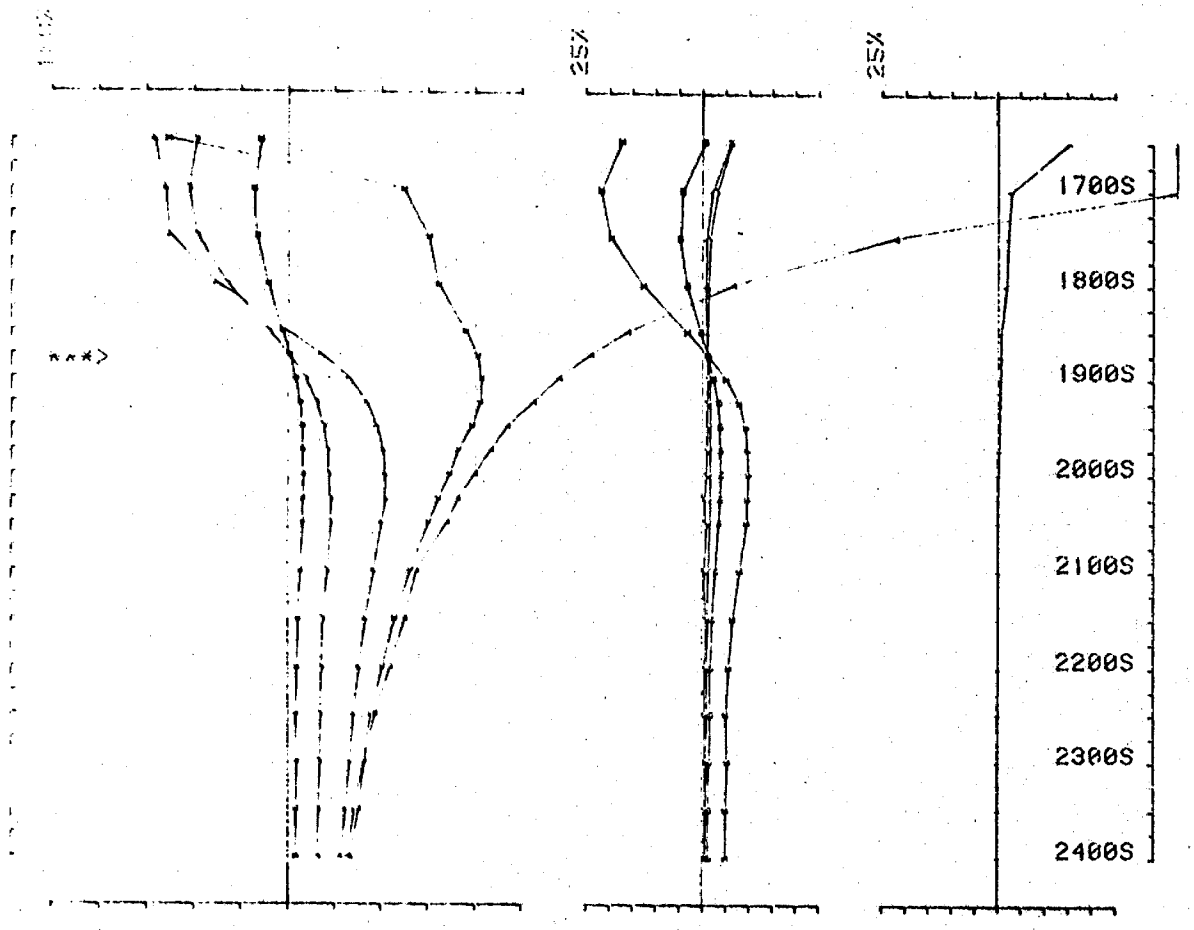


Area DUN Coalinco Ltd. operator B&K freq(hz) 30.496

Loop# 0304 Ltn. 5400E component Hz secondary Ch 1 normalised

K. St. Holroyd

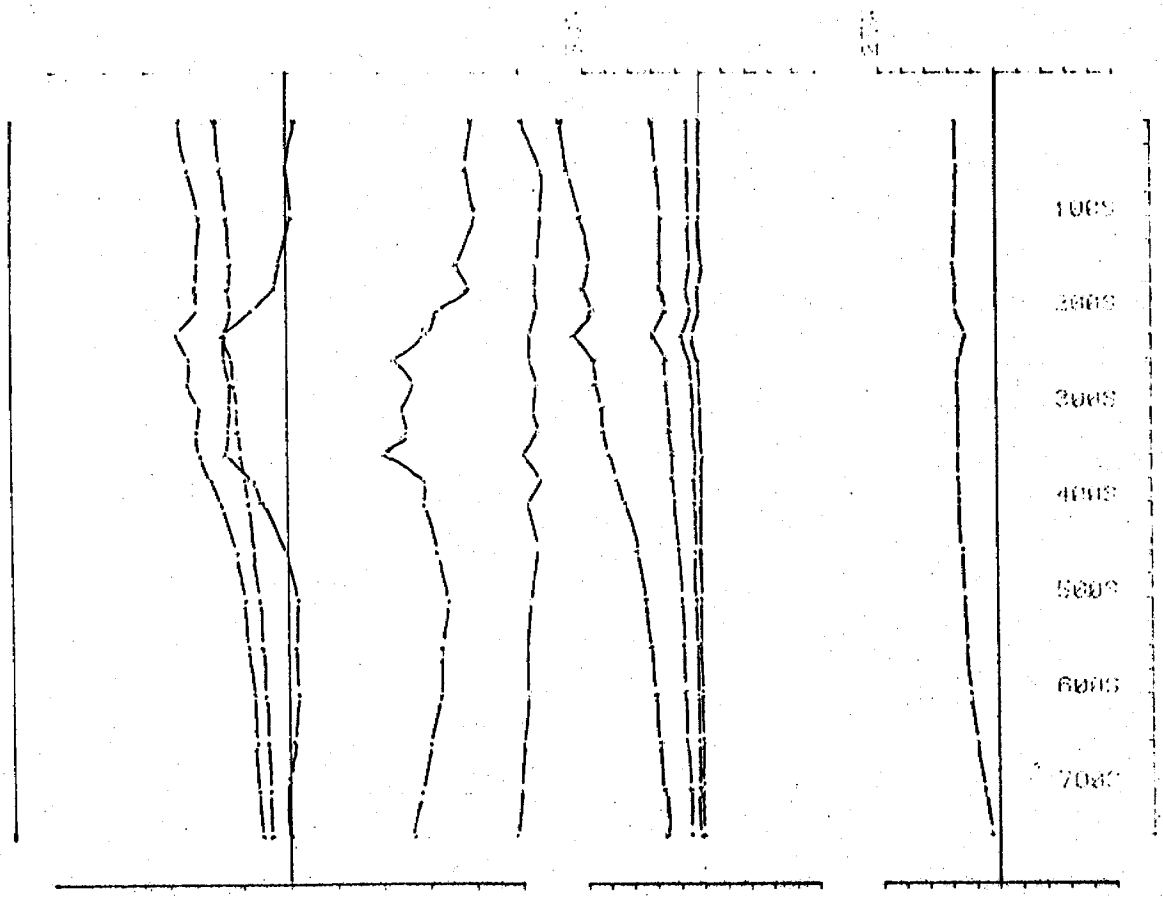
PLATE 20a



Area DUN Cominco Ltd. Crone B&K Freq(Hz) 30.496
Line 0304 Line S400E Interval Hz Boundary Gain normalized

R. St. Holroyd

PLATE 20b

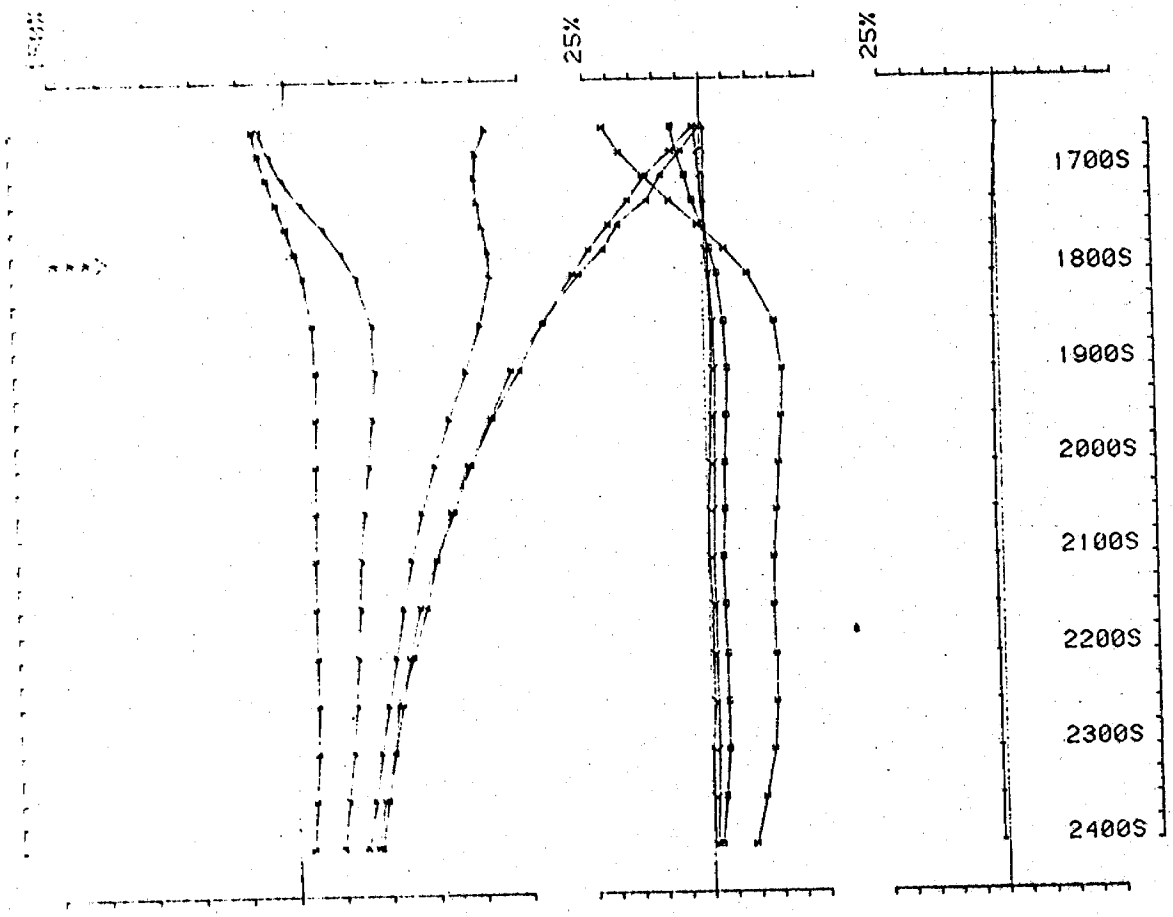


Area DUN 30.496

Loopno. 0304 Line 3100E

L. St. Holroyd

PLATE 21a



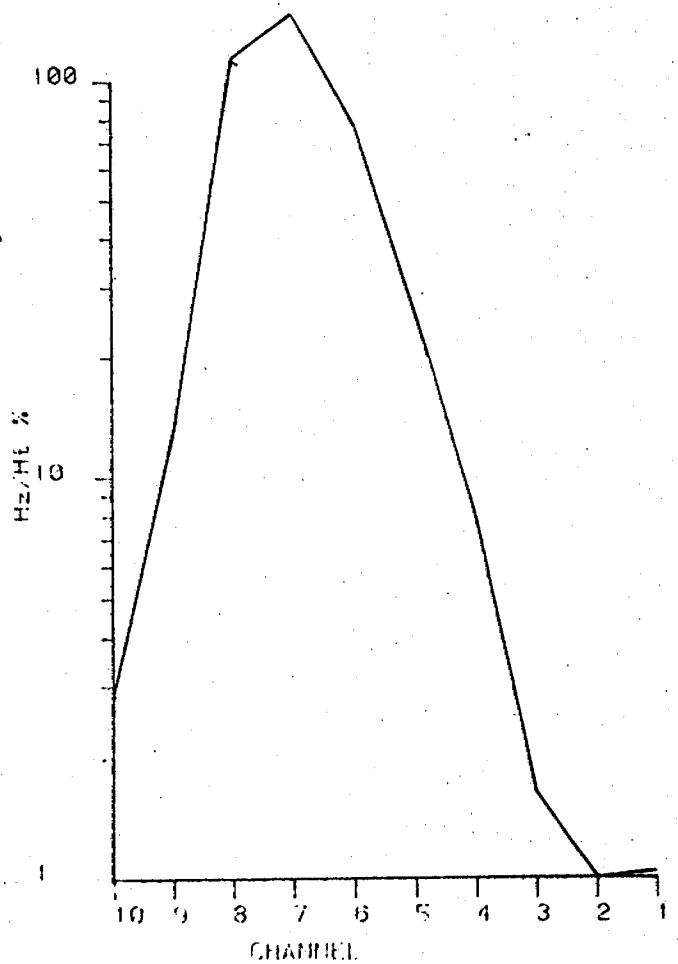
Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0304 Line 5100E component Hz secondary Ch 1 normalized

R. H. Holroyd

PLATE 21b

R.M. Holroyd

DECAY peak to peak
Area DUN Cominco Ltd. operator B&K
freq(hz) 3.049598E1 Loopno 0304
Line 5400E station 1900 component Hz



DECAY peak to peak
Area DUN Cominco Ltd. ope
freq(hz) 3.049598E1 Loopno 03
Line 5100E station 1775S comp.

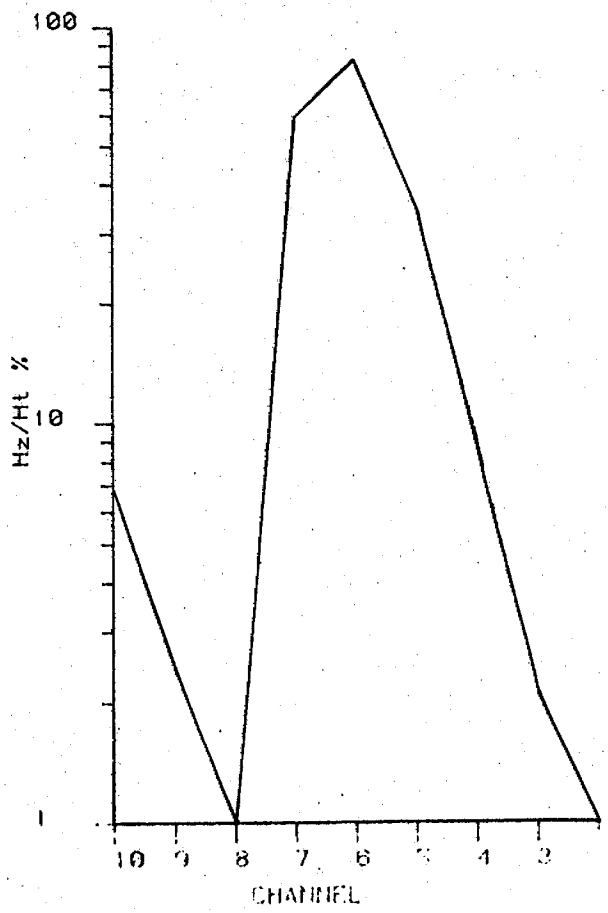
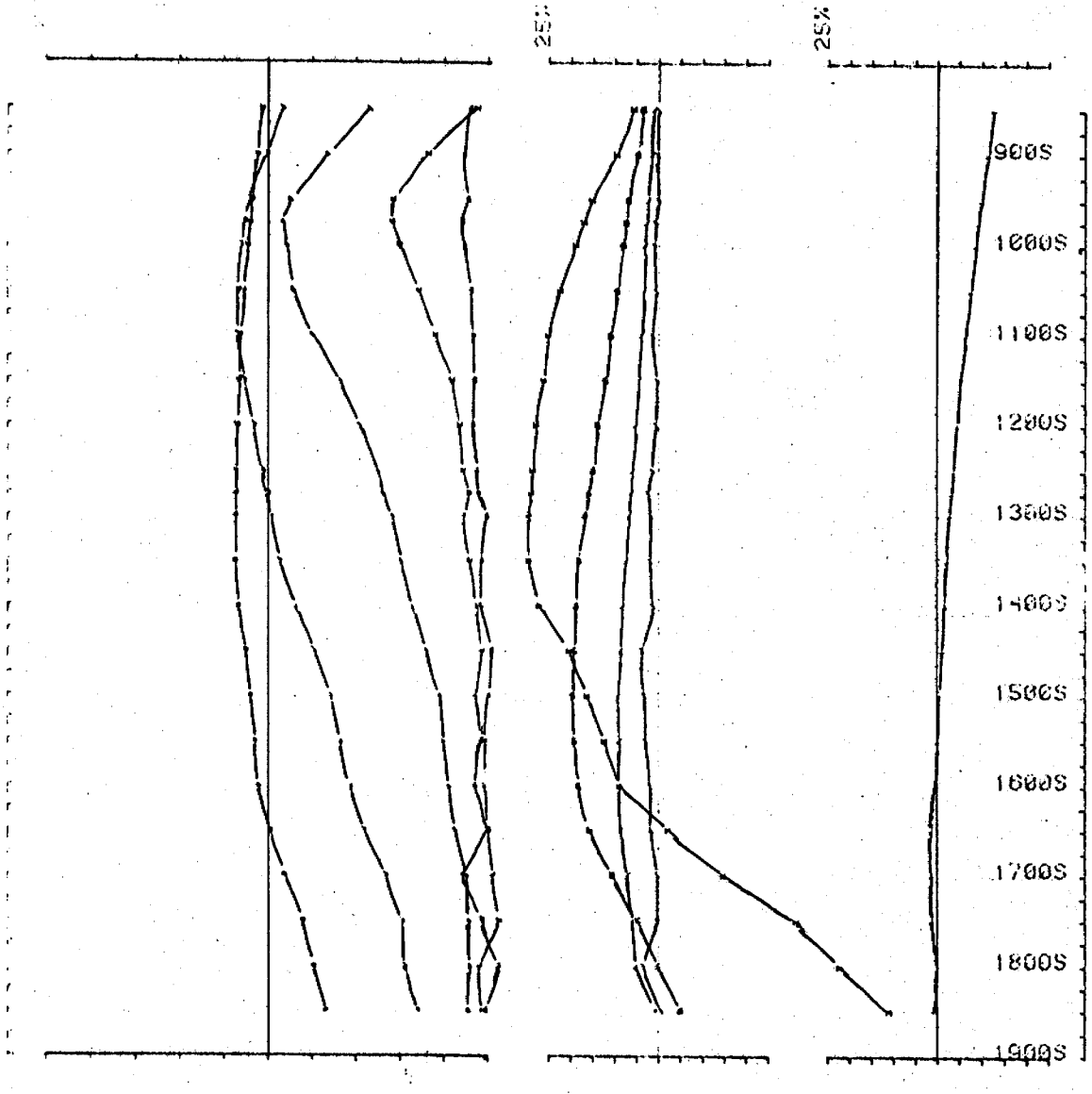


PLATE 22

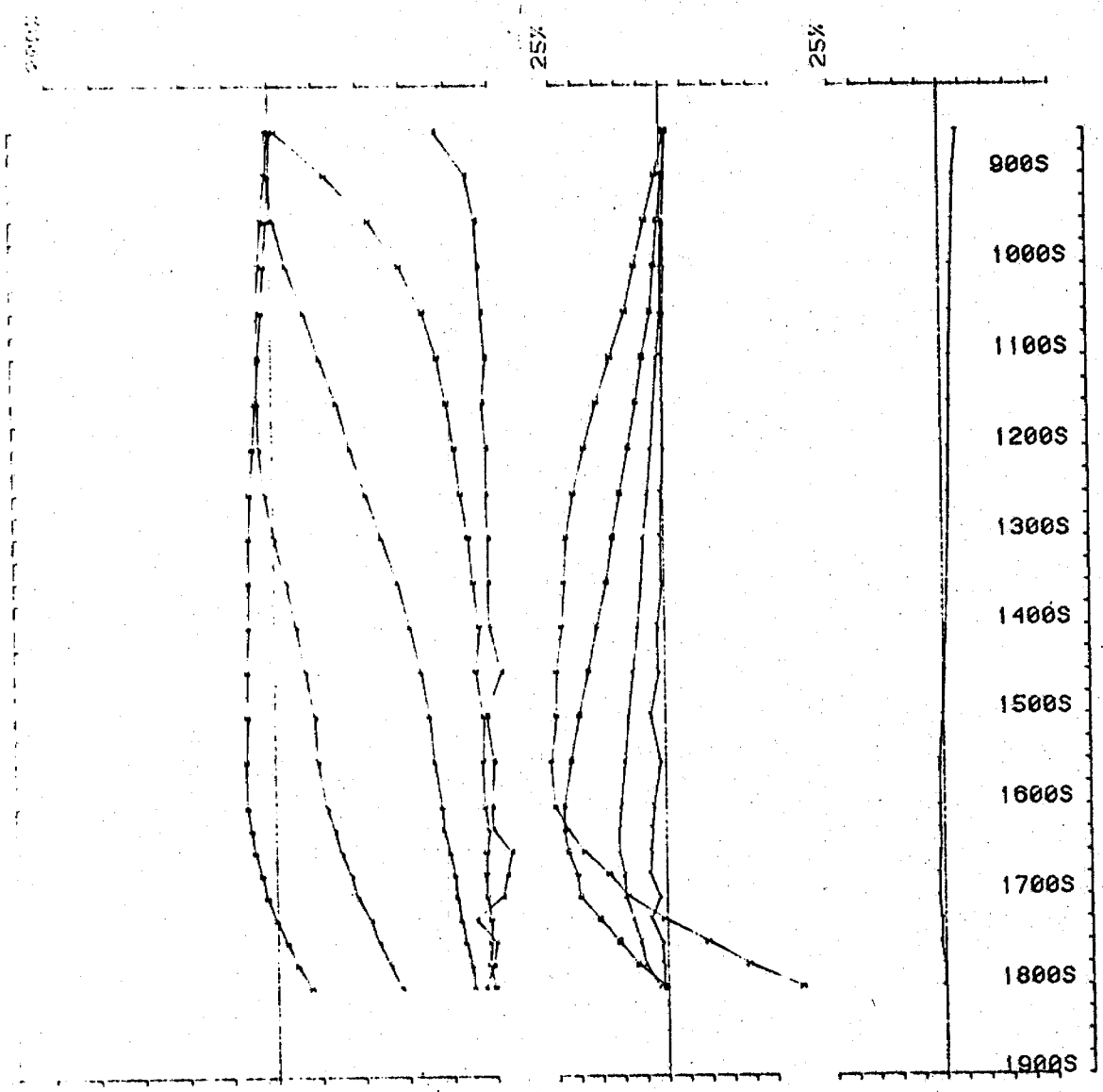


K&B 30,498

Loopno 030S Line 5400E

R. St. Halroyd

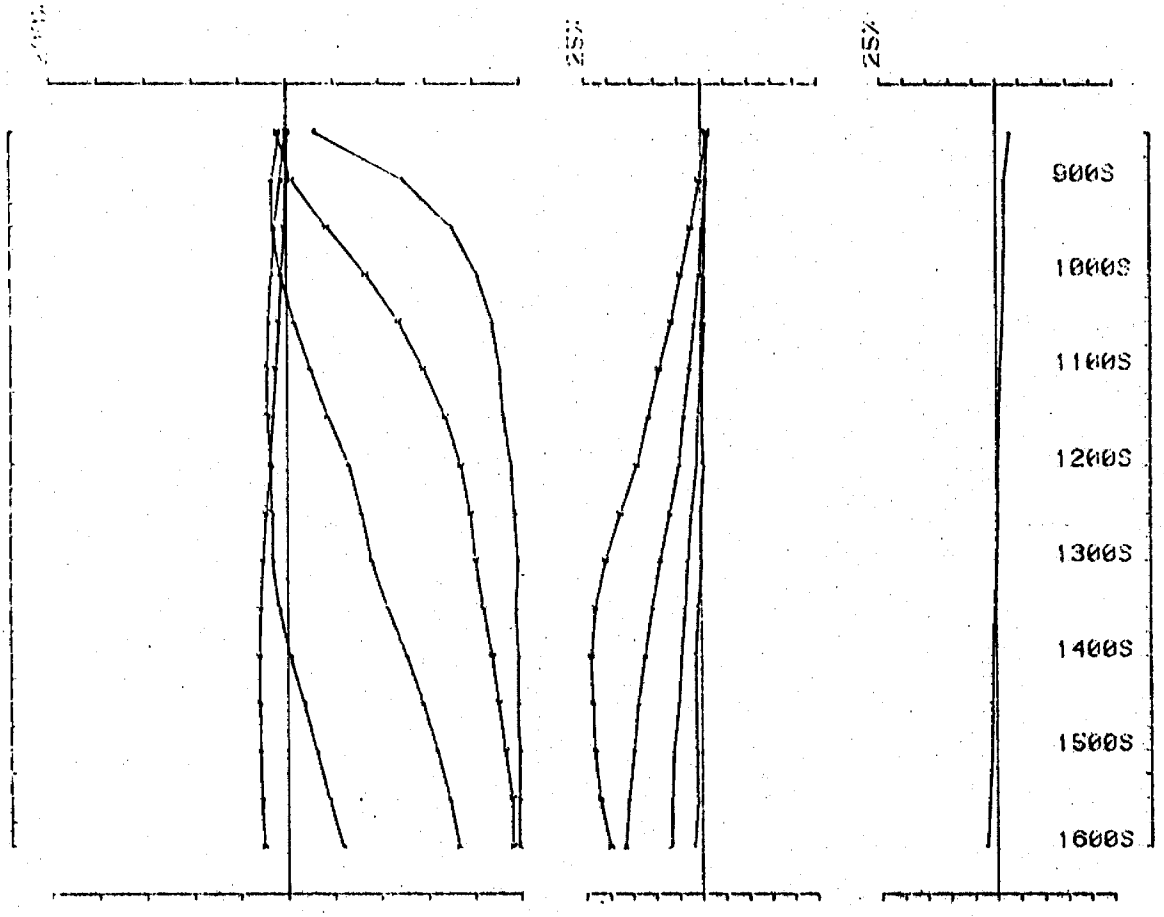
PLATE 23



Area DUN Cominco Ltd. Operator K&B Freq(hz) 30.496
Loop no 0305 Line 5100E Component Hz Secondary Ch 1 normalized

R. St. Holroyd

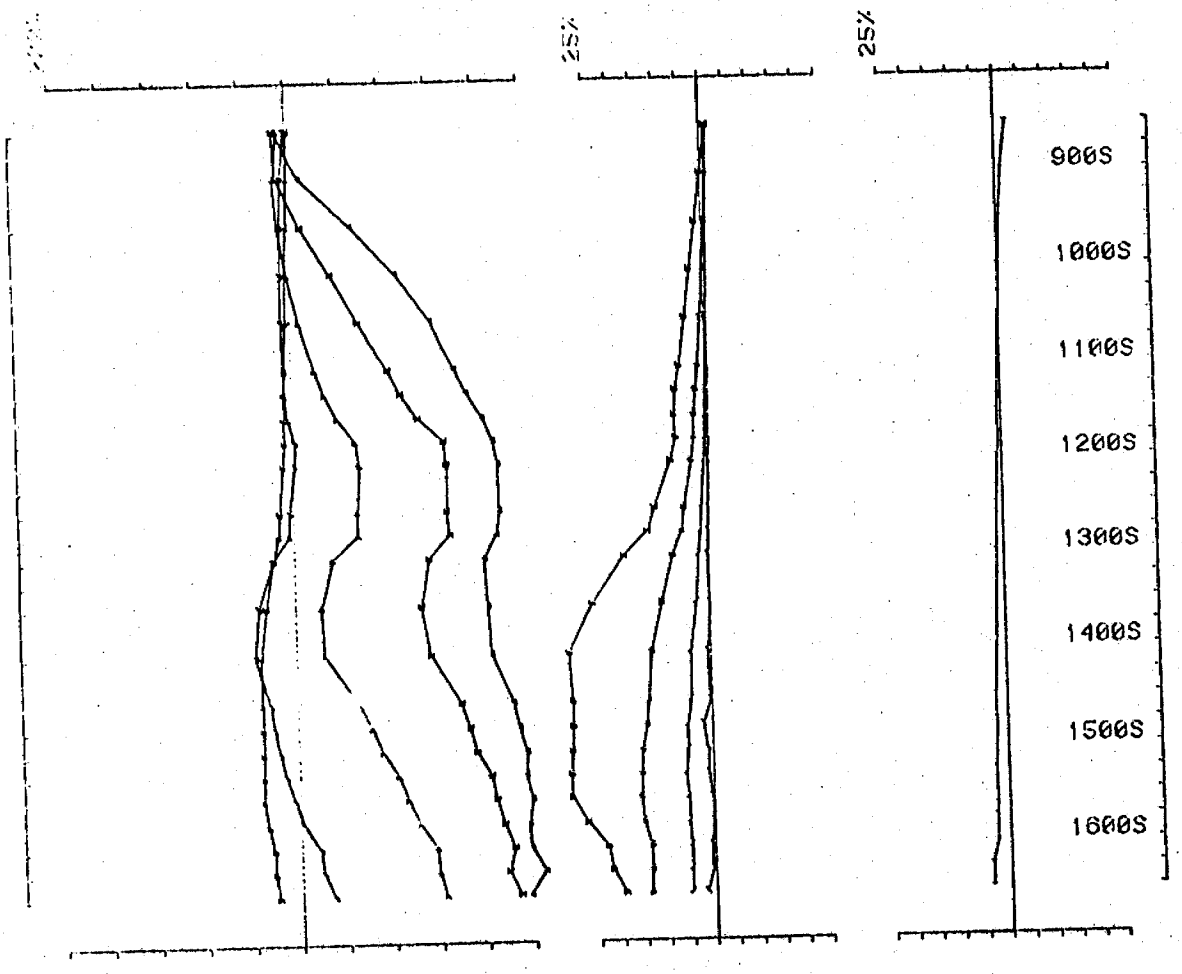
PLATE 24



Area Dun Coalinga Ltd. Operator BAK Freq(Hz) 30.496
Loop# 0305 Line 4800E Component Hz Sensitivity Ch 1 normalized

R. H. Holroyd

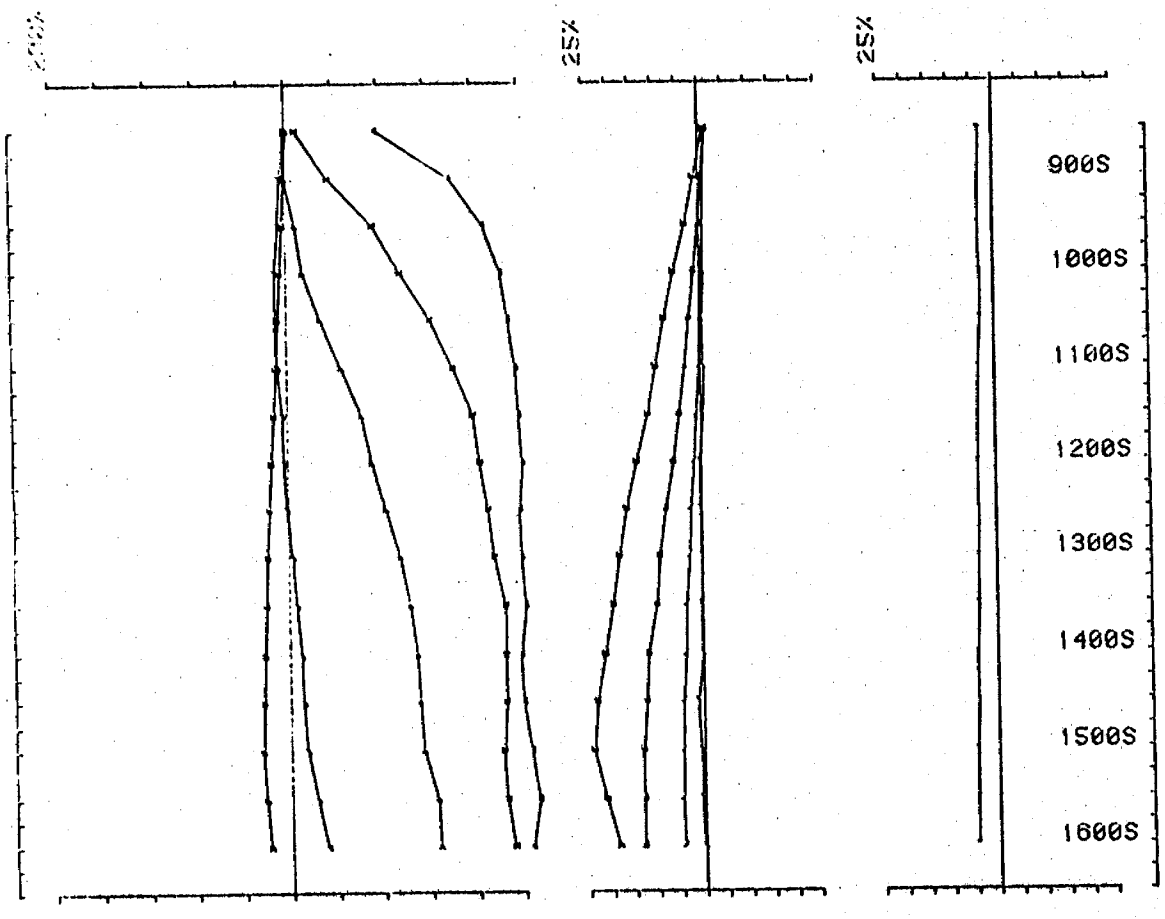
PLATE 25



Area DUN Cominco Ltd. operator B&K freq(Hz) 30.496
Loop 0305 Line 4200E component Hz secondary Ch I normalized

R. H. Holroyd

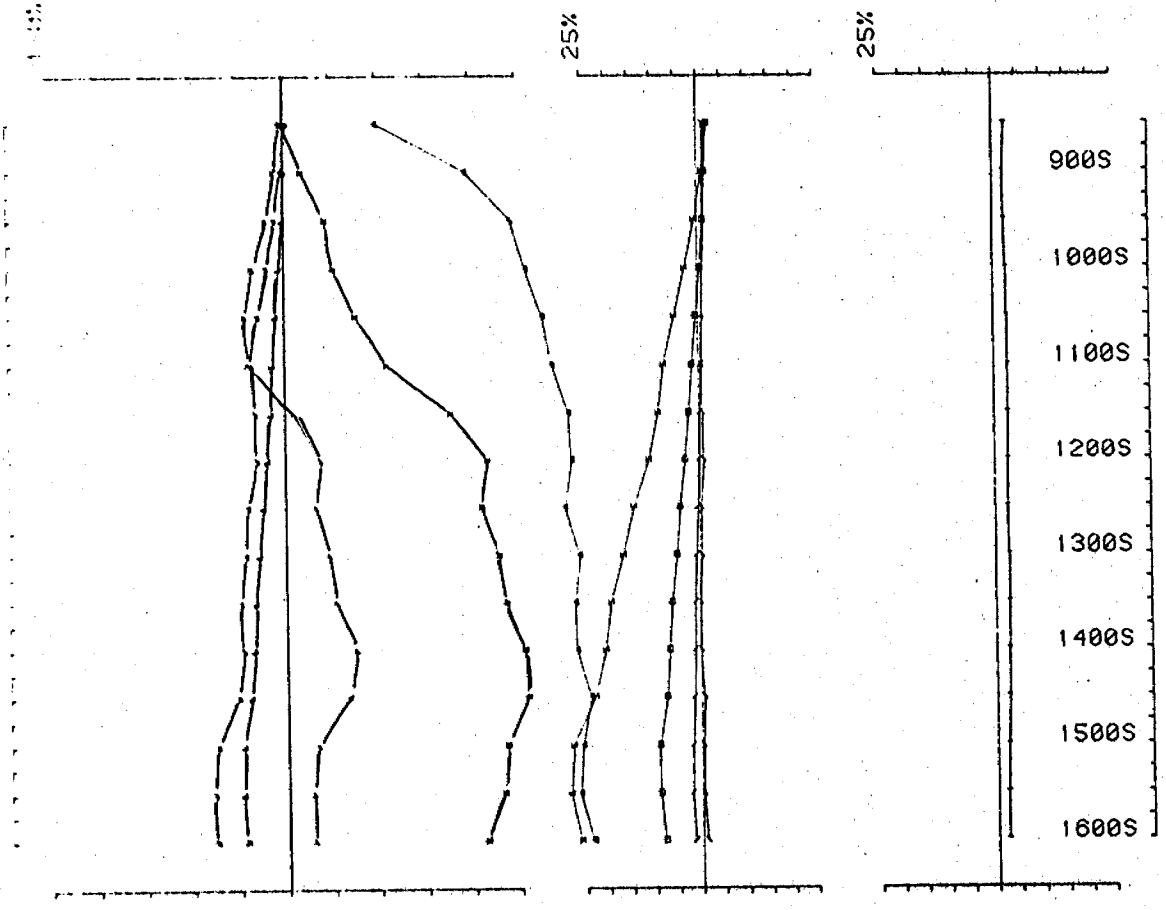
PLATE 26



Area: DUN Cominco Ltd. operator: B&K freq(hz) 30.496
Line: 0305 Line: 3900E component: Hz secondary: Ch 1 normalized

R. St. Holroyd

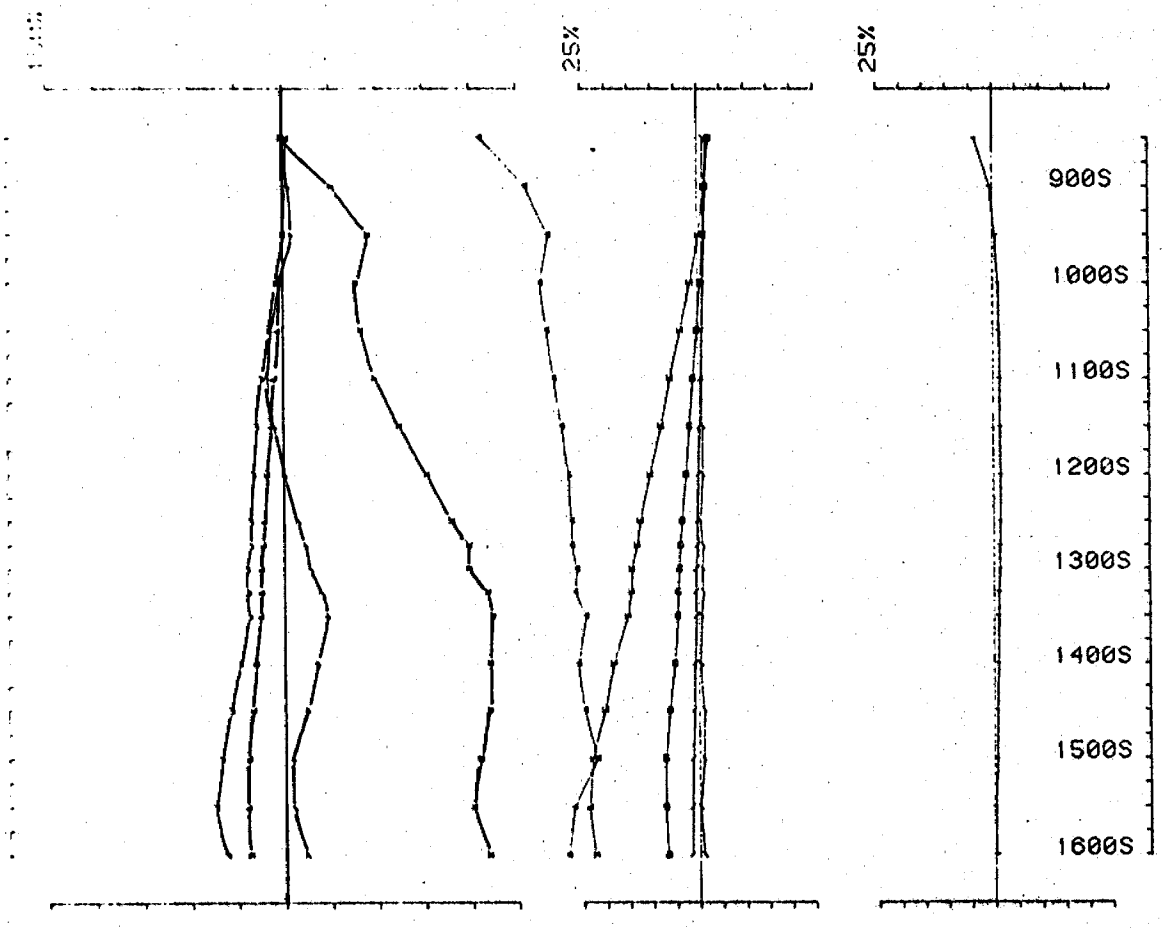
PLATE 27



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0306 Line 3600E component Hz secondary Ch 1 normalized

R. H. Holroyd

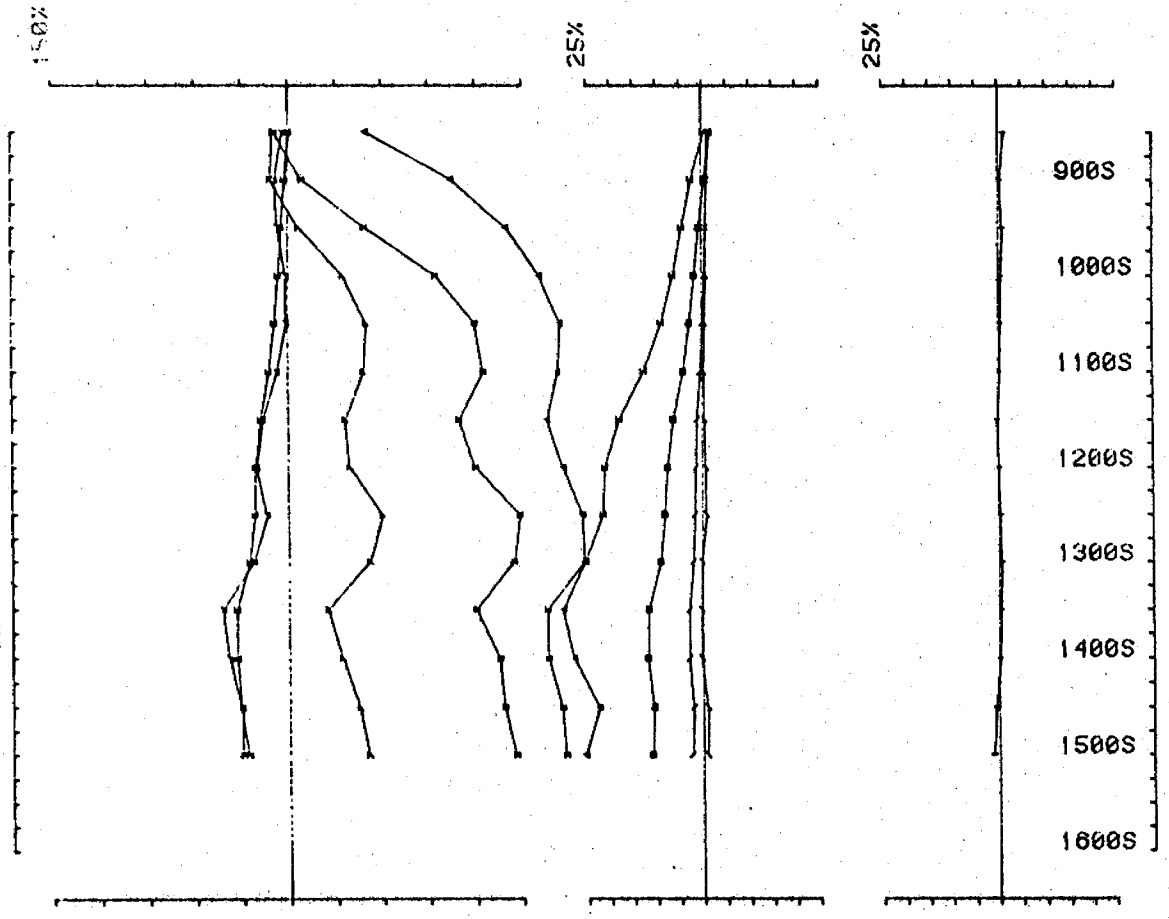
PLATE 28



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loop# 0306 Line 3300E component Hz secondary Ch 1 normalized

R. N. Holroyd

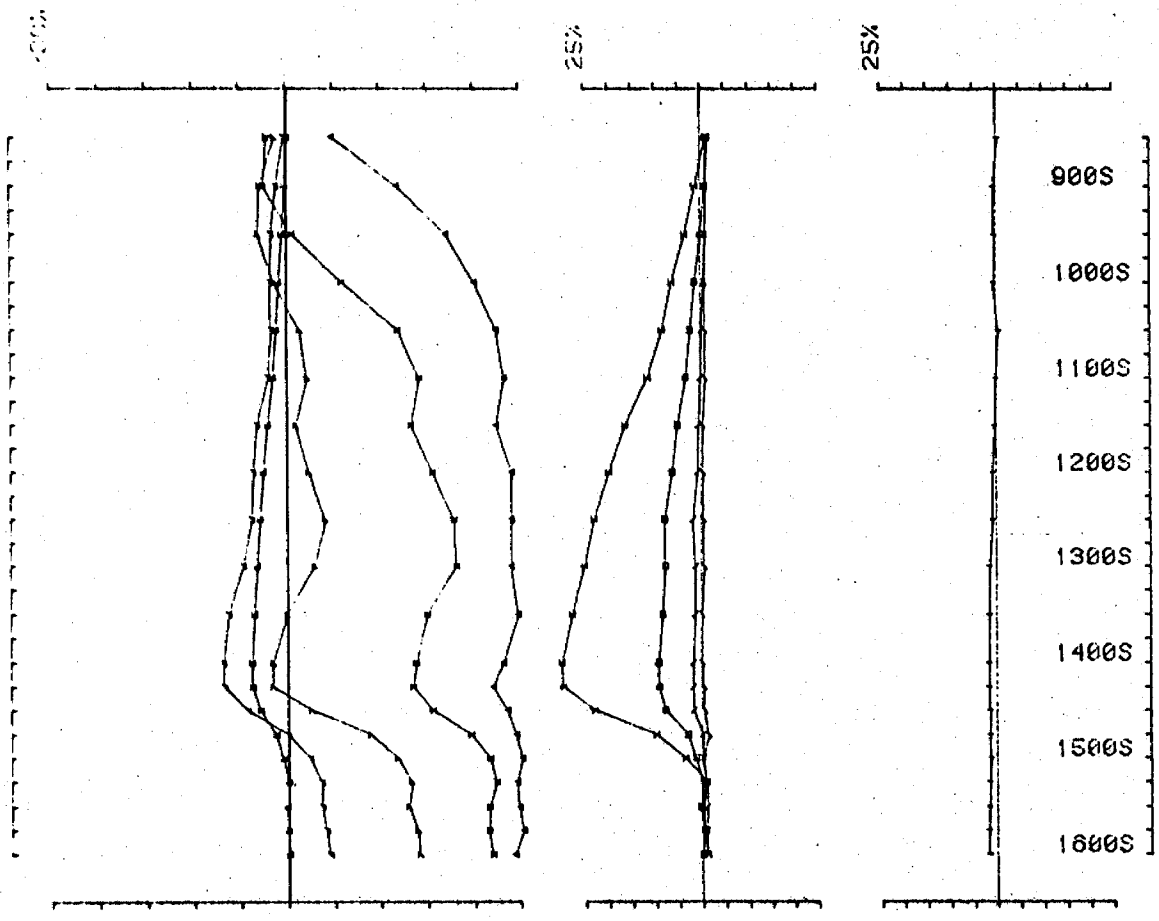
PLATE 29



Area DUN Cominco Ltd., operator K&B freq(hz) 30.496
Loop no 0307 Line 3000E component Hz secondary Ch 1 normalized

K. St. Holroyd

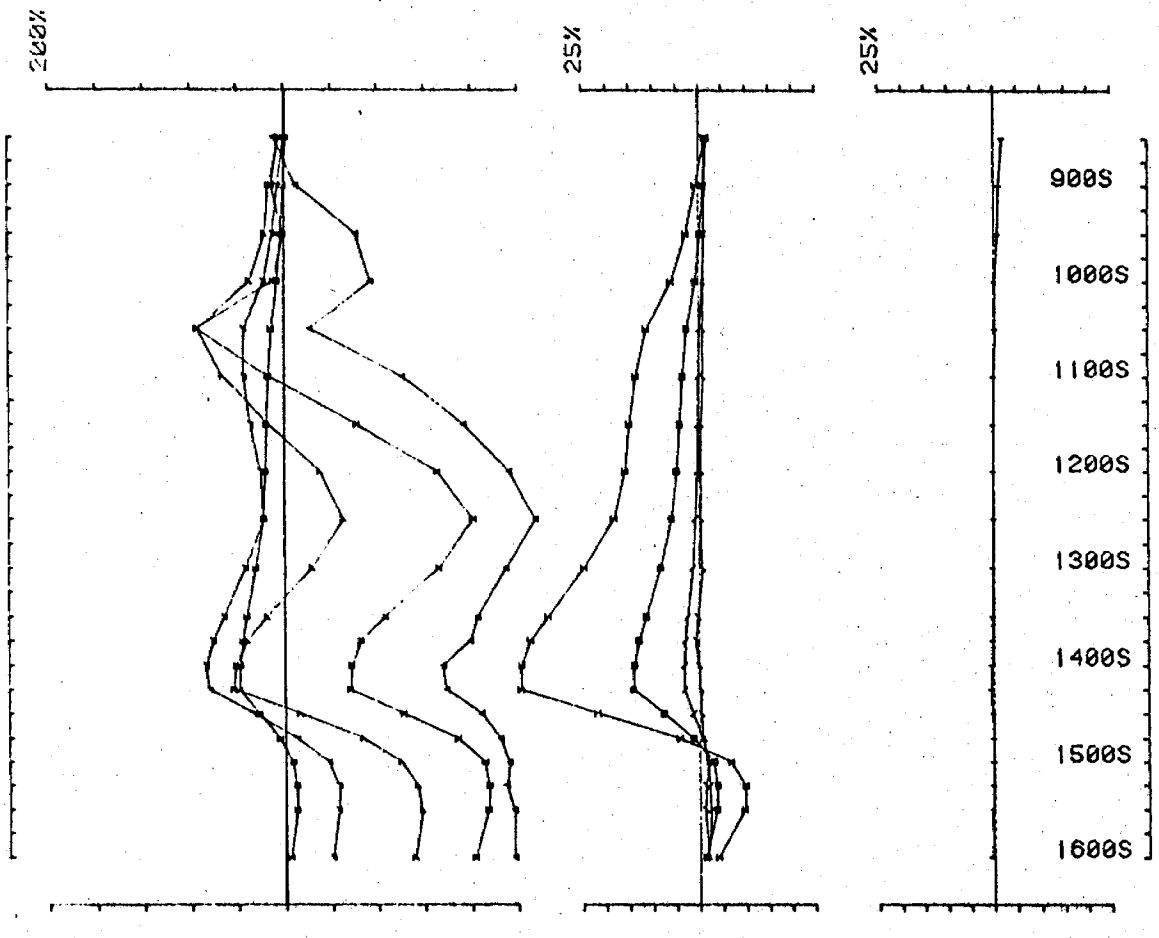
PLATE 30



Area DLN Continue Lbg. operator K&B freq(hz) 30.496
Loop # 630 Line 2700E component Hz secondary Ch 1 normalized

R. St. Halroyd

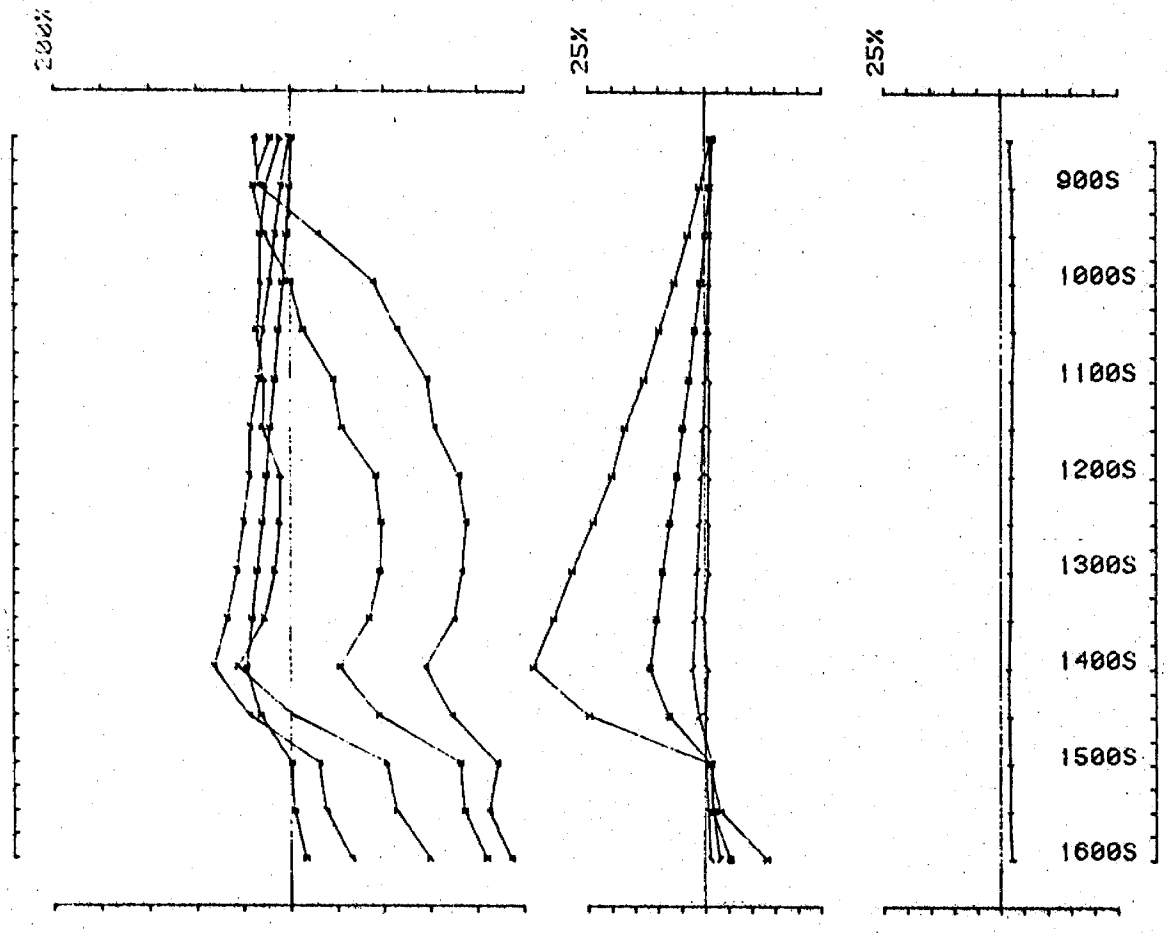
PLATE 31



Area DUN Cominco Ltd. operator K&B freq(hz) 30.496
Loop no 0307 Line 2400E component Hz secondary Ch 1 normalized

K. St. Holroyd

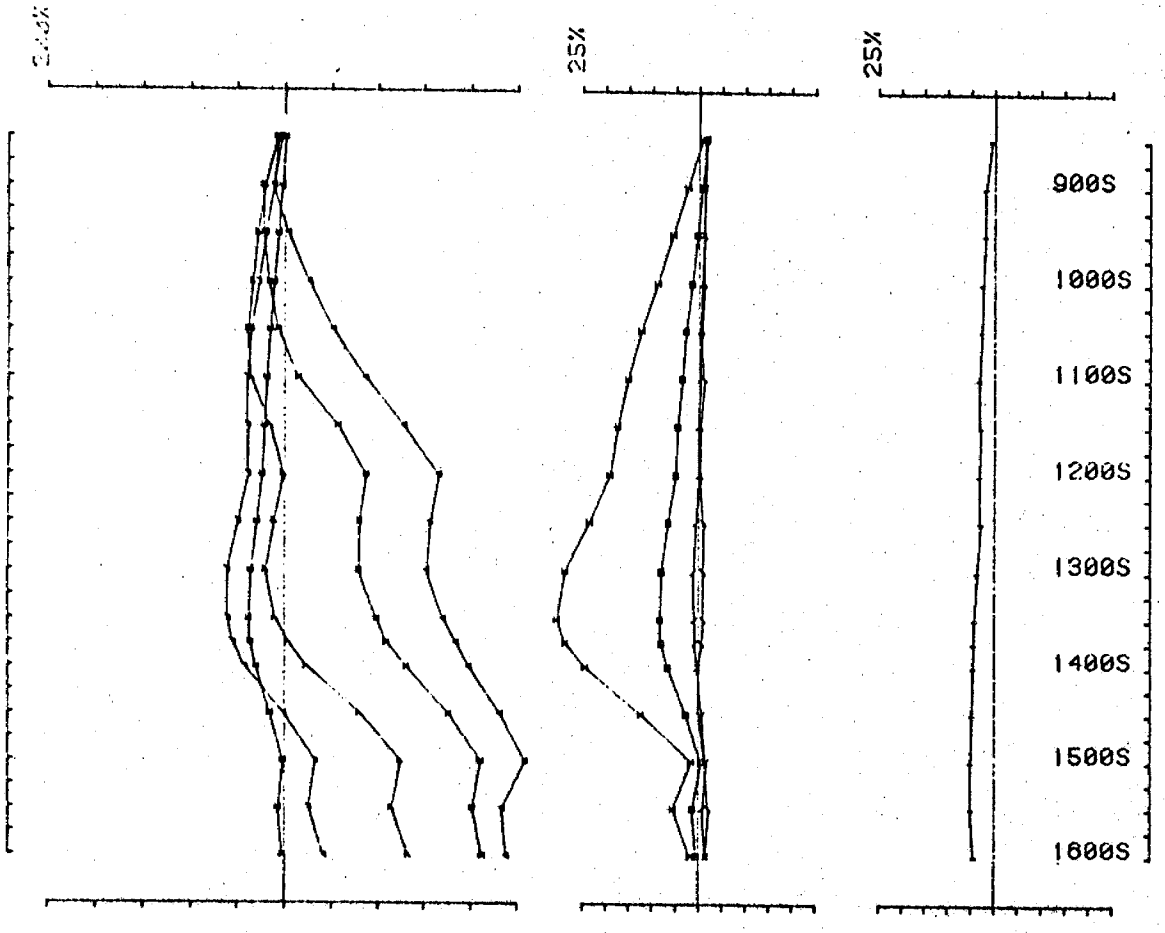
PLATE 32



Area DUN Cominco Ltd., operator K&B freq(hz) 30.496
Loop: 0307 Line 2100E component Hz secondary Ch 1 normalized

K. H. Holroyd

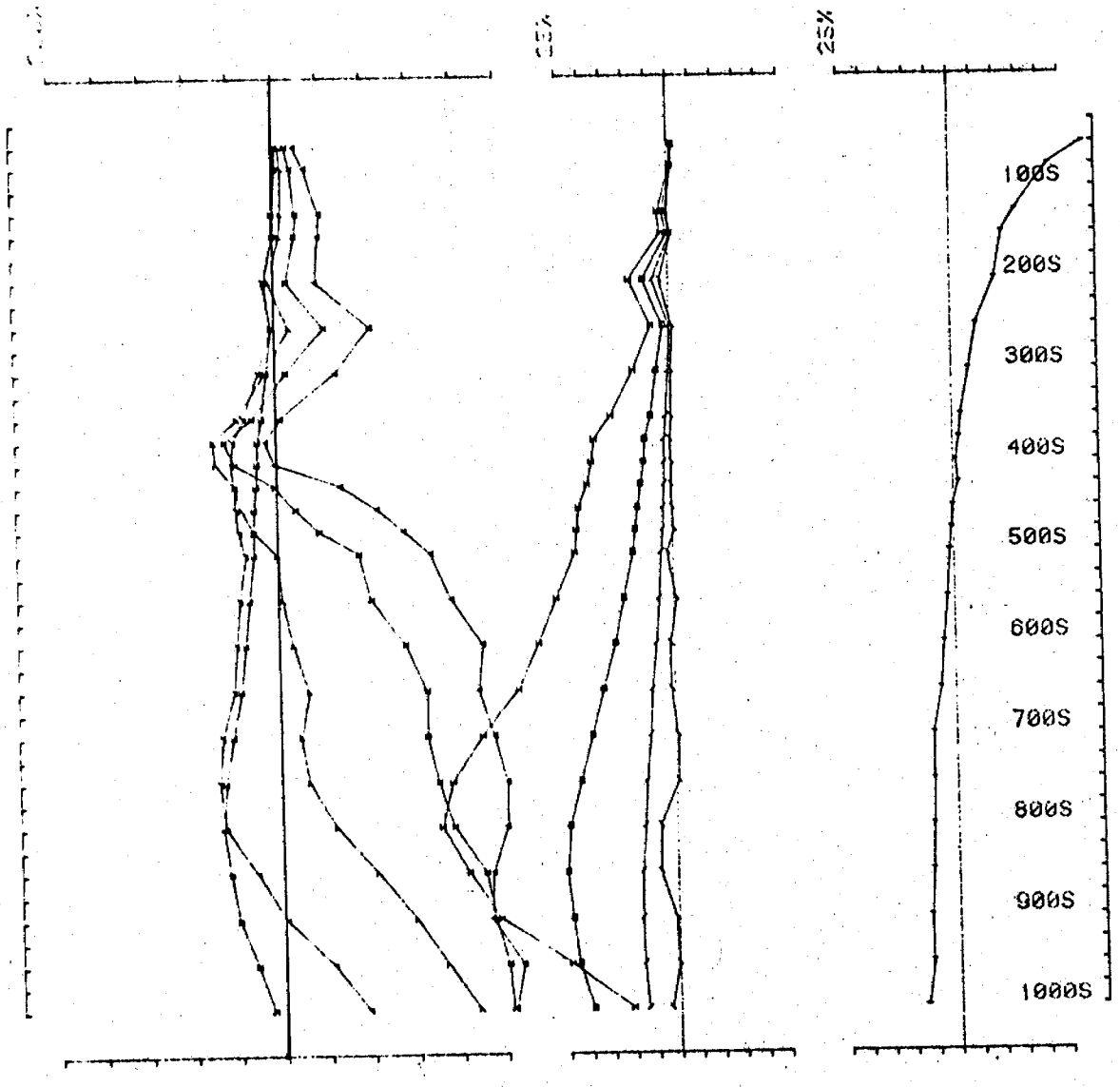
PLATE 33



Area DUN Cominco Ltd. operator K&B freq(hz) 30.496
Loops 0307 Line 1800E component Hz secondary Bz normalized

R.M. Halcrow

PLATE 34

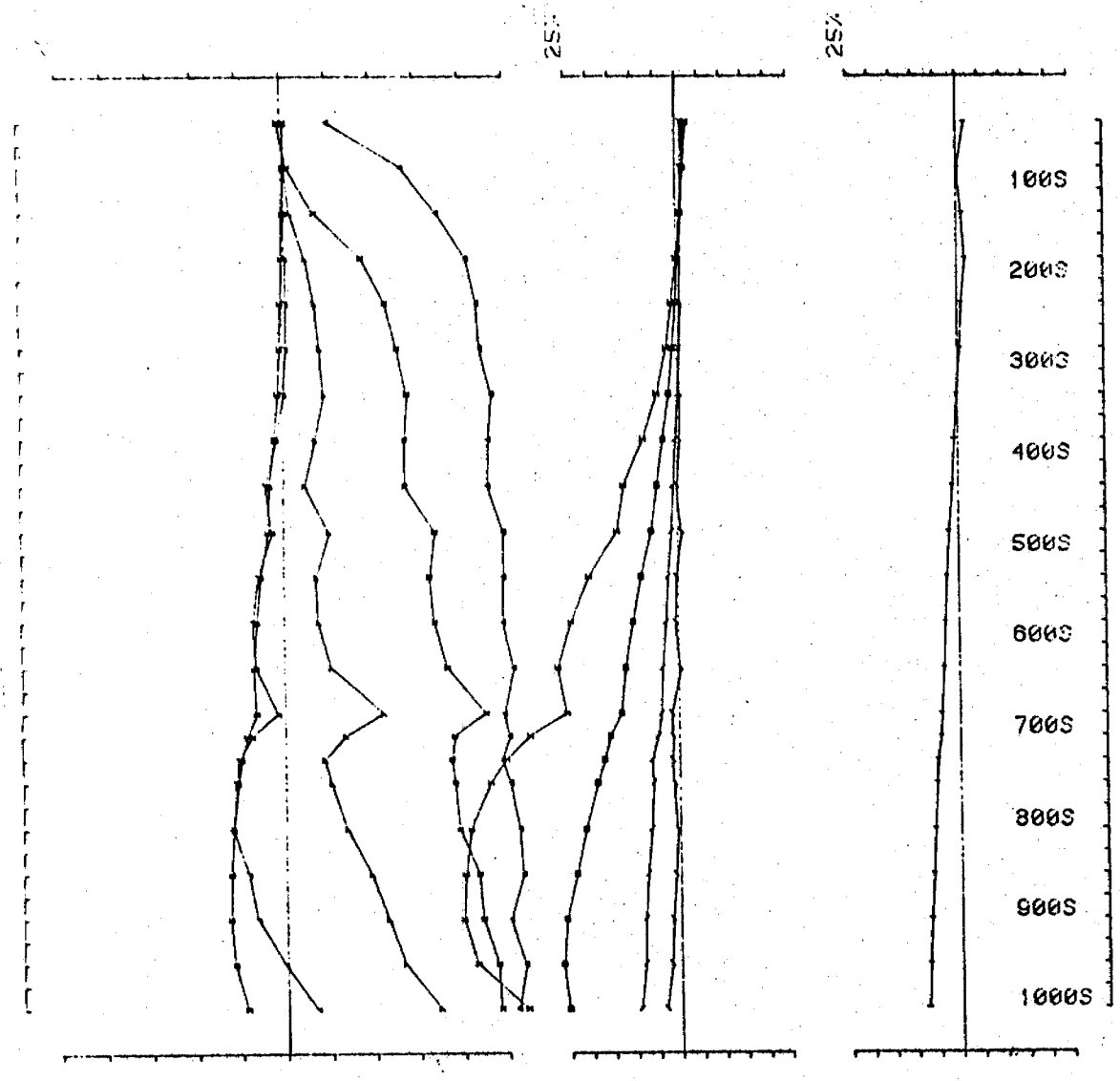


COMINCO LTD. K&B 30.496

0308 3000E

R. St. Holroyd

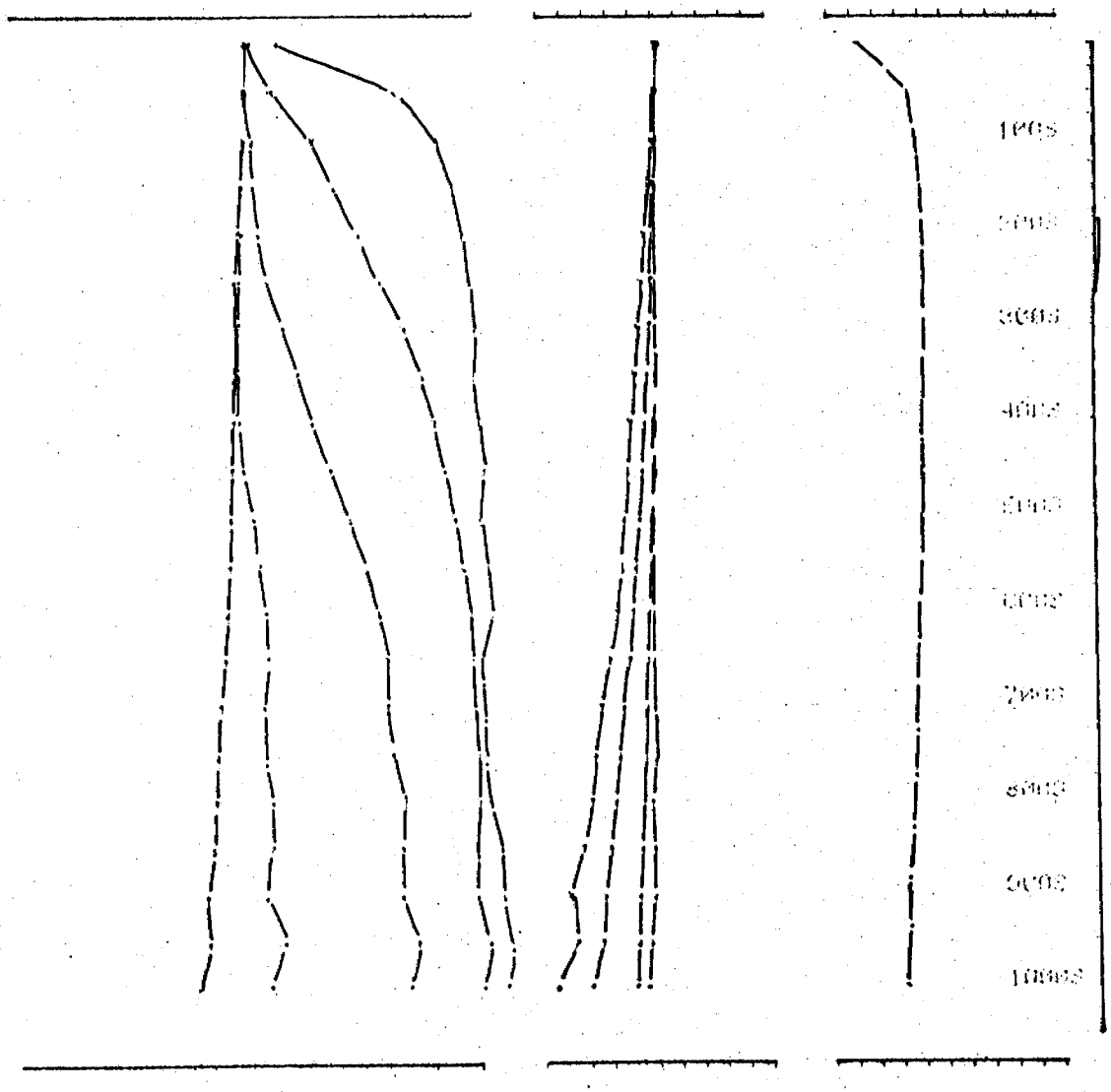
PLATE 35



Area DUN COMINCO LTD. Operator K&B Sample 30,496
Line 0308 Line 2700E Component Hz Secondary Un-normalized

R. St. Halroyd

PLATE 36

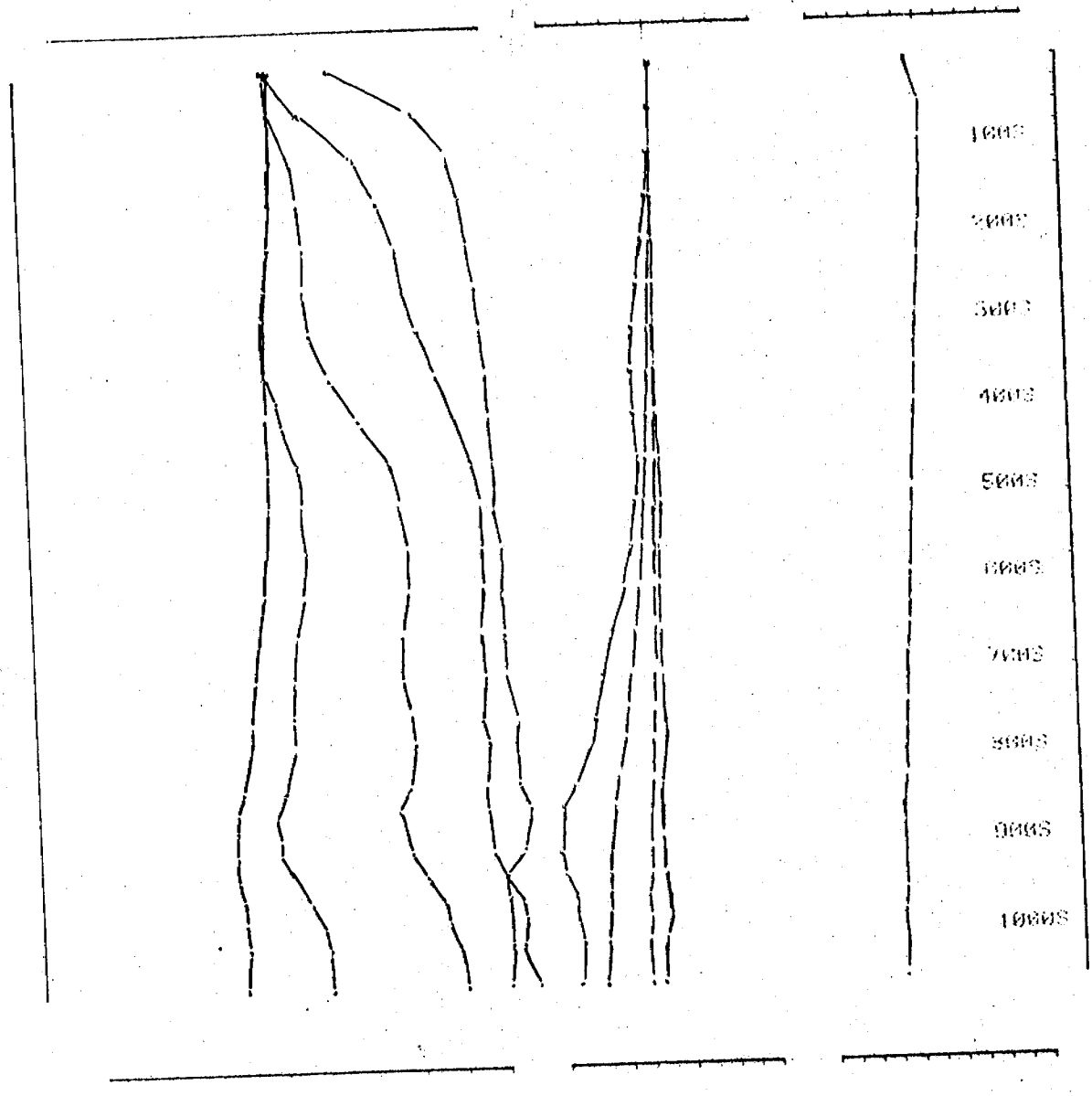


.DUN ... 30.496

.... 0308 Line 2400E ...

R. St. Halcroyd

PLATE 37

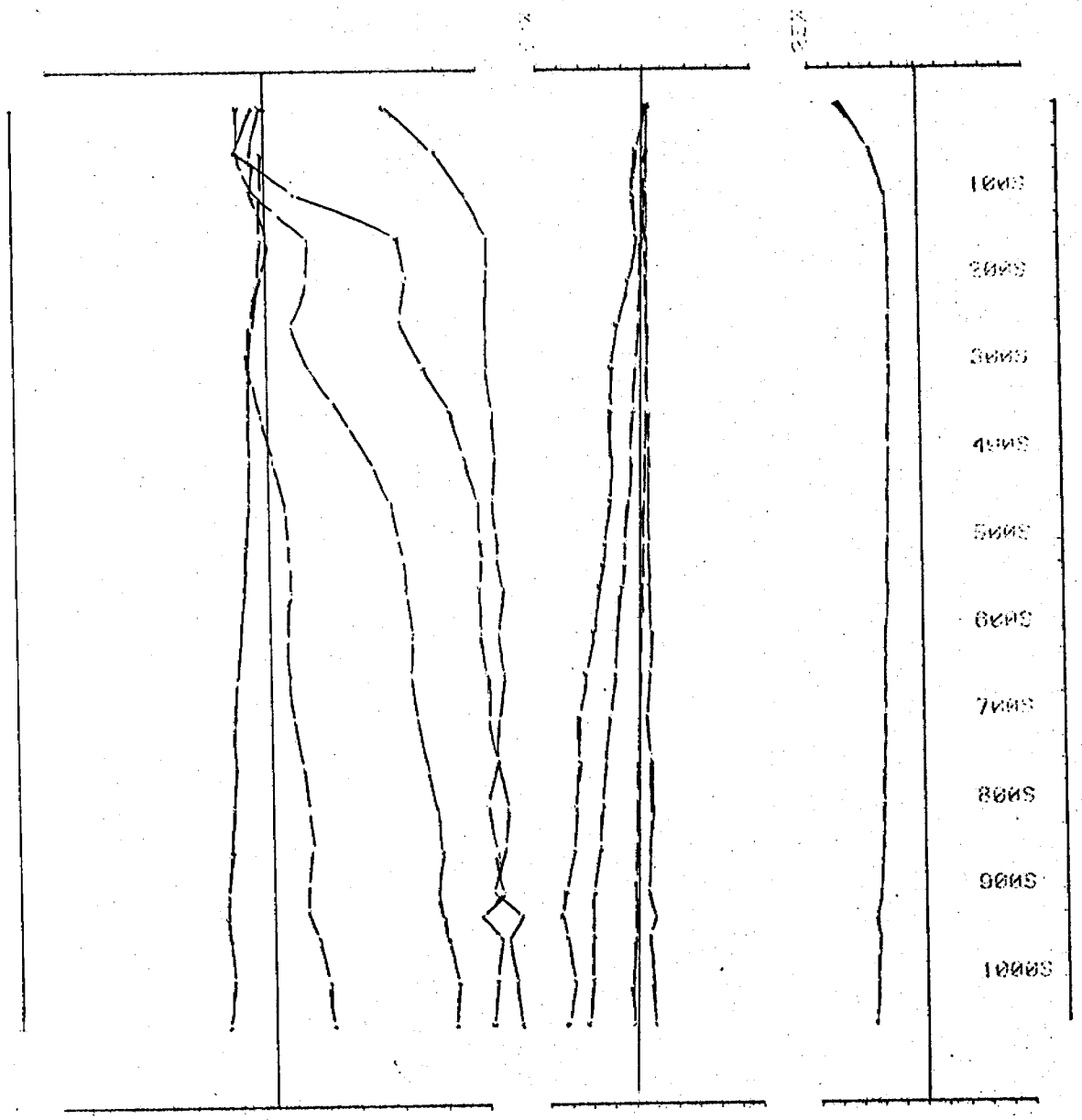


30.496

0308 2100E

R. St. Holroyd

PLATE 38

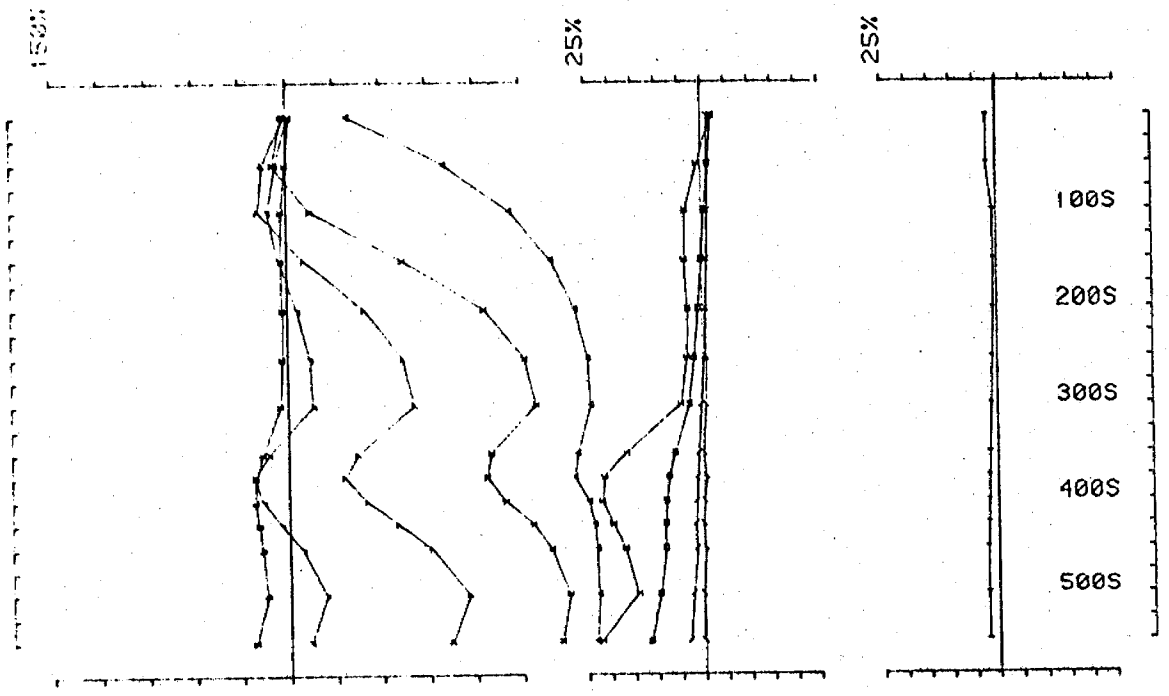


[illegible] 30.496

[illegible] 0308 [illegible] 1800E [illegible]

R. H. Holroyd

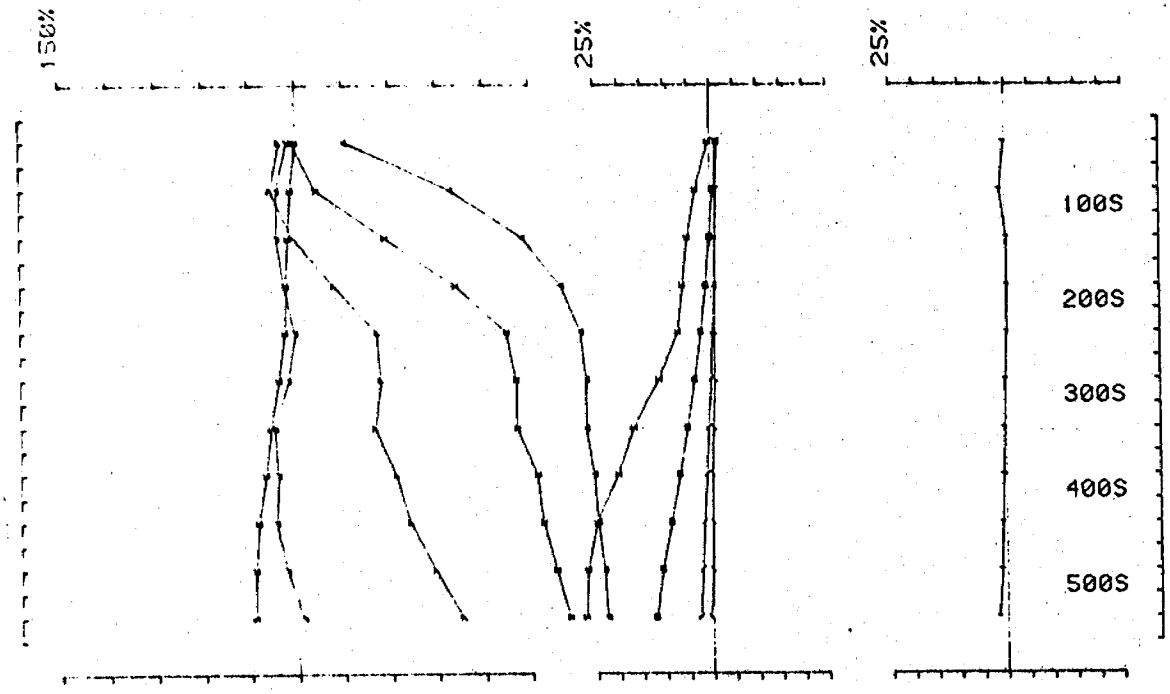
PLATE 39



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0309 Line 1500E component Hz secondary Ch 1 normalized

R. St. Holroyd

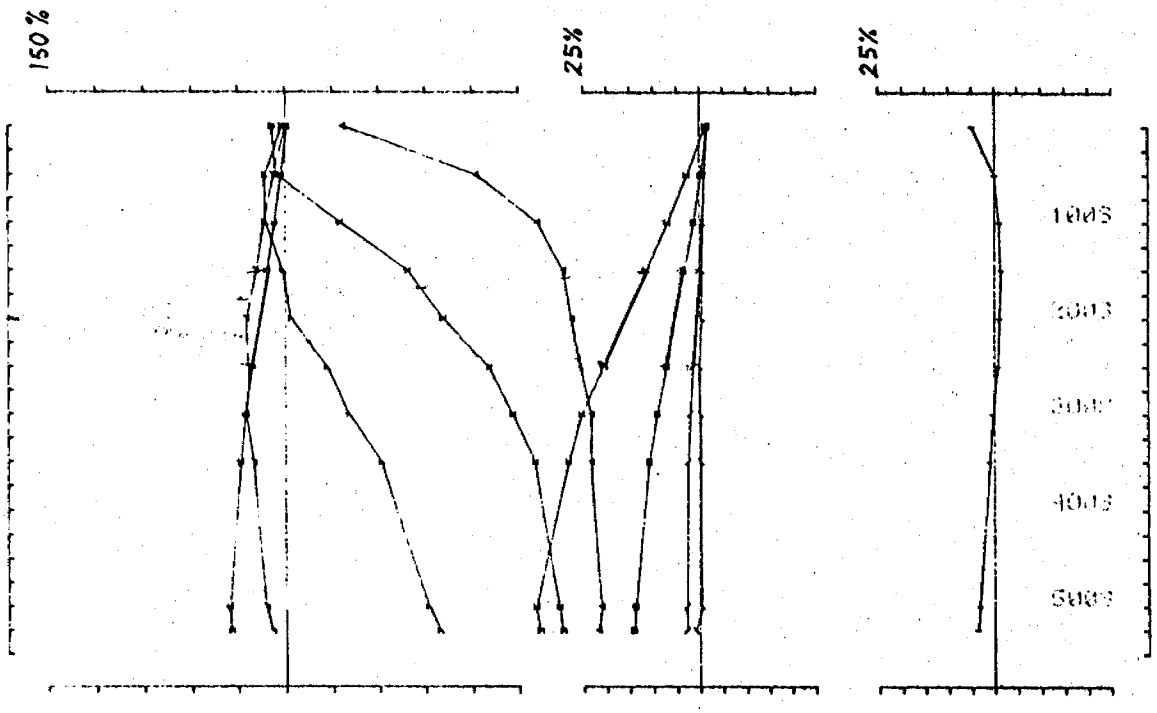
PLATE 40



Area DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loopno 0309 Line 1200E component Hz secondary Ch 1 normalized

L. St. Holroyd

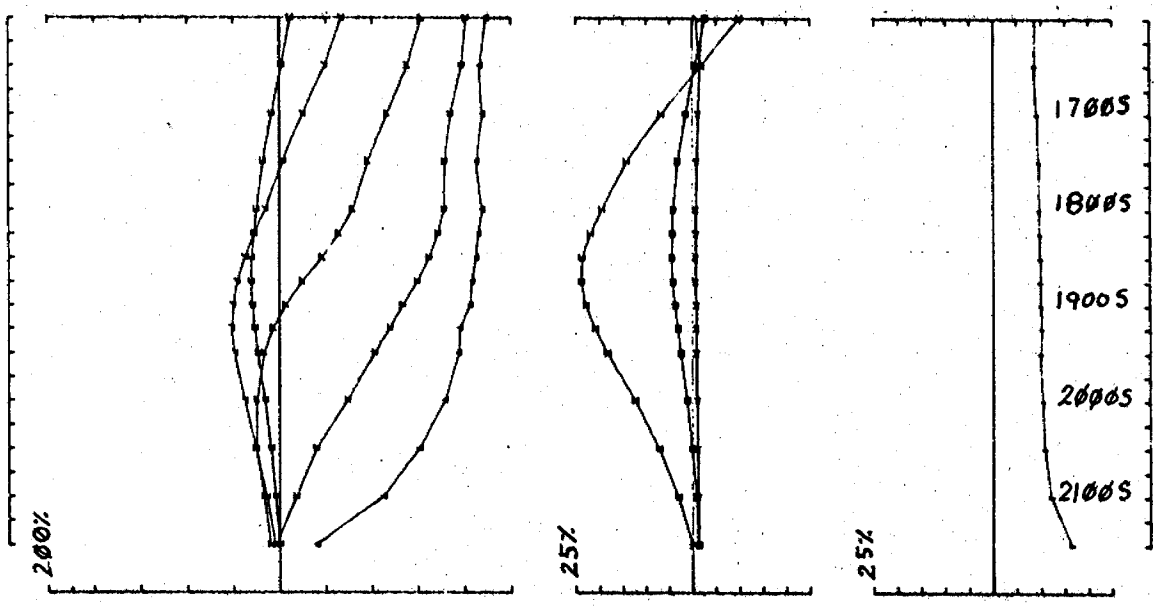
PLATE 41



Area. DUN Cominco Ltd. operator B&K freq(hz) 30.496
Loop no. 0309 Line 900E component Hz secondary Ch 1 normalized

K. St. Halroyd

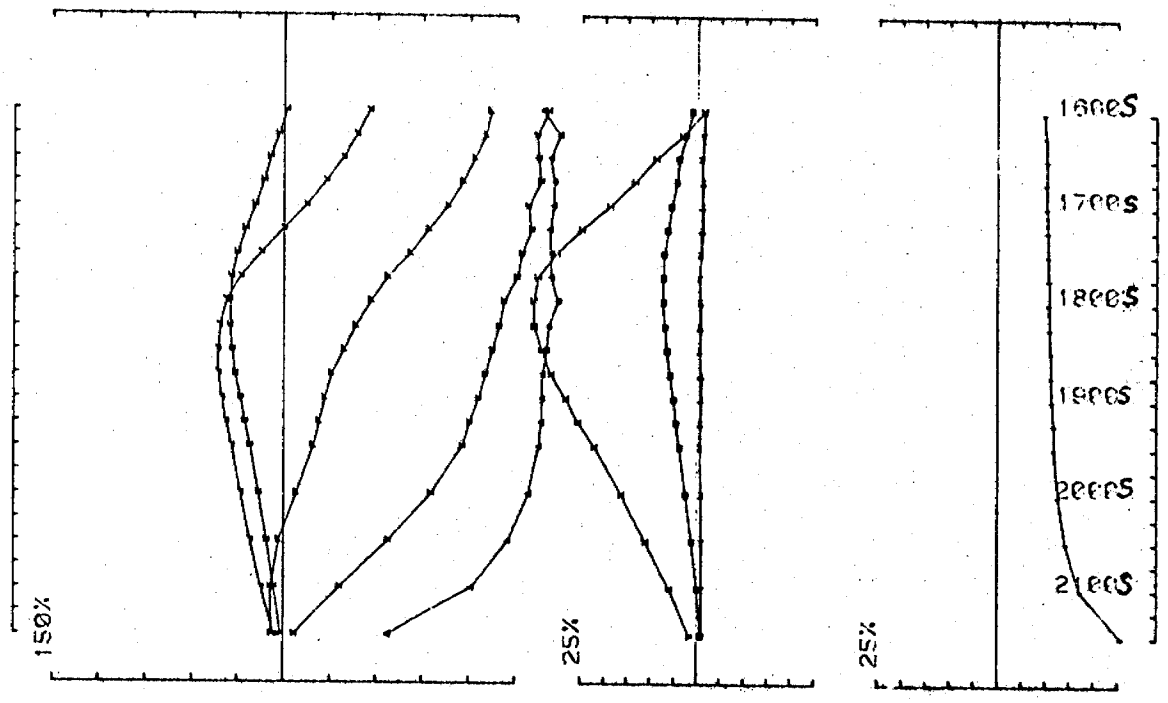
PLATE 42



Area DUN Cominco Ltd. operator K&B freq(hz) 30.496
Loopno 0310 Line 5400E component Hz secondary Ch 1 normalized

K. St. Holroyd

PLATE 43



Area DUN Cominco Ltd. operator K&B freq(hz) 30.498
Loopno 0310 Line 5100E component Hz secondary Ch 1 normalized

R. K. Halcrow

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#468

42A10NW0579 2.5303 DUNDONALD

The Mining Act

900

Type of Survey(s): Geophysics (UTEM)	Township or Area: Dundonald Twp.
Claim Holder(s): Cominco Ltd.	Prospector's Licence No.: A10053
Address: 1700-120 Adelaide St.W. Toronto, Ont. M5H 1T1	
Survey Company: Cominco Employee's	Date of Survey (from & to): 9 Day 2 Mo. 82 Yr. — 2 Day 3 Mo. 82 Yr.
Name and Address of Author (of Geo-Technical report): R.W. Holroyd	Total Miles of line Cut: 26.1

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	40
	- Magnetometer	
	- Radiometric	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
		SEE ATTACHED LIST

RECEIVED
DEC 22 1982
MINING LANDS SECTION

PORCUPINE MINING DIVISION
RECEIVED
DEC 20 1982
AM PM

RECORDED
DEC 20 1982
Receipt No. .....

Total number of mining claims covered by this report of work: 59

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures: $ + 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only		
Total Days Cr. Recorded: 2360	Date Recorded: Dec. 20/82	Mining Recorder: [signature]
	Date Approved as Recorded	Branch Director / Regional Mining Recorder

Date	Recorded Holder or Agent (Signature)
December 15/82	[signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: R.W. Holroyd 863 Boxworth Place, Pickering, Ontario

Date Certified: Dec. 15/82

Certified by (Signature): [signature]

1362 (81/9)

MINING CLAIMS	EXPEND. DAYS CR.	MINING CLAIMS	EXPEND. DAYS CR.
P622830	40	P622902	40
622831	"	622903	"
622832	"	622904	"
622833	"	622905	"
622834	"	622952	"
622835	"	622953	"
622836	"	622954	"
622837	"	622955	"
622838	"	622956	"
622839	"	622957	"
622840	"	622958	"
622841	"	622959	"
622842	"	622960	"
622843	"	622961	"
622886	"	634041	"
622887	"	634042	"
622888	"	634043	"
622889	"	634044	"
622890	"	634045	"
622891	"	634046	"
622892	"	634047	"
622893	"	634048	"
622894	"	634049	"
622895	"	634050	"
622896	"	634051	"
622897	"	634052	"
622898	"	634053	"
622899	"	634054	"
622900	"	634055	"
622901	"	634056	"

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

RECEIVED
DEC 22 1982
MINING LANDS SECTION

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geophysics
Township or Area Dundonald
Claim Holder(s) Cominco LTD.

Survey Company Cominco Ltd. Employee's
Author of Report R.W. Holroyd
Address of Author 863 Boxworth Place, Pickering, Ont.
Covering Dates of Survey _____ (linecutting to office)
Total Miles of Line Cut 26.1

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Dec. 16/82 SIGNATURE: R.W. Holroyd
Author of Report or Agent

Res. Geol. _____ Qualifications 2.2929

Previous Surveys

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

SEE ATTACHED LIST

TOTAL CLAIMS _____

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 656 Number of Readings 700 (over lap)

Station interval 50m Line spacing 300m

Profile scale 1:5000

Contour interval -

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument UTEM

Coil configuration Horizontal

Coil separation -

Accuracy + 0.1% of secondary field

Method: ☒ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency 30.5 Hz
(specify V.L.F. station)

Parameters measured Hz (vertical component of magnetic field)

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

MINING CLAIMS	EXPEND. DAYS CR.	MINING CLAIMS	EXPEND. DAYS CR.
P622830	40	P622902	40
622831	"	622903	"
622832	"	622904	"
622833	"	622905	"
622834	"	622952	"
622835	"	622953	"
622836	"	622954	"
622837	"	622955	"
622838	"	622956	"
622839	"	622957	"
622840	"	622958	"
622841	"	622959	"
622842	"	622960	"
622843	"	622961	"
622886	"	634041	"
622887	"	634042	"
622888	"	634043	"
622889	"	634044	"
622890	"	634045	"
622891	"	634046	"
622892	"	634047	"
622893	"	634048	"
622894	"	634049	"
622895	"	634050	"
622896	"	634051	"
622897	"	634052	"
622898	"	634053	"
622899	"	634054	"
622900	"	634055	"
622901	"	634056	"

2.5303

468

2.5303

1983 08 31

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

RE: Geophysical (Electromagnetic) Survey on Mining Claims P 622830 et al in the Township of Dundonald.

The Geophysical (Electromagnetic) survey assessment work credits as listed with my Notice of Intent dated August 5, 1983 have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

D. Kinvig:sc

cc: Cominco Limited
Toronto, Ontario

cc: Resident Geologist
Timmins, Ontario

Ministry of
Natural
Resources
Ontario

Aug 26/83

Your file: #468

1983 08 05

Our file: 2.5303

Mr. William L. Good
Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. F.W. Matthews at 416/965-1380.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

D. Kinvig:mc

cc: Cominco Ltd
Suite 1700
120 Adelaide Street West
Toronto, Ontario
M5H 1T1

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Encls:

Ministry of Natural Resources

Ontario

Notice of Intent

for Technical Reports

1983 08 05

2.5303

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Lands Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.5303

Date 1983 08 05

Mining Recorder's Report of Work No. 468

Recorded Holder: COMINCO LTD

Township or Area: DUNDONALD TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	P 622830 to 42 inclusive 622886 to 905 inclusive 622952 to 61 inclusive 634041 to 56 inclusive
Electromagnetic 9 days	
Magnetometer ____ days	
Radiometric ____ days	
Induced polarization ____ days	
Other ____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological ____ days	
Geochemical ____ days	
Man days [X] Airborne [ ]	
Special provision [ ] Ground [X]	
[ ] Credits have been reduced because of partial coverage of claims.	
[ ] Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

[X] not sufficiently covered by the survey [ ] Insufficient technical data filed

P 622843

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19)—60:

828 (83/6)

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.5303

Mining Lands Comments

- See Memo.

Dick La Roche

869-1850

☑ To: Geophysics Mr. Barlow.

Comments

- no
- Con
- see

Dan Shaw

to F.M.

☑ Approved ☐ Wish to see again with corrections | Date July 11/83 | Signature

☐ To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Geochemistry

Comments

L.D.

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

Ministry of
Natural
Resources

Ontario

Your file:

Our file:

1983-07-06

MEMORANDUM TO:

Mr. F.W. Matthews
Mining Administrator,
Mining Lands Section.

SUBJECT: File 2.5303 Cominco Ltd.

I believe this to be the first submission of an advanced ground time domain electromagnetic instrument made by an exploration company. A calculation of the cost of this survey relative to more conventional EM submissions indicates that on a dollar basis the survey is probably worth about the same price as conventional coverage at say 100m line separation. Although more information is contained in this survey the method of presentation of the data certainly could stand some improvement if it is to be of optimum value to the exploration community. Based on research experience with another similar type of instrument on our test range near Night Hawk Lake we have some sound recommendations as to how to present this data more completely.

Because of the problem outlined above we hope to set forth recommendations on formats acceptable for assessment work credits in the near future.

For the present it seems reasonable to accept this data, as is, based on the fact that it has the potential of revealing much more soundly, the geological and physical characteristics of the target as outlined from surveys using PEM UTEM and EM-37 instrumentation.

R.B. Barlow,
Chief,
Geophysics/Geochemistry Section.

Telephone: 965-1697.

RBB/mh.

memorandum

Ontario

To:

Mr. R. Barlow
Ontario Geological Survey
77 Grenville Street
Toronto, Ontario

Date: July 5, 1983

We usually require the actual readings at each station for a geophysical survey. However, the enclosed UTEM survey has been submitted with no readings and a line spacing of 300 meters. Please clarify if readings are required and comment if you consider the line spacing to be excessive for this kind of survey.

F.W. Matthews
Mining Administrator
Mining Lands Section

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.5303

Feb 1/83

Mining Lands Comments

☑ To: Geophysics Mr Barlow

Comments

☑ Approved ☐ Wish to see again with corrections | Date Feb 28/83 | Signature Roger Barlow

☐ To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Geochemistry

Comments

L.D.

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)

1982 12 29

2.5303

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic) Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims P 622830 et al in the Township of Dundonald.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3

DW:sc

cc: Cominco Limited
Toronto, Ontario

cc: R.W. Holroyd
Pickering, Ontario

as per phone conversation Dick LaRoche on July 13/83 D.K.

Man days Breakdown

TECHNICAL

Ken Hendrey, Geophysicist Feb. 13-Mar. 1/82 = 17 days

R. Holwright, Geophys. Feb. 13-Mar. 1 = 17 days

E.T. Eadie, Geophys. Feb. 13-15 = 3 days

D.D. LaRonde, Technician Feb. 13-Mar. 1 = 17 days

Pat Coyne, Assistant Feb. 13-Mar. 1 = 17 days

Technical days = 71 days

LINECUTTING (Contractor)

Feb. 9-21 = 13 days

71 x 7 = 497 + 13 ÷ 59 = 8.64 ≈ 9 days per claim

Number of claims

MINING CLAIMS	EXPEND. DAYS CR.
P622830 ✓	40
622831 ✓	"
622832 ✓	"
622833 ✓	"
622834 ✓	"
622835 ✓	"
622836 ✓	"
622837 ✓	"
622838 ✓	"
622839 ✓	"
622840 ✓	"
622841 ✓	"
622842 ✓	"
622843 NOT COVERED	"
622886 ✓	"
622887 ✓	"
622888 ✓	"
622889 ✓	"
622890 ✓	"
622891 ✓	"
622892 ✓	"
622893 ✓	"
622894 ✓	"
622895 ✓	"
622896 ✓	"
622897 ✓	"
622898 ✓	"
622899 ✓	"
622900 ✓	"
622901 ✓	"

MINING CLAIMS	EXPEND. DAYS CR.
P622902 ✓	40
622903 ✓	"
622904 ✓	"
622905 ✓	"
622952 ✓	"
622953 ✓	"
622954 ✓	"
622955 ✓	"
622956 ✓	"
622957 ✓	"
622958 ✓	"
622959 ✓	"
622960 ✓	"
622961 ✓	"
634041 ✓	"
634042 ✓	"
634043 ✓	"
634044 ✓	"
634045 ✓	"
634046 ✓	"
634047 ✓	"
634048 ✓	"
634049 ✓	"
634050 ✓	"
634051 ✓	"
634052 ✓	"
634053 ✓	"
634054 ✓	"
634055 ✓	"
634056 ✓	"

- Man days breakdown obtained from time sheets:

71 days × 7 = 497 + 13 (linecutting) = 510 ÷ 59 claims = 8.64 = (9) days/claim.

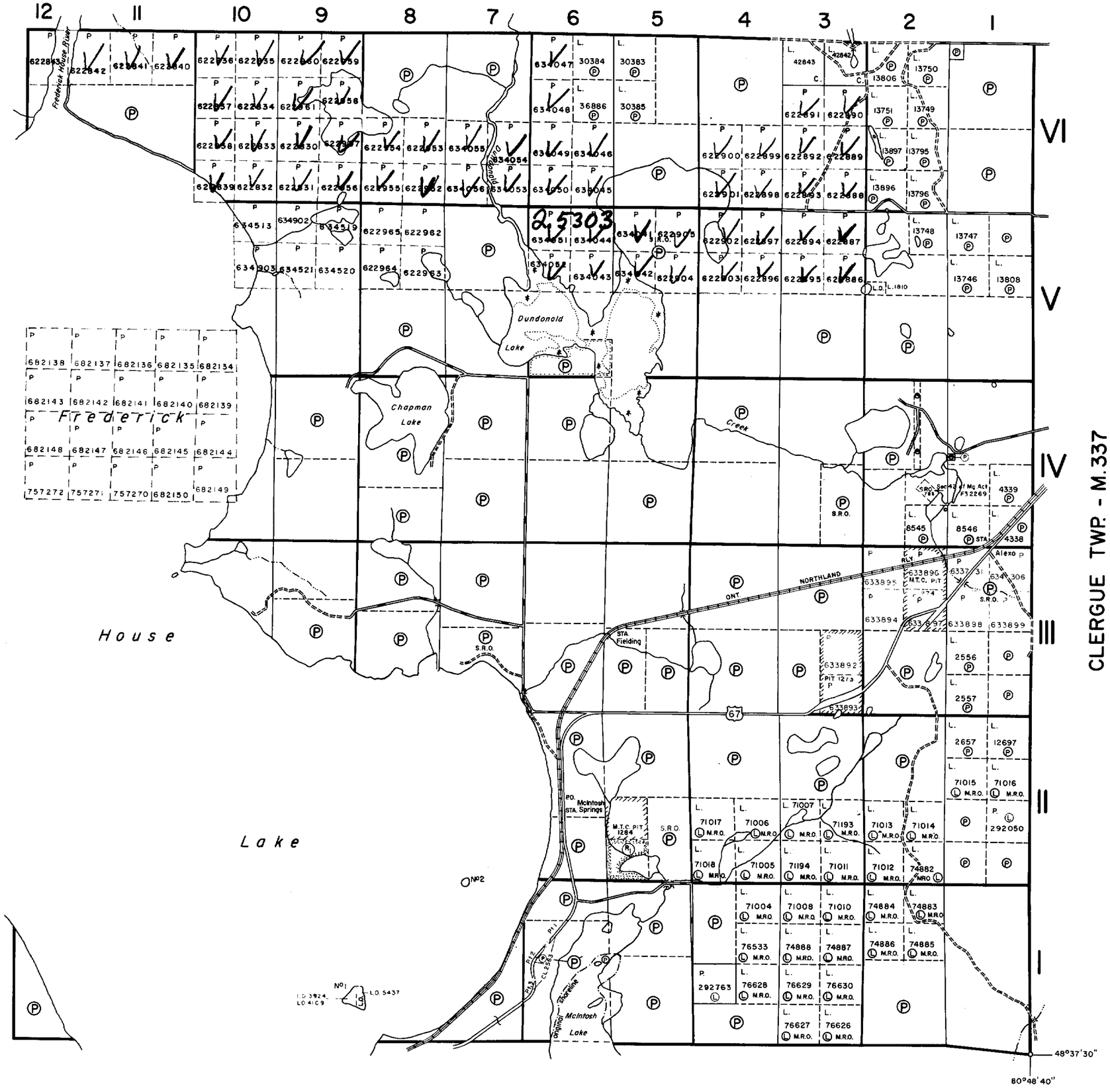
D. K.

McCART TWP. - M.545

EVELYN TWP. - M.277

CLERGUE TWP. - M.337

GERMAN TWP. - M.283



THE TOWNSHIP
OF

DUNDONALD

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED S.R.O.	

NOTES

WITNESS POSTS FOR CLAIMS STAKED OUT COVERING LANDS UNDER WATERS OF FREDERICK HOUSE LAKE IN DUNDONALD TWP. SHOULD NOT BE ERECTED OR PLANTED IN EVELYN TWP.

400' surface rights reservation along the shores of all lakes and rivers.

L.O.7128 - Flooding rights on Frederick House Lake reserved to HEPC to contour elev. 903'
File 64518, Vol.2

Area marked thus [ ] S.R.O. reserved for Park Site. Files 39684, 51994

Part of this township south and east of Frederick House Lake lies within the Municipality of CITY of TIMMINS.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970)

Order No.	File	Date	Disposition
(R1) W.66/75	1593	1977	S.R. & M.R.

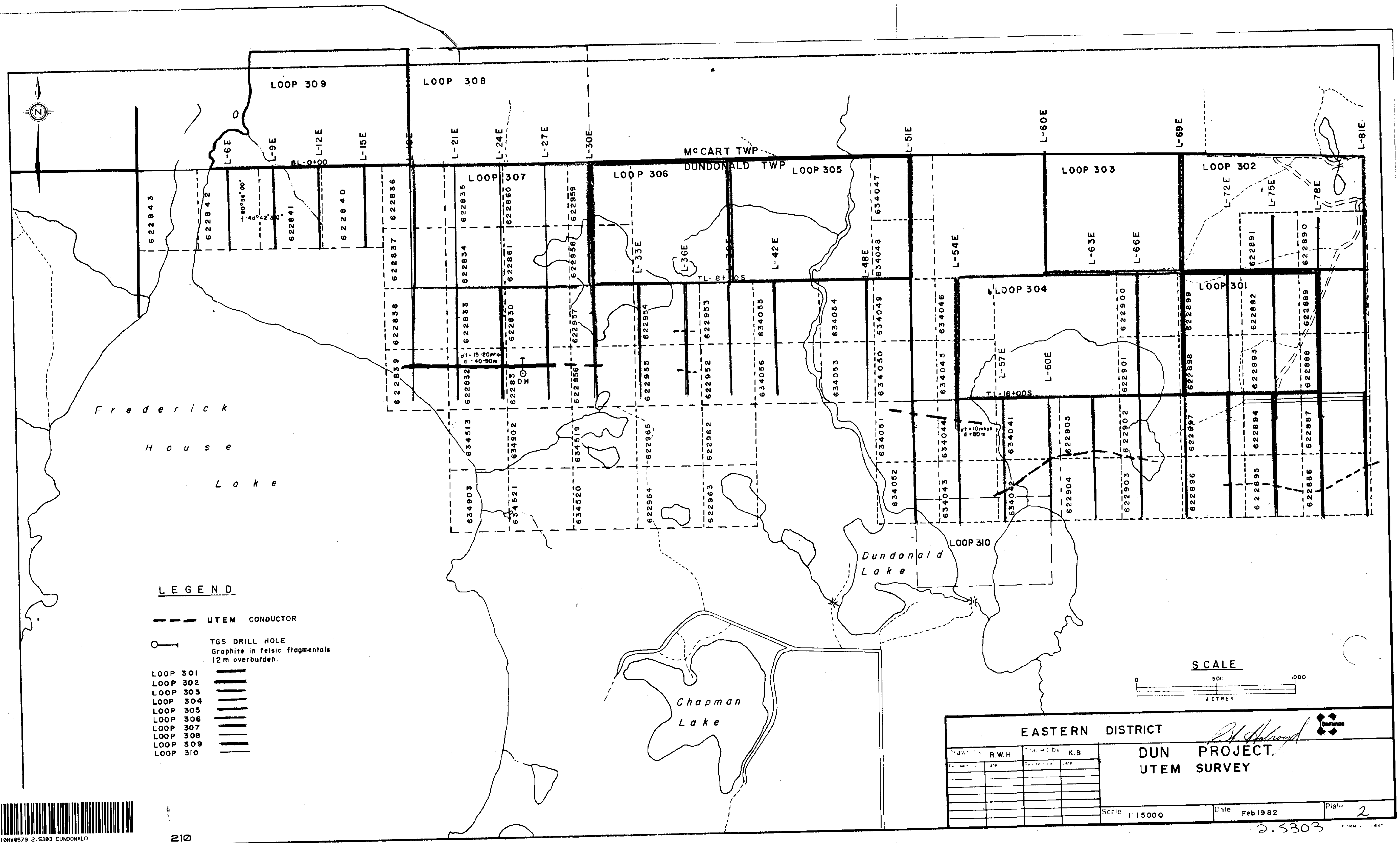
DATE OF ISSUE
JUL 12 1983
Ministry of Natural Resources
TORONTO

31256

PLAN NO. M.343

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A10NW0579 2.5303 DUNDONALD



42A10NW0579 2.5303 DUNDONALD

210