MAR 19970008: MASUMEKA-NEW CLAYMORE

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19970008

ASSESSMENT REPORT

KENNECOTT CANADA EXPLORATION INC.

NEW CLAYMORE CLAIM BLOCK

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL

AND DRILLING REPORT

DATES WORK PERFORMED
MARCH 1995 TO JUNE 1997

HINTON AREA

N.T.S. 83F/11,12,13,14

Latitude 53° 36' N to 53°59' N
Longitude 117°25' W to 118°00' W

Kennecott Canada Exploration Inc.
354 - 200 Granville Street
Vancouver, BC
V6C 1S4

Prepared by: Susan Ball

September 1997

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1.0 SUMMARY

The New Claymore claims comprise 91, 414.00 hectares north of Hinton, Alberta and are part of a group of claim blocks collectively known as the Masumeka property. Mineral grains indicative of possible diamond-bearing kimberlites have been recovered from stream sediment samples on the property. Exploration work has been conducted by Kennecott Canada Exploration Inc. from 1996 until present. Prior to that, Montello Resources of Vancouver was operator. Work filed in this report includes ground geophysical surveys, heavy mineral sampling and processing, and diamond drilling.

In 1996, geophysical ground surveys were conducted over airborne geophysical anomalies on the property. In 1997, several of these anomalies were tested with diamond drilling. To date, no kimberlitic bodies have been identified on the New Claymore claim block.

2.0 INTRODUCTION

The New Claymore ground is situated in a geological setting conducive to the occurrence of diamondiferous deposits. Alberta is underlain by large areas of Precambrian crust that may have acted as 'cool roots' allowing for diamond-bearing source rocks to remain stable in the mantle beneath Alberta.

Mineral grains indicative of a kimberlite occurrence have been identified in the claim area, suggesting a nearby source. Work to date has focused on extensive stream sediment sampling, indicator work, airborne and ground geophysics, and diamond drilling.

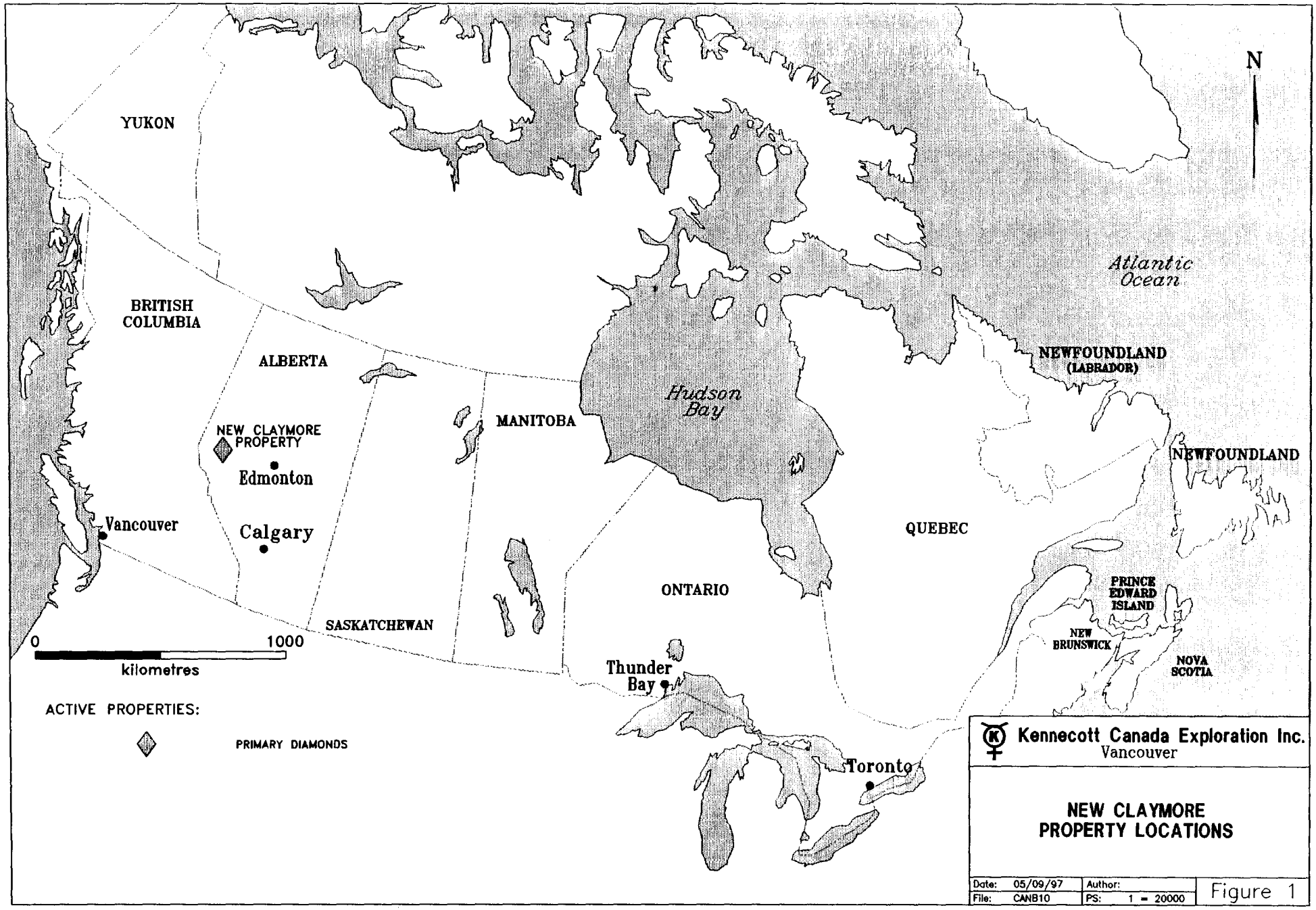
3.0 LOCATION AND ACCESS

The New Claymore claims are located between latitudes 53°36'N and 53°59'N and longitudes 117°25'W and 118°00'W on the 1:50,000 NTS sheets 83F/11, 83F/12, 83F/13, and 83F/14 (Figure 1). The property is approximately 30 km north of Hinton, Alberta.

1996 and 1997 exploration activities were conducted out of Hinton. Access to Hinton is 275 km by Highway 16, west from Edmonton. The property is easily accessed via existing Weldwood logging roads, and locally via oil and gas company roads. Seismic lines provide good all-terrain-vehicle (ATV) access in summer and snowmobile access during the winter months.

4.0 PHYSIOGRAPHY AND CLIMATE

The New Claymore property lies within the physiographic region known as the southern Canadian Interior Plains, and borders on the eastern margin of the Rocky Mountain Foothills. The mid-boreal forest covers the property, interspersed with bogs in local lowlands.


N
YUKON
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEWFOUNDLAND (LABRADOR)
NEWFOUNDLAND
PRINCE EDWARD ISLAND
NEW BRUNSWICK
NOVA SCOTIA
Atlantic Ocean
Hudson Bay
NEW CLAYMORE PROPERTY
Edmonton
Calgary
Vancouver
Thunder Bay
Toronto
0
1000
kilometres
ACTIVE PROPERTIES:
PRIMARY DIAMONDS
Kennecott Canada Exploration Inc.
Vancouver
NEW CLAYMORE PROPERTY LOCATIONS
Date: 05/09/97
File: CANB10
Author:
PS: 1 = 20000
Figure 1

The Athabaska River Valley lies to the south of the property, dividing the Alberta Plateau (to the north) from the Alberta Plain to the south. Landforms, relief and drainage have been influenced by the effects of several periods of glaciation and by post-glacial fluvial processes. The topographic relief is low to moderate ranging from about 1020 meters in lowlands to 1350 meters on the uplands. River valleys are commonly narrowly incised. The main drainage pattern is to the northeast, perpendicular to the trend of the Rocky Mountains. Water levels vary greatly with the season, from high during spring melt to very low or occasionally dry at the end of summer.

Quaternary and Tertiary sections outcrop locally, mainly along stream cut banks and road cuts. The till blanket varies from centimeters up to ten's of meters thickness.

The climate from late October to early April is generally cold with significant snowfall, although Chinook conditions can occur throughout the winter months. Temperatures range from a high of approximately 30°C in summer to minimums which fall below -30°C in winter. Daylight varies from eight hours in winter to 18 hours in summer.

The local fauna consists of elk, moose, deer, caribou, black and grizzly bears, wolves, and small mammals. Many of the larger streams and lakes contain fish and support bird life.

5.0 PROPERTY DEFINITION

The New Claymore Property consists of 10 Metallic and Industrial Minerals Permits covering a land base of 91,414.00 hectares (Figure 2). Claims, with anniversary dates are presented below in Table 1.

Table 1 - New Claymore Claims

Claim	Hectares	Anniversary Date
9393031002	8960.00	June 30, 1997
9393031003	9216.00	June 30, 1997
9393031004	9216.00	June 30, 1997
9393031005	9216.00	June 30, 1997
9393031006	9216.00	June 30, 1997
9393031007	9216.00	June 30, 1997
9393031008	9216.00	June 30, 1997
9393031009	9216.00	June 30, 1997
9393031010	9216.00	June 30, 1997
9393031011	8726.00	June 30, 1997

6.0 PREVIOUS WORK

The area covered by the New Claymore claims received relatively little attention from mining companies or government agencies prior to 1993. Since this time, reconnaissance exploration for diamond indicators has been ongoing.

The following is a brief summary of those workers who have studied and/or mapped parts of the region:

Langenberg, C.W. and Skupinski, A.,1996. AGS Open File 1996-09. The Provenance of Diamond Indicator Minerals in the Bedrock of the Hinton Area, Alberta Foothills.

Gilmour, W.R., 1995. Report on the Hinton Property, Alberta. Prepared by Discovery Consultants for Montello Resources Ltd.

Roed, M.A., 1968. Surficial Geology of the Edson-Hinton Area, Alberta. University of Alberta Doctoral Thesis.

Roed, M.A., 1970. Surficial Geology of Edson, NTS 83F. Alberta Research Council.

7.0 REGIONAL GLACIATION

During the Pleistocene period Alberta was subjected multiple times to glaciation both by the Continental ice sheets and by Cordilleran-Rocky Mountain glaciers. In general, the glaciers advanced over Alberta from (1)the northeast or north which is commonly referred to as the Laurentide source, and (2) the west, which includes both Cordilleran and Rocky Mountain sources. The flow of both the Cordilleran (originating in the interior of British Columbia and bringing material from west of the Rocky Mountain Trench) and the Rocky Mountain (originating in the Rocky Mountains and flowing eastward onto the plains) glaciers was influenced within the mountains by the presence of valleys and low passes between valleys. Those valley glaciers which reached the Foothills and Plains spread out to form piedmont glaciers until they were deflected southward by intersection with the Laurentide glaciers. Figure 3 shows the ice-flow directions indicated by the surface features in Alberta (Dufresne et al. 1994).

The majority of the eastward glacial advances came from Rocky Mountain sources. Ice from Cordilleran glacial centers flowed over and east of the Rocky Mountains only on a few occasions. The most recent Cordilleran event was the valley glacier that flowed out of the Athabaska valley and was deflected southeastward, becoming confluent with the Laurentide glacial ice. This flow of mixed Cordilleran and Laurentide ice along the eastern margin of the Foothills formed the Athabaska Valley erratics train and Foothills erratics train (Roed 1975).

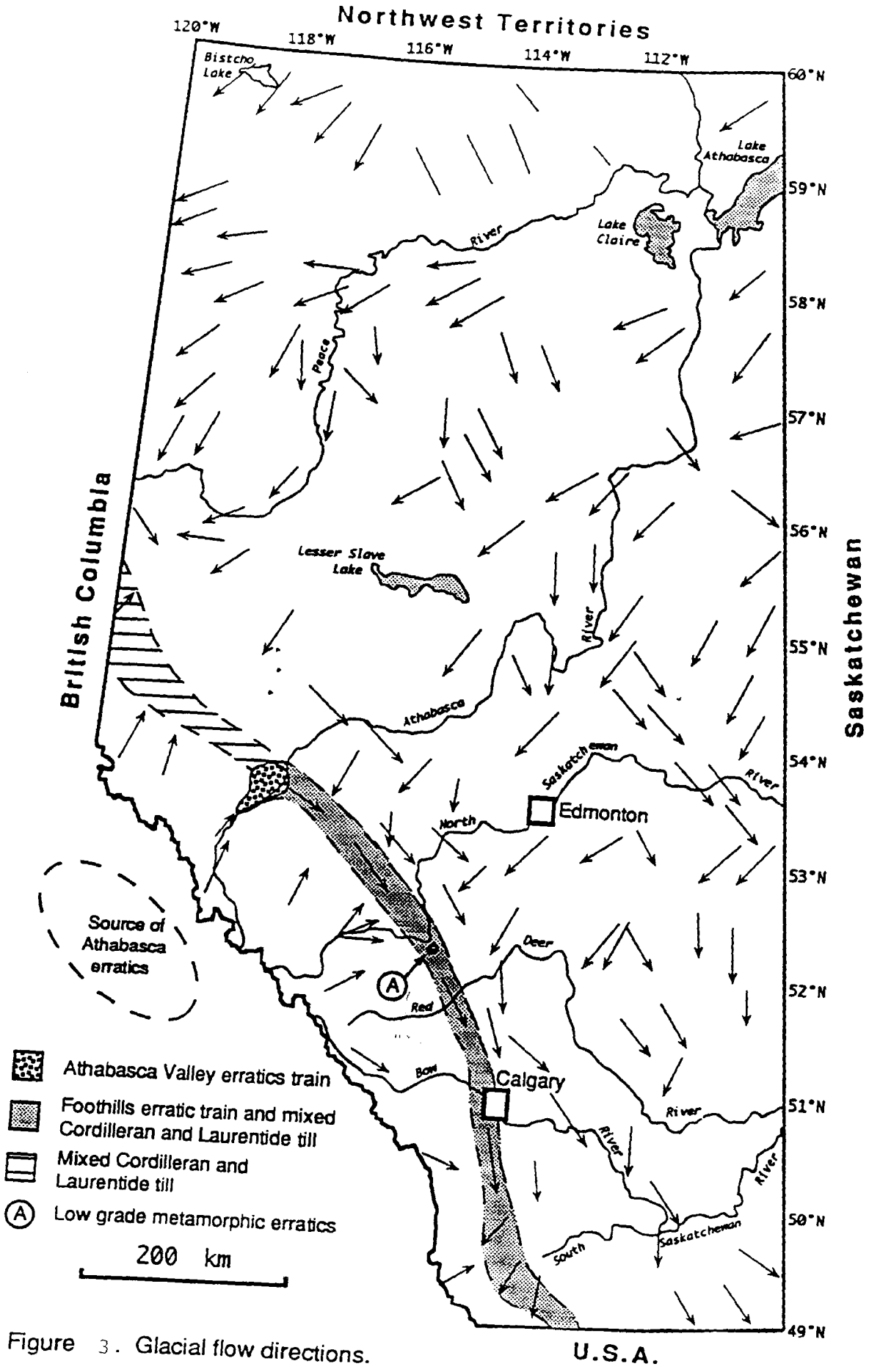


Figure 3. Glacial flow directions.

Local topographic highs (Tablelands) such as Obed Mountain, north of Hinton contain preglacial sands and gravels deposited from sources to the west, the result of drainage from the mountains across the plains prior to continental glaciation.

The surficial materials of the New Claymore block consist dominantly of the Marlboro Till and the younger Obed Till, both having a Cordilleran source (Roed, 1965). Colluvium occurs mainly on some of the steeper slopes and is largely derived from glacial till, although some may be derived from preglacial gravel and weathered bedrock.

8.0 REGIONAL GEOLOGY AND TECTONIC HISTORY

The New Claymore property is situated in west-central Alberta on the North American Craton near its western boundary immediately east of the Cordillera. The craton is overlain by sedimentary rocks of Paleozoic through Cenozoic age. Cretaceous and Tertiary strata are known from outcrop in the Hinton region. The entire Upper Cretaceous-lower Tertiary sequence of strata above the Upper Cretaceous Alberta Group is nonmarine in the central Alberta Foothills. The top of the sequence is erosional so that the thickness varies greatly from one area to another. The maximum estimated thickness is over 3600 m (Jerzykiewicz 1980).

The late Cretaceous - Tertiary bedrock formations of central Alberta form the uppermost portion of a thick succession of clastic rocks ranging in age from Jurassic to Tertiary, which were deposited in a gently subsiding basin flanking highlands situated to the south and west of the present day Rocky Mountains. Lithologies include sandstone with subordinate conglomerate, siltstone, mudstone, and coal. Bentonite and tuff beds, making up a small portion of the total section, are important marker beds in some areas. Layers of bentonite clay or clay-shale are associated with some coal seams. Episodic tectonic uplifts in the highlands to the west provided the source for these sediments which accumulated in the basin to the east.

9.0 PROPERTY GEOLOGY

Paleocene strata of the Paskapoo Formation comprise all known surficial bedrock occurrences on the New Claymore property. The Paskapoo consists of at least 1500 m of thick alluvial sandstone and mudstones above the uppermost coal seam of the Coalspur Formation. The High Divide Ridge Conglomerate forms part of the Paskapoo Formation and is stratigraphically about 1000 m above the base of the Paskapoo.

Surficial bedrock occurrences on the property are rare. The sandstone, siltstone, and mudstone of the Paskapoo Formation are weakly cemented by clay and calcite. The upper sequences of the Paskapoo are extensively weathered.

The Paskapoo Formation bedrock is in turn underlain by late Cretaceous, Brazeau Formation bedrock, which is generally similar in gross lithology and virtually indistinguishable

macroscopically from the Paskapoo Formation.

10.0 DIAMOND EXPLORATION PROGRAM TO DATE

Exploration work carried out between 1993 and 1995 is summarized as follows:

Fall 1993 Stream sediment sampling to check for diamond indicator minerals conducted by New Claymore Resources

May - July, 1994 Dighem airborne magnetic survey. 21, 500 line-km flown

Summer 1994 Stream sediment sampling to check for diamond indicator minerals conducted by Montello Resources.

11.0 DIAMOND EXPLORATION WORK PROGRAM 1995 to 1997

The diamond exploration program on the New Claymore claims consists of three main branches: ground geophysics, heavy mineral sampling and diamond drilling.

Twenty seven ground magnetic surveys were completed on the New Claymore ground during January and February of 1996 by Amerok Geosciences Ltd. Ten of these magnetic anomalies were tested with NanoTEM surveys conducted by Zonge Engineering. Detailed ground magnetic surveys of ten grids were carried out by Kennecott staff to infill work previously done by Amerok.

During 1995 and 1996, 100 stream sediment samples were collected on the property. These samples were processed for diamond indicator minerals.

From January to March of 1996, five magnetic anomalies on the New Claymore property were drilled. A total of ten holes were completed. No kimberlite was intersected.

12.0 GEOPHYSICAL PROGRAM

12.1 Geophysical Program to Date

The entire assessment area has been covered by an airborne magnetic survey completed by Dighem in 1994. The survey was flown at 40 meters terrain clearance with a line spacing of 200 meters. The data was used to select magnetic targets for ground testing.

Individual airborne anomalies consist of a discrete magnetic signature, either high or low. These signatures are typically less than one kilometer in diameter. Anomalies may or may not have short strike length conductivity highs associated with them related to clays as a weathering product.

Kimberlites are rarely known to occur in outcrop. Each individual anomaly was ground checked to determine if the airborne target could be explained in outcrop or by cultural effects.

12.2 1996 Ground Geophysical Surveys

Magnetic Surveys

Geophysical grids were laid out and preliminary ground magnetic surveys were conducted by Amerok Geosciences Ltd. of Whitehorse, YT during January and February, 1996.

Ten infill ground magnetic surveys were completed on the New Claymore property during June and July, 1996. The surveys were conducted on established grids, over selected anomalies that were previously surveyed by Ameroc. Crews were mobilized to and from the project area via a combination of 4x4 truck and ATV support, with the exception of NC-10 which was helicopter accessed.

Targets from the airborne survey are identified by the prefix "NC", and by a number (e.g. NC-19). Individual ground magnetic surveys are located in Appendix II.

Table 2: Summary of Ground Magnetometer Surveys

	UTM	
NC-01	438650E	5981150N
NC-02	444300E	5975000N
NC-03	470450E	5950550N
NC-04	472100E	5951300N
NC-05	458300E	5954500N
NC-06	467900E	5979200N
NC-07	470700E	5978900N
NC-08	444800E	5972050N
NC-09	444400E	5975600N
NC-10	446000E	5975480N
NC-11	450600E	5970000N
NC-12	464900E	5964500N
NC-13	458800E	5980400N

NC-14	468800E	5968500N
NC-15	470200E	5964200N
NC-16	472000E	5950100N
NC-17	472100E	5949950N
NC-18	466400E	5943400N
NC-19	458650E	5954440N
NC-20	435820E	5973200N
NC-22	442800E	5974600N
NC-25	447750E	5973700N
NC-38	462400E	5973000N
NC-44	465825E	5975650N
NC-45	469250E	5979825N
NC-48	468400E	5974100N
NC-59	465850E	5943700N

EM Surveys

Nine transient EM surveys were conducted by Zonge Engineering and Research Organization of Arizona over previously established UTM grids. stations were surveyed at 50 meter station spacing and at 50 or 100 meter line spacing. The survey took place during June and July, 1996. All field equipment was provided by Zonge Engineering (Appendix III).

12.3 1997 Down Hole Geophysics

In March 1997, drill hole NC44-1 was cased with PVC pipe in order to allow for downhole probing by Komex International of Calgary, Alberta. Three methods were employed: magnetic susceptibility, gamma, and induction probing. See Appendix IV for Komex report.

13.0 HEAVY MINERAL SAMPLING PROGRAM

A regional stream sediment sampling program carried out during the summers 1995 - 1996 resulted in the collection of 100 samples on and adjacent to the New Claymore block.

The sampling program was conducted from July to October, using a combination of 4x4 truck and ATV support. Crews of two people evaluated and sampled selected sites. Where a

particular site was deemed unsuitable, crews scouted streams for an alternate site and/or ruled out poor sites as suitable for sampling. Heavy mineral trap sites such as gravel bars or plunge pools were chosen as the best medium from which to obtain samples most likely to contain indicator grains.

Stream sediments were coarse sieved on site in order to retain the -2mm size fraction. An approximately 20 kg sample was sieved using water from its parent stream. Samples were collected in plastic pails and excess water poured off, then stored for up to three months before being shipped to Rio Tinto's lab in Perth, Australia. A silt sample was taken from each site for ICP analysis at Chemex Laboratories in Vancouver, BC.

Samples with the prefix NC were sent to Loring Laboratories in Calgary, AB for heavy mineral analysis.

Rock and esker samples collected during 1996 were sent to Kennecott Laboratories in Thunder Bay, ON for heavy mineral analysis.

13.1 Heavy Mineral Sample Processing

During 1996 and 1997, the bulk of sample processing took place at Rio Tinto's heavy mineral laboratory in Perth, Australia. Sample processing consists of a series of procedures in order to concentrate the sample down to its heavy mineral constituents. These steps are as follows:

1. De-sliming
2. Splitting into non-magnetic and magnetic fractions on a rare earth magnetic separator
3. Heavy liquid (SG 2.8) separation of quartz from the non-magnetic fraction
4. Removal of background light heavy minerals (eg. amphiboles) by heavy liquid (SG 3.25) from magnetic fraction
5. The magnetic fraction is further processed using other methods to separate kimberlitic indicator minerals from other background minerals, such as crustal garnet and ilmenite
6. The resultant concentrates were examined grain by grain under a binocular microscope by trained observers and any indicator or potential indicator minerals were removed from the sample
7. Scanning electron microscope used to distinguish pyrope from grossular garnets

13.2 Heavy Mineral Concentrate Microscope Examination

Microscopic examination ("picking") of the heavy mineral concentrates was conducted by Rio Tinto staff trained to recognize kimberlitic indicator minerals. Picking was done from December 1996 to June 1997 at the Rio Tinto Lab in Perth, Australia. Staff use a binocular microscope. Select grains are collected, vialed, and catalogued.

Picked grains from microscopy are studied in detail under a scanning microscope and those with

the most merit are selected, described in detail, then submitted for electron microprobe analysis. Major oxide chemistry is then studied to determine the affinity of the probed mineral grain.

Samples submitted to Loring Laboratories were processed according to the methodology outlined in Appendix VIII.

13.3 Discussion of Heavy Mineral Sample Results

Of 100 stream sediment samples collected on the New Claymore ground, heavy minerals with possible kimberlitic affinity were recovered from most samples.

Select grains from samples collected during 1994 were processed for specific minerals and had electron microprobe analysis performed by R.L. Barnett Geological Consulting Inc. of London, Ontario. Bob Barnett operates a JEOL 750 five-spectrometer electron microprobe using well tested mineral standards to analyze minerals.

The objective of stream sediment sampling is to locate kimberlite bodies that may occur upstream from heavy mineral trap sites within streams. Kennecott collects and analyses all kimberlitic xenocrysts that occur in stream sediment heavy mineral concentrates, and uses a BASIC program called Min-id, written by Malcolm Gent, a researcher with Saskatchewan Energy and Mines, to differentiate kimberlitic from non-kimberlitic heavy minerals. A suite of popular X-Y mineral plots are used to further study various kimberlitic minerals.

14.0 EXPLORATION DRILLING

14.1 Target Definition

In the 1997 exploration drilling program, five magnetic highs (NC-05, NC-19, NC-20, NC-44, NC-45) were chosen as targets for drilling. No kimberlite was intercepted during this program.

14.2 Logistics and Drilling Results

From January to March,1997, Aggressive Diamond Drilling Ltd. of Kamloops, BC was contracted to carry out diamond drilling on the New Claymore permits utilizing a Longyear Super 38 drill.

A total of 1792 meters of NQ core were drilled in ten holes. None of the holes intercepted kimberlite. Drill logs are presented in Appendix X.

Table 3: Summary of Drill Holes

HOLE #	EASTING	NORTHING	AZIMUTH	ANGLE	TOTAL DEPTH	KIMBERLITE FROM	KIMBERLITE TO
NC05-1	458300	5954500	NA	-90	221.59	NA	NA
NC05-2	458230	5854550	308	-50	188.1	NA	NA
NC19-1	458669	5954445	NA	-90	188.06	NA	NA
NC19-2	458636	5954515	330	-50	178.92	NA	NA
NC20-1	435812	5973210	NA	-90	181.97	NA	NA
NC20-2	435778	5973152	214	-50	194.16	NA	NA
NC44-1	465825	5975640	NA	-90	136.25	NA	NA
NC44-2	465830	5975575	177	-50	185.01	NA	NA
NC45-1	469238	5979835	NA	-90	139.29	NA	NA
NC45-2	469215	5979887	351	-50	178.92	NA	NA

14.3 Procedures

Drill holes were established with reference to the ground geophysical grids. All data points relating to the anomaly could be located with respect to grid pickets. UTM coordinates were used. Upon completion of each hole, all core was driven from the drill site to the Kennecott warehouse in Hinton where it was logged, sampled, then stored.

14.4 Sample Analysis

Five samples of 15 kg each were taken, two from drill hole NC44-1, and three from NC45-1. These were shipped to Kennecott Laboratories in Thunder Bay, ON for crushing and indicator analysis. Picking results are found in Appendix XI.

15.0 CONCLUSIONS AND RECOMMENDATIONS

Exploration on the New Claymore ground has not led to the discovery of any kimberlites.

16.0 BIBLIOGRAPHY

Dufresne, M.B. et al. (1994). The Diamond Potential of Alberta: A Regional Synthesis of the Structural and Stratigraphic Setting, and Other Preliminary Indications of Diamond Potential, A.R.C. Open File Report 1994-10.

Gilmour, W.R. (1995). Report on the Hinton Property, Alberta . Discovery Consultants, Vernon, BC for Montello Resources.

Jerzykiewicz, T. and McLean, J.R. (1980). Lithostratigraphical and Sedimentological Framework of Coal-Bearing Upper Cretaceous and Lower Tertiary Strata, Coal Valley Area, Central Alberta Foothills, G.S.C. Paper 79-12

Langenberg, W.C. and Skupinski, A. (1996). The Provenance of Diamond Indicator Minerals in the Bedrock of the Hinton Area, Alberta Foothills, A.G.S. Open File Report 1996-09.

Roed, M.A. (1968). Surficial Geology of the Edson-Hinton Area, Alberta. Doctoral Thesis. University of Alberta. Dept. of Geology.

Roed, M.A. (1975). Cordilleran and Laurentide Multiple Glaciation West-Central Alberta. Canadian Journal of Earth Sciences, Vol. 12, pp. 1493-1515.

Union Oil Co. of Canada Ltd. (1979) Obed-Marsh Thermal Coal Project, Volumes II - III.

APPENDIX I

PROJECT PERSONNEL AND

DAYS WORKED

PROJECT PERSONNEL AND WORK DATA

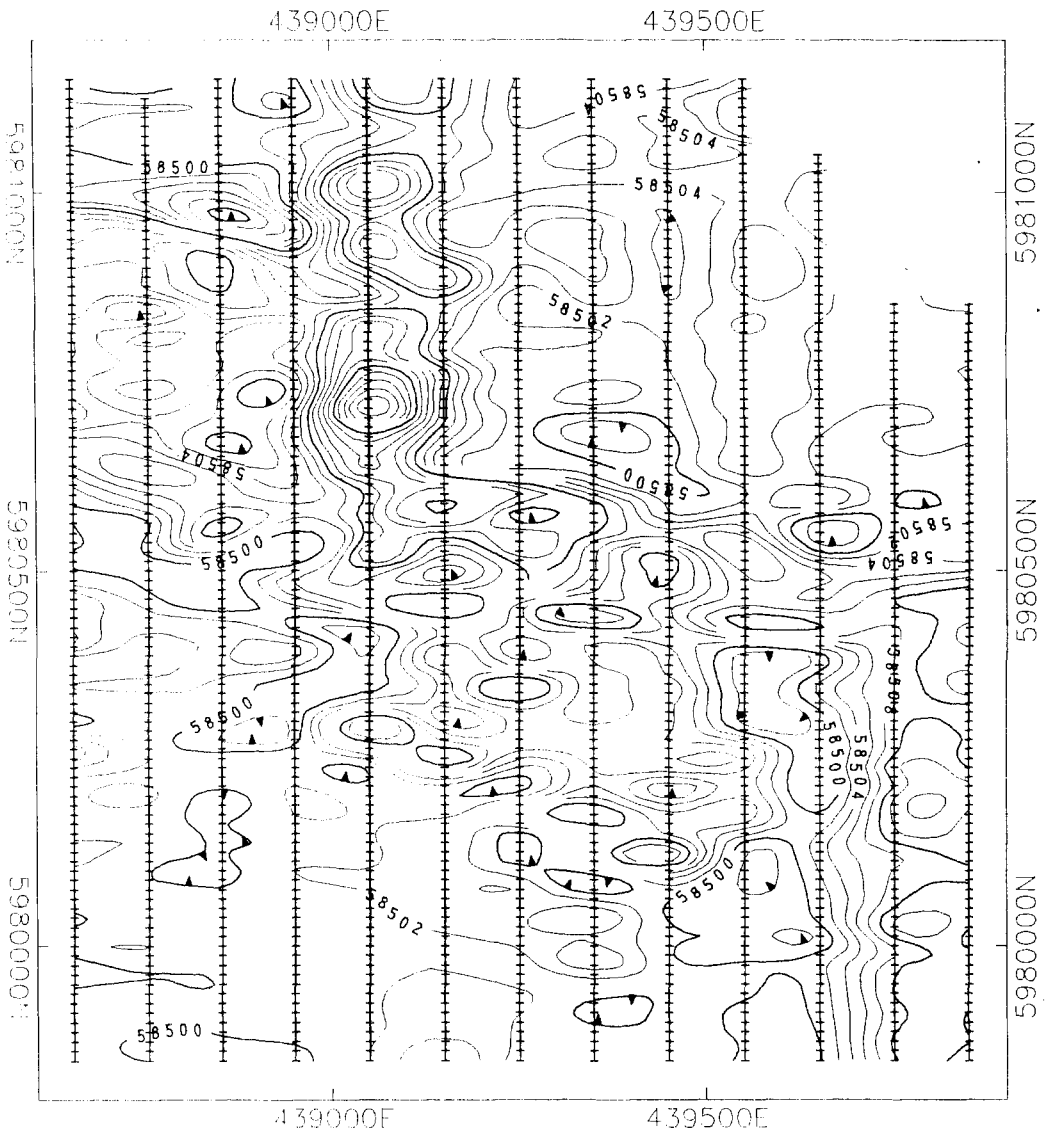
The following personnel were actively engaged in the exploration of the New Claymore claim block. Each individual worked on a number of properties being actively explored by Kennecott Canada Exploration Inc. The number of days worked directly on the New Claymore claim block and period during which the days were worked is indicated. The business address of all personnel is Suite 354 - 200 Granville Street, Vancouver, BC, V6C 1S4.

PERSONNEL	DAYS WORKED	PERIOD WORKED
Allen, W.	27	January - March 1997
Ball, S.	76	July 1996 - March 1997
Beck, R.	30	June - October 1996
Bordeleau, A.	14	September - October 1996
Dinning, R.	45	October 1996 - February 1997
Jansen, J	7	June 1996
Kelsch, D.	17	July 1996 - January 1997
Kivi, K.	1	August 1996
Masun, K.	12	June 1996
Macauly, C.	45	June - August 1996
Mueller, J.	41	July - October 1996
Muraro, T.	3	August - September 1996
van Egmond, R.	56	June 1996 - January 1997

Between March 1995 and March 1996, active exploration on the New Claymore permits was conducted by personnel employed by Montello Resources Ltd. of 1473-595 Burrard Street, Vancouver, BC.

APPENDIX II

GROUND MAGNETIC SURVEY FIGURES



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(meters)

KENNECOTT CANADA INC.

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MASUMEKA NC01
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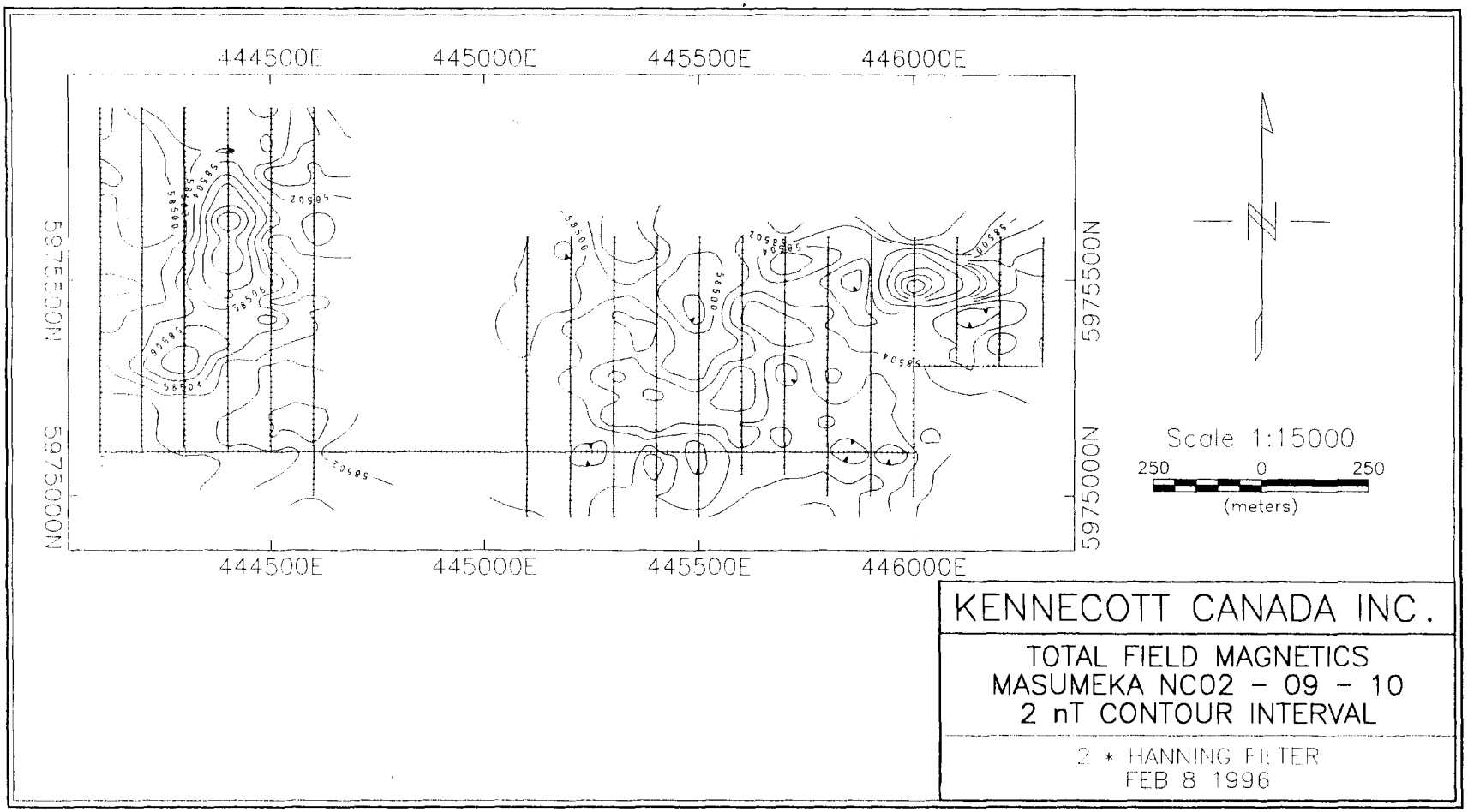
FEB 2 1996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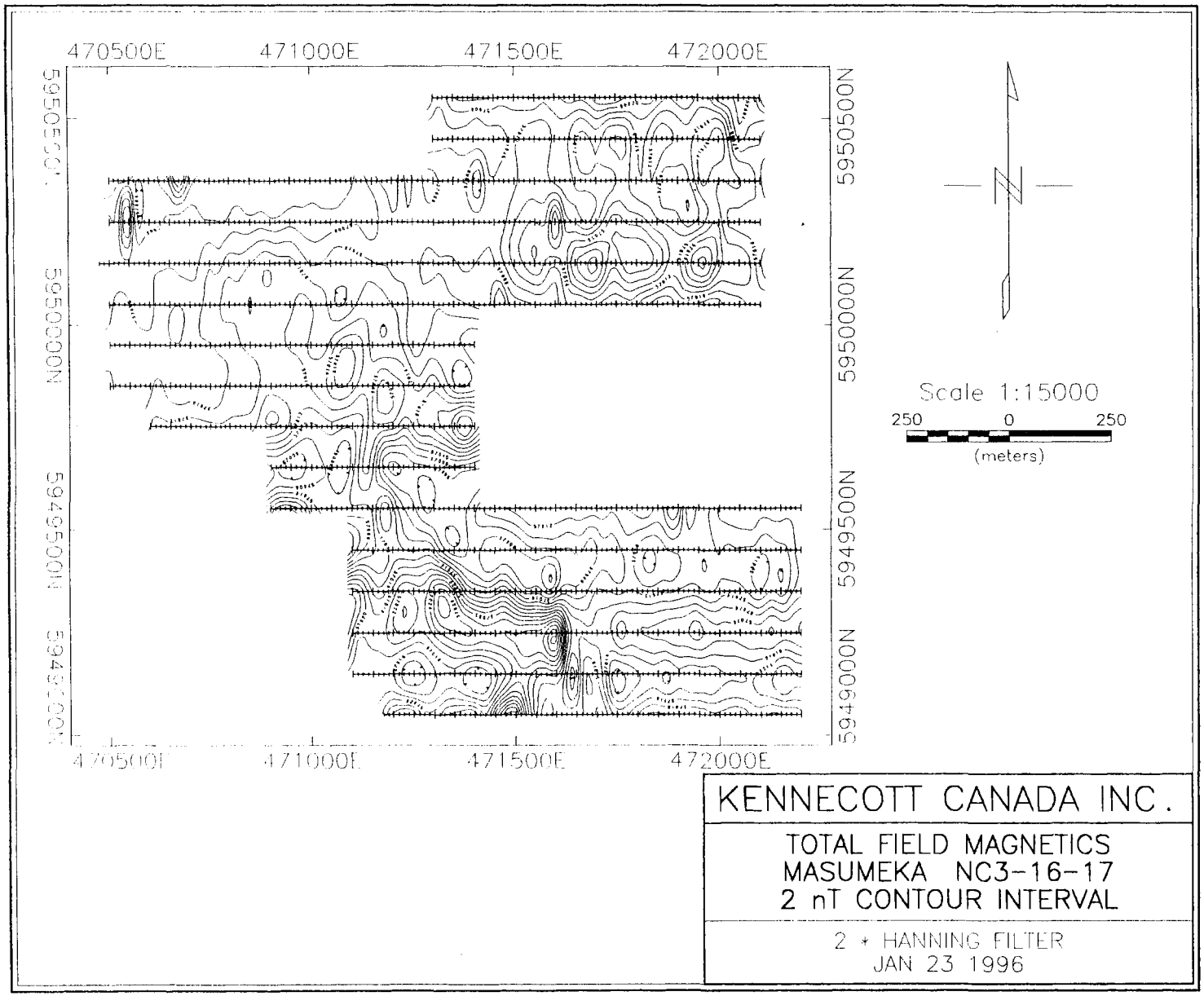

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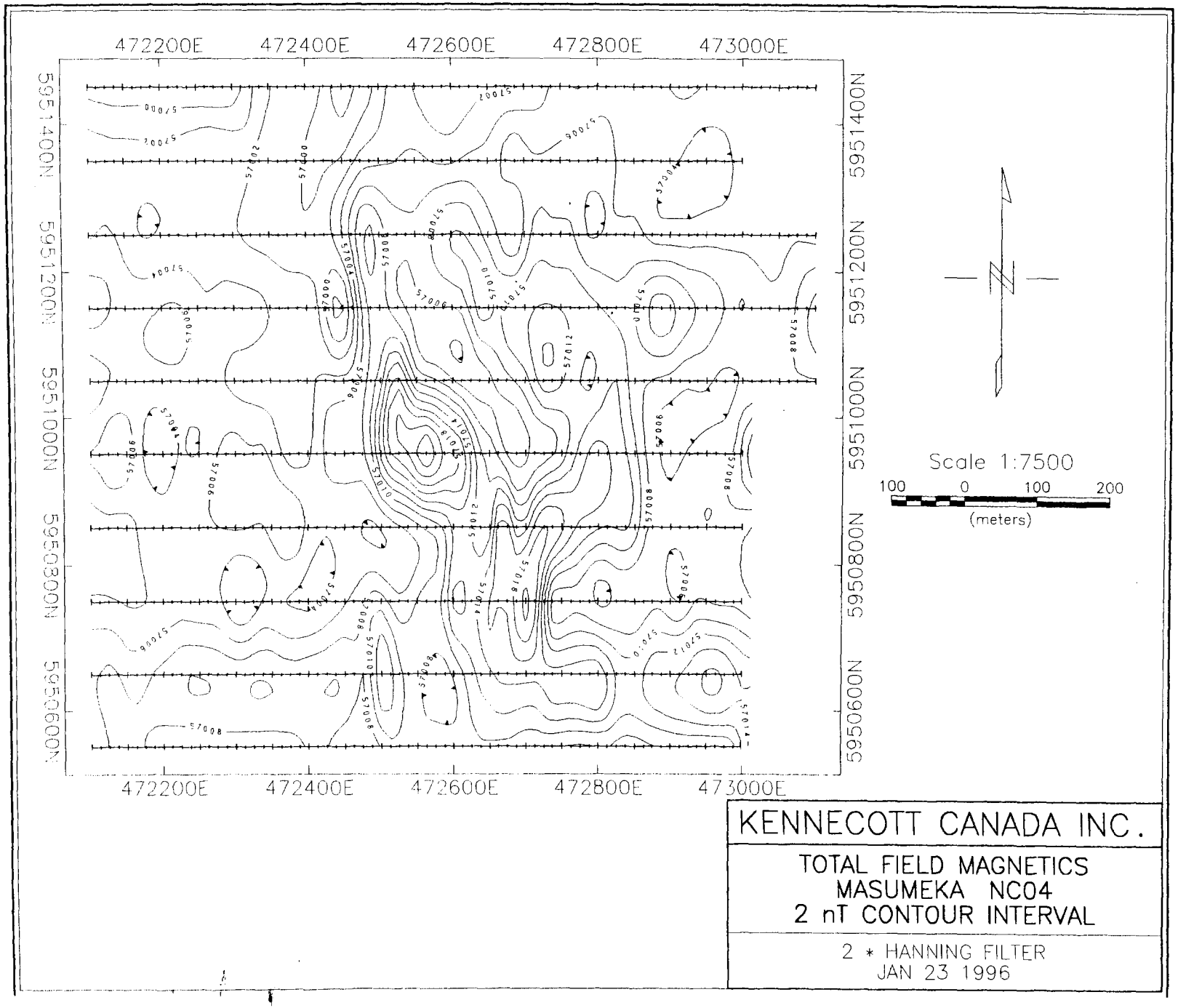

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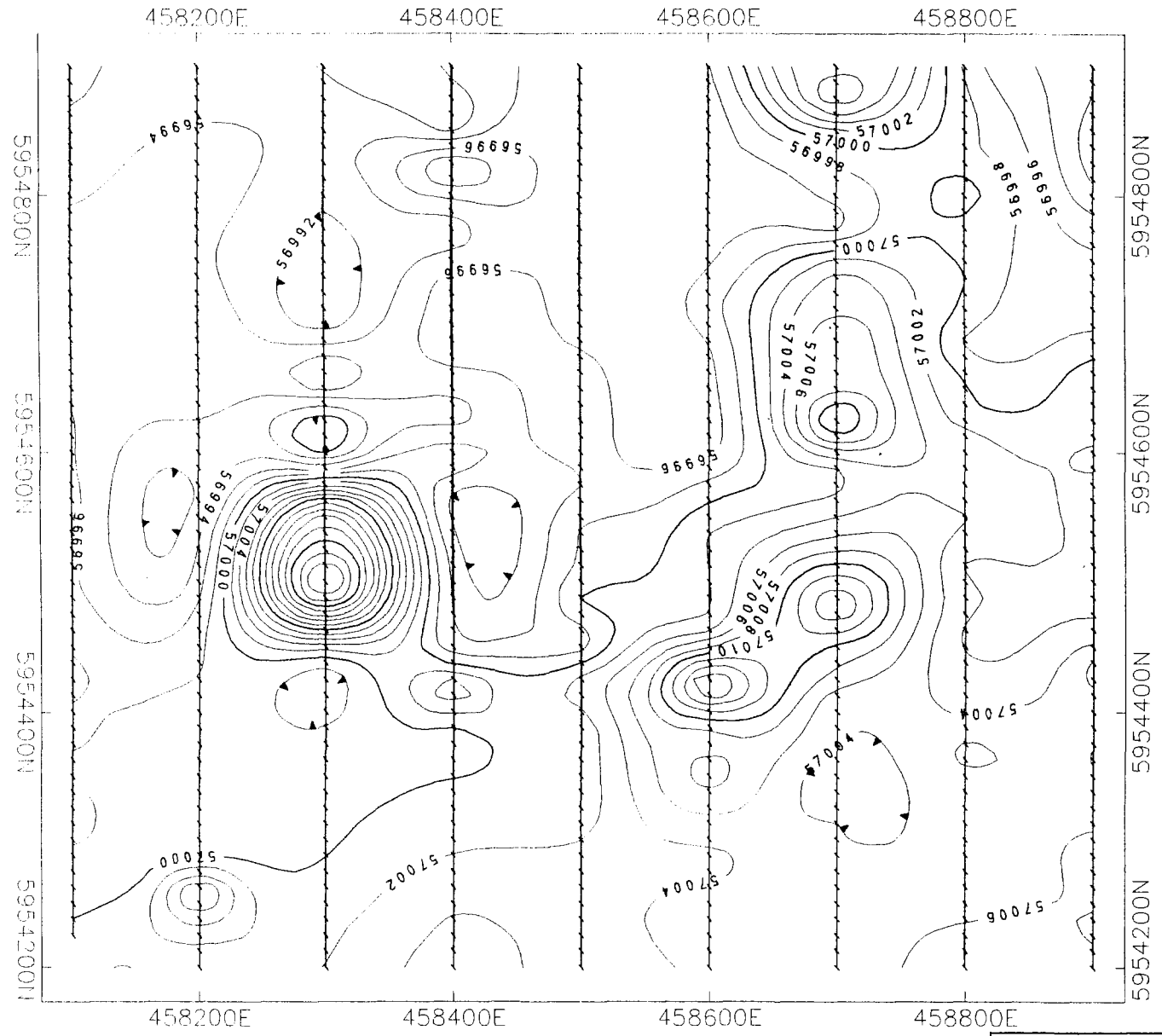

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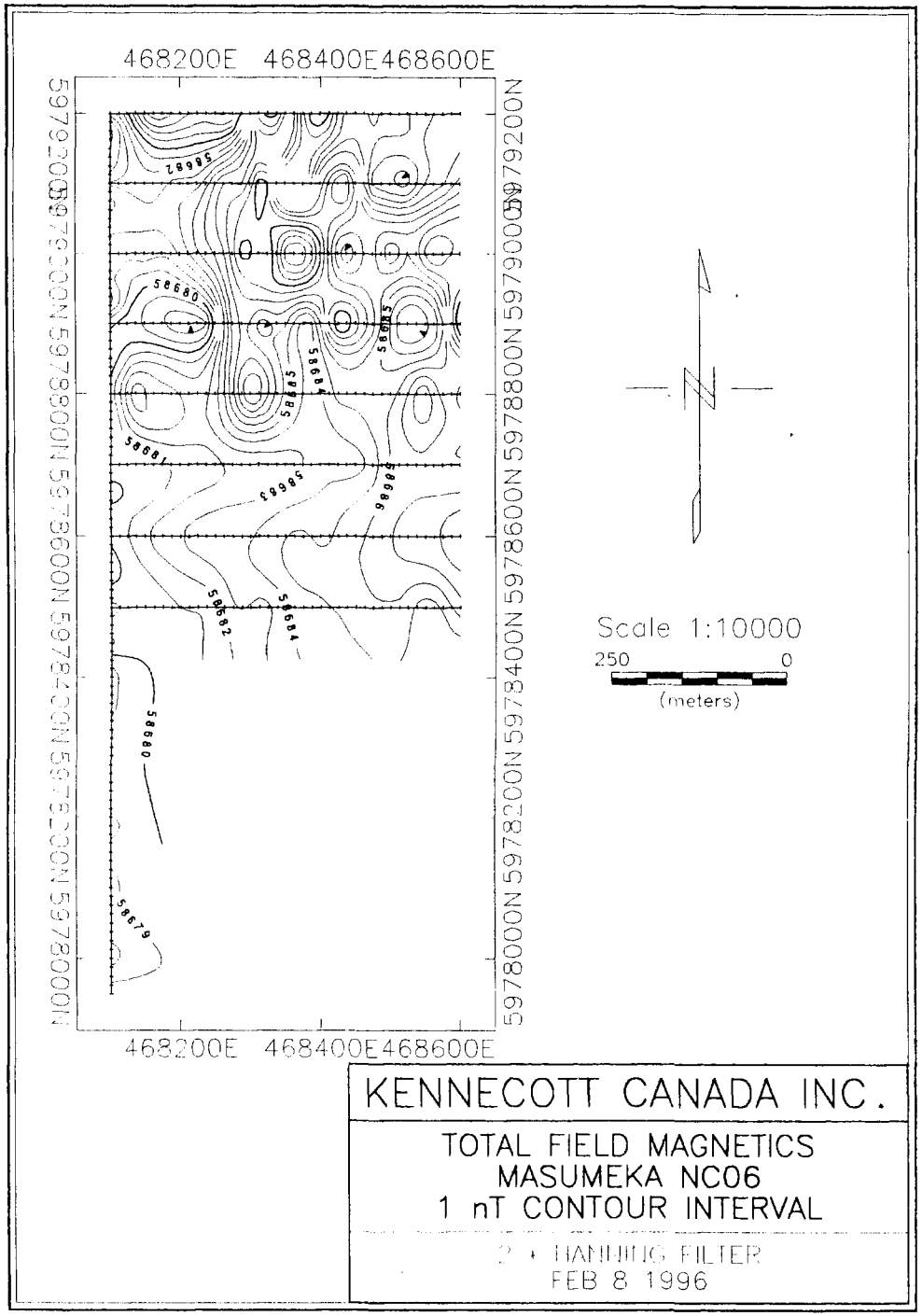
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(meters)
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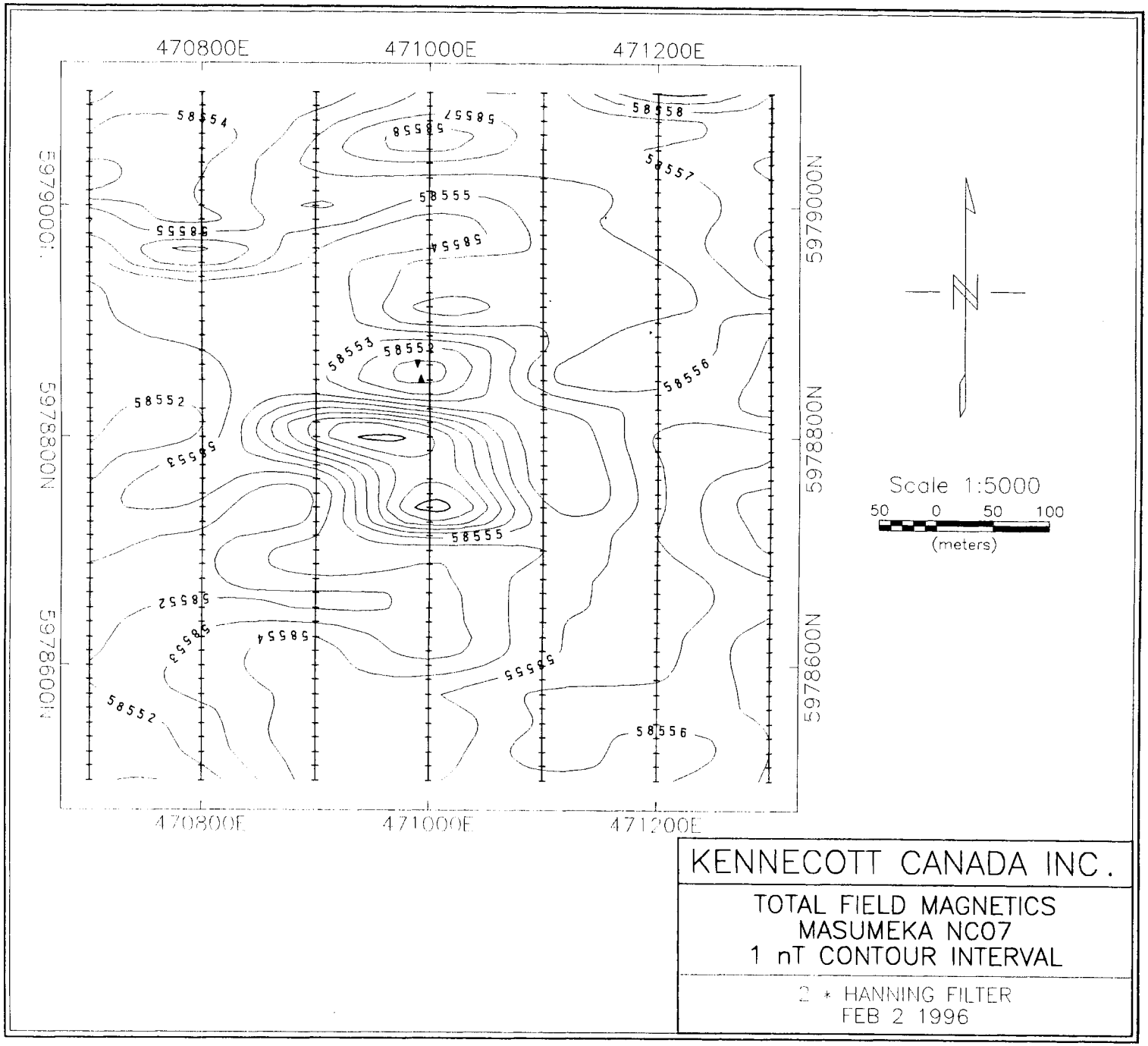
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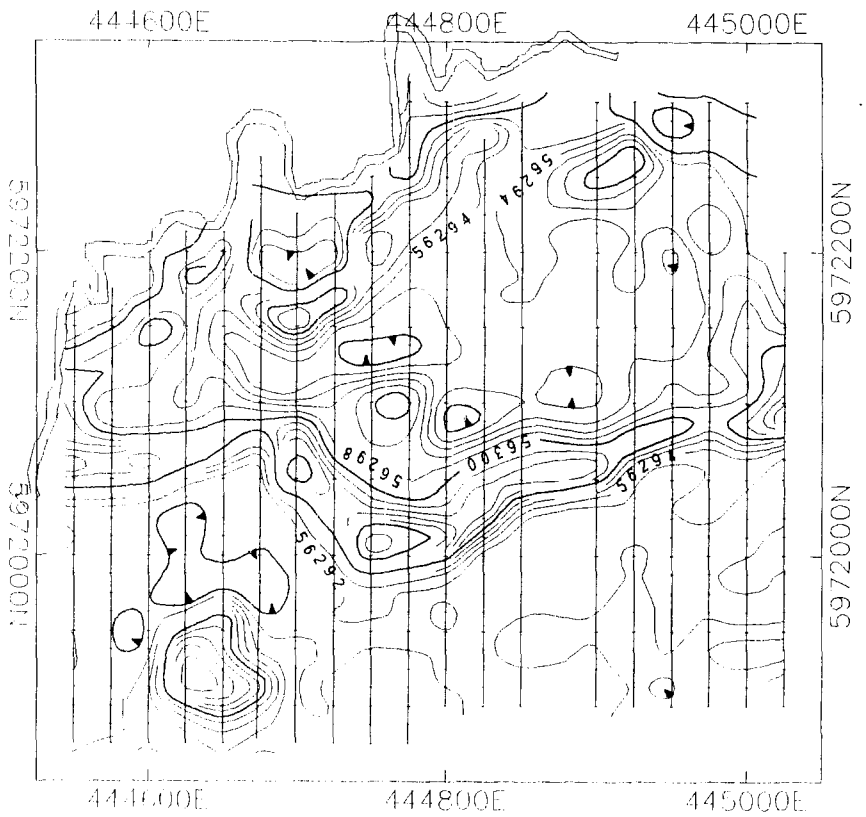

KENNECOTT CANADA INC.

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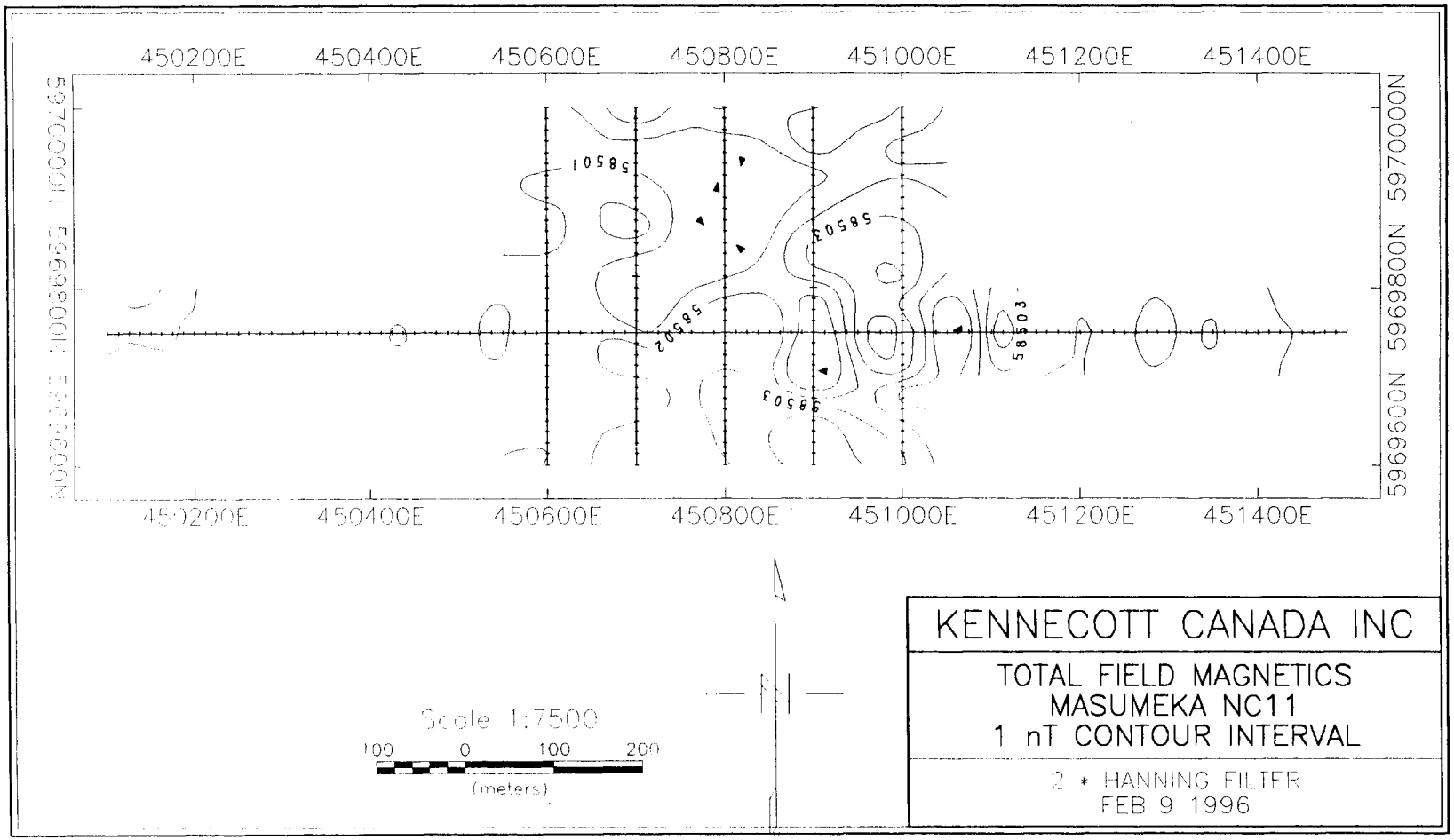
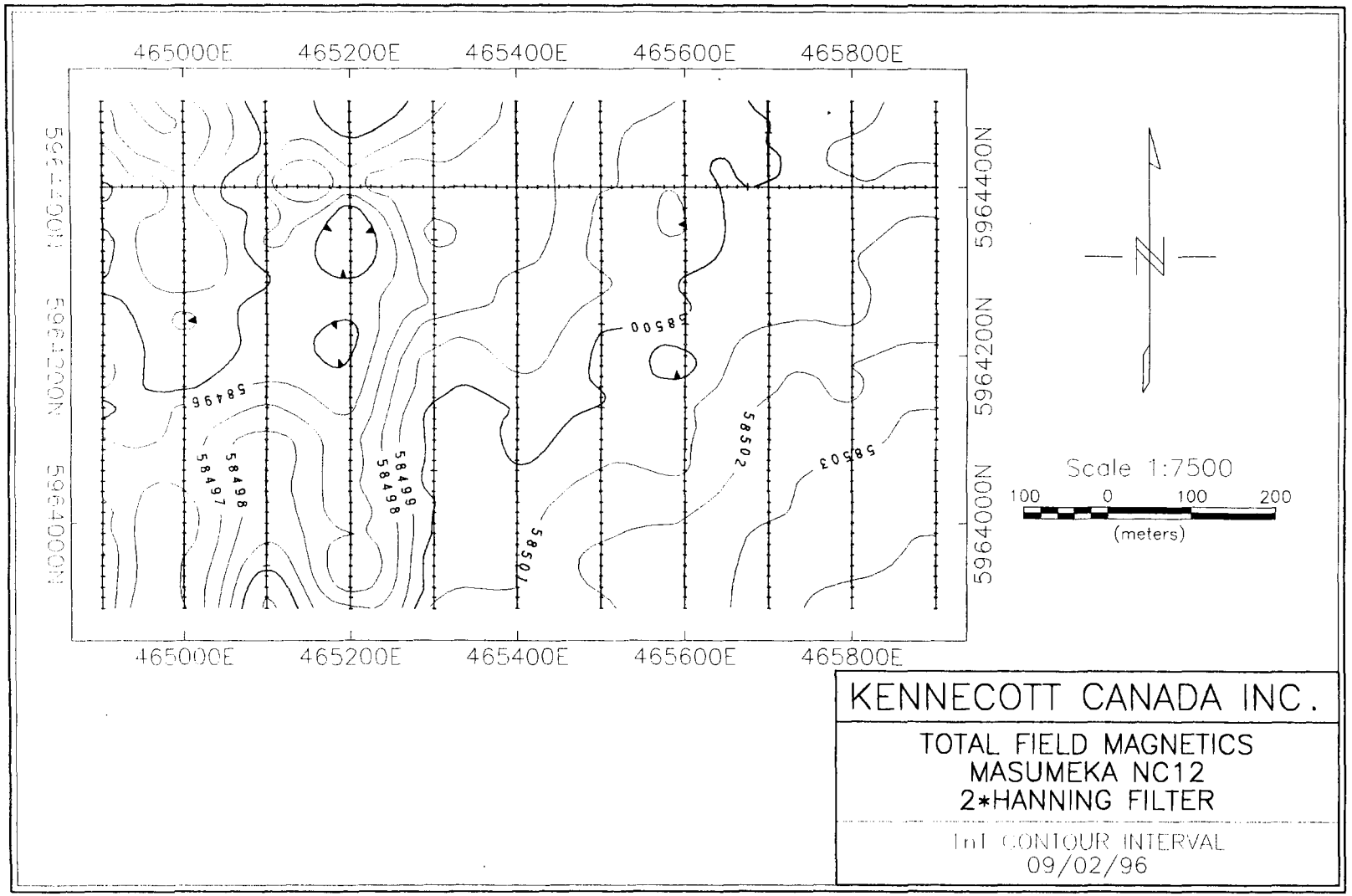
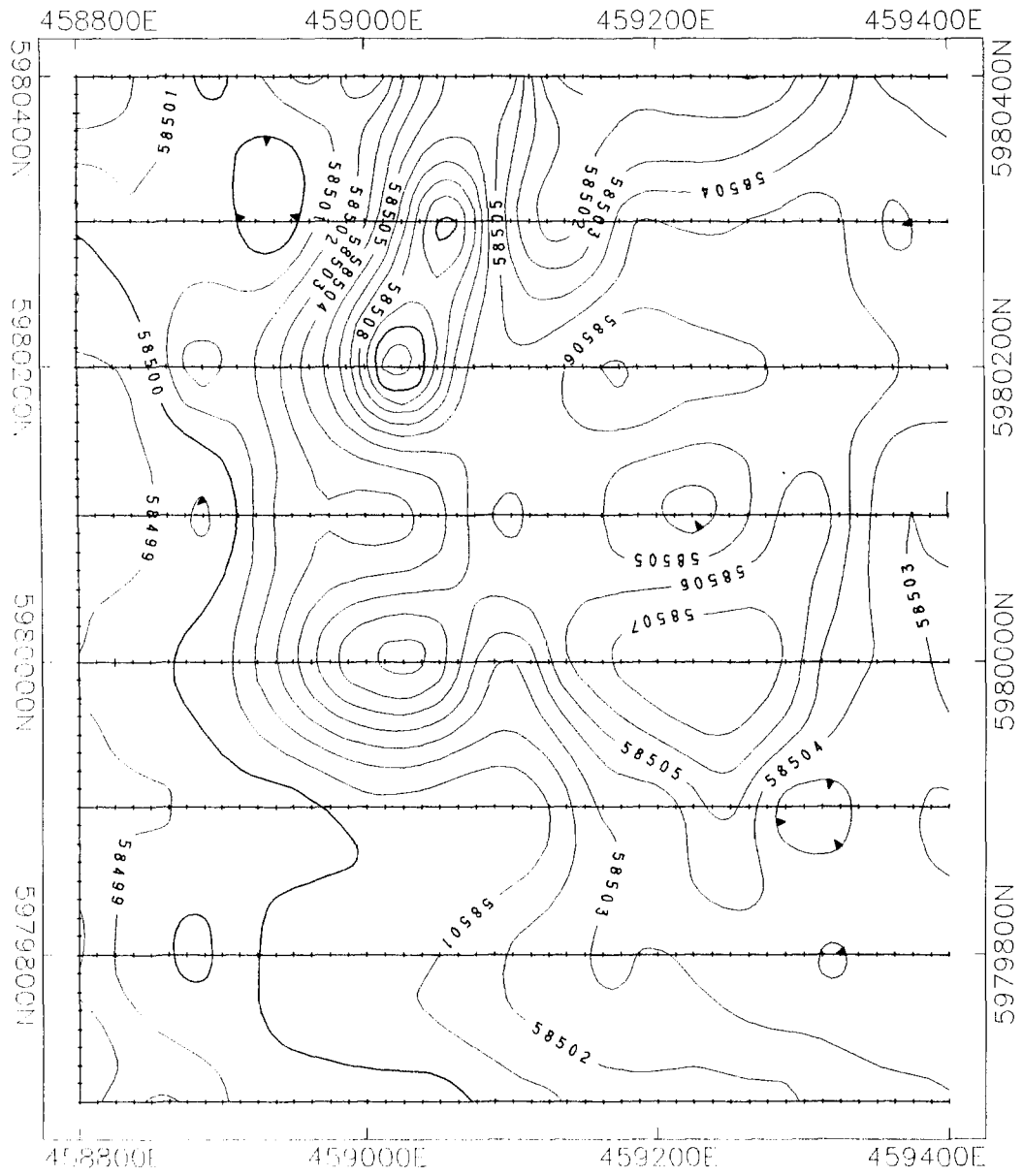
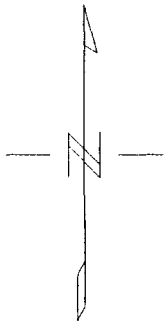
MASUMEKA NC08
2 nT CONTOUR INTERVAL

JULY 9, 1996


450200E
450400E
450600E
450800E
451000E
451200E
451400E
5969600N
5969800N
5970000N
58501
58502
58503
Scale 1:7500
100 0 100 200
(meters)
KENNECOTT CANADA INC
TOTAL FIELD MAGNETICS
MASUMEKA NC11
1 nT CONTOUR INTERVAL
2 * HANNING FILTER
FEB 9 1996


465000E
465200E
465400E
465600E
465800E
5964400N
5964200N
5964000N
58496
58497
58498
58499
58500
58501
58502
58503
Scale 1:7500
100 0 100 200
(meters)
KENNECOTT CANADA INC.
TOTAL FIELD MAGNETICS
MASUMEKA NC12
2*HANNING FILTER
1nT CONTOUR INTERVAL
09/02/96





Scale 1:5000

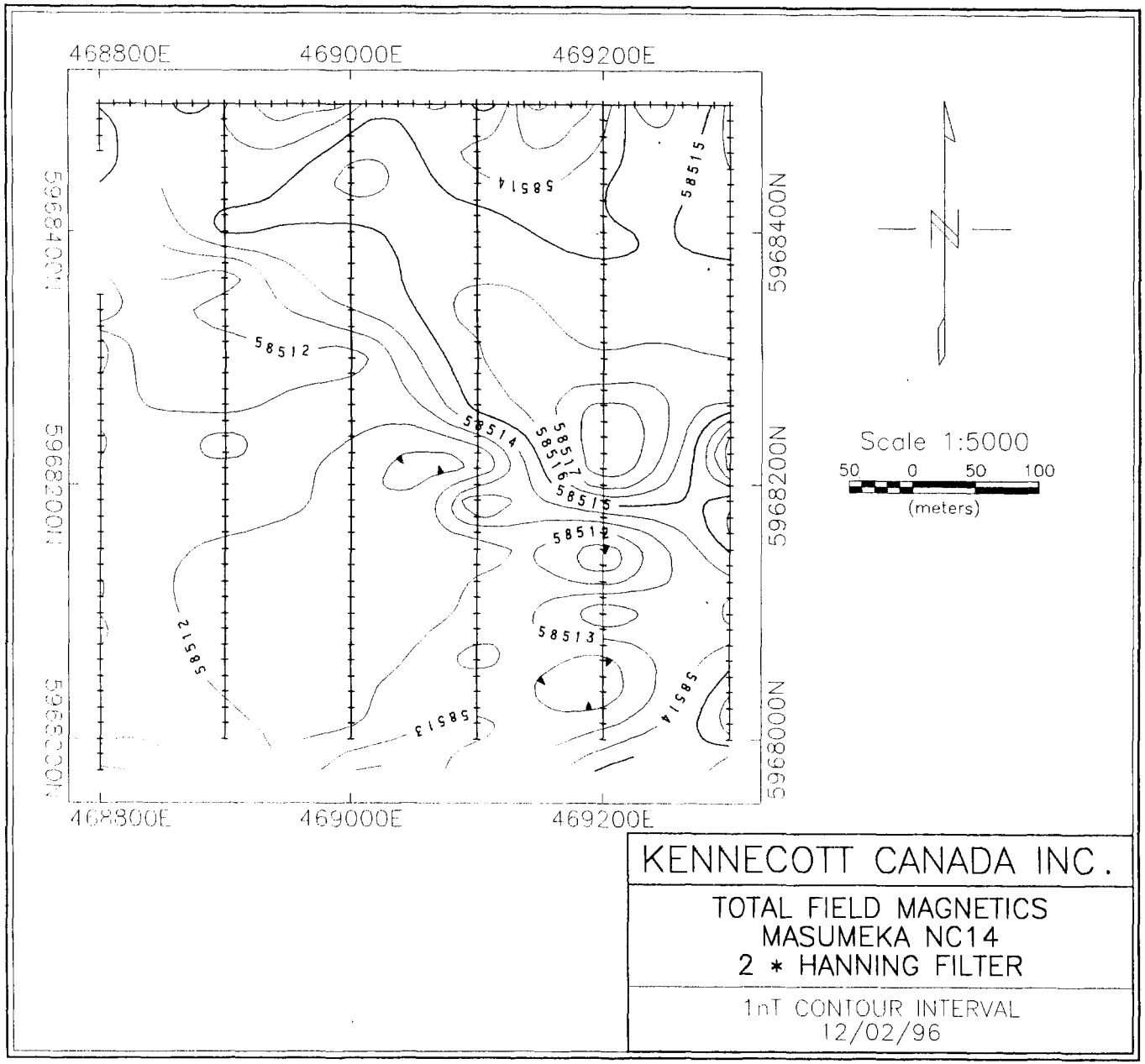
50 0 50 100 150

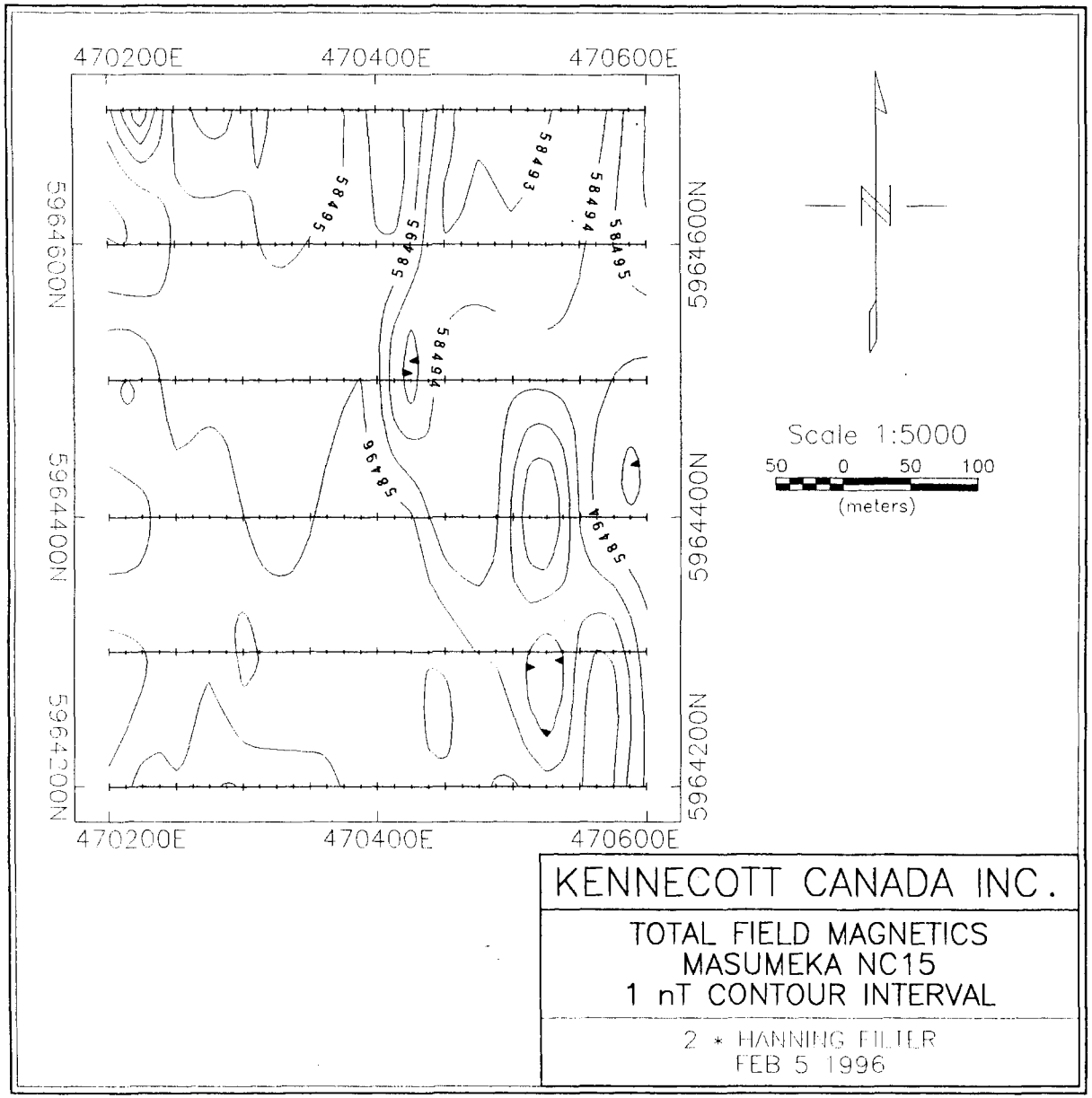
(meters)

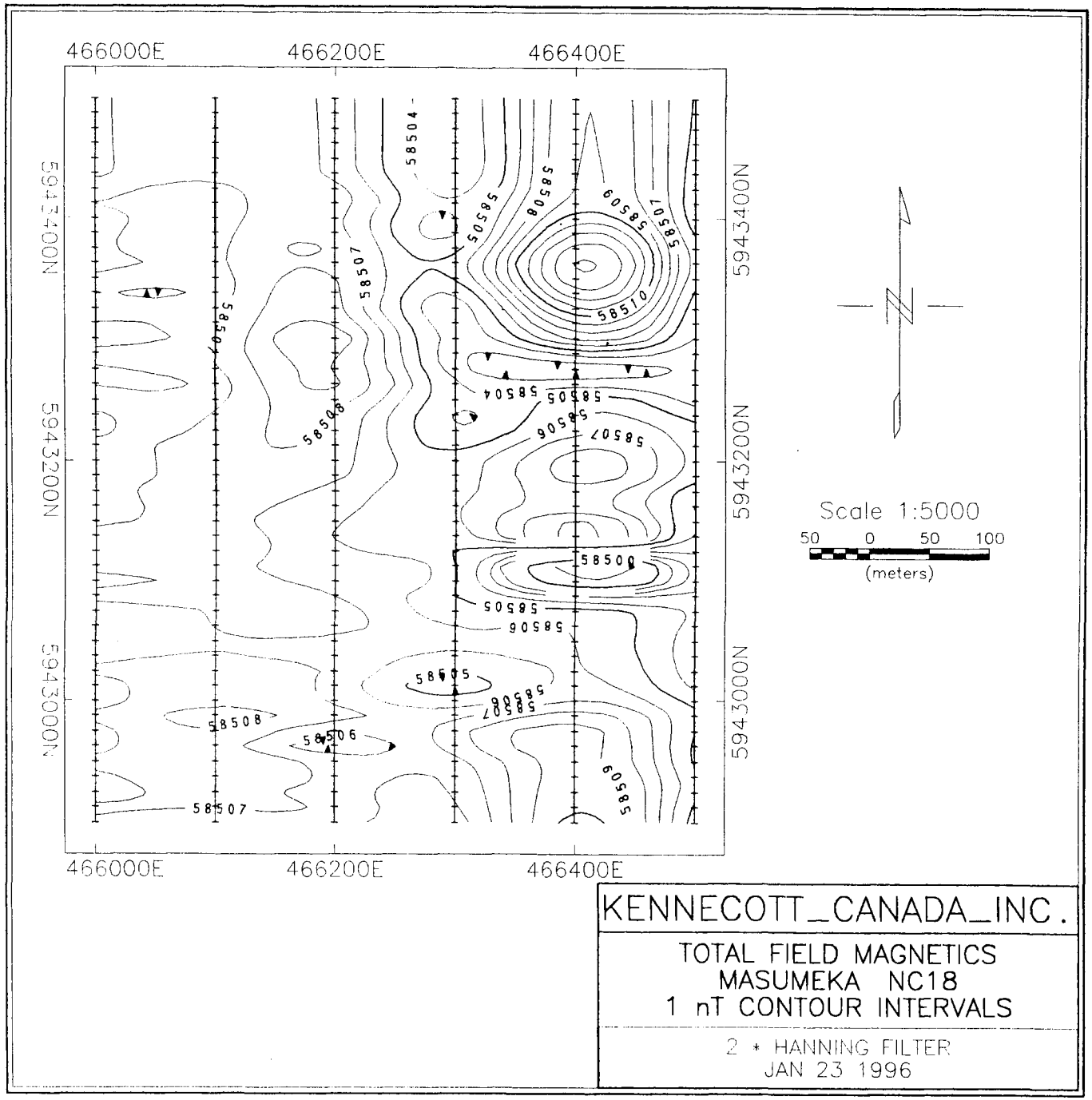
KENNECOTT CANADA INC.

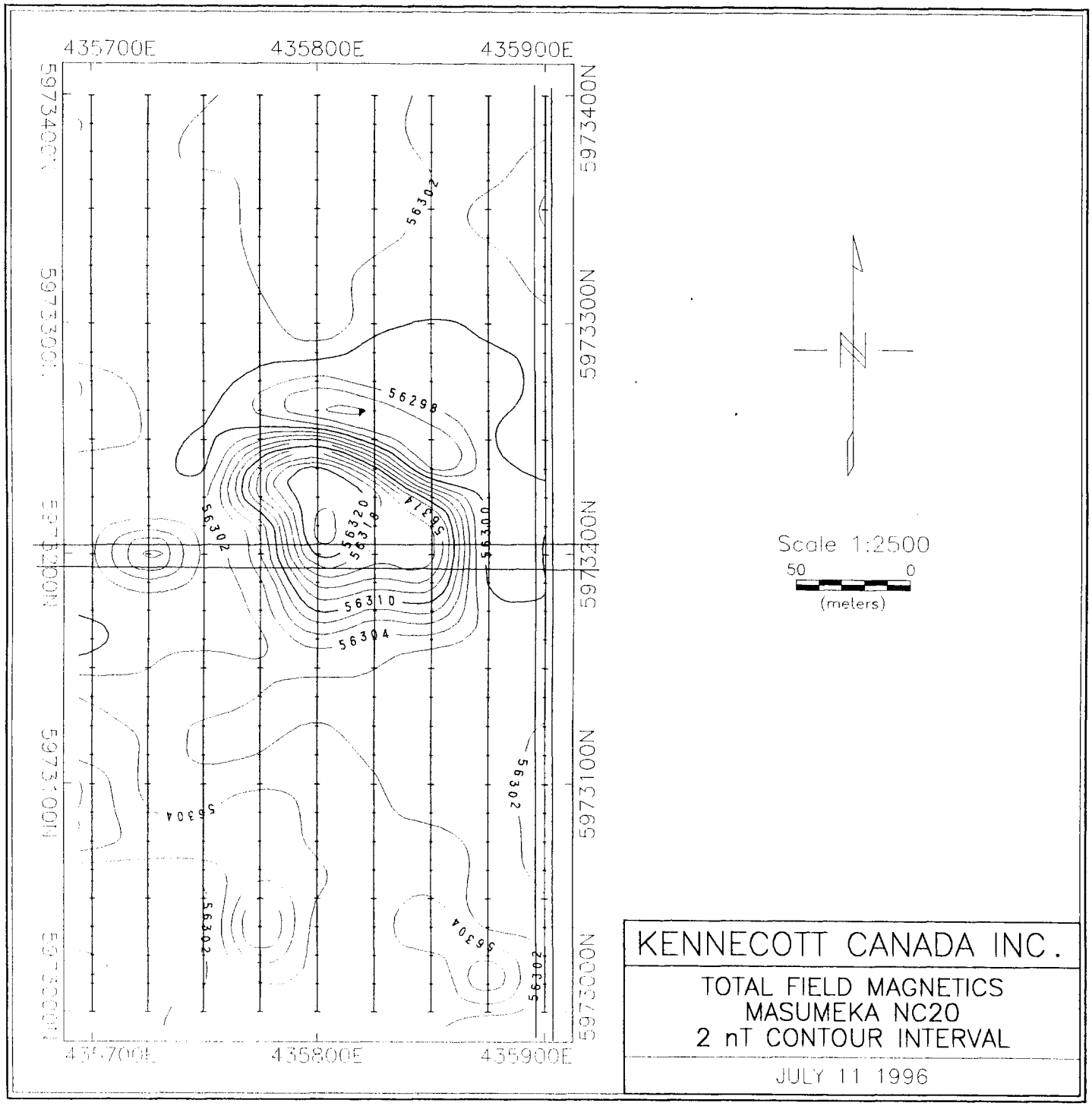
TOTAL FIELD MAGNETICS
MASUMEKA NC13
1 nT CONTOUR INTERVAL

2 * HANNING FILTER
FEB 8 1996


468800E
469000E
469200E
5968400N
5968200N
5968000N
58512
58513
58514
58515
58516
58517
Scale 1:5000
50 0 50 100
(meters)
KENNECOTT CANADA INC.
TOTAL FIELD MAGNETICS
MASUMEKA NC14
2 * HANNING FILTER
1nT CONTOUR INTERVAL
12/02/96


470200E
470400E
470600E
5964600N
5964400N
5964200N
58495
58496
58494
58493
Scale 1:5000
50 0 50 100
(meters)
KENNECOTT CANADA INC.
TOTAL FIELD MAGNETICS
MASUMEKA NC15
1 nT CONTOUR INTERVAL
2 * HANNING FILTER
FEB 5 1996


466000E
466200E
466400E
5943400N
5943200N
5943000N
58504
58505
58506
58507
58508
58509
58510
Scale 1:5000
50 0 50 100
(meters)
KENNECOTT_CANADA_INC.
TOTAL FIELD MAGNETICS
MASUMEKA NC18
1 nT CONTOUR INTERVALS
2 * HANNING FILTER
JAN 23 1996



Scale 1:2500

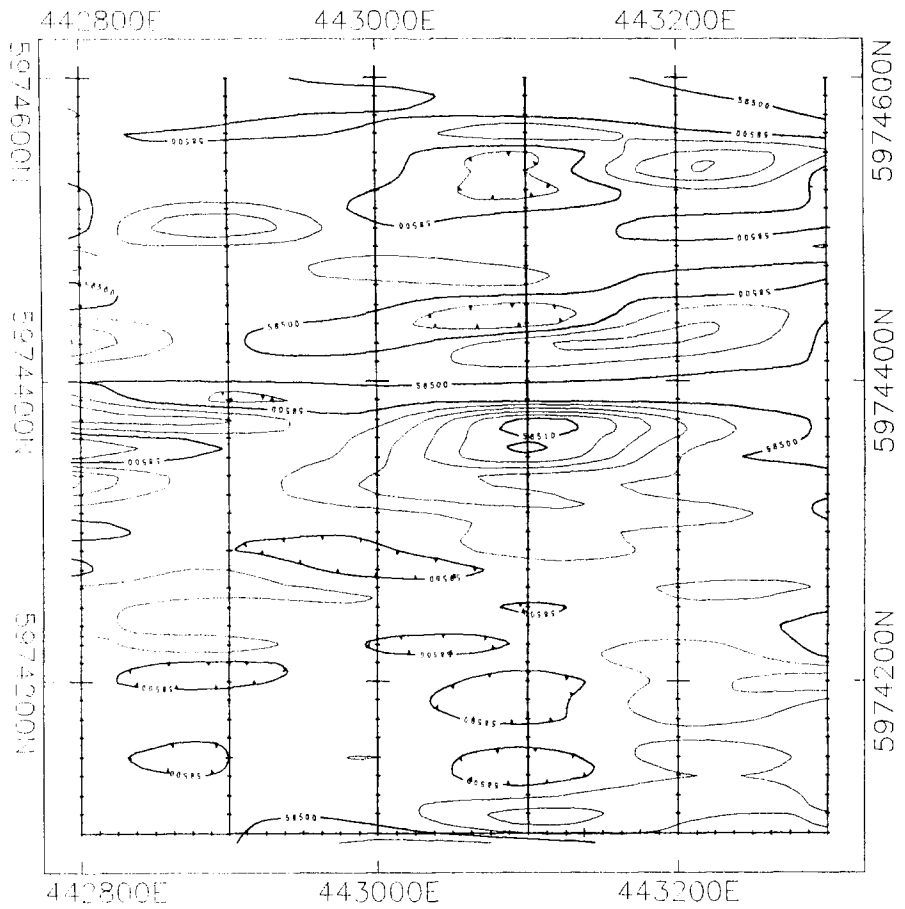
50 0

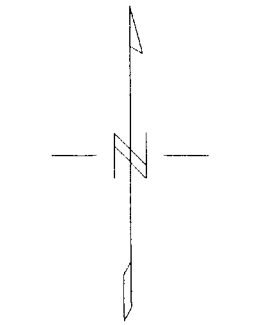
(meters)

KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
MASUMEKA NC20
2 nT CONTOUR INTERVAL

JULY 11 1996





Scale 1:5000

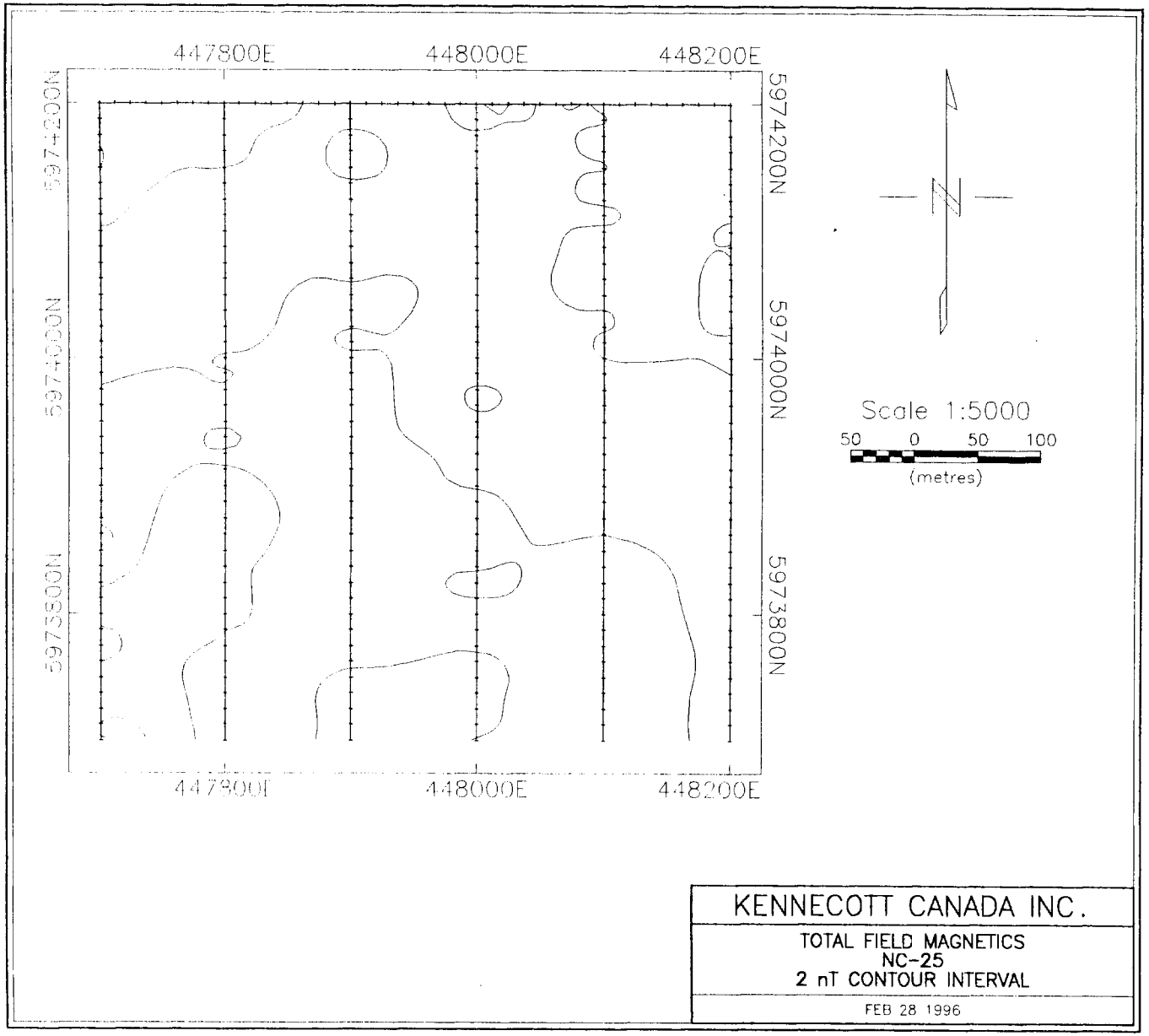
50 0 50 100

(meters)

KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
NC-22
2 nT CONTOUR INTERVAL

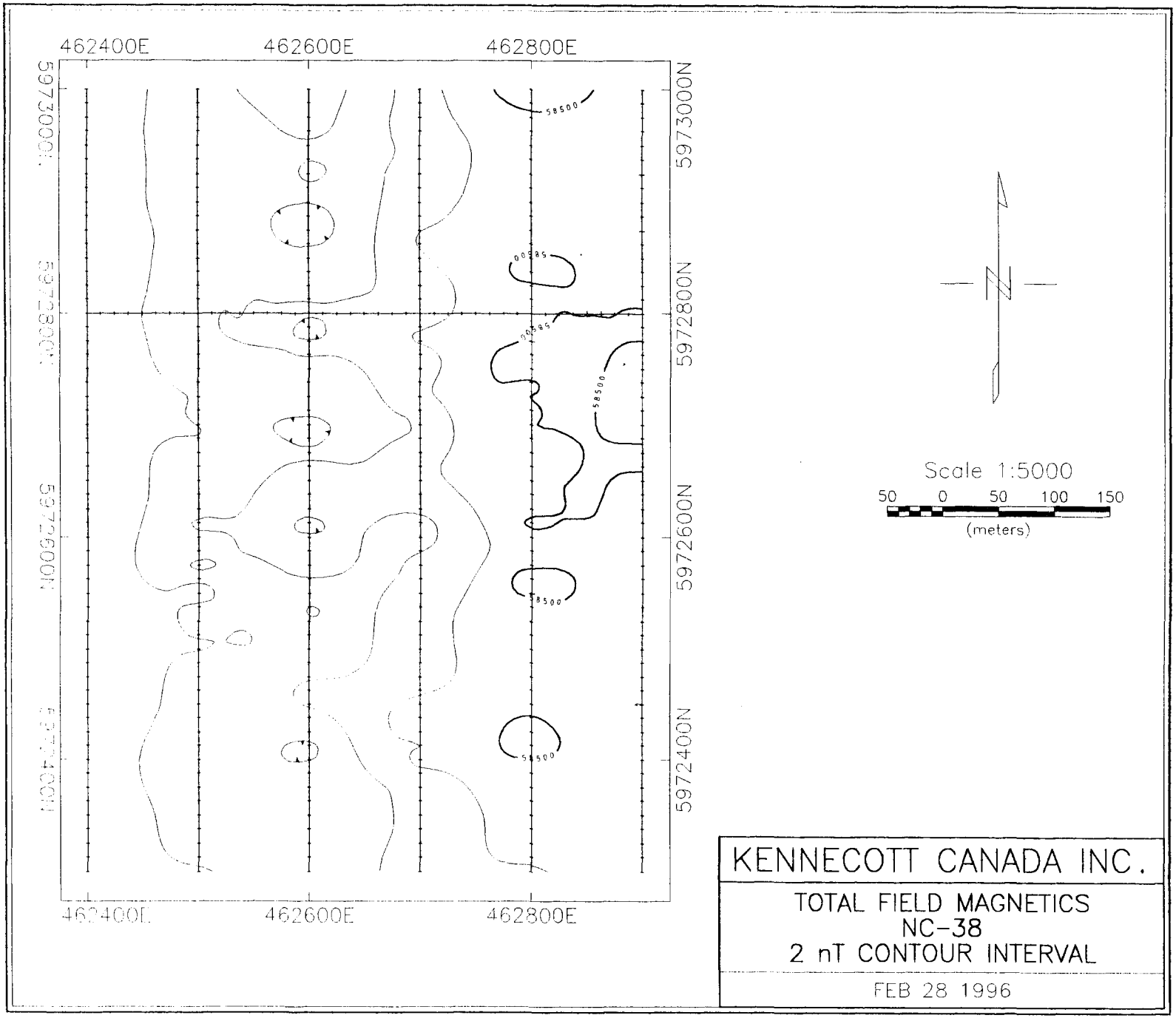
FEB 28 1996



KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
NC-25
2 nT CONTOUR INTERVAL

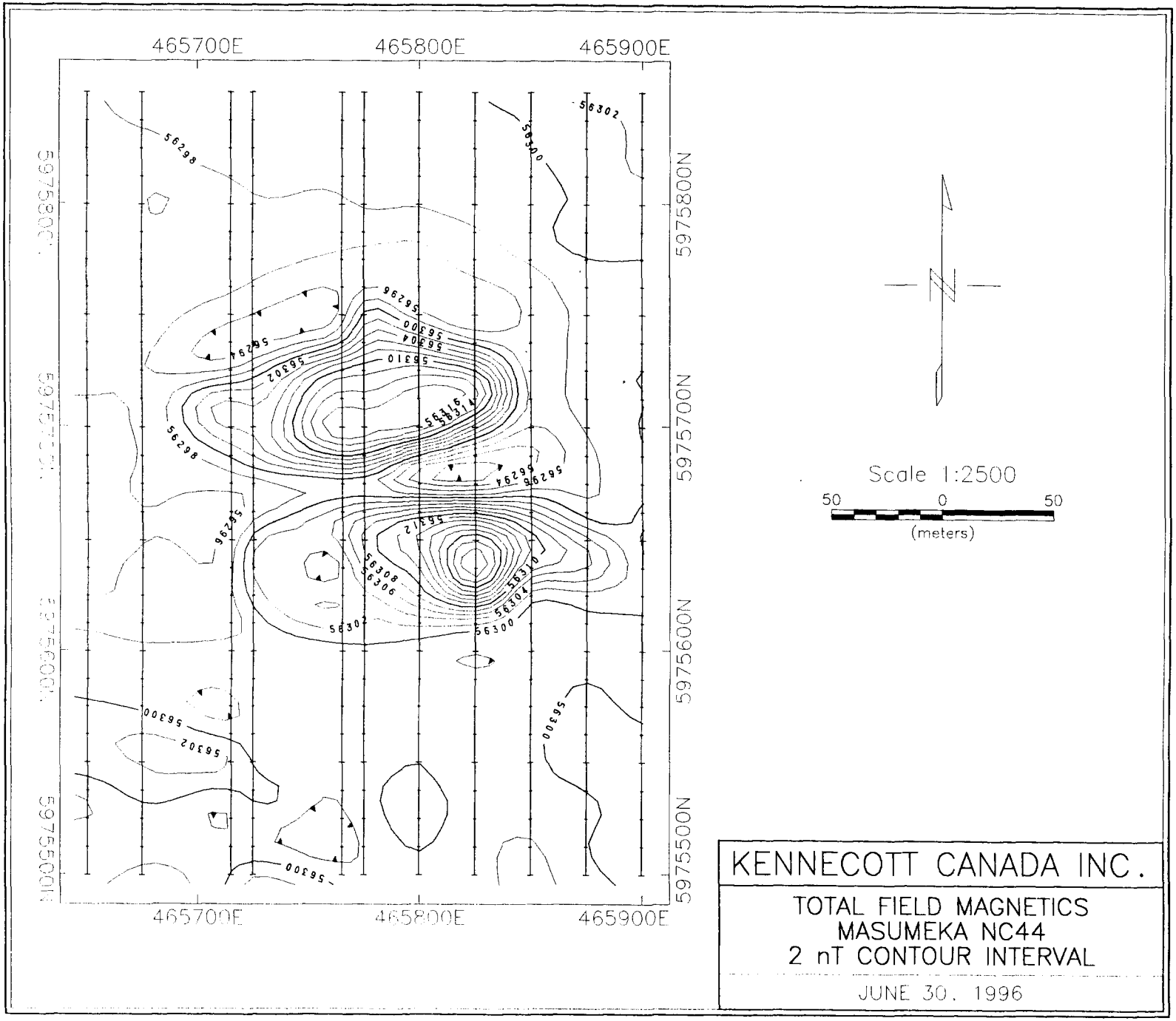
FEB 28 1996



KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
NC-38
2 nT CONTOUR INTERVAL

FEB 28 1996



Scale 1:2500

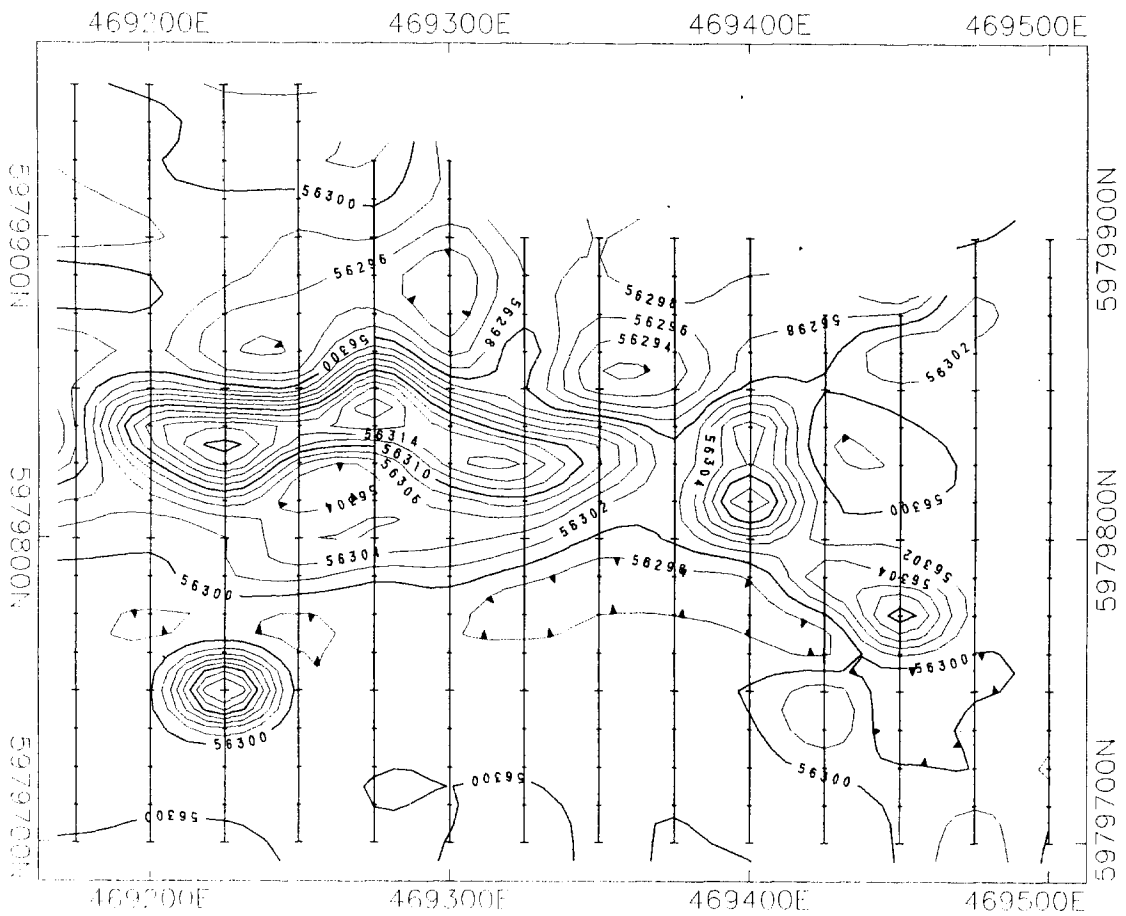
50 0 50

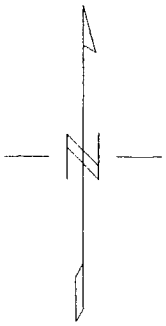
(meters)

KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
MASUMEKA NC44
2 nT CONTOUR INTERVAL

JUNE 30, 1996





Scale 1:2500

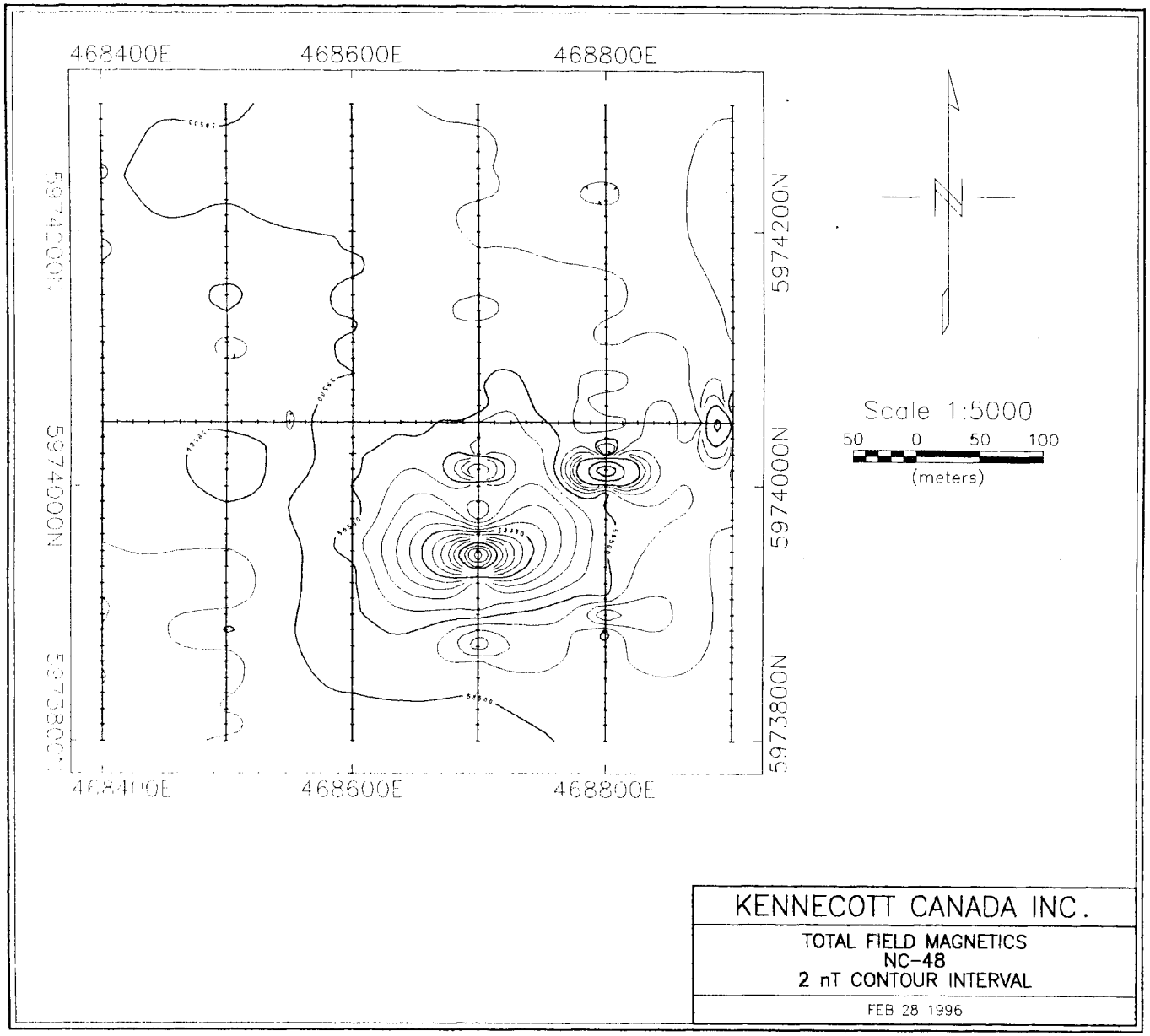
50 0 50

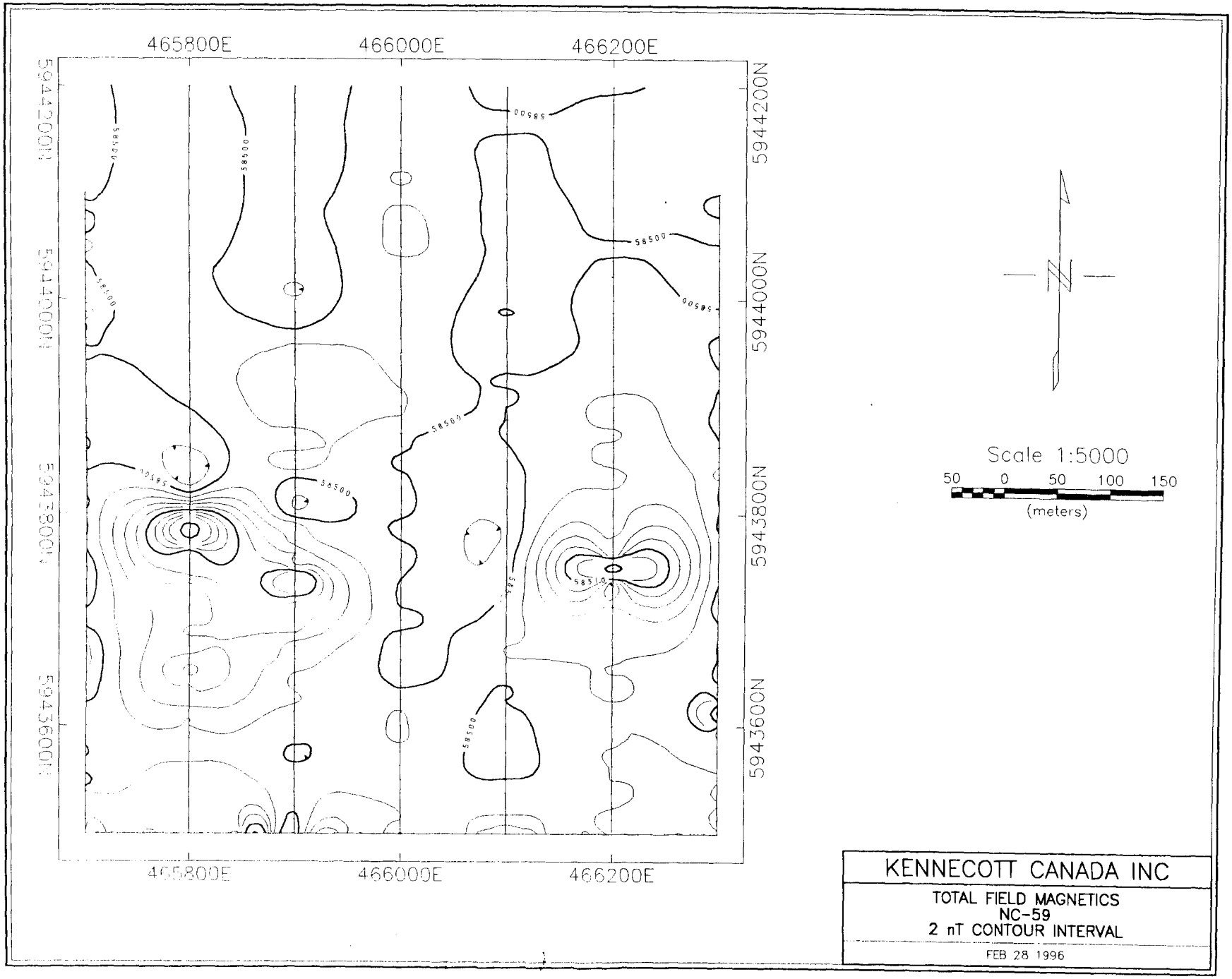
(meters)

KENNECOTT CANADA INC.

TOTAL FIELD MAGNETICS
MASUMEKA NC45
2 nT CONTOUR INTERVAL

JULY 3, 1996


468400E
468600E
468800E
5974200N
5974000N
5973800N
Scale 1:5000
50 0 50 100
(meters)
KENNECOTT CANADA INC.
TOTAL FIELD MAGNETICS
NC-48
2 nT CONTOUR INTERVAL
FEB 28 1996


465800E
466000E
466200E
5944200N
5944000N
5943800N
5943600N
58500
58500
58500
58500
58500
58500
58500
58500
58510
585
Scale 1:5000
50 0 50 100 150
(meters)
KENNECOTT CANADA INC
TOTAL FIELD MAGNETICS
NC-59
2 nT CONTOUR INTERVAL
FEB 28 1996

APPENDIX III

ZONGE ENGINEERING AND RESEARCH ORGANIZATION INC.

LOGISTICS REPORT

NANOTEM SURVEY, MASUMEKA PROJECT

114 Pgs Only
Pgs 58+59
Duplicated in tif file

LOGISTICS REPORT

TEM SURVEYS

MASUMEKA PROJECT
Hinton, Alberta, Canada

for
Kennecott Canada

Issue date: October 1996
Zonge Job# 9658

Zonge Engineering & Research Organization, Inc.
3322 East Fort Lowell Road, Tucson, AZ 85716 USA
Tel (520) 327-5501 Fax (520) 325-1588 Email zonge@zonge.com

LOGISTICS REPORT

TEM SURVEY

MASUMEKA PROJECT
Hinton, Alberta, Canada

for
Kennecott Canada

PROJECT INFORMATION

Project contact:	**Susan Ball** **Rob Van Egmond** **Dave Kelsch**
Company:	**Kennecott Canada**
Location:	**Alberta, Canada**

CREW INFORMATION

Crew Chief:	**Jesse Naiman**
Crew Members:	**Mark Wald-Hopkins**
Local Hires:	**Rob Davidson**
	Heidi Biggers

PROJECT LOGISTICS

SURVEY PARAMETERS

Type of survey: **Transient Electromagnetics**

Survey Parameters: Measurements were made by transmitting a time-domain, 50% duty cycle square-wave (running at a repetition rate of 32 and 16 Hz) into a 50 or 100 meter-square loop of insulated 16 gauge wire. The decaying secondary vertical magnetic field was sensed using a square loop coincident with the transmitting loop, or a TEM/3 ferrite-cored antenna placed at the center of the transmitting loop. Each measurement consisted of 512 cycles, stacked and averaged by the digital receiver. All measurements were made and recorded at least twice to establish data repeatability. Transmitter current on all loops was 2.5 amperes for the 50 x 50 m loops, and 1.5 amperes for the 100 x 100 m loops.

TEM: The receiver, a Zonge three-channel GDP-16, and a battery-powered NT-20 transmitter, were positioned at the common corner for two loops. A Zonge TEM 3 magnetic-field sensor, oriented vertically, was placed in the center of the loop for the in-loop measurement. The effective area of the TEM 3 antenna is 10,000 m^2. For the coincident-loop measurements, a second loop overlying the transmitter loop, was used for the receiver. The effective areas were 2500 m^2 for the 50 x 50 m loops and 10,000 m^2 for the 100 x 100 m loops.

For the survey, an alternating 32 or 16 Hz squarewave was generated by the NT-20 transmitter, which was driven by the GDP-16 receiver. For TEM, the positive and negative portions of the waveform are followed by an off time, during which measurements are made of the secondary magnetic field decay associated with secondary induced galvanic and vortex currents in the ground. The secondary magnetic field mimics the primary vertical field associated with the transmitting loop. To understand the propagation of current in the ground, use is often made of the smoke-ring analogy, which has equivalent current filament rings that propagate downward and outward into the ground after current turn-off in the loop. The current filaments propagate at a rate proportional to the square root of the ground resistivity and at a 47° angle from the loop center. For each TEM measurement, a minimum of 512 cycles per reading were sampled. All the data for the sampled windows is contained within a data block which was stored in the solid-state memory of the GDP-16.

The duration and shape of the decay of the secondary fields are affected by resistivity interfaces in the subsurface. The depth of penetration is dependent upon ground resistivities, loop size, and the ability to resolve the magnitude of the signal from noise levels. Sampling of the decay is done at 1.9 microsecond intervals for NanoTEM, and 31 microseconds for regular TEM, for the GDP-16 system. After the first 6 data points (or windows), the sampled data are combined to generate windows spaced at constant logarithmic intervals.

Number of loops: 315
Number of grids: 10

Lines located by: client

FIELD EQUIPMENT

List of equipment:

#1 GDP-16, SN T026
#2 GDP-16, SN T030
NT-20
TEM-3
Wire size: RX: 16 gauge TX: 16 gauge

PRODUCTION SUMMARY

Mobe from: **Northwest Territories Canada** To: **Alberta, Canada**

Arrival date on job site: **06/23/96**
Begin work on: **06/29/96**
Date job completed: **07/17/96**
Date crew left job site: **07/19/96**
Demobe from job site to: **Tucson, AZ**

Date	Production summary
06/29	Grid NC18, lines 466425E and 466375E, tests with 50 and 100 m TX loops
06/30	Grid NC18, lines 466475E and 466450E, tests with 50 and 100 m TX loops in coincident- and in-loop configurations
07/01	Grid NC05, lines 458275E, 325E, and 375E
07/02	Day off- drive to town to e-mail data.
07/03	Grid NC19, lines 458775E, 725E, 675E, and 625E
07/04	Grid NC44, lines 465825E, 465700E
07/05	Grid RC18, lines 478125E, 225E, and 275E
07/06	Grid NC44, lines 465700E, 750E, and 625E
07/07	Grid NC10, line 445975E, 446075E, and 446175E
07/08	Grid NC59, line 465775E, 825E, 875E, and 925E
07/09	Grid NC05, line 458325E, repeat Grid NC19, line 458725E, repeat
07/10	Grid NC08, trucks and quad stuck, equipment problems, no production
07/11	Grid NC08, lines 444725E, 825E, and 925E
07/12	Grid NC18, line 466425, repeat
07/13	Grid NC19, line 458725, repeat
07/14	Grid "DSTEEL", line 999N
07/15	Grid NC20, line 435825E and 435775E
07/16	Day off, crew chief ill
07/17	Grid NC45, line 469225E
07/18	Cleaned and packed gear.
07/19	Demobe to Tucson

Data sent to office via: **Courier and E-Mail**

Total numbers:		
	Production hours:	107.5 (billed)
	Survey testing hours:	21 (at Zonge's expense)
	Weather days:	0
	Days off:	2
	Standby days:	0
	Down days:	1
	Other:	0

DISCUSSION OF THE DATA

During the first and second days in the field, numerous tests were run along lines over Grid NC18. These tests included running NanoTEM and regular TEM using 50 x 50 meter and 100 x 100 meter transmitter loops for in-loop and coincident-loop surveys.

The NanoTEM data look reasonable, showing variations in the sub-surface down to about 150 meters. However, the intent was to be able to map down to 200 meters, so NanoTEM was not considered for further work.

The coincident-loop data show very strong conductive and resistive variations at depth, but unfortunately the data are probably not valid. The alternating high/low resistivity variations at depth look very suspicious. See for example Line 466425E.

On the second day on Grid NC18, both in-loop and coincident-loop surveys were run on Line 466450E using 100 x 100 meter transmitter loops. The results of the two surveys are basically identical, which is to be expected as long as there are no IP or super-paramagnetic sources in the overburden. Based on these identical results, it was decided to use the coincident-loop method since is would be logistically easier for this survey area.

On July 12, measurements on Line 466425E were repeated, using 50 meter transmitter loops, and running both in-loop and coincident-loop surveys. Two different GDP-16 receivers were used to test for a faulty receiver. The results for both receivers are basically the same, evidently ruling out any receiver problems. However, there was a large difference in the measured responses between the in-loop and coincident-loop configurations. The in-loop data are smoothly varying to depth, but the coincident-loop data have strong high/low resistivity variations at depth.

On July 17, coincident- and in-loop measurements were gathered and compared along Line 469225E on Grid NC45. Again the in-loop data are smoothly varying and the coincident-loop data have strong high low resistivity contrasts at depth.

Note: The reason for the difference is unknown at this time. All of the equipment checked out okay when it was returned to the Tucson office. It appears that the in-loop data more accurately represent what is happening at depth. Is there something in the near-surface, such as super-paramagnetism (SPM) that is messing up the late-time decays? SPM effects extend the late-time tails which then model as strong conductors at depth. IP effects make the late-time tails decay faster than normal, which then models as strong resistors at depth. We will keep working on this to see if we can find a solution.

Additional Comments: TEM methods should work fine for locating kimberlites at depth as long as the alteration cap is in place. If the cap has been eroded away, then the kimberlite may show up as a resistive feature in the basement rock. If this is the case, TEM will not see a 50 x 50 meter cone-shaped, resistive target at depth. The electric field has to be measured to detect that type of target. A method such as CSAMT or AMT should work fairly well. The problem with CSAMT is that the transmitter antenna would have to be moved for every new grid. With AMT there is much more flexibility since the transmitter logistics are avoided. In a non-cultured environment (no power lines, industrial noise, etc.), AMT data could be gathered about as fast as CSAMT data. Using both in-loop TEM and AMT would provide information about near-surface resistivity layering and deeper resistive or conductive targets.

Data Presentation: Data for all lines, including repeat data, are modeled using our smooth-model inversion program, and are presented in color depth vs. station sections. Black and white plots of decay waveforms are included for the test line labeled "DSTEEL". This is a test line that ran over a steel casing.

[redacted]

Cris Mauldin Mayerle
Geophysicist

[redacted]

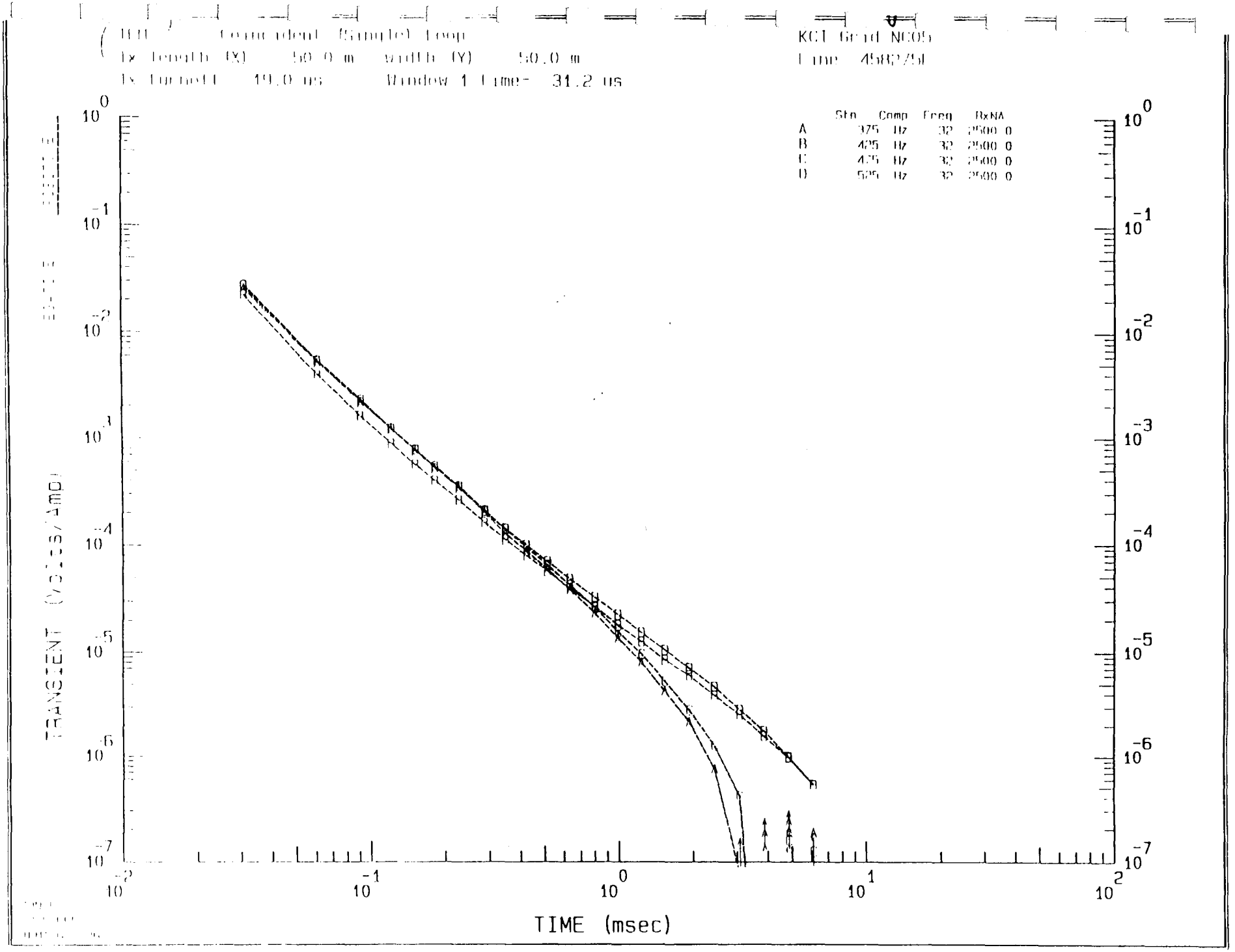
Kenneth Zonge
President

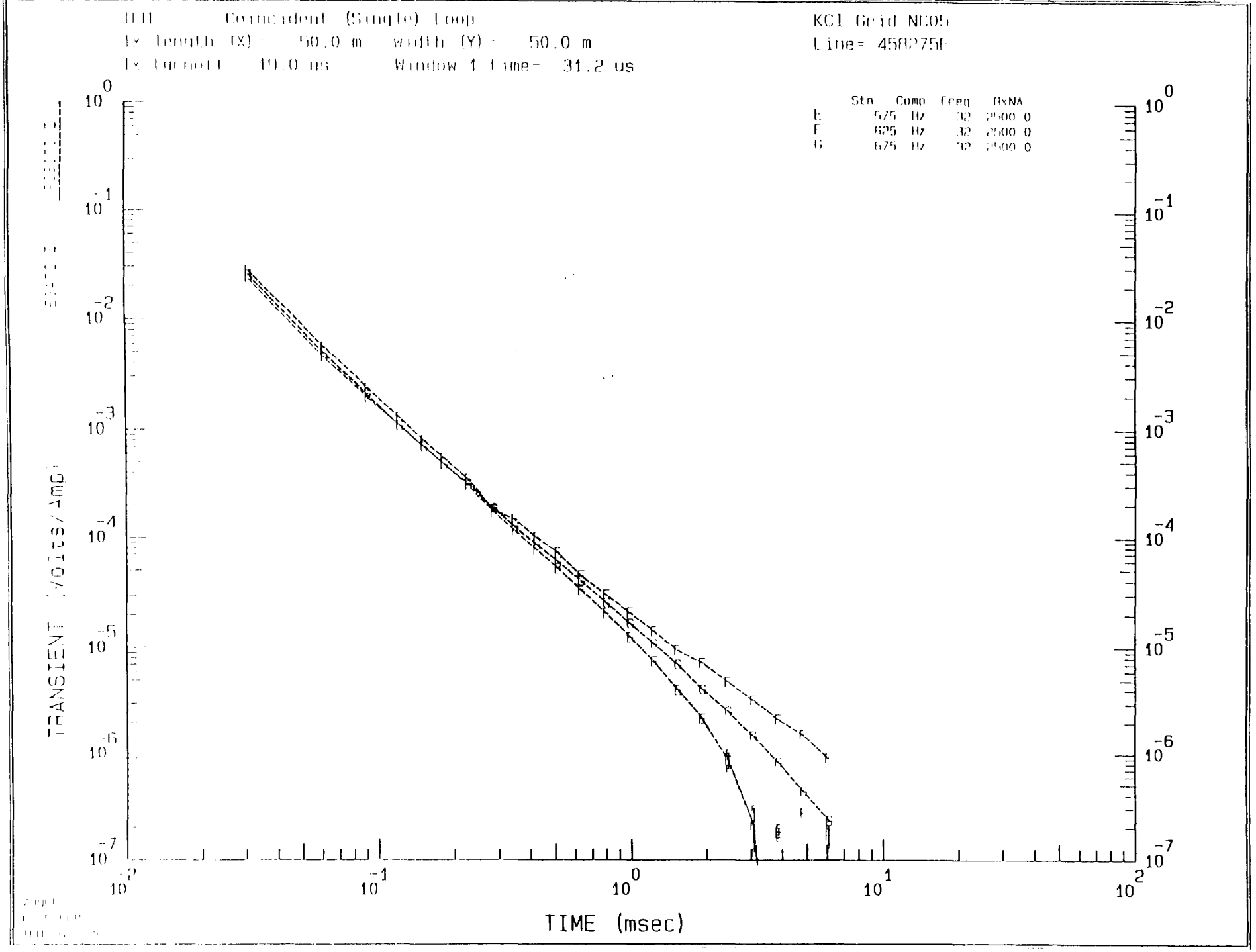
[redacted]

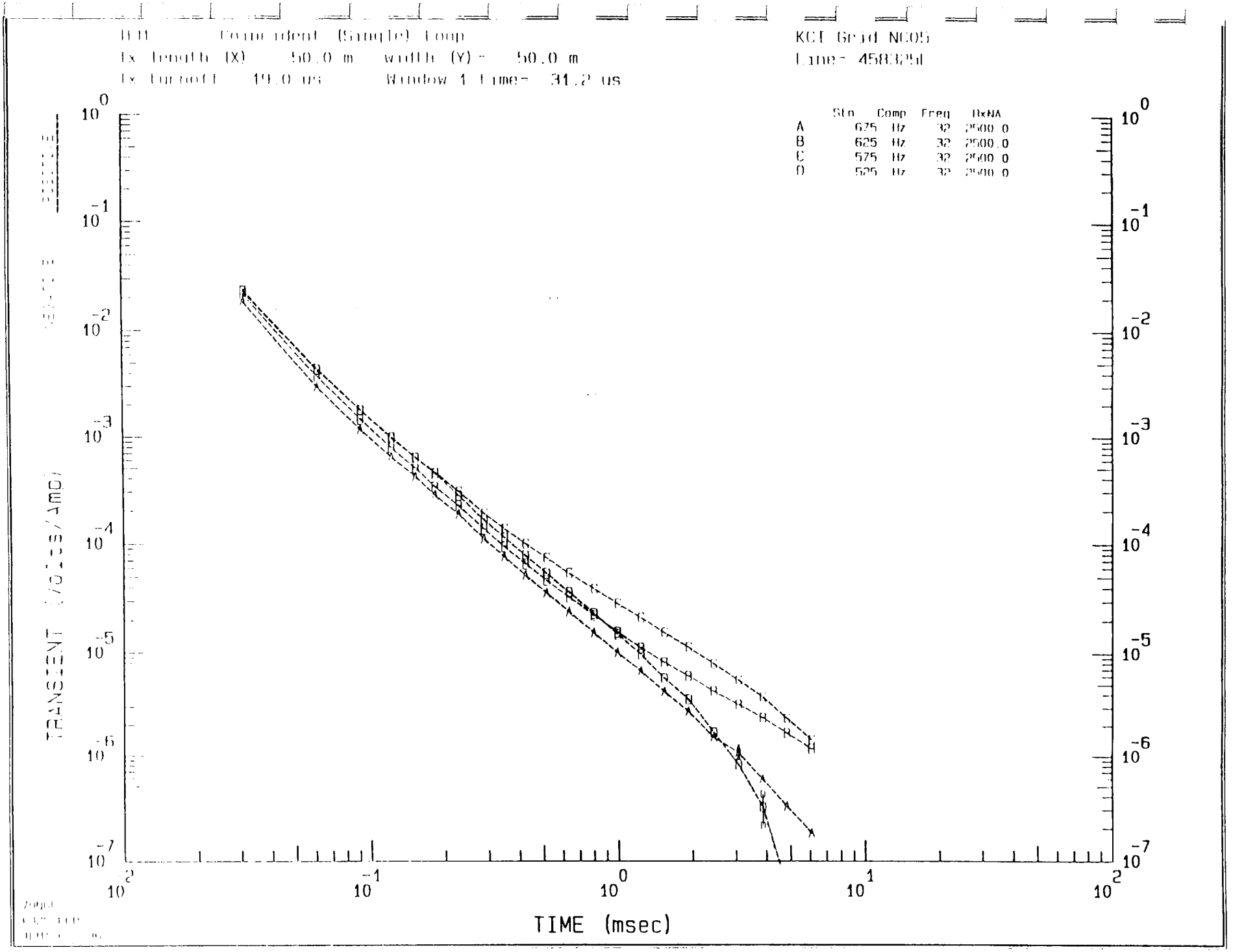
Emmett Van Reed
Geophysicist

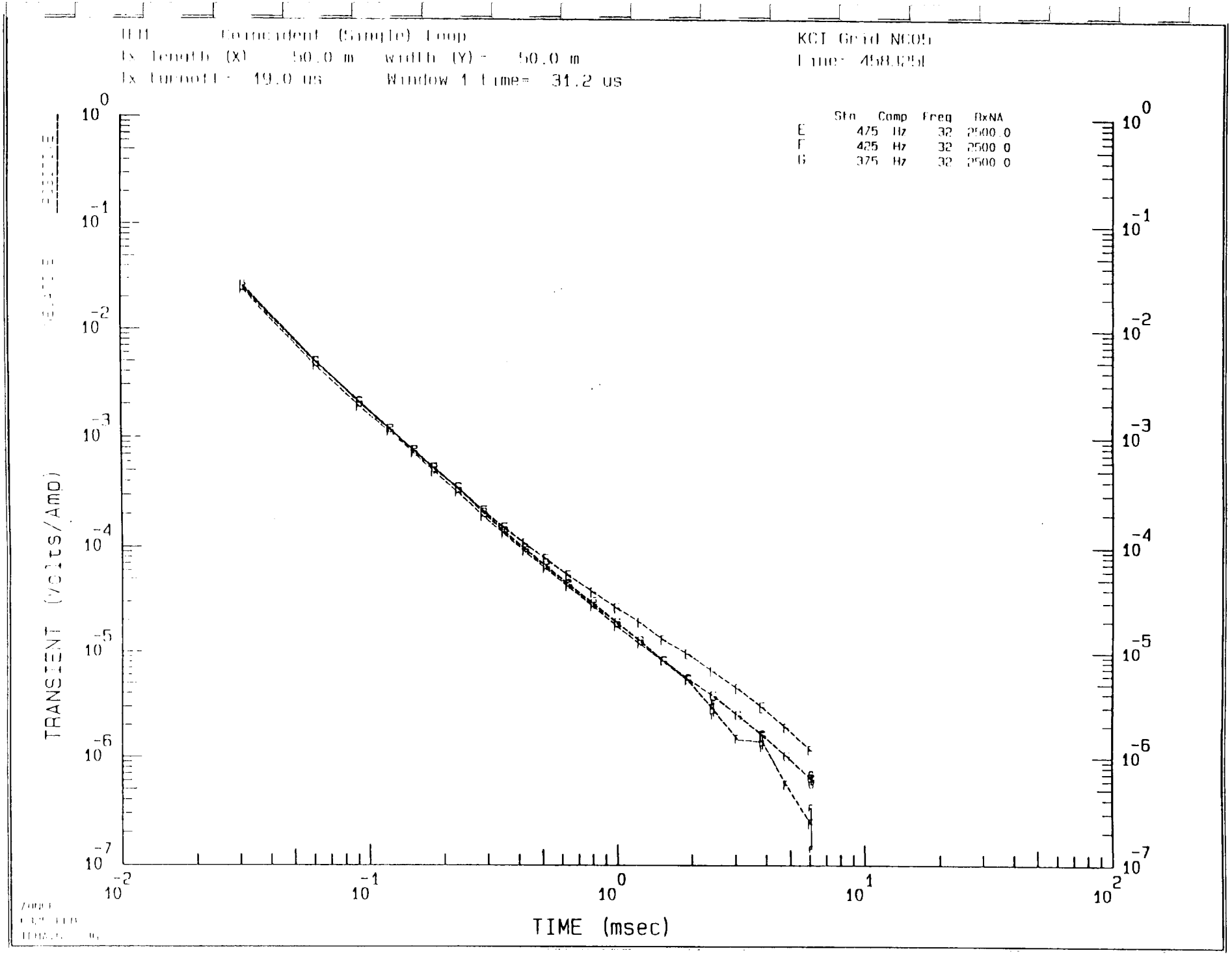
[redacted]

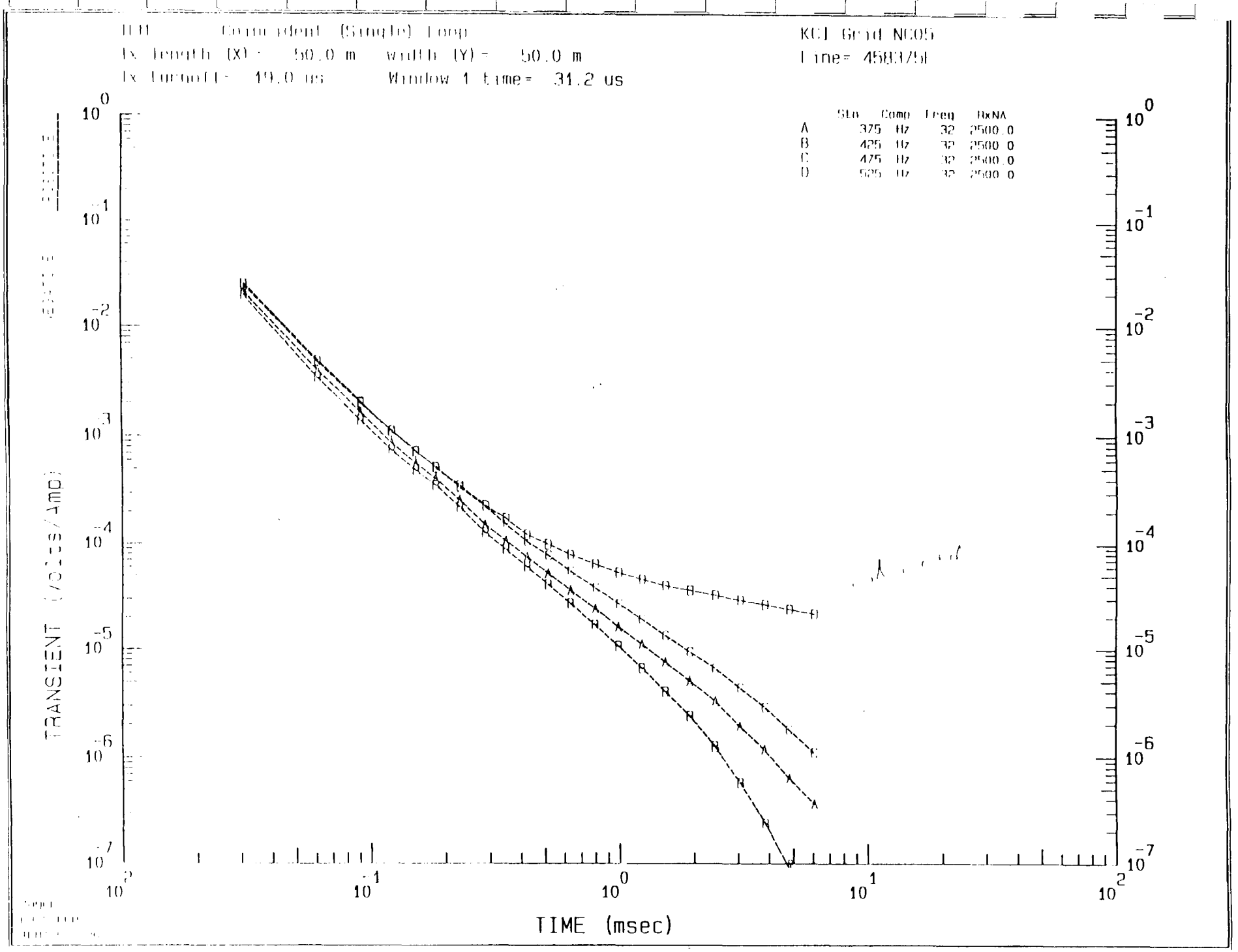
Liu Dexin
Geophysicist

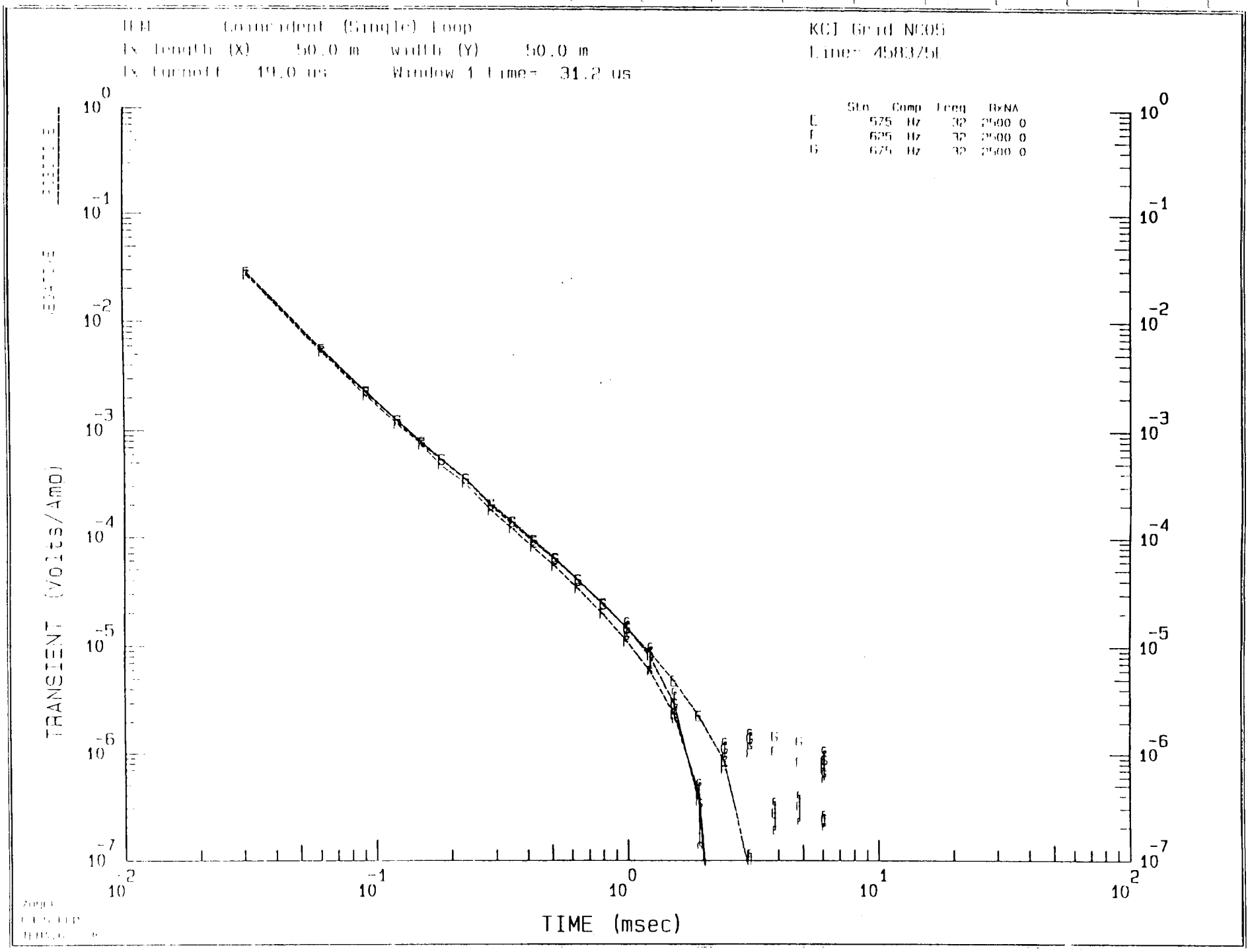

Coincident (Sampled) Loop
Tx Length (X) 50.0 m Width (Y) 50.0 m
Tx Current 19.0 ms Window 1 Time= 31.2 us
KCT Grid NC05
Line 4580/5l
Stn Comp Freq RxNA
A 375 Hz 32 2500 0
B 425 Hz 32 2500 0
C 475 Hz 32 2500 0
D 525 Hz 32 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)


UTEM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff 19.0 us Window 1 time= 31.2 us
KCI Grid NC05
Line= 458275E
Stn Comp Freq TxNA
E 525 Hz 32 2500.0
F 625 Hz 32 2500.0
G 675 Hz 32 2500.0
TRANSIENT VOLTS/AMP
TIME (msec)


KCT Grid NC05
Line= 4583251
Stn Comp Freq TxNA
A 675 Hz 32 2500.0
B 625 Hz 32 2500.0
C 575 Hz 32 2500.0
D 525 Hz 32 2500.0
TRANSIENT (VOLTS/AMP)
TIME (msec)


TEM Coincident (Simple) Loop
Tx Length (X) = 50.0 m Width (Y) = 50.0 m
Tx Turnoff = 19.0 us Window 1 Time= 31.2 us
KCI Grid NC05
Time= 458.05d
Stn Comp Freq TxNA
E 475 Hz 32 2500.0
F 425 Hz 32 2500.0
G 375 Hz 32 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


KCI Grid NC05
Line= 4583/5l
Stn Comp Freq TxNA
A 375 Hz 32 2500.0
B 425 Hz 32 2500.0
C 475 Hz 32 2500.0
D 525 Hz 32 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Simple) Loop
Tx length (X) 50.0 m width (Y) 50.0 m
Tx turnoff 111.0 us Window 1 time= 31.2 us
KCI Grid NC05
Line= 4583/5L
Stn Comp Freq RxNA
E 575 Hz 32 2500 0
F 625 Hz 32 2500 0
G 675 Hz 32 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)

Line 458275E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L275.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

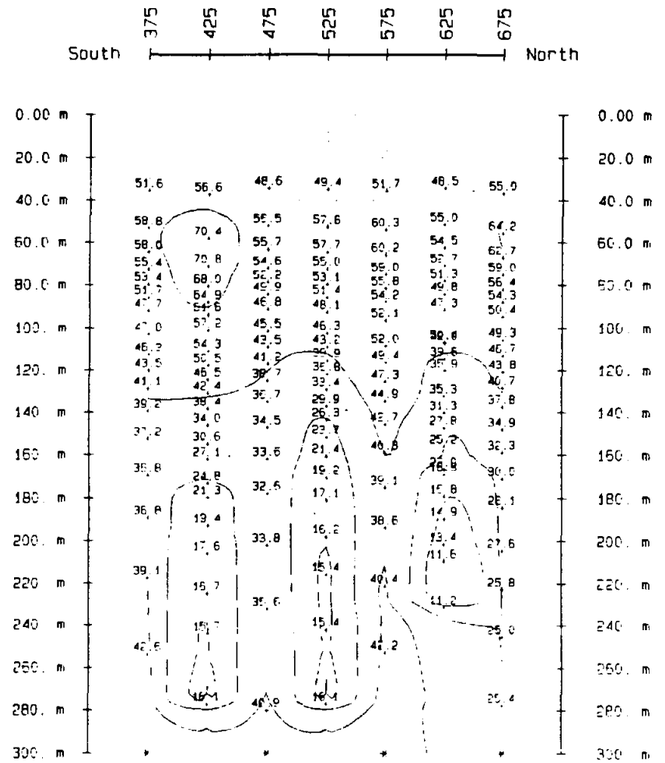
vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA

Line = North
Surveyed= Jul.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)

[10.6]
15.8
25.1
39.8
63.1
[71.4]



31.7 cm A3

Line 458275E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L275.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

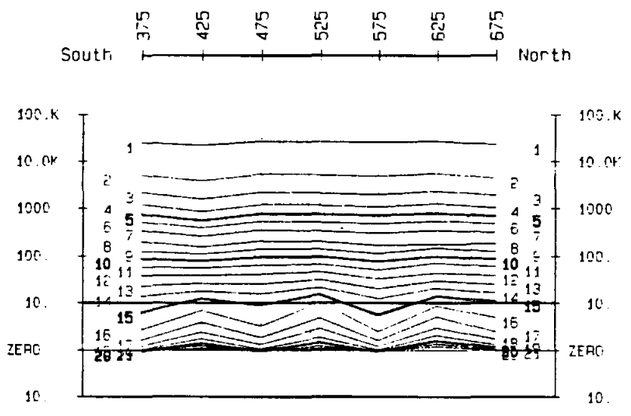
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u		
W 4:	122.4u	W14:	999.7u		
W 5:	152.8u*	W15:	1.241m*		
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 458325E
KCI Grid NC05
for
Kennecott Canada

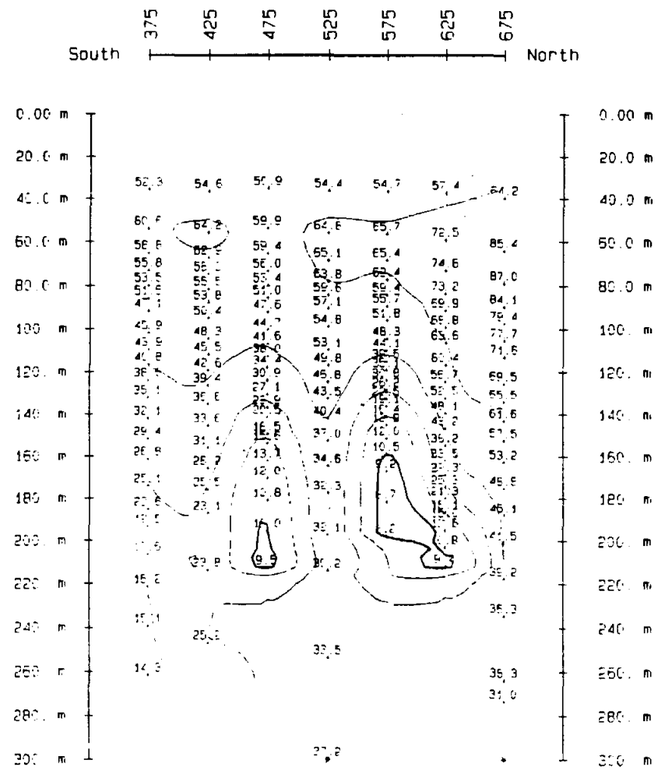
ZONGE ZPLOT 7.23
File L325.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)
[7.49]
10.0
15.8
25.1
39.8
63.1
[87.0]



Line 458325E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L325.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

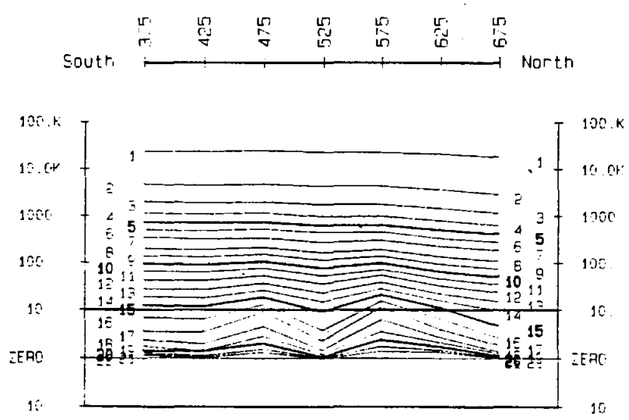
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u		
W 4:	122.4u	W14:	999.7u		
W 5:	152.8u*	W15:	1.241m*		
W 6	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 458375E
KCI Grid NC05
for
Kennecott Canada

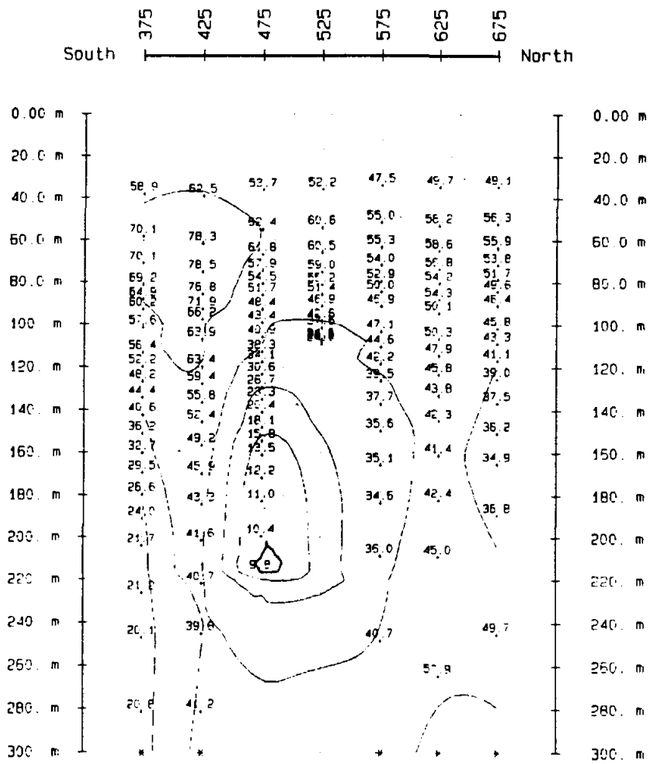
ZONGE ZPLOT 7.23
File L375.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)
[8.98]
10.0#
15.8
25.1
39.8
63.1
[79.7]



31.7 cm. A3

Line 458375E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L375.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

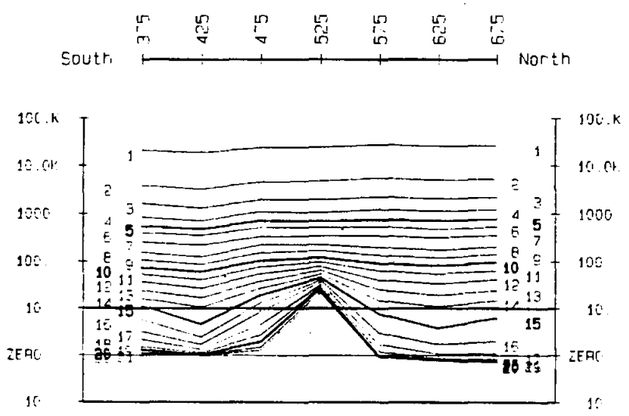
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u		
W 4:	122.4u	W14:	999.7u		
W 5:	152.8u*	W15:	1.241m*		
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 458275E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L8275.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

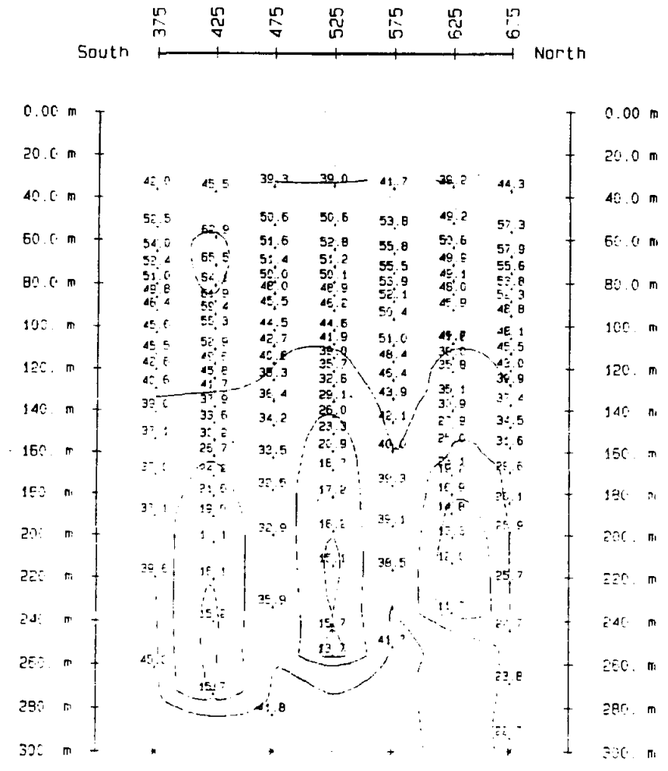
vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA

Line = North
Surveyed= Jul.96 Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)

(11.2)
15.8
25.1
39.8
63.1
(65.6)



Line 458275E
KCI Grid NC05
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L8275.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

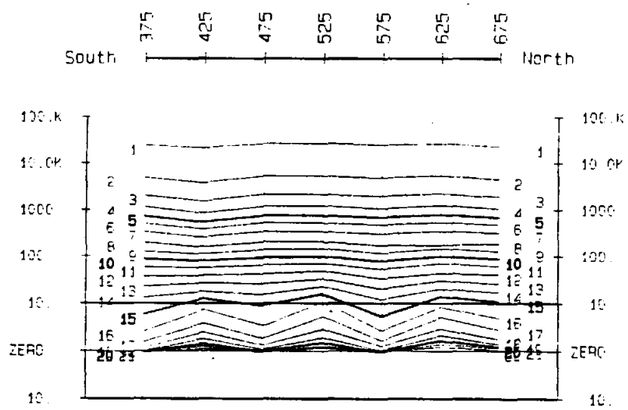
values in microV/ampere
Component: Hz, Rxna: 2500.0

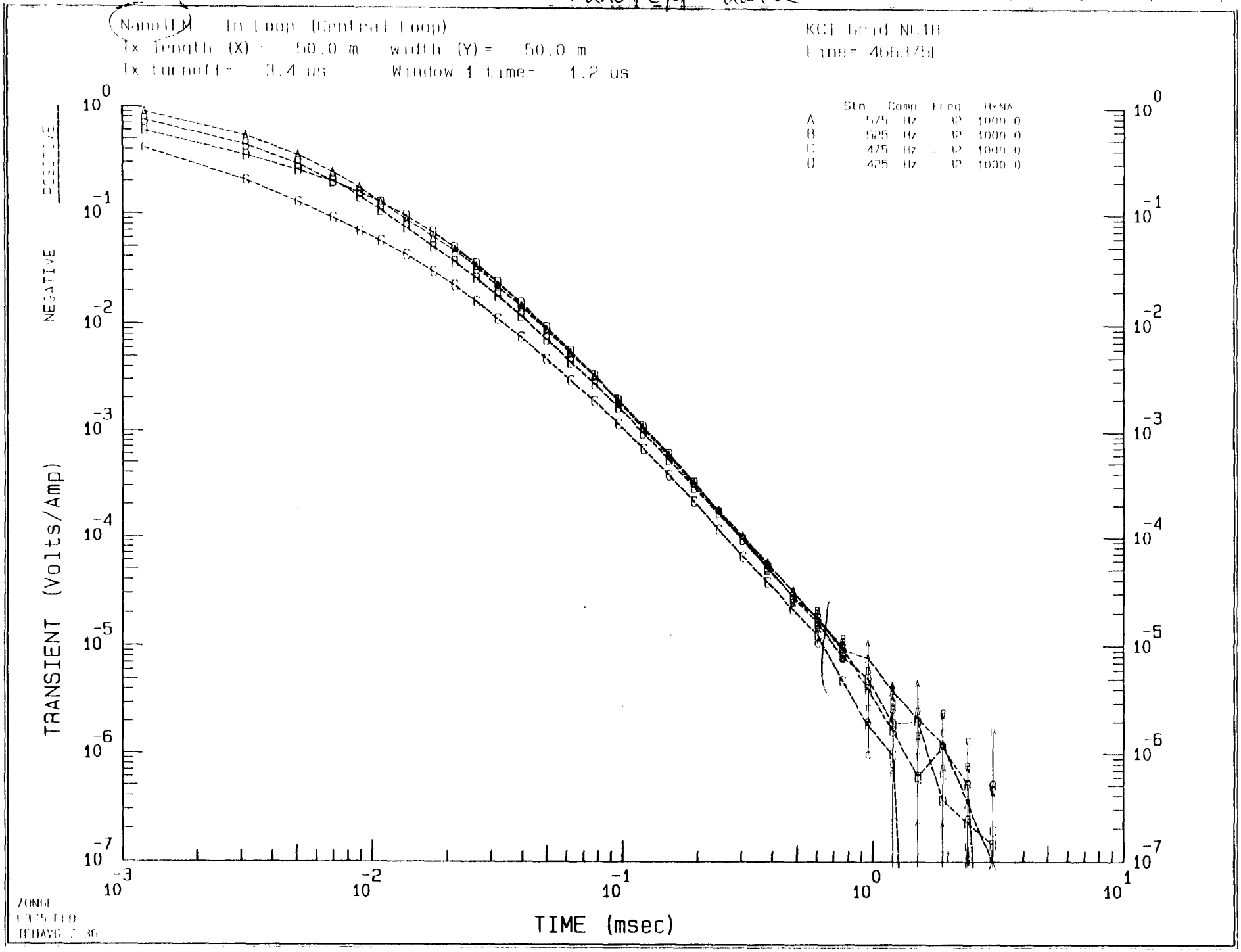
SURVEY LINE DATA
Line Orient= North

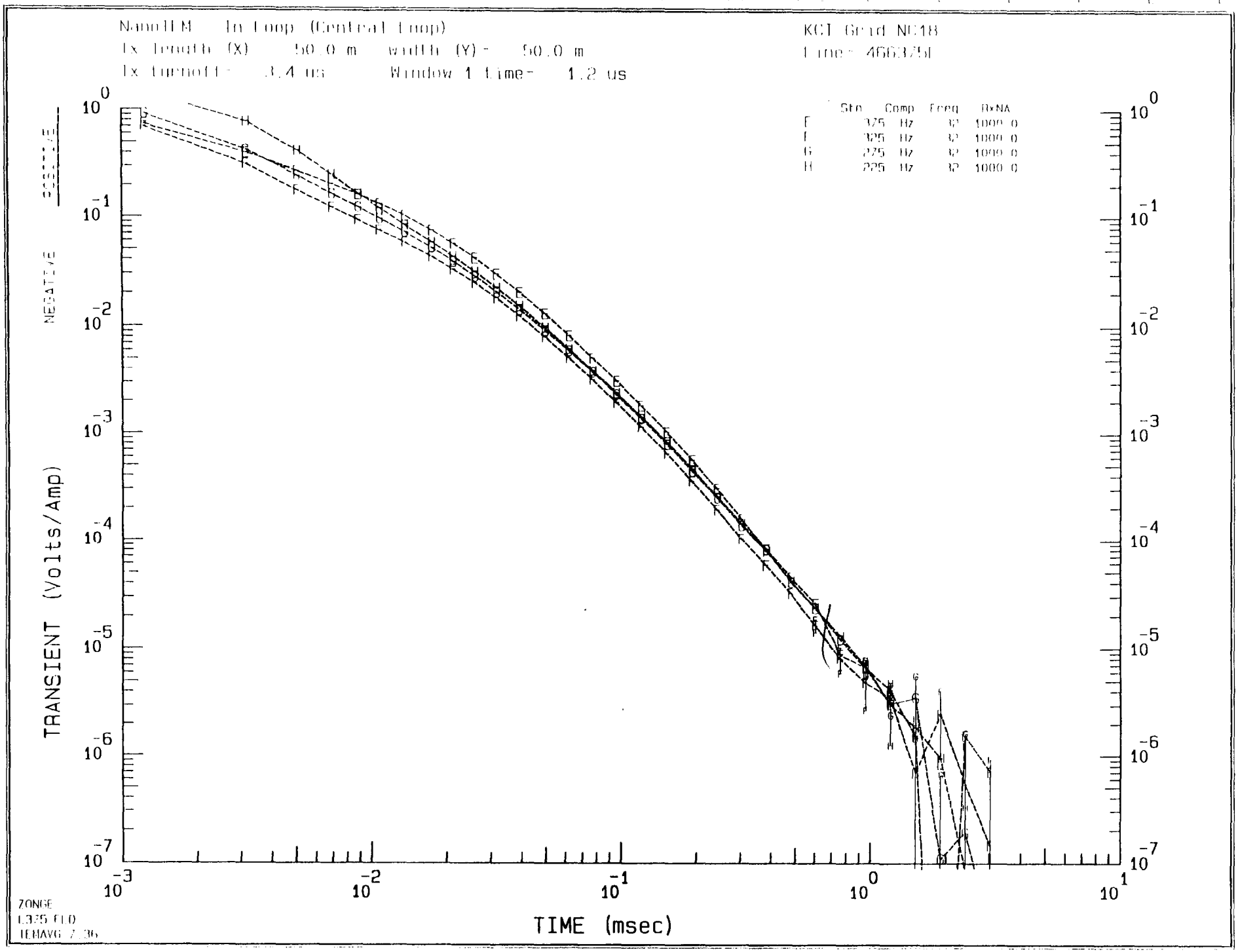
Survey Date= Jul.96

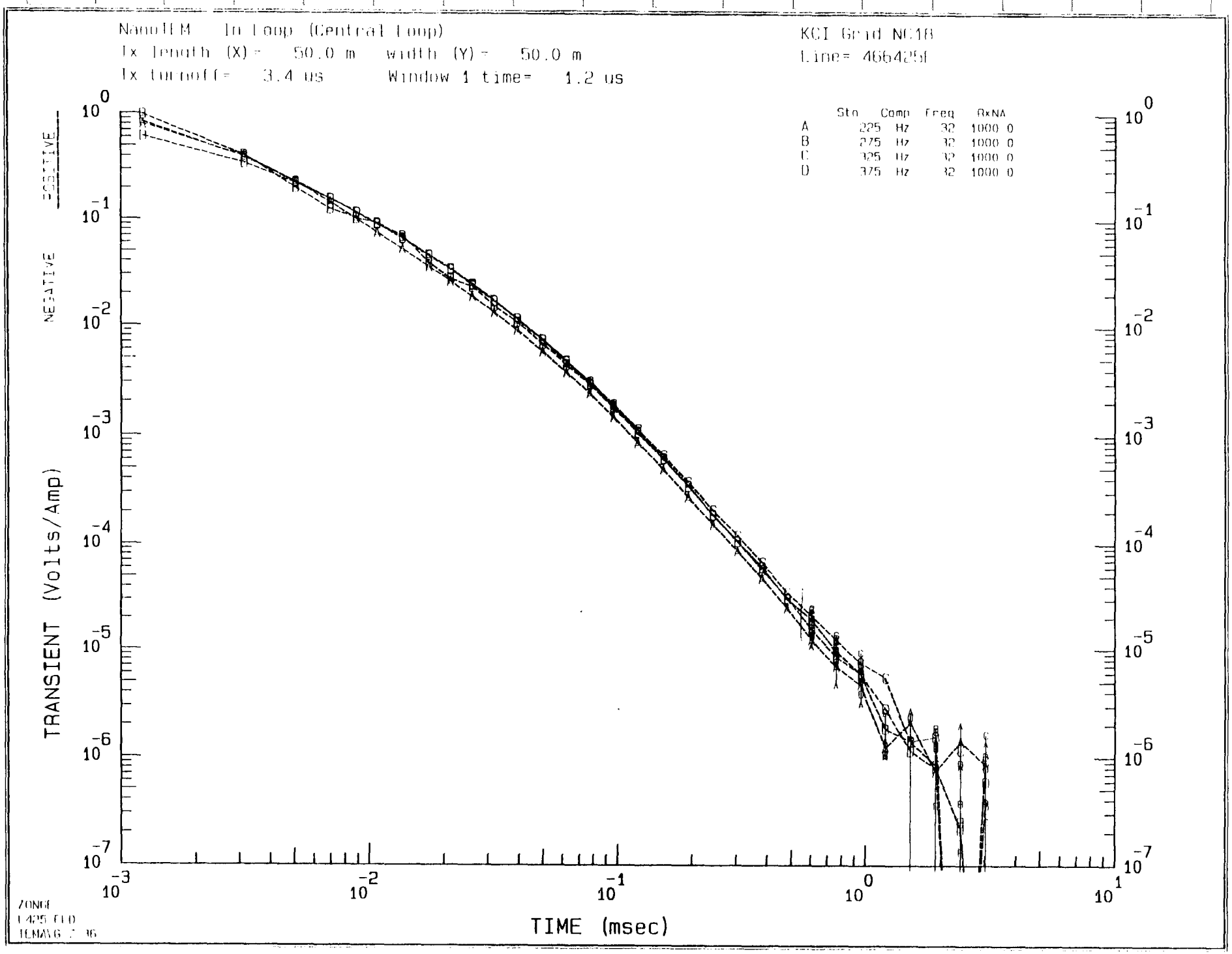
Window NUMBER and TIME (seconds)

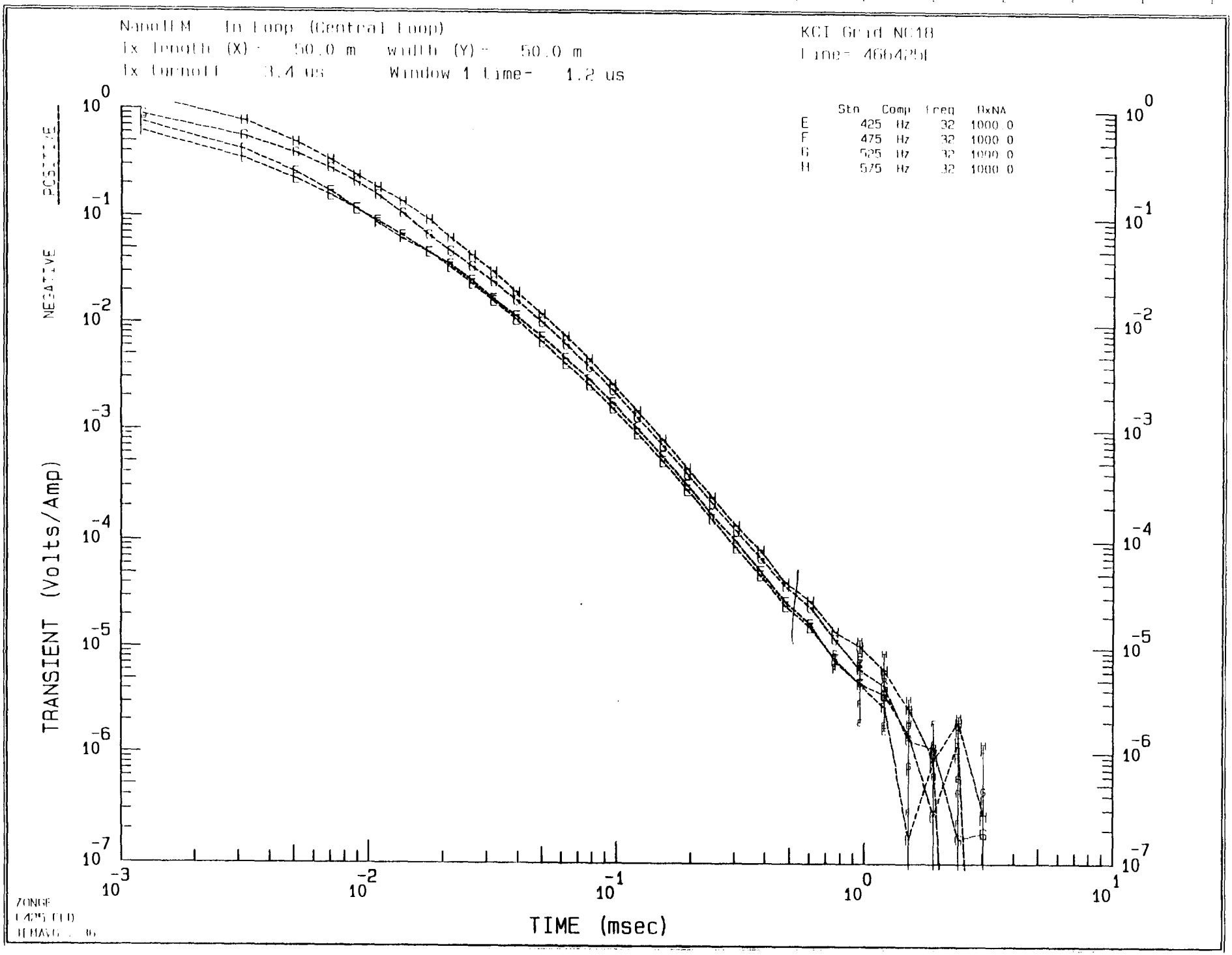
W 1:	40.20u	W11: 525.7u	W21: 4.850m
W 2:	70.60u	W12: 645.2u	W22: 6.110m
W 3:	101.0u	W13: 811.7u	
W 4:	131.4u	W14: 1.009m	
W 5:	161.8u*	W15: 1.250m*	
W 6:	192.2u	W16: 1.553m	
W 7:	237.2u	W17: 1.944m	
W 8:	298.2u	W18: 2.457m	
W 9:	359.0u	W19: 3.092m	
W10:	434.2u*	W20: 3.877m*	

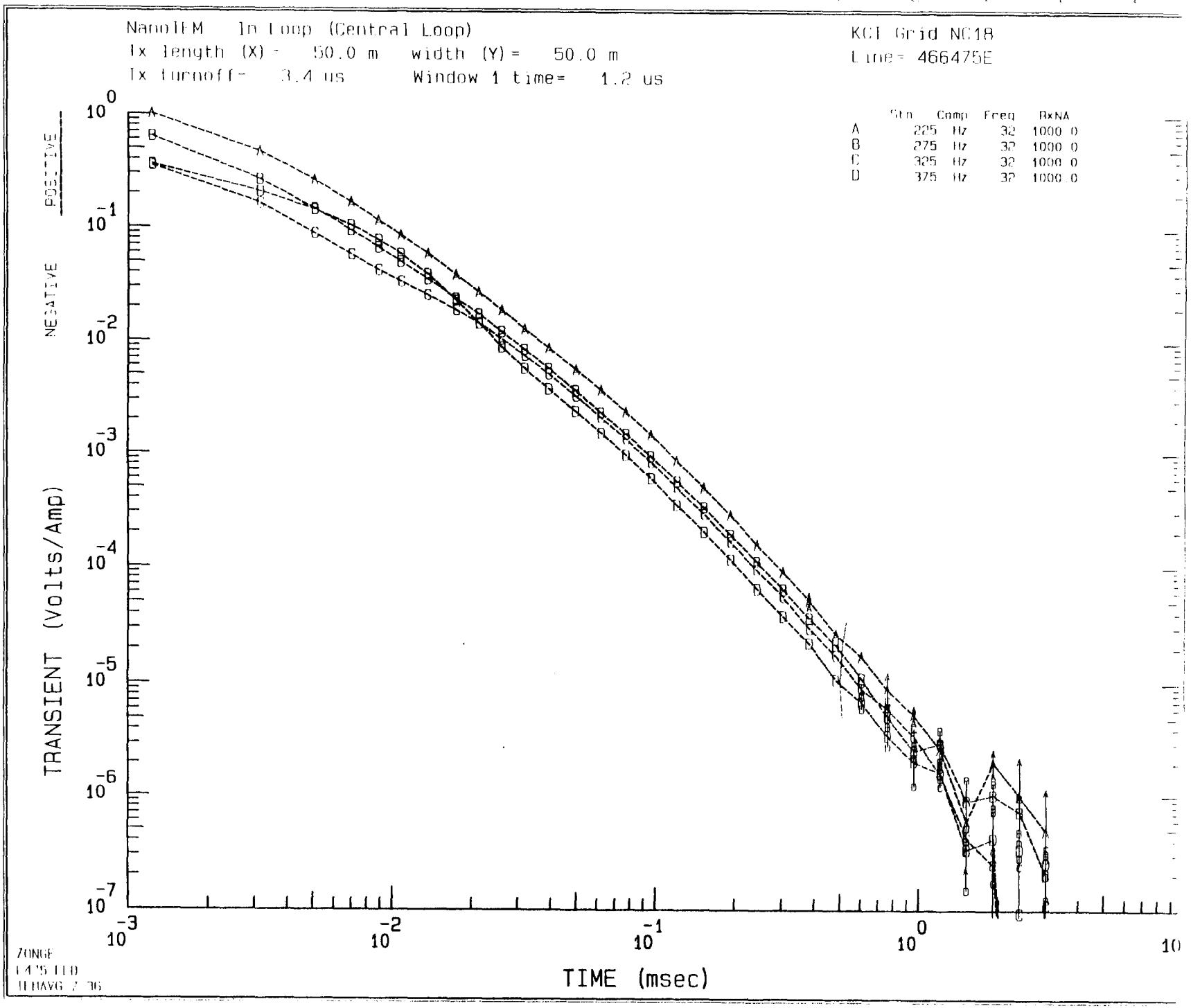


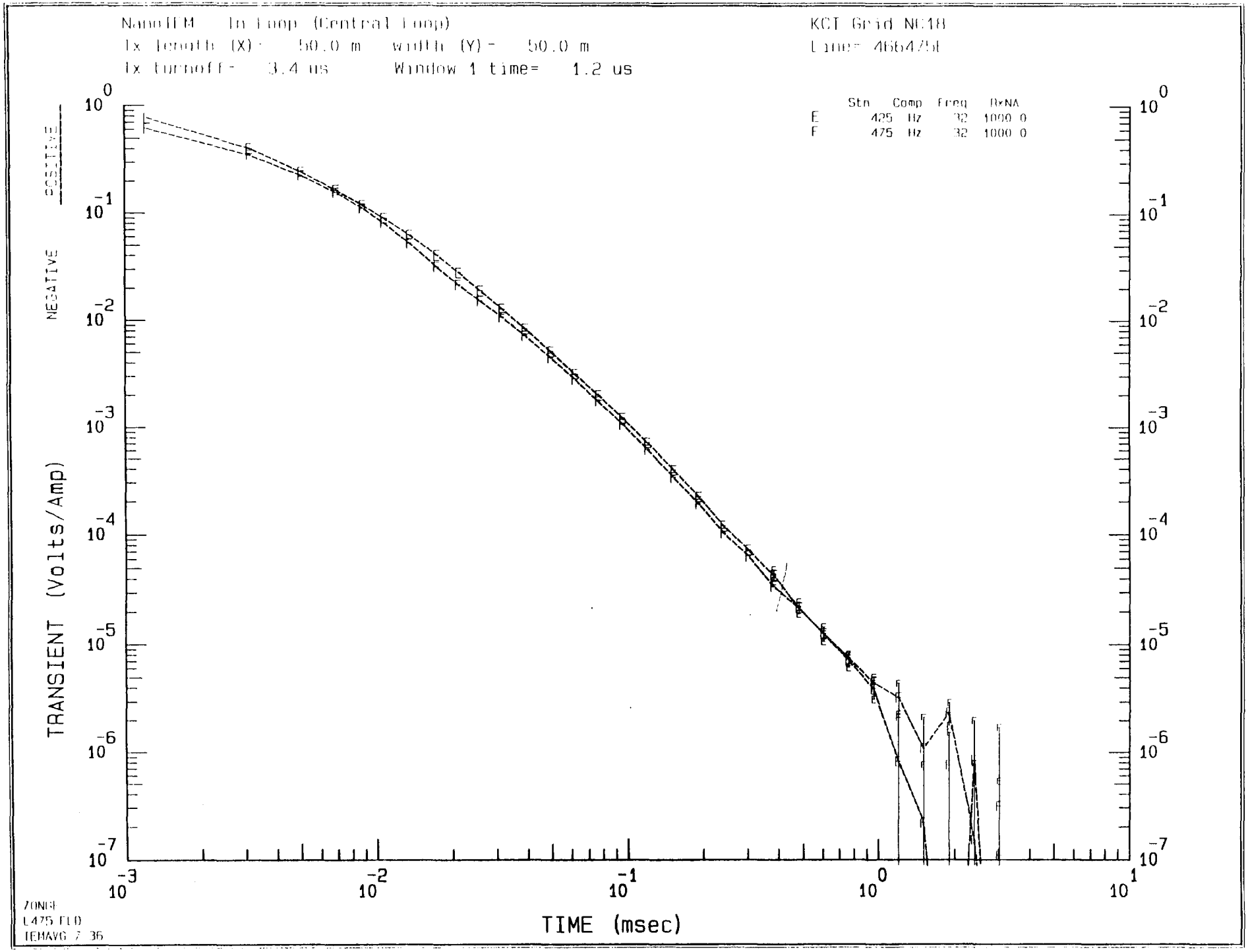

NanoTEM In Loop (Central Loop)
Tx Length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 1.4 us Window 1 time= 1.2 us
KCT Grid NL1B
Line= 4663750
Stn Comp Freq B-NA
A 525 Hz 32 1000 0
B 525 Hz 32 1000 0
C 425 Hz 32 1000 0
D 425 Hz 32 1000 0
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
COMPUTED
TEMAVG 2.36


NanoTEM In Loop (Central Loop)
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 3.4 us Window 1 time = 1.2 us
KCT Grid NC18
Line = 4663751
Stn Comp Freq RxNA
F 375 Hz 32 1000.0
F 325 Hz 32 1000.0
G 275 Hz 32 1000.0
H 225 Hz 32 1000.0
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
L375 FLD
TERAVG 7.36


NanoTEM In Loop (Central Loop)
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 3.4 us Window 1 time = 1.2 us
KCI Grid NC18
Line= 466425l
Sta Comp Freq RxNA
A 225 Hz 32 1000 0
B 275 Hz 32 1000 0
C 325 Hz 32 1000 0
D 375 Hz 32 1000 0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
L425 CLD
TEMAVG 2 36


NanoTEM In Loop (Central Loop)
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff 3.4 us Window 1 time = 1.2 us
KCI Grid NC18
Line= 4664251
Stn Comp Freq DxNA
E 425 Hz 32 1000.0
F 475 Hz 32 1000.0
G 525 Hz 32 1000.0
H 575 Hz 32 1000.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
425 CLD


NanoTEM In Loop (Central Loop)
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 3.4 us Window 1 time = 1.2 us
KCT Grid NC18
Line= 466475E
Stn Comp Freq RxNA
A 225 Hz 32 1000.0
B 275 Hz 32 1000.0
C 325 Hz 32 1000.0
D 375 Hz 32 1000.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE


NanoTEM In Loop (Central Loop)
Tx length (X)= 50.0 m width (Y)= 50.0 m
Tx turnoff= 3.4 us Window 1 time= 1.2 us
KCT Grid NC18
Line= 466475E
Stn Comp Freq RxNA
E 425 Hz 32 1000.0
F 475 Hz 32 1000.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
L475 ELD
TEMAVG 7 36

Nanotem

Line 466375E
KCI Grid NC18
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L375.ZO, Plotted 02 Jul 96

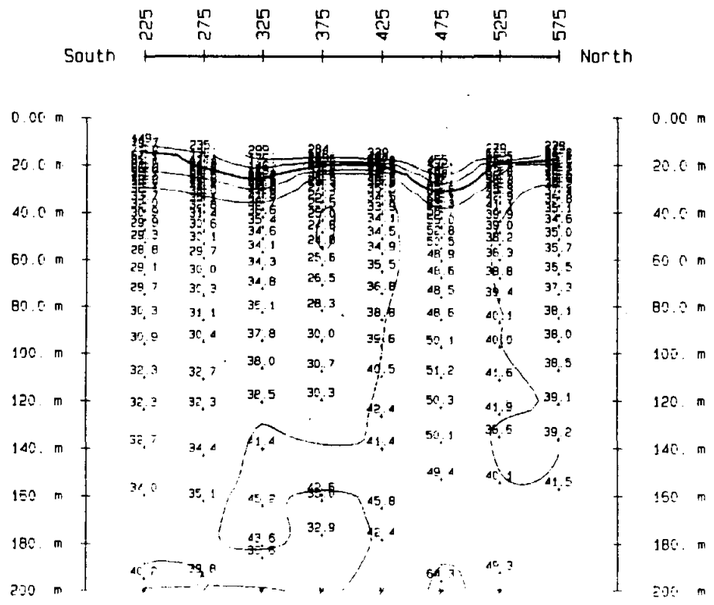
TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jun.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)

[24.8]
25.1
39.8
62.1
100.*
158.
251.
398.
[455.]



31.7 cm A3

Line 466375E
KCI Grid NC18
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L375.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

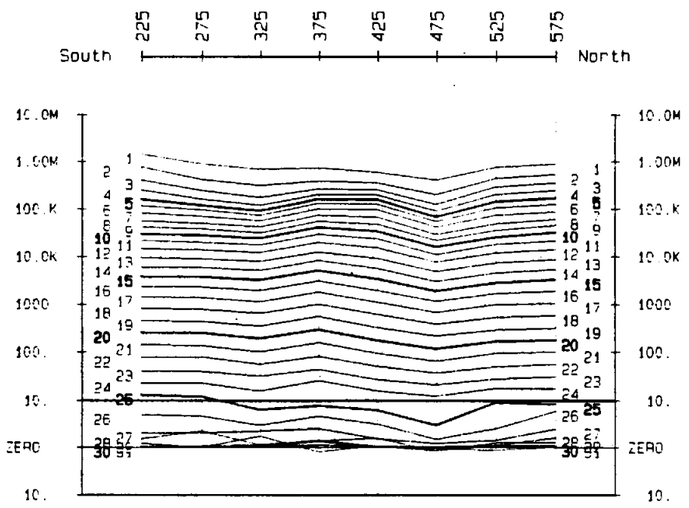
values in microV/ampere
Component: Hz, Rxna: 1000.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jun.96

Window NUMBER and TIME (seconds)

W 1:	1.230u	W11:	31.69u	W21:	303.6u	W31:	3.025m	
W 2:	3.140u	W12:	39.18u	W22:	382.1u			
W 3:	5.040u	W13:	49.63u	W23:	481.7u			
W 4:	6.950u	W14:	62.00u	W24:	604.9u			
W 5:	8.860u*	W15:	77.14u*	W25:	760.2u*			
W 6:	10.77u	W16:	96.12u	W26:	957.2u			
W 7:	13.59u	W17:	120.7u	W27:	1.205m			
W 8:	17.41u	W18:	152.9u	W28:	1.516m			
W 9:	21.23u	W19:	192.7u	W29:	1.909m			
W10:	25.95u*	W20:	242.0u*	W30:	2.402m*			



21.7 cm A3

NanoTEM

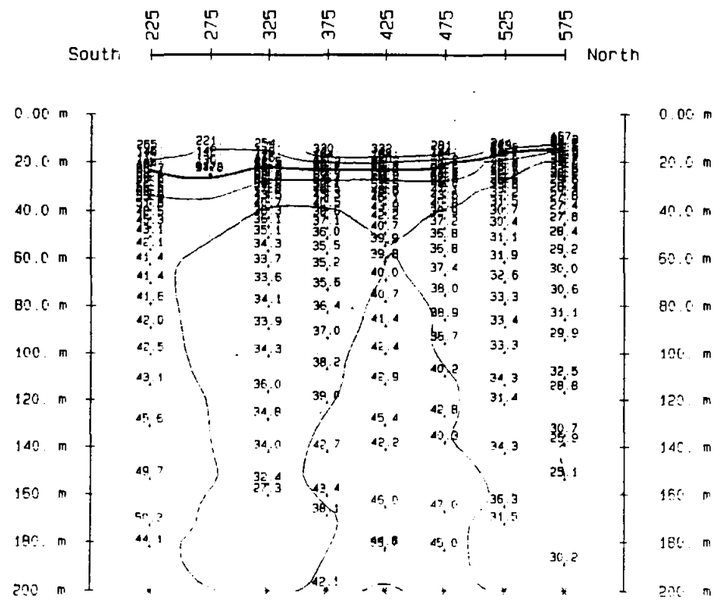
Line 466425E
KCI Grid NC18
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L425.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters
RECEIVER DATA TRANSMITTER DATA
Line = North
Surveyed= Jun.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[24.2]
25.1
39.8
63.1
100.
158.
251.
[353.]



Line 466425E
KCI Grid NC18
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L425.ZM. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

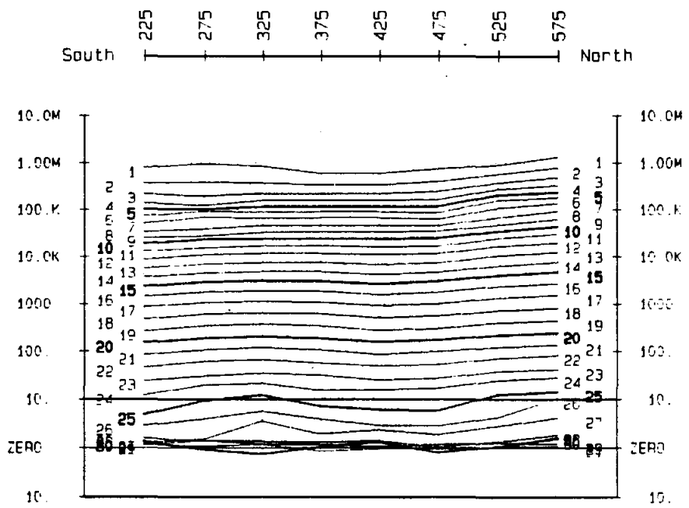
values in microV/ampere
Component: Hz, Rxna: 1000.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jun.96

Window NUMBER and TIME (seconds)

W 1:	1.230u	W11:	31.69u	W21:	303.6u	W31:	3.025m	
W 2:	3.140u	W12:	39.18u	W22:	382.1u			
W 3:	5.040u	W13:	49.63u	W23:	481.7u			
W 4:	6.950u	W14:	62.00u	W24:	604.9u			
W 5:	8.860u*	W15:	77.14u*	W25:	760.2u*			
W 6:	10.77u	W16:	96.12u	W26:	957.2u			
W 7:	13.59u	W17:	120.7u	W27:	1.205m			
W 8:	17.41u	W18:	152.9u	W28	1.516m			
W 9:	21.23u	W19:	192.7u	W29:	1.909m			
W10:	25.95u*	W20:	242.0u*	W30:	2.402m*			



Line 466475E
KCI Grid NC18
for
Kennecott Canada

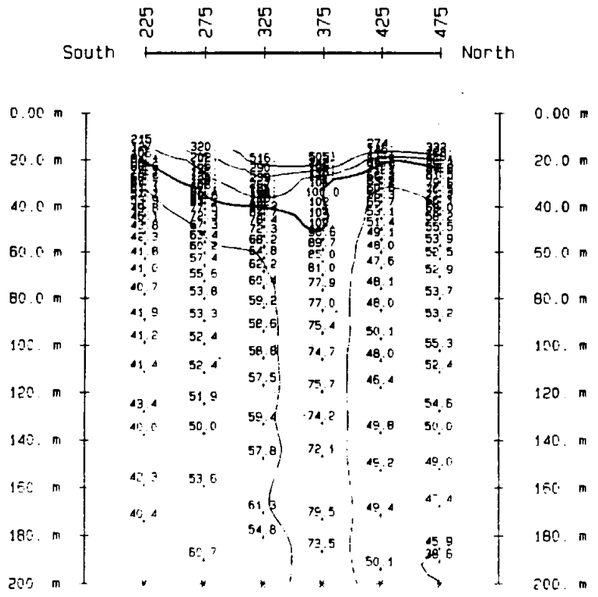
ZONGE ZPLOT 7.23
File L475.ZD. Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jun.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[36.4]
39.8
63.1
100.
158.
251
398.
[607.]



Line 466475E
KCI Grid NC18
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L475.ZM, Plotted 02 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

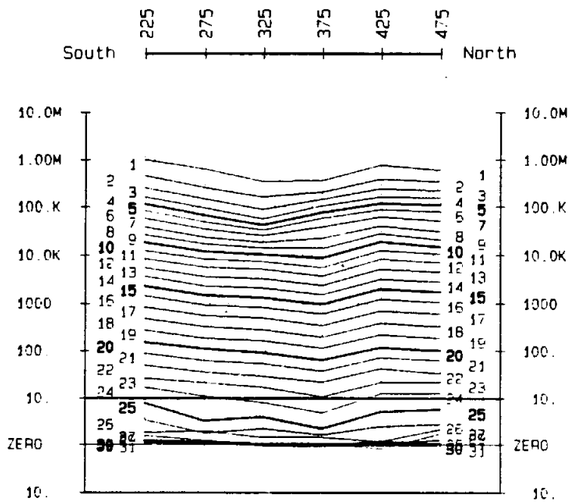
values in microV/ampere
Component: Hz, Rxna: 1000.0

SURVEY LINE DATA
Line Orient= North

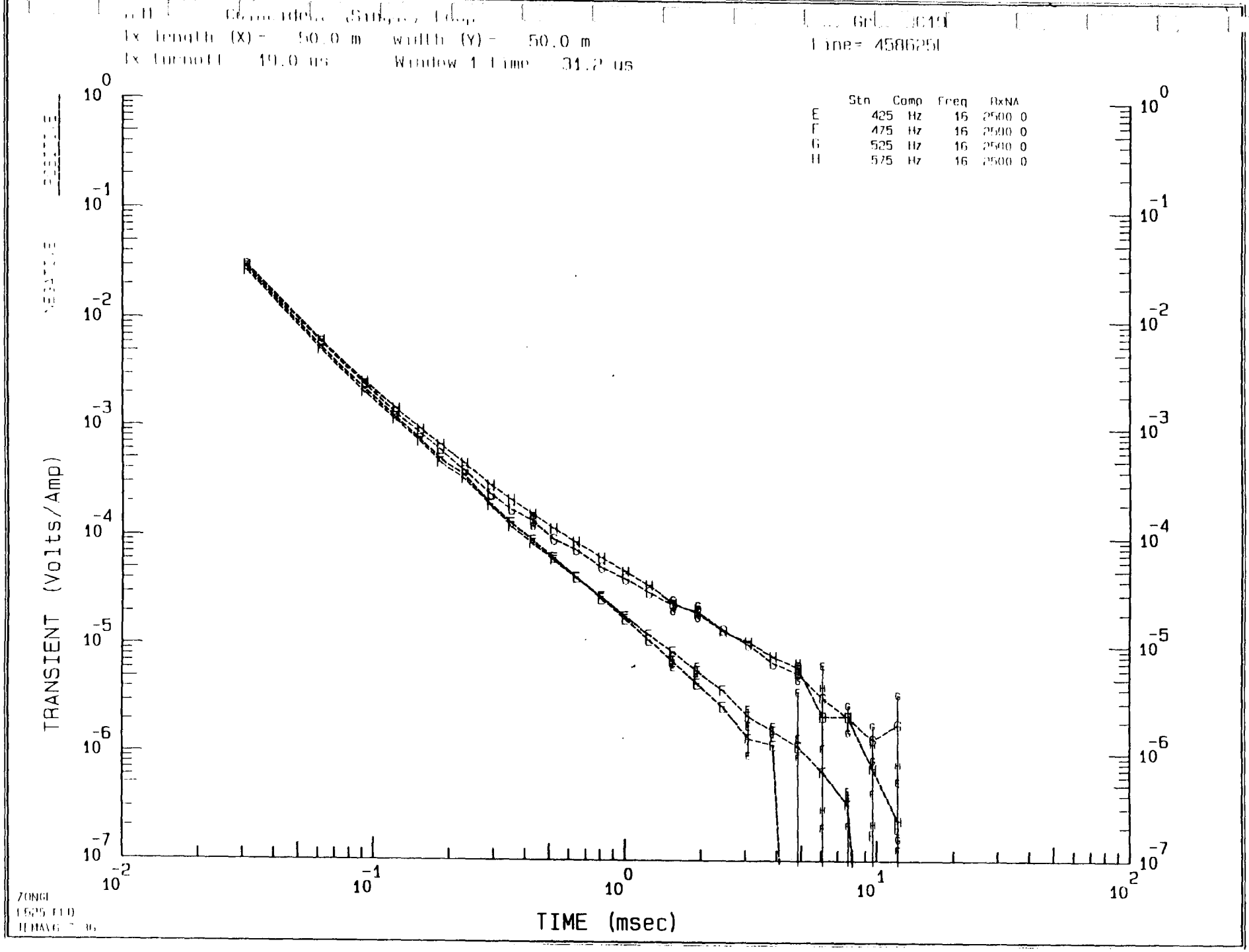
Survey Date= Jun.96

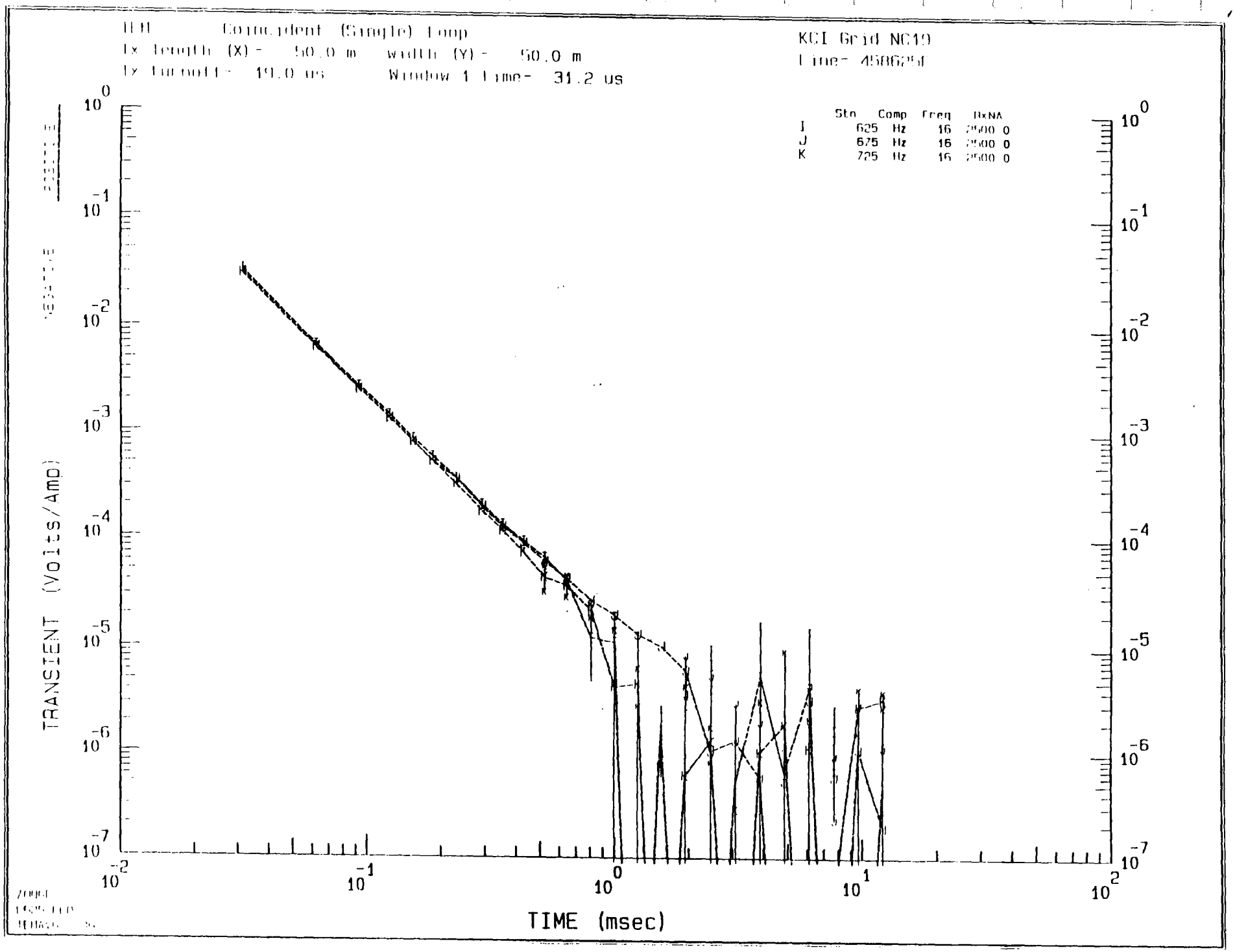
Window NUMBER and TIME (seconds)

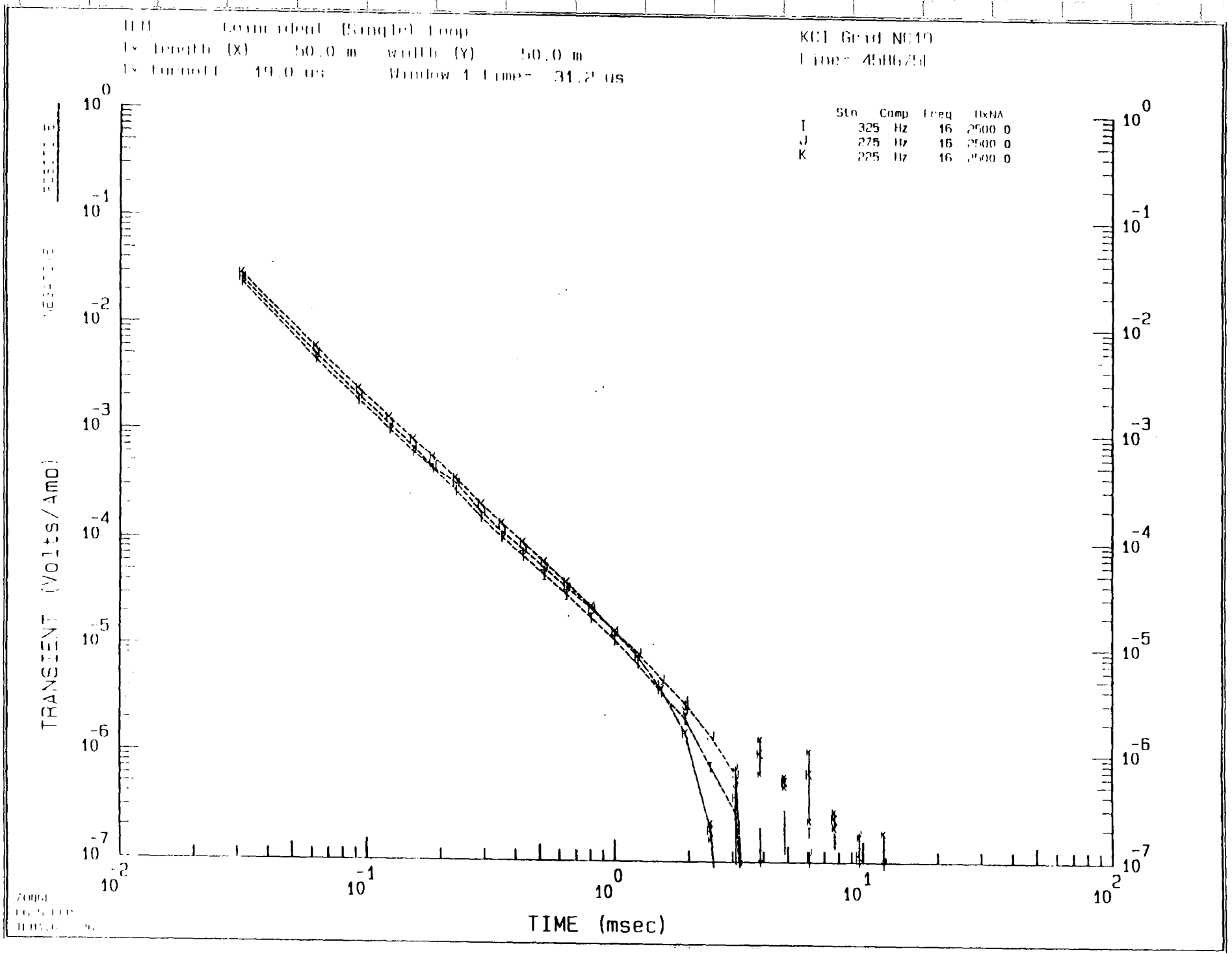
W 1: 1.230u	W11: 31.69u	W21: 303.6u	W31: 3.025m	
W 2: 3.140u	W12: 39.18u	W22: 382.1u		
W 3: 5.040u	W13: 49.63u	W23: 481.7u		
W 4: 6.950u	W14: 62.00u	W24: 604.9u		
W 5: 8.860u*	W15: 77.14u*	W25: 760.2u*		
W 6: 10.77u	W16: 96.12u	W26: 957.2u		
W 7: 13.59u	W17: 120.7u	W27: 1.205m		
W 8: 17.41u	W18: 152.9u	W28: 1.516m		
W 9: 21.23u	W19: 192.7u	W29: 1.909m		
W10: 25.95u*	W20: 242.0u*	W30: 2.402m*		

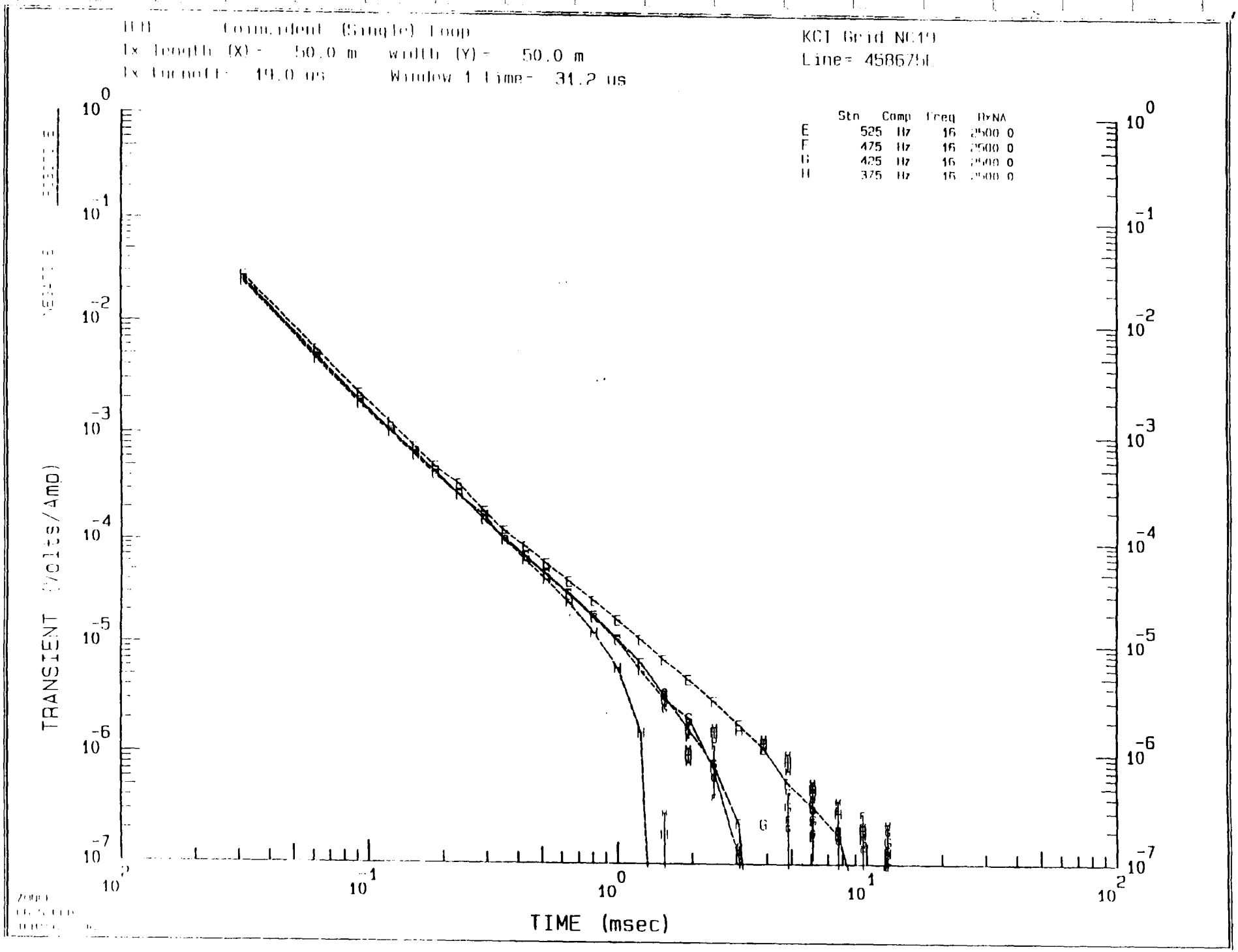


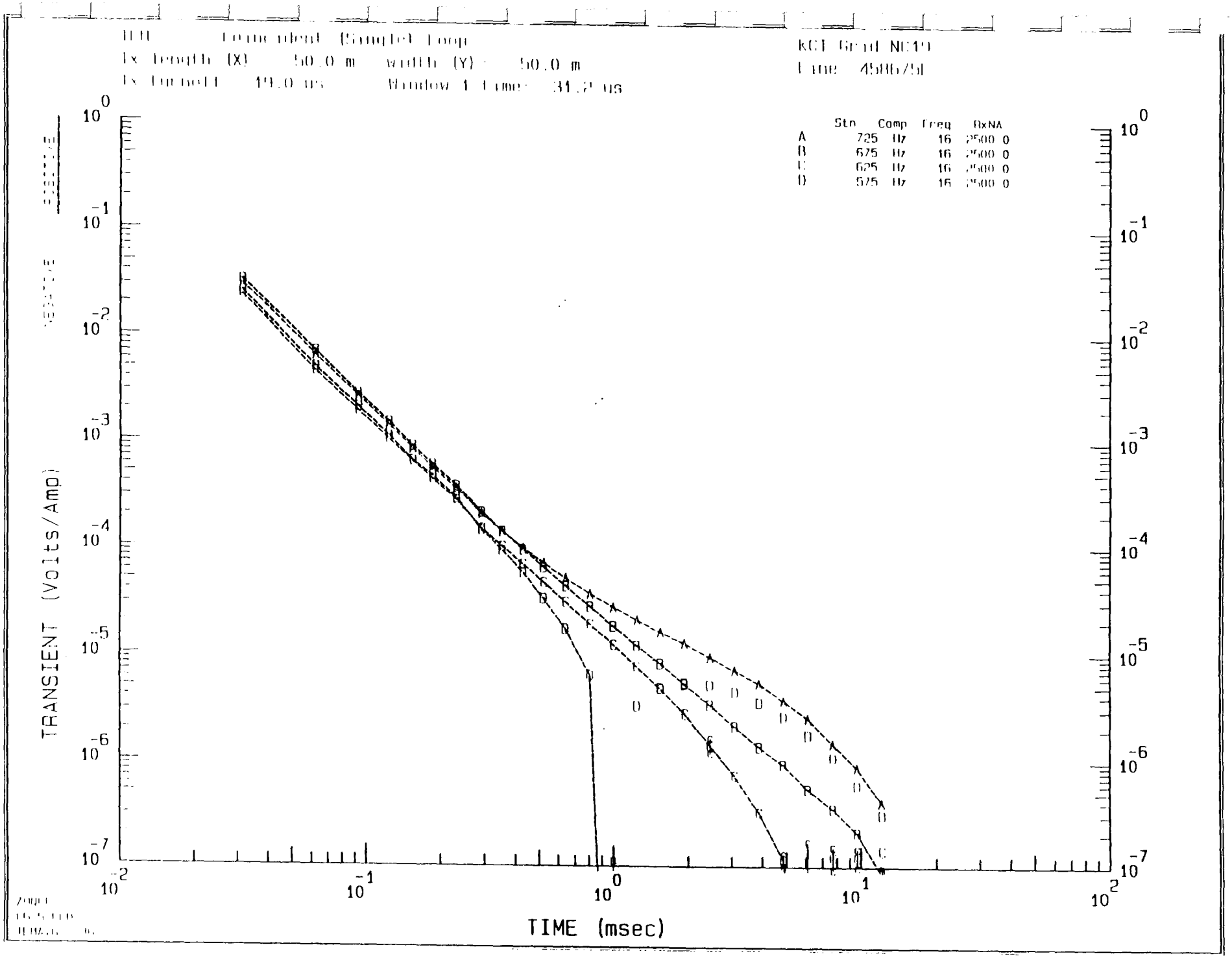
31.7 cm

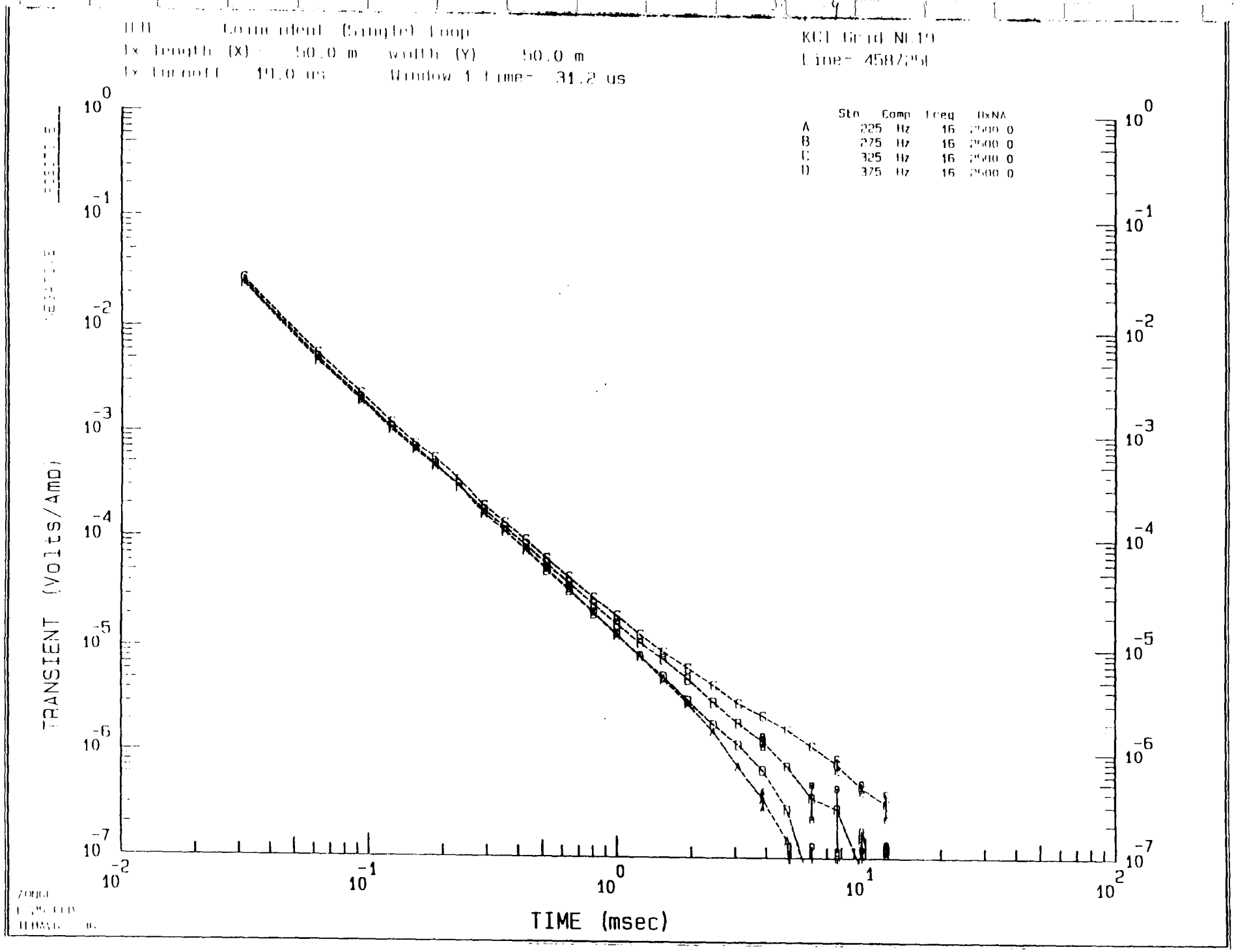

Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff 19.0 us Window 1 Time 31.2 us
Line= 4586251
Stn Comp Freq TxNA
E 425 Hz 16 2500 0
F 475 Hz 16 2500 0
G 525 Hz 16 2500 0
H 575 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE

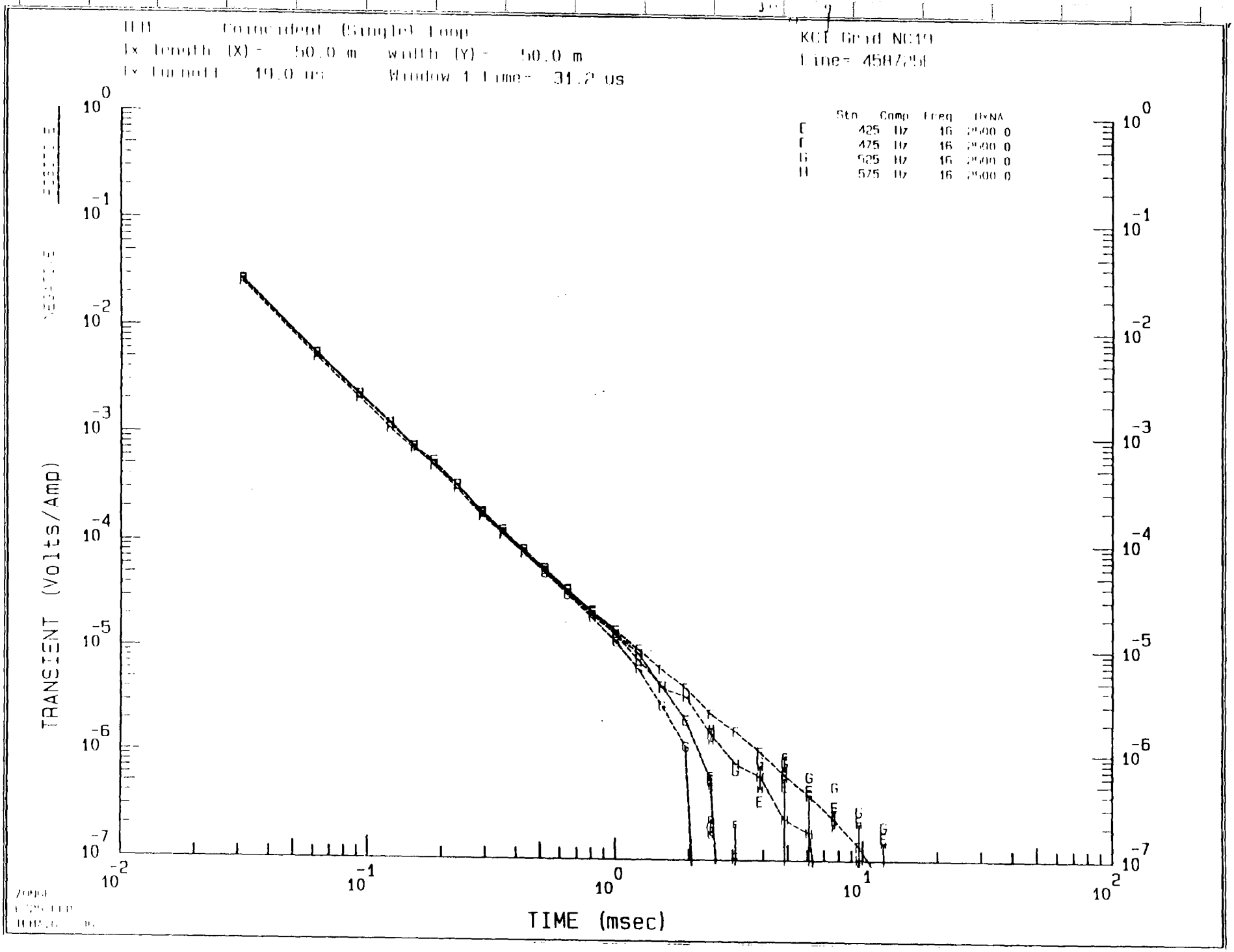

TEM Coincident (Simple) Loop
Tx length (X) - 50.0 m width (Y) - 50.0 m
Tx turnoff - 19.0 us Window 1 time - 31.2 us
KCI Grid NC19
Line- 458625
Stn Comp Freq TxNA
J 625 Hz 16 2500 0
J 675 Hz 16 2500 0
K 725 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)

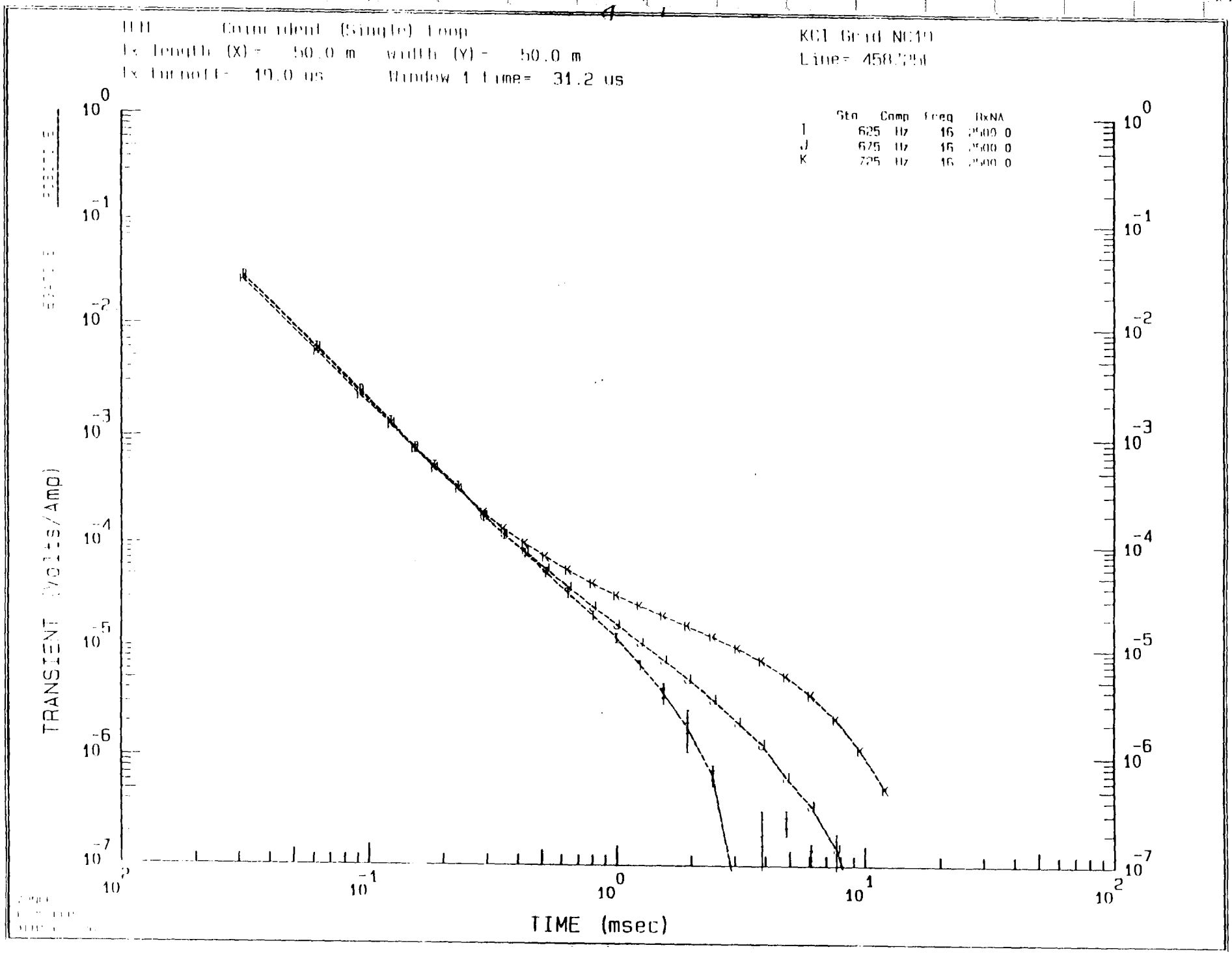

KCT Grid NC19
Stn Comp Freq
I 325 Hz 16
J 275 Hz 16
K 225 Hz 16
TRANSIENT (Volts/Amp)
TIME (msec)

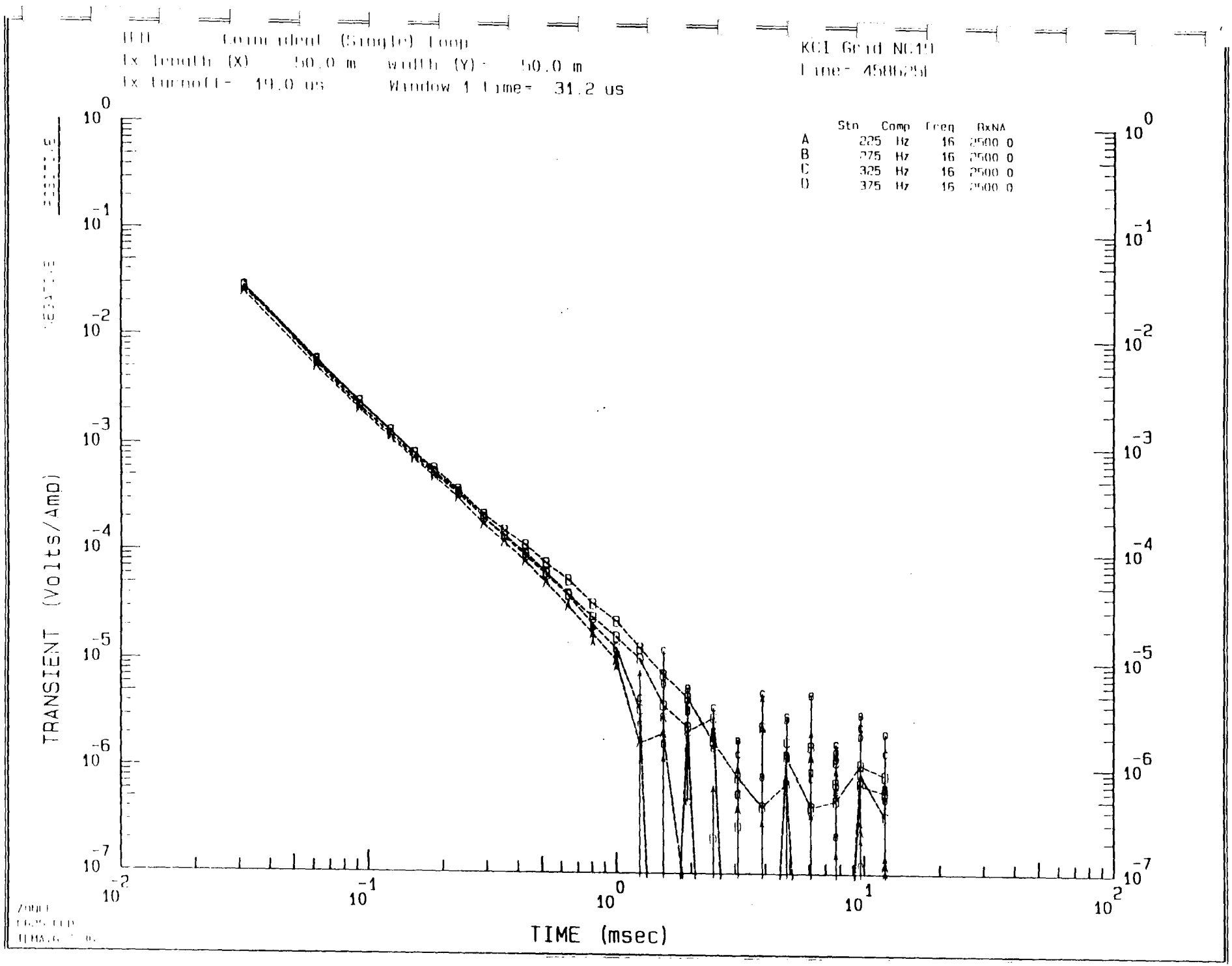

Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Window 1 Time = 31.2 us
KCT Grid NC19
Line= 458675E
Stn Comp Freq RxNA
E 525 Hz 16 2500 0
F 475 Hz 16 2500 0
G 425 Hz 16 2500 0
H 375 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)

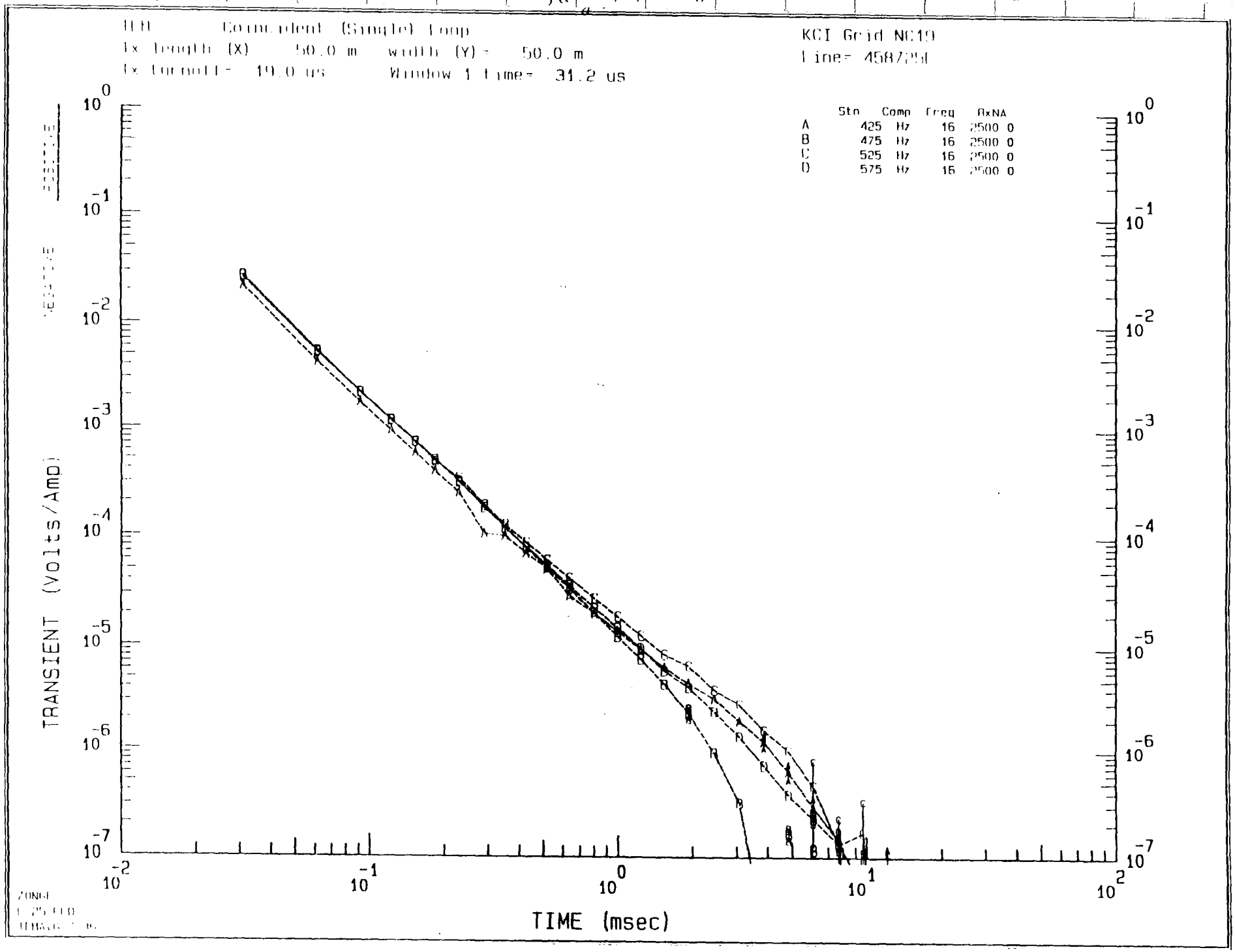

Tx Length (X) 50.0 m
Width (Y) 50.0 m
Window 1 Time 31.2 us
Stn Comp Freq RxNA
A 725 Hz 16 2500.0
B 675 Hz 16 2500.0
C 625 Hz 16 2500.0
D 575 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

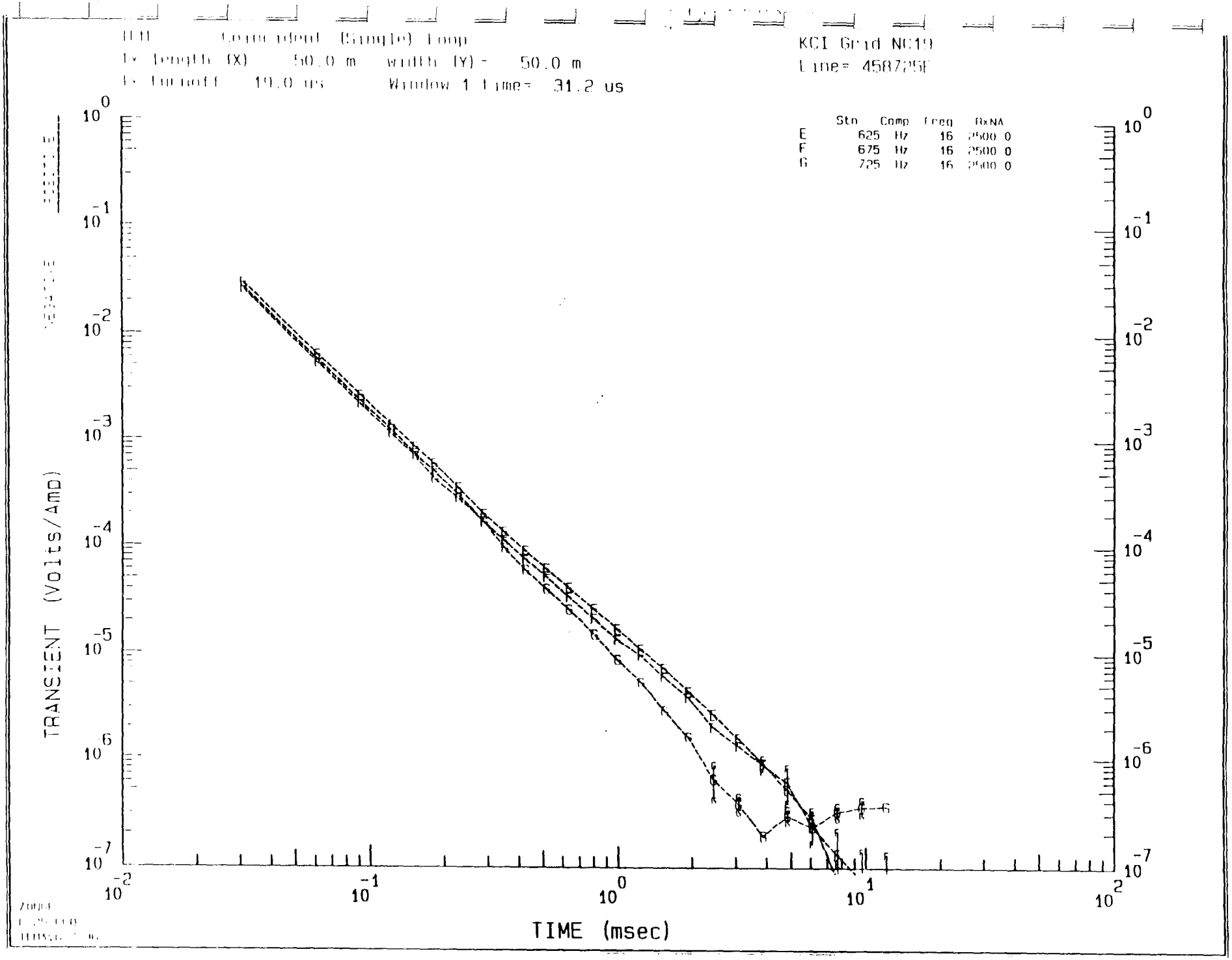

Coincident (Sampled) Loop
Tx Length (X) = 50.0 m Width (Y) 50.0 m
Tx Turnoff 11.0 us Window 1 Time= 31.2 us
KCI Grid NL19
Line= 45872.0
Stn Comp Freq TxNA
A 225 Hz 16 2500.0
B 275 Hz 16 2500.0
C 325 Hz 16 2500.0
D 375 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


Coincident (Coupled) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Window 1 Time = 31.2 us
KCT Grid NC19
Line= 4587/SW
Stn Comp Freq
E 425 Hz 16
F 475 Hz 16
G 525 Hz 16
H 575 Hz 16
TRANSIENT (Volts/Amp)
TIME (msec)


HLH Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 Time = 31.2 us
KCI Grid NC10
Line= 450/250
Sta Comp Freq RxNA
I 625 Hz 16 2500.0
J 625 Hz 16 2500.0
K 725 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


KCI Grid NC-11
Line= 4588+25N
Ex Length (X) = 50.0 m Width (Y) = 50.0 m
Ex Turnoff = 19.0 us Window 1 Time = 31.2 us
Stn Comp Freq RxNA
A 225 Hz 16 2500.0
B 275 Hz 16 2500.0
C 325 Hz 16 2500.0
D 375 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


HLEM Coincident (Simple) Loop
Tx length (X) 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 Time = 31.2 us
KCI Grid NC19
Line= 4587250
Stn Comp Freq RxNA
A 425 Hz 16 2500 0
B 475 Hz 16 2500 0
C 525 Hz 16 2500 0
D 575 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)


KCI Grid NC19
Line= 4587250
Stn Comp Freq RxNA
E 625 Hz 16 2500 0
F 675 Hz 16 2500 0
G 725 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)

Line 458625E
KCI Grid NC19
for
Kennecott Canada

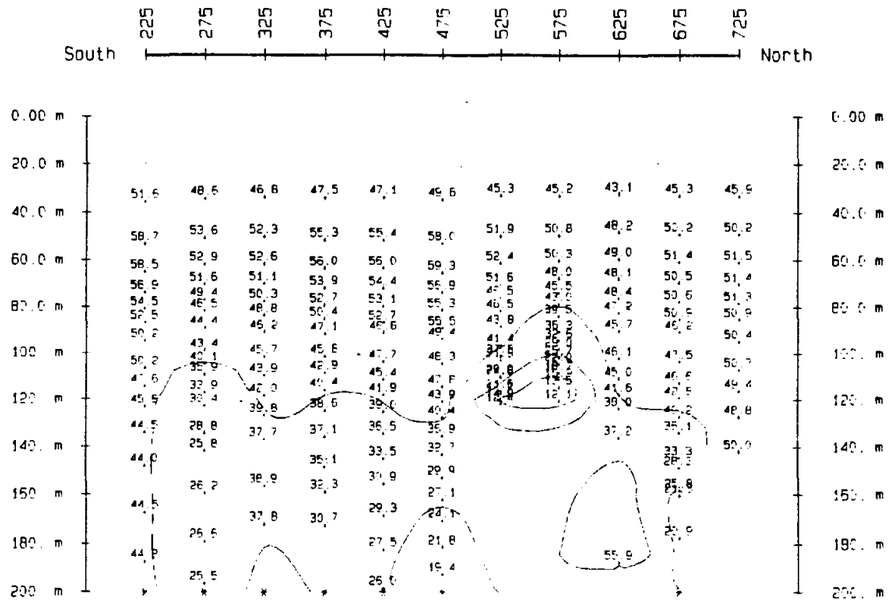
ZONGE ZPLOT 7.23
File L625.ZD, Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)
[11.1]
15.8
25.1
39.8
[59.4]



Line 458625E
KCI Grid NC19
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L625.ZM. Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

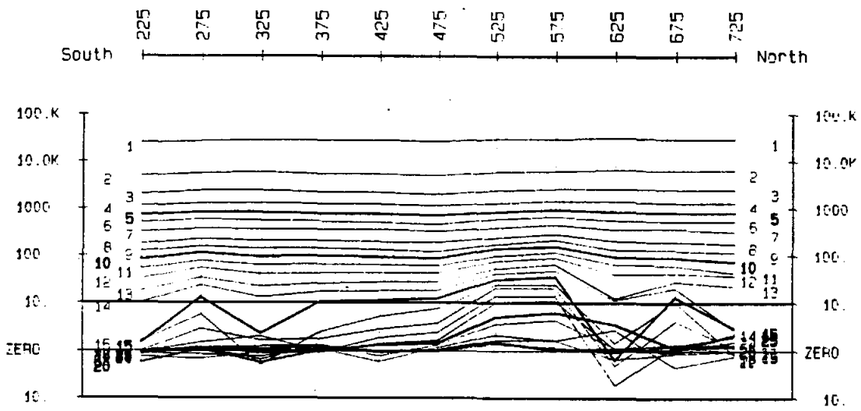
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 458675E
KCI Grid NC19
for
Kennecott Canada

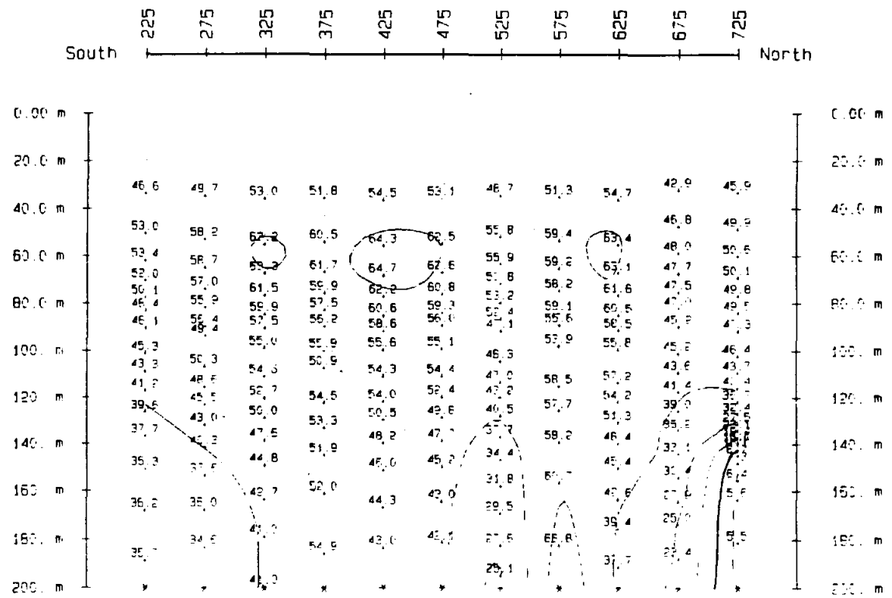
ZONGE ZPLOT 7.23
File L675.ZD. Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[5.30]
6.31
10.0*
15.8
25.1
39.8
63.1
[74.6]



Line 458675E
KCI Grid NC19
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L675.ZM, Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

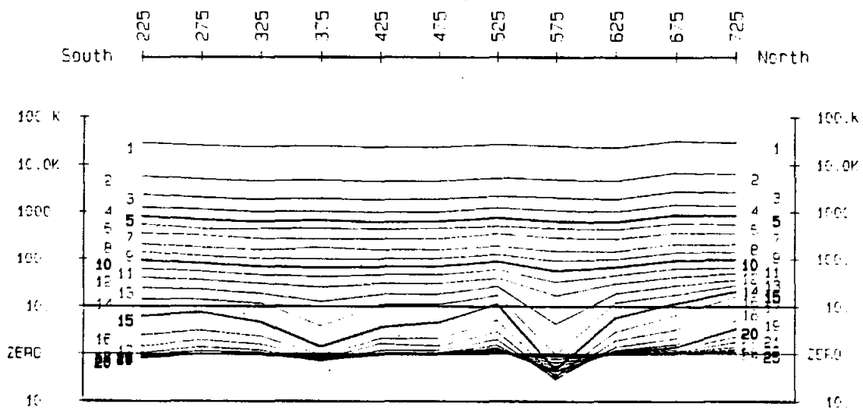
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 458725E
KCI Grid NC19
for
Kennecott Canada

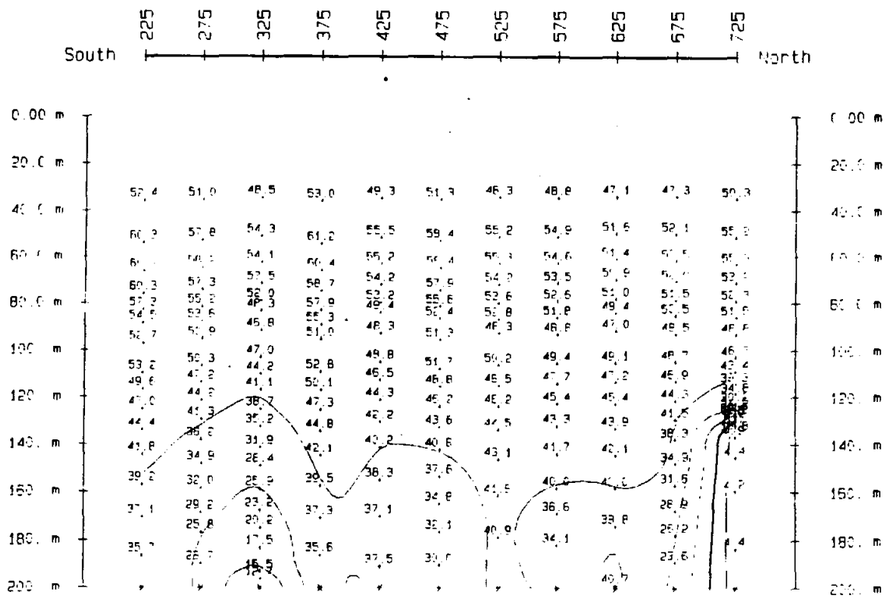
ZONGE ZPLOT 7.23
File L725.ZD. Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[4.22]
6.31
10.0*
15.8
25.1
39.8
[51.4]



Line 458725E
KCI Grid NC19
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L725.ZM, Plotted 11 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

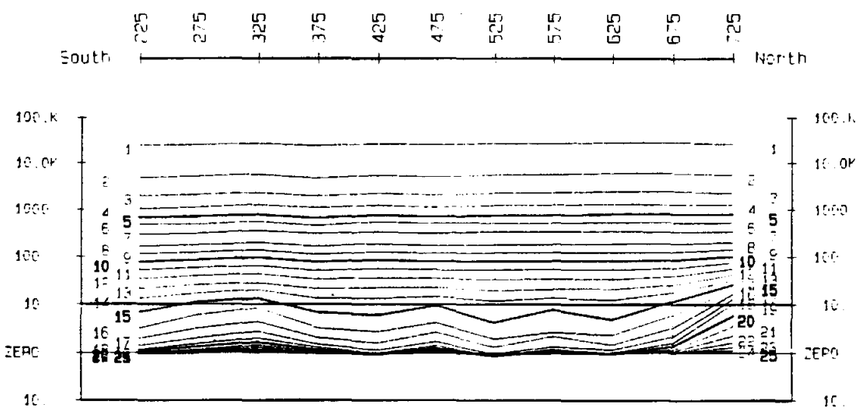
values in microV/ampere
Component: Hz, Axna: 2500.0

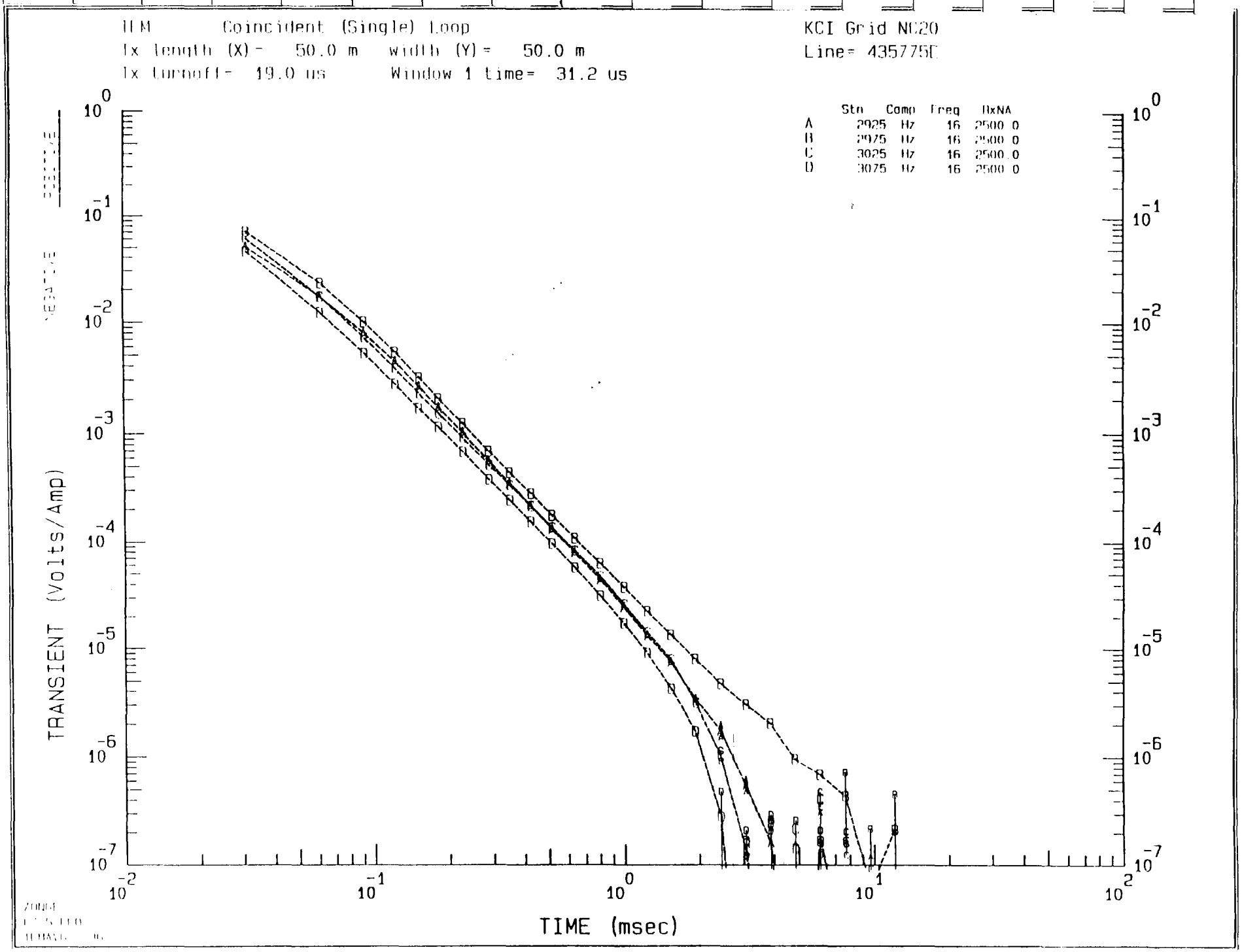
SURVEY LINE DATA
Line Orient= North

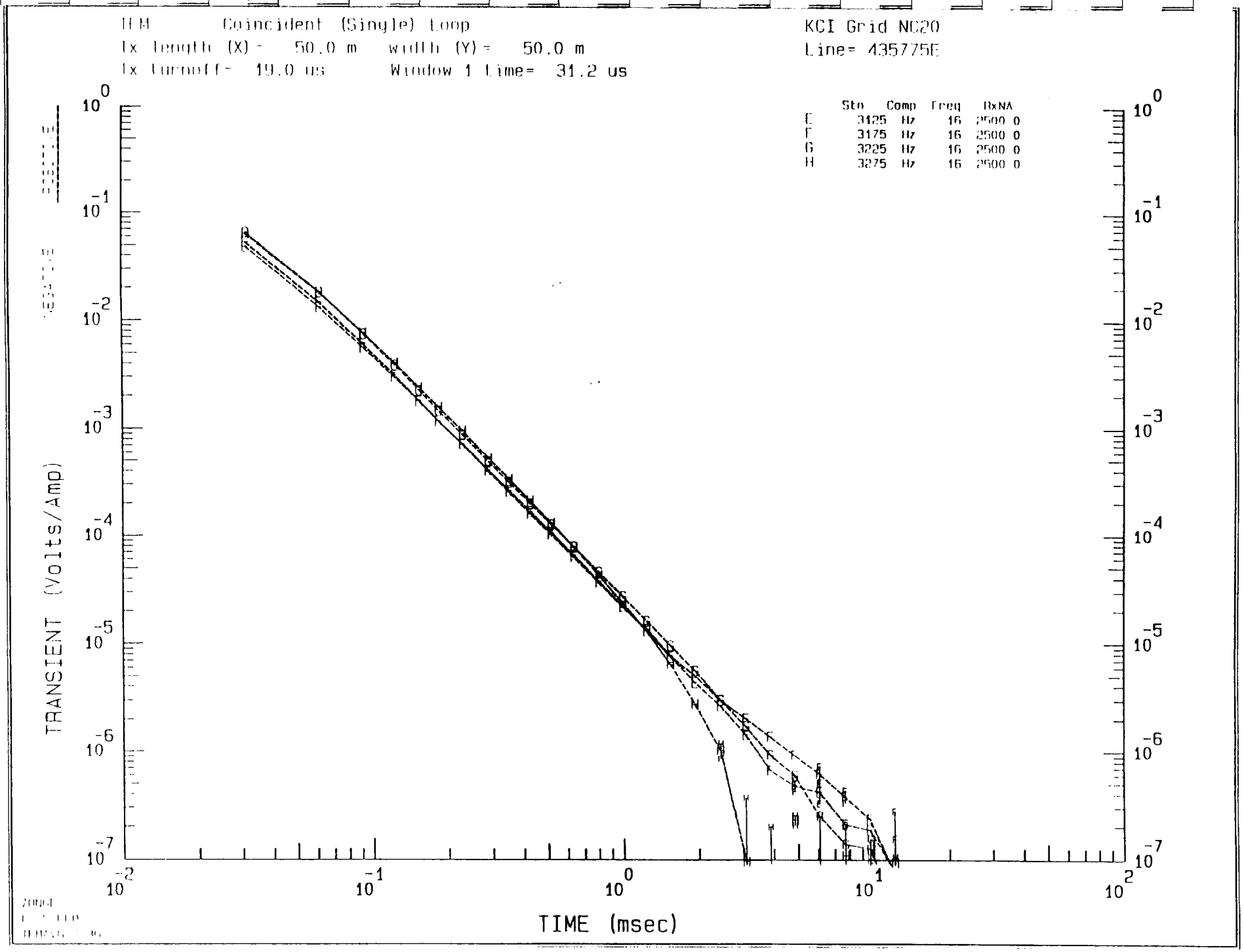
Survey Date= Jul.96

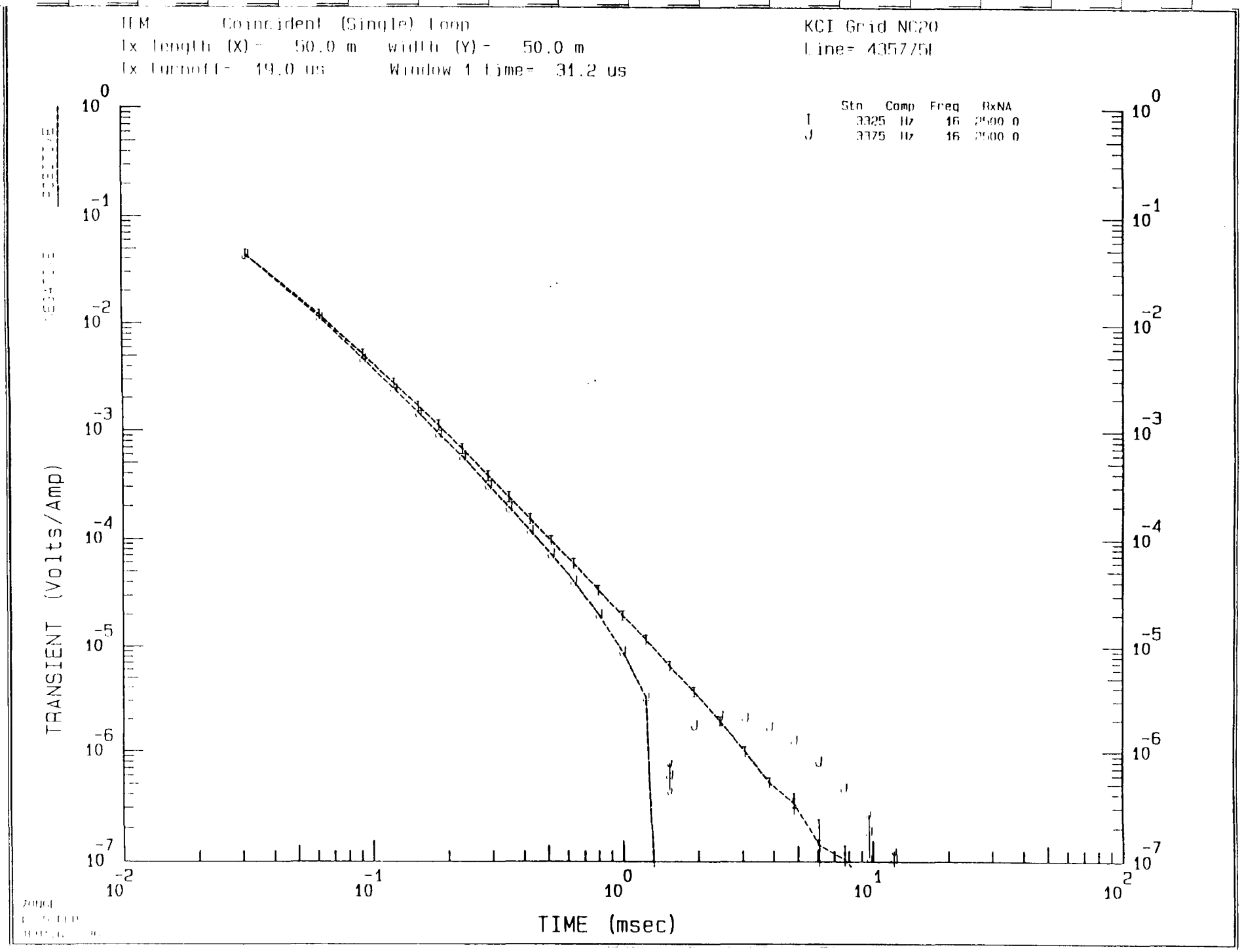
Window NUMBER and TIME (seconds)

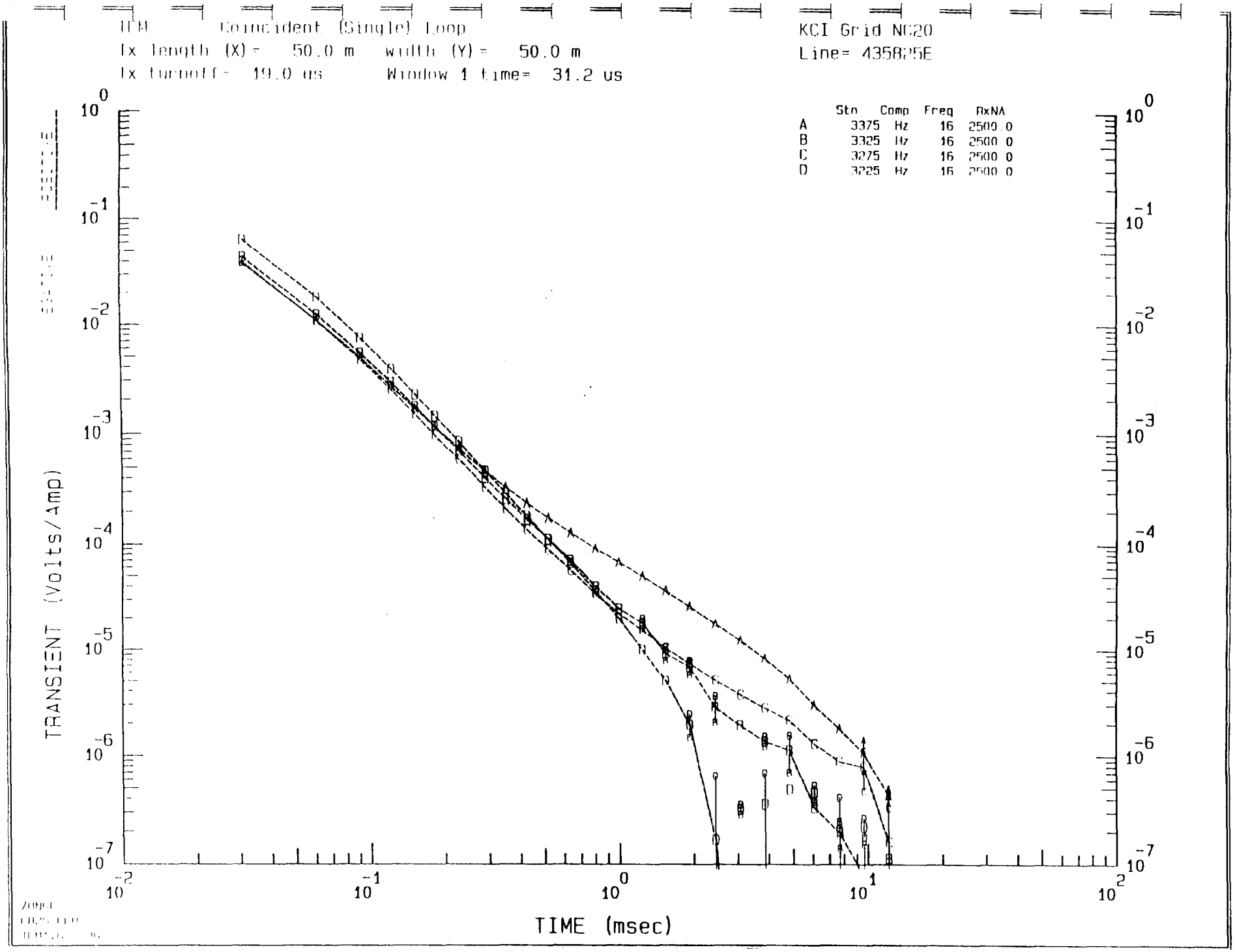
W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	5.191m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.9u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		

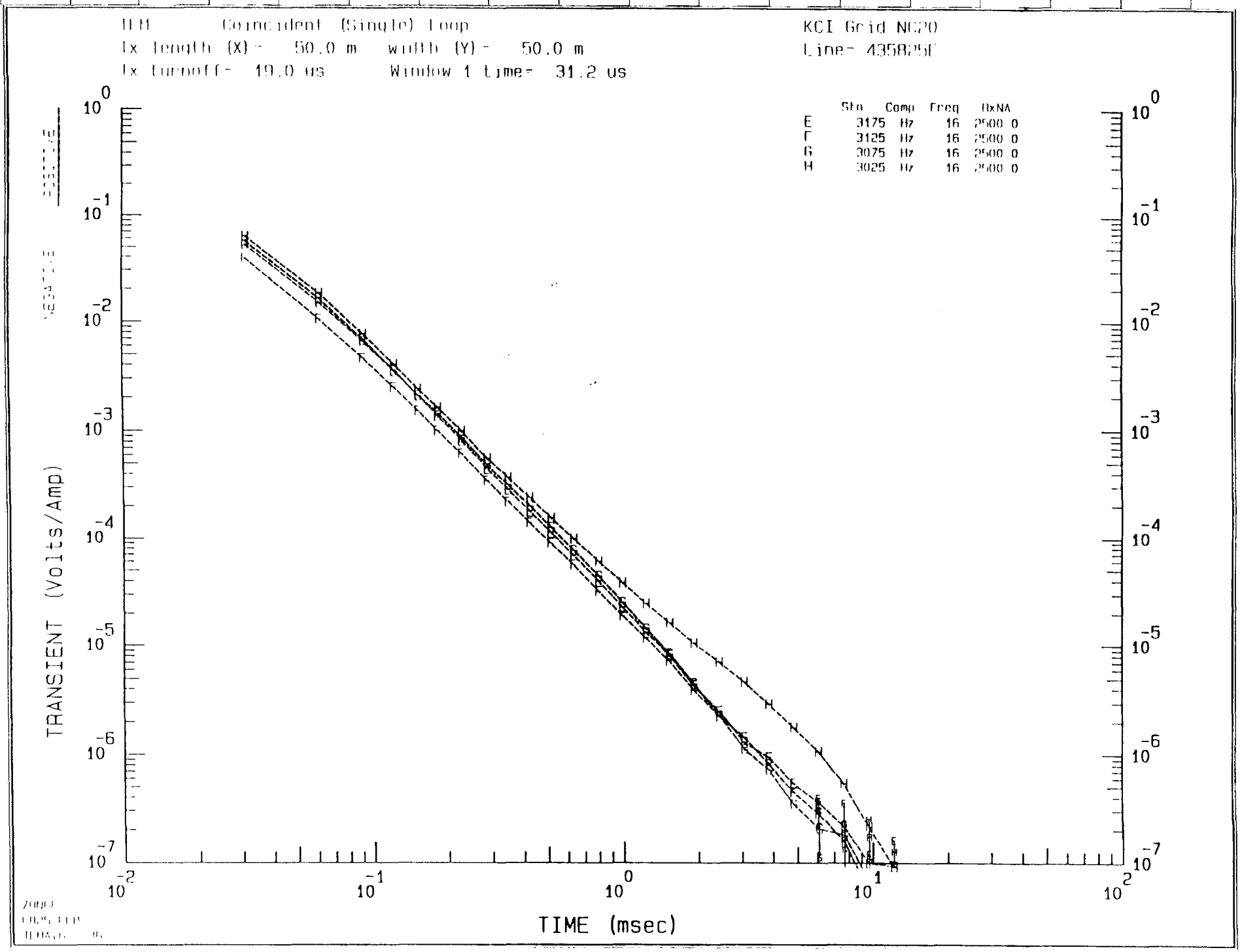


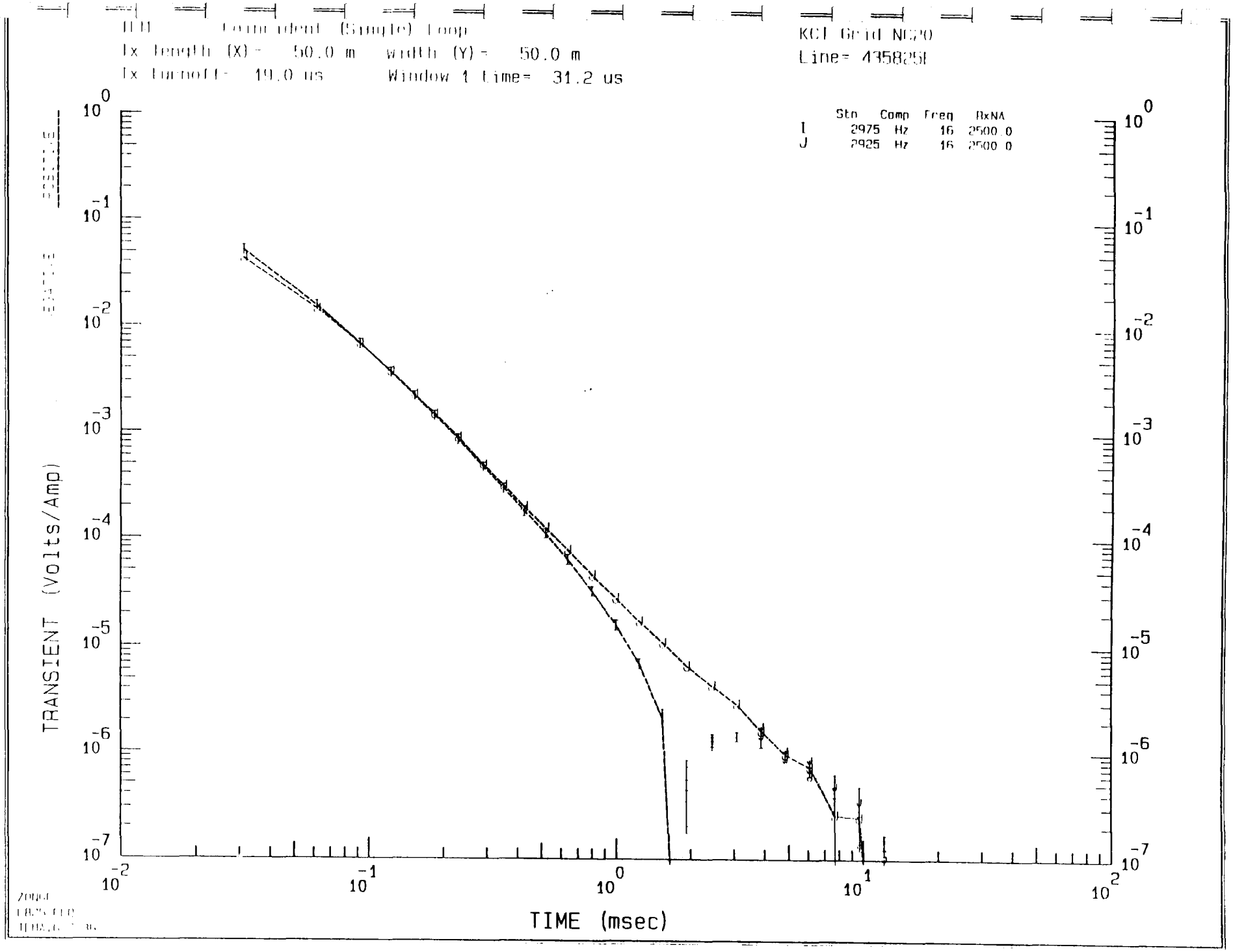

UTM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC20
Line= 435775E
Stn Comp Freq IxNA
A 2925 Hz 16 2500 0
B 2975 Hz 16 2500 0
C 3025 Hz 16 2500 0
D 3075 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time= 31.2 us
KCI Grid NC20
Line= 435775E
Stn Comp Freq RxNA
E 3125 Hz 16 2500 0
F 3175 Hz 16 2500 0
G 3225 Hz 16 2500 0
H 3275 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC20
Line= 435775I
Stn Comp Freq RxNA
I 3325 Uz 16 2500.0
J 3375 Uz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC20
Line= 435825E
Stn Comp Freq RxNA
A 3375 Hz 16 2500.0
B 3325 Hz 16 2500.0
C 3275 Hz 16 2500.0
D 3225 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X)= 50.0 m width (Y)= 50.0 m
Tx turnoff= 19.0 us Window 1 time= 31.2 us
KCI Grid NC20
Line= 435825E
Stn Comp Freq RxNA
E 3175 Hz 16 2500 0
F 3125 Hz 16 2500 0
G 3075 Hz 16 2500 0
H 3025 Hz 16 2500 0
TRANSIENT (Volts/Amp)
TIME (msec)


Coincident (Simple) Loop
Tx Length (X) = 50.0 m Width (Y) = 50.0 m
Tx Turnoff = 19.0 us Window 1 Time= 31.2 us
KCI Grid NC20
Line= 4358251
Stn Comp Freq RxNA
I 2975 Hz 16 2500.0
J 2925 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

Line 435775E
KCI Grid NC20
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L775.ZD. Plotted 16 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

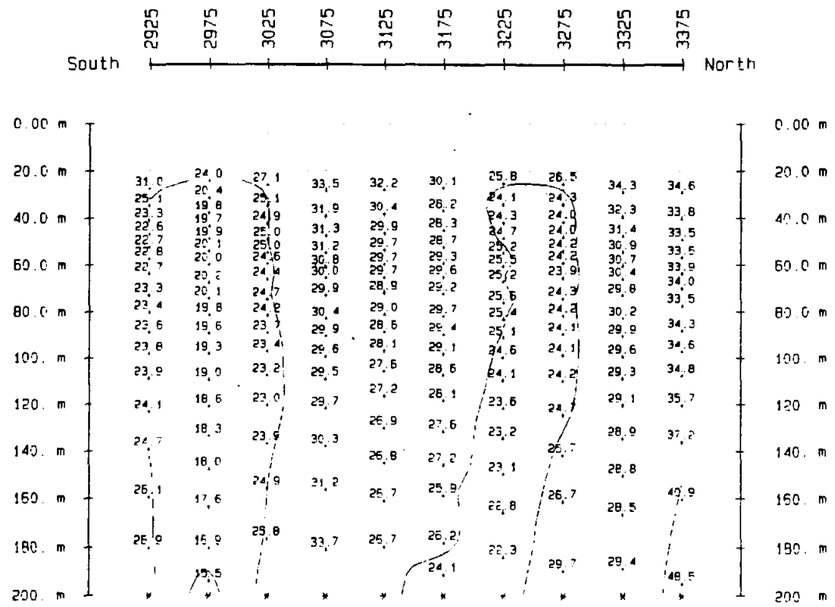
vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA

Line = North
Surveyed= Jul.96 Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)

[14.6]
15.8
25.1
39.8
[50.0]



Line 435775E
KCI Grid NC20
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L775.ZM. Plotted 16 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

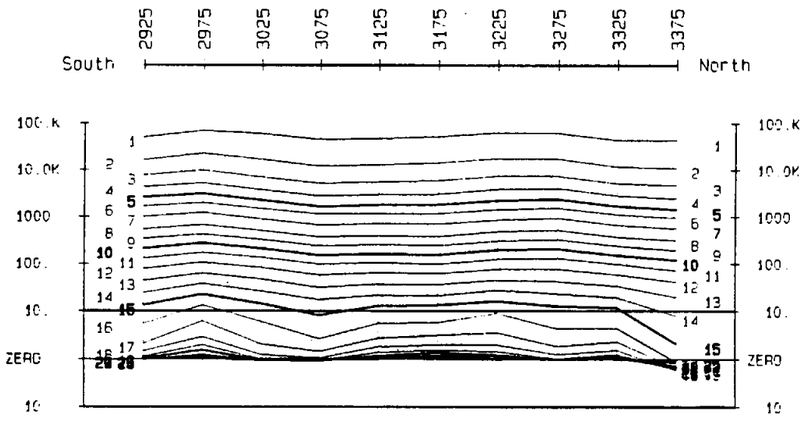
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11: 516.7u	W21: 4.851m
W 2:	61.60u	W12: 636.2u	W22: 6.101m
W 3:	92.00u	W13: 802.7u	W23: 7.689m
W 4:	122.4u	W14: 999.7u	W24: 9.653m
W 5:	152.8u*	W15: 1.241m*	W25: 12.13m*
W 6:	183.2u	W16: 1.544m	
W 7:	228.2u	W17: 1.935m	
W 8:	289.2u	W18: 2.448m	
W 9:	350.0u	W19: 3.083m	
W10:	425.2u*	W20: 3.868m*	



Line 435825E
KCI Grid NC20
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L825.ZD, Plotted 16 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

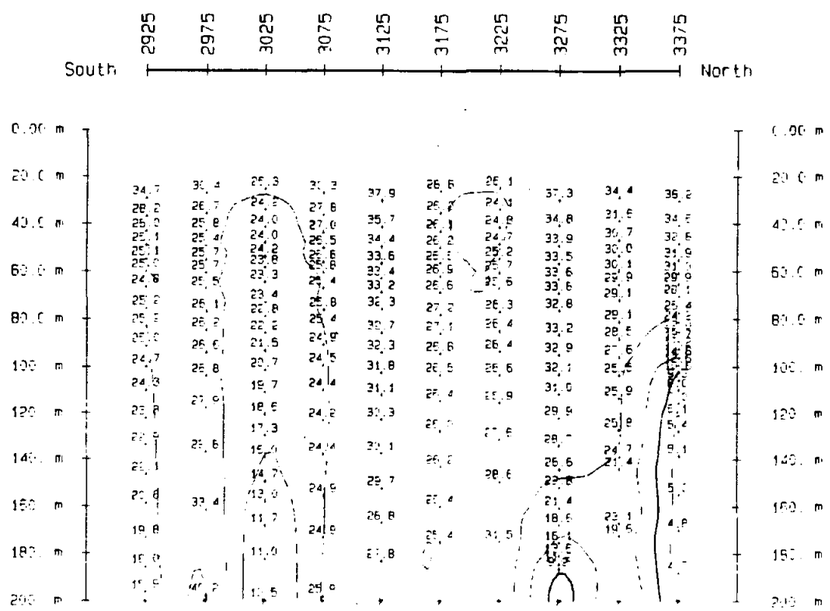
vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA

Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)

[4.69
5.31
10.0
15.8
25.1
39.8
[42.2



Line 435825E
KCI Grid NC20
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L825.ZM, Plotted 16 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

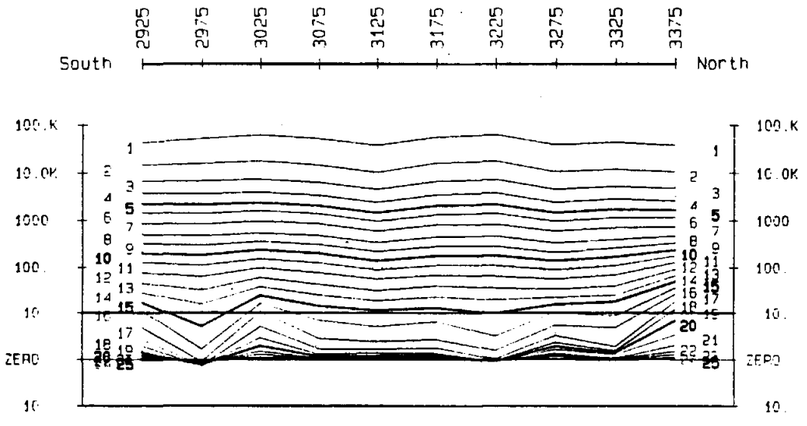
values in microV/ampere
Component: Hz, Rxna: 2500.0

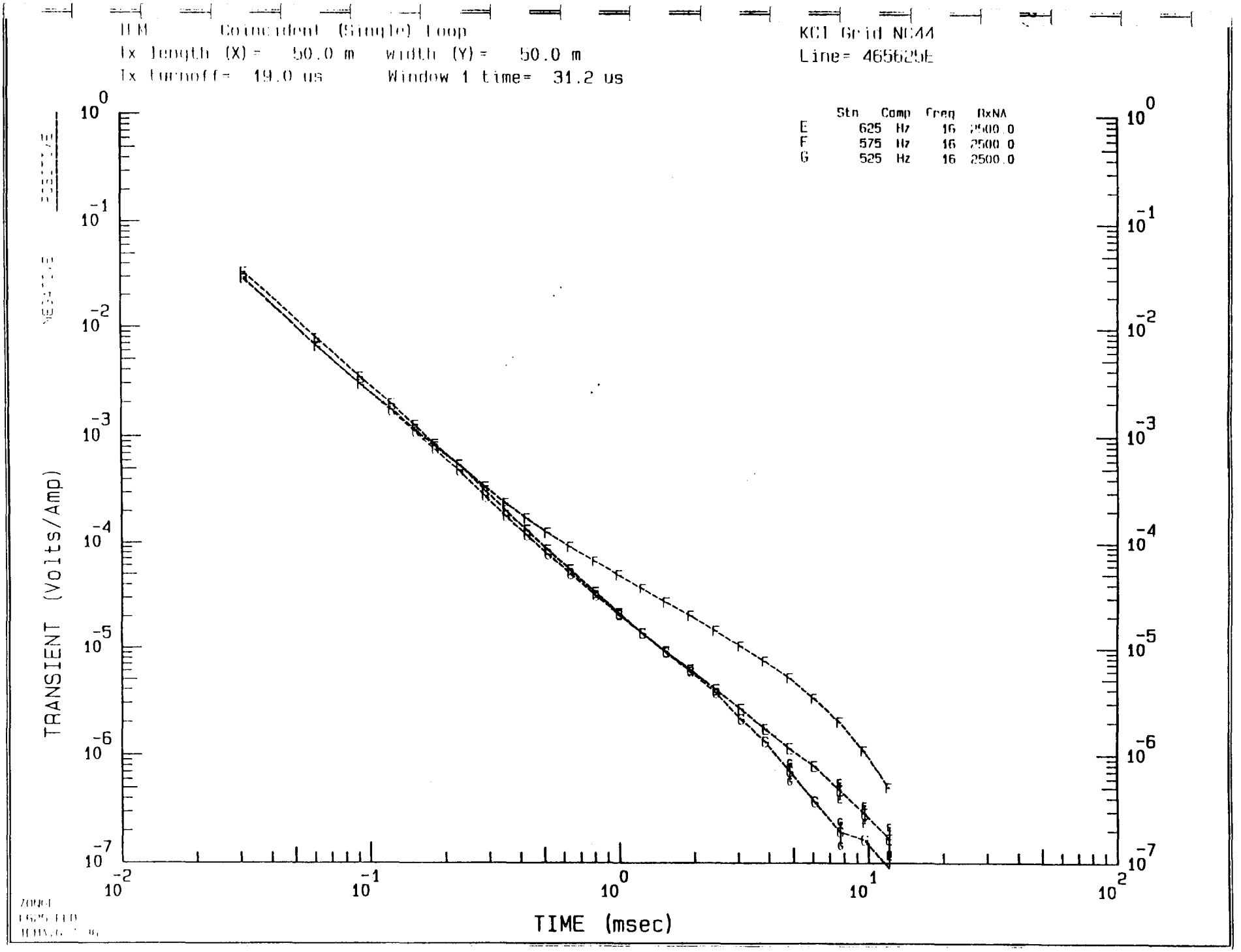
SURVEY LINE DATA
Line Orient= North

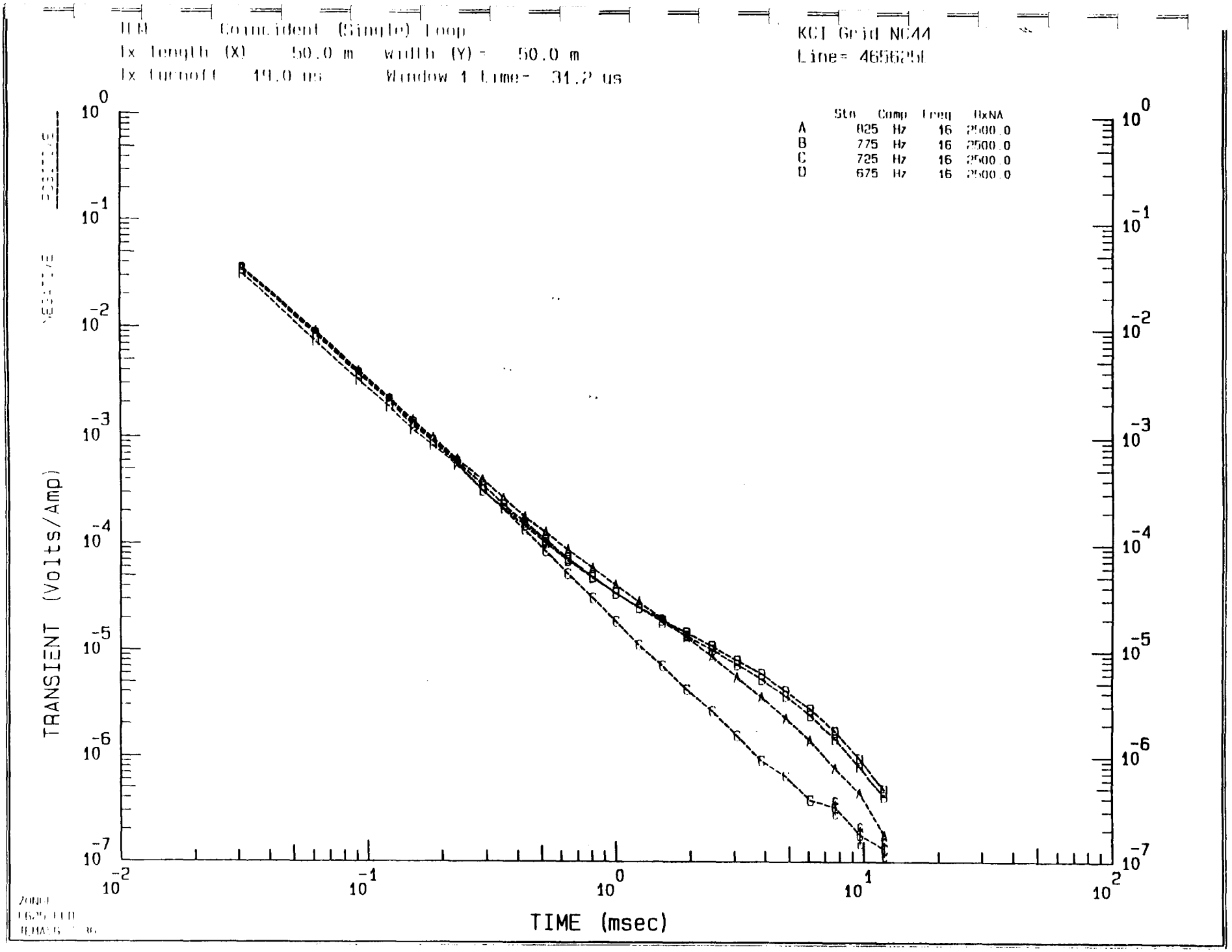
Survey Date= Jul.96

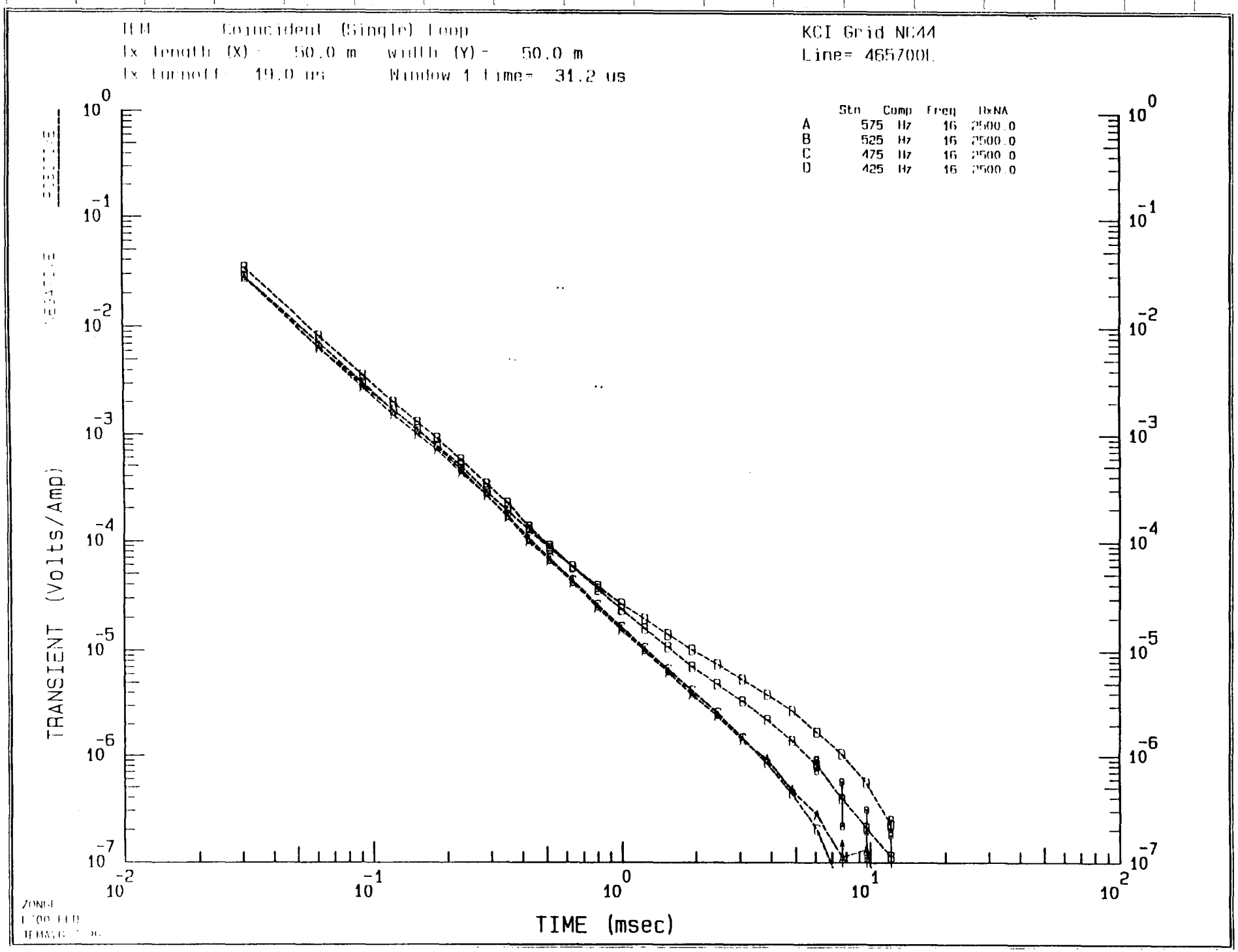
Window NUMBER and TIME (seconds)

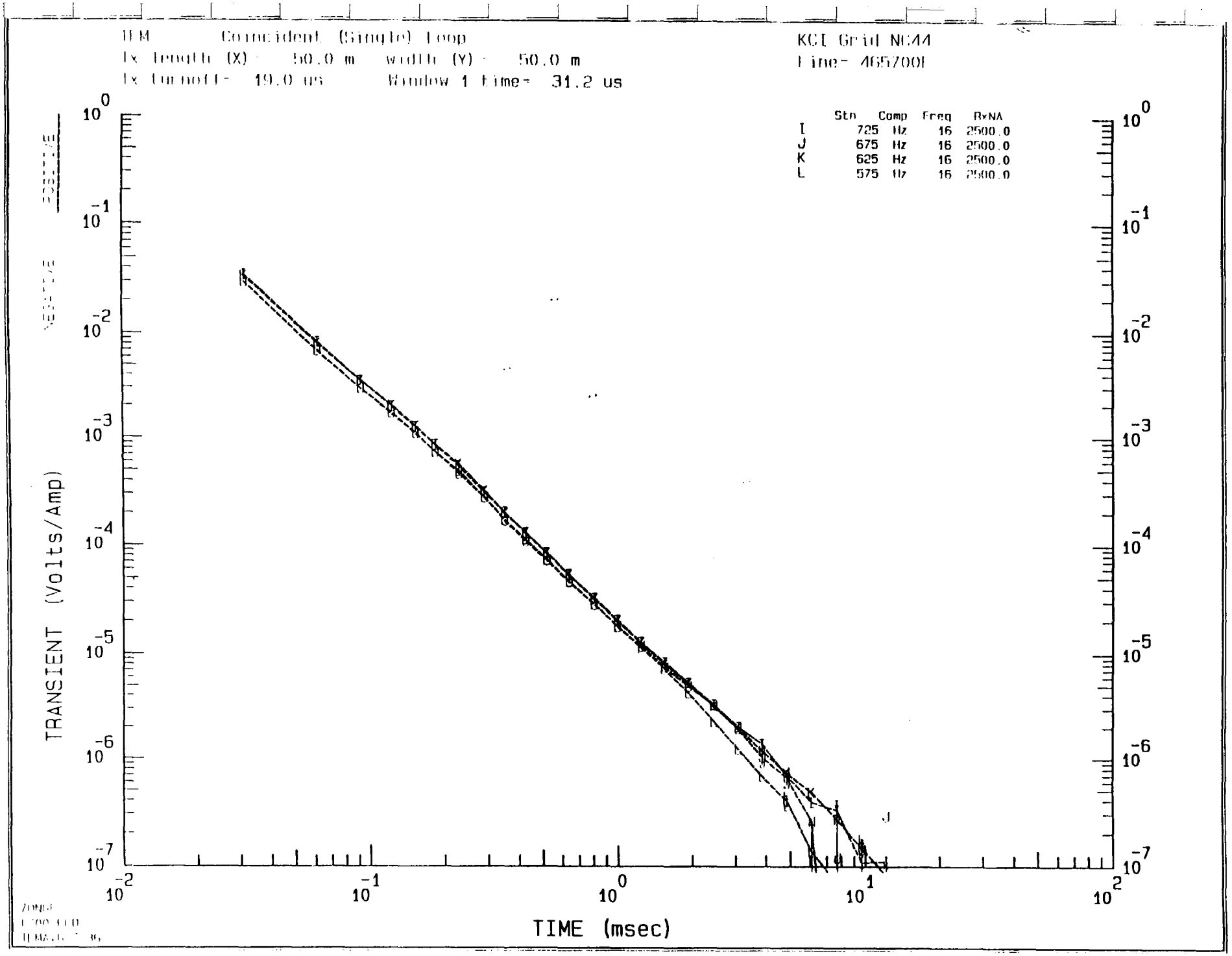
* 1:	31.20u	W11:	516.7u	W21:	4.851m
* 2:	61.60u	W12:	636.2u	W22:	6.191m
* 3:	92.00u	W13:	802.7u	W23:	7.689m
* 4:	122.4u	W14:	999.7u	W24:	9.653m
* 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
* 6:	183.2u	W16:	1.544m		
* 7:	228.2u	W17:	1.935m		
* 8:	289.2u	W18:	2.448m		
* 9:	350.0u	W19:	3.083m		
*10:	425.2u*	W20:	3.868m*		

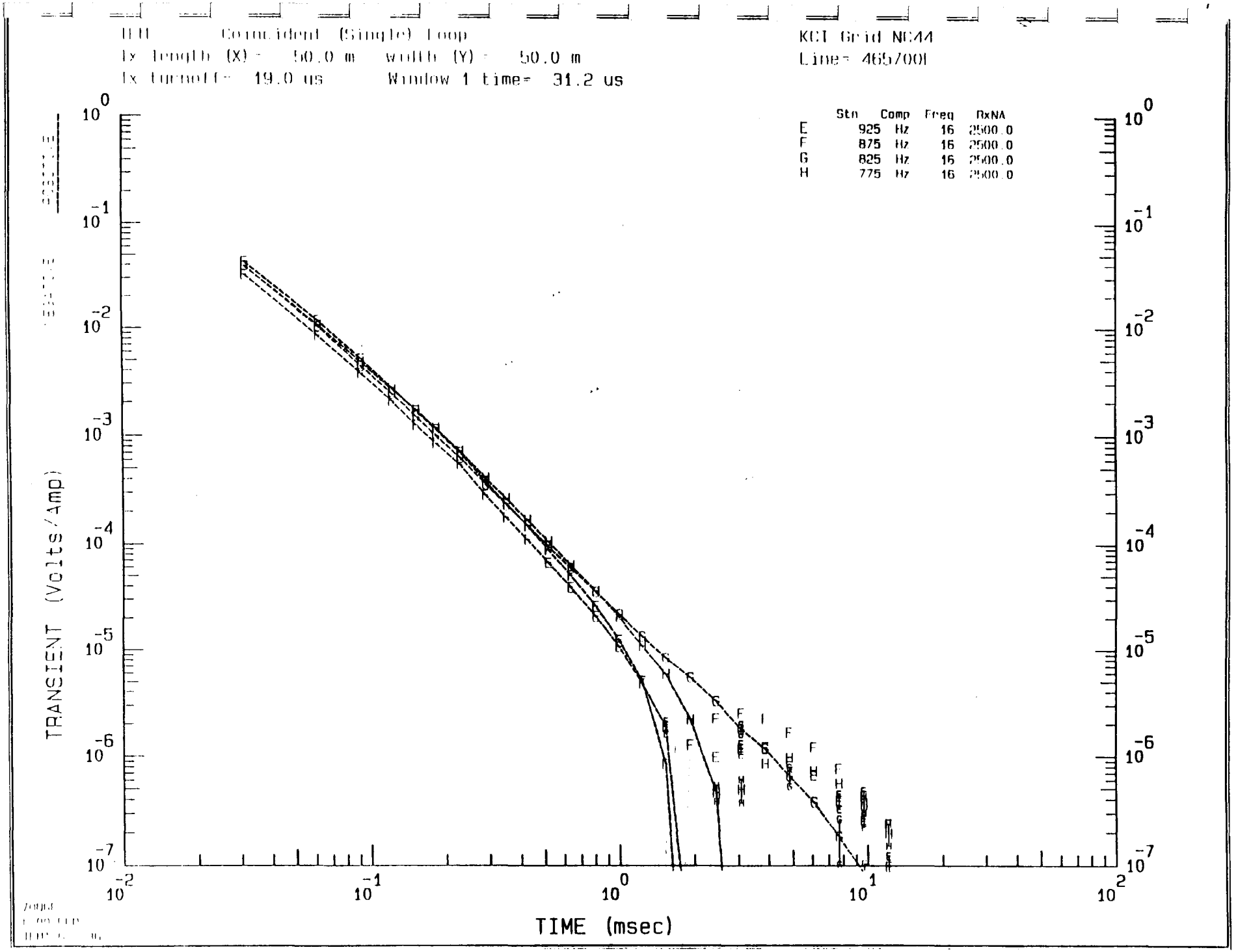


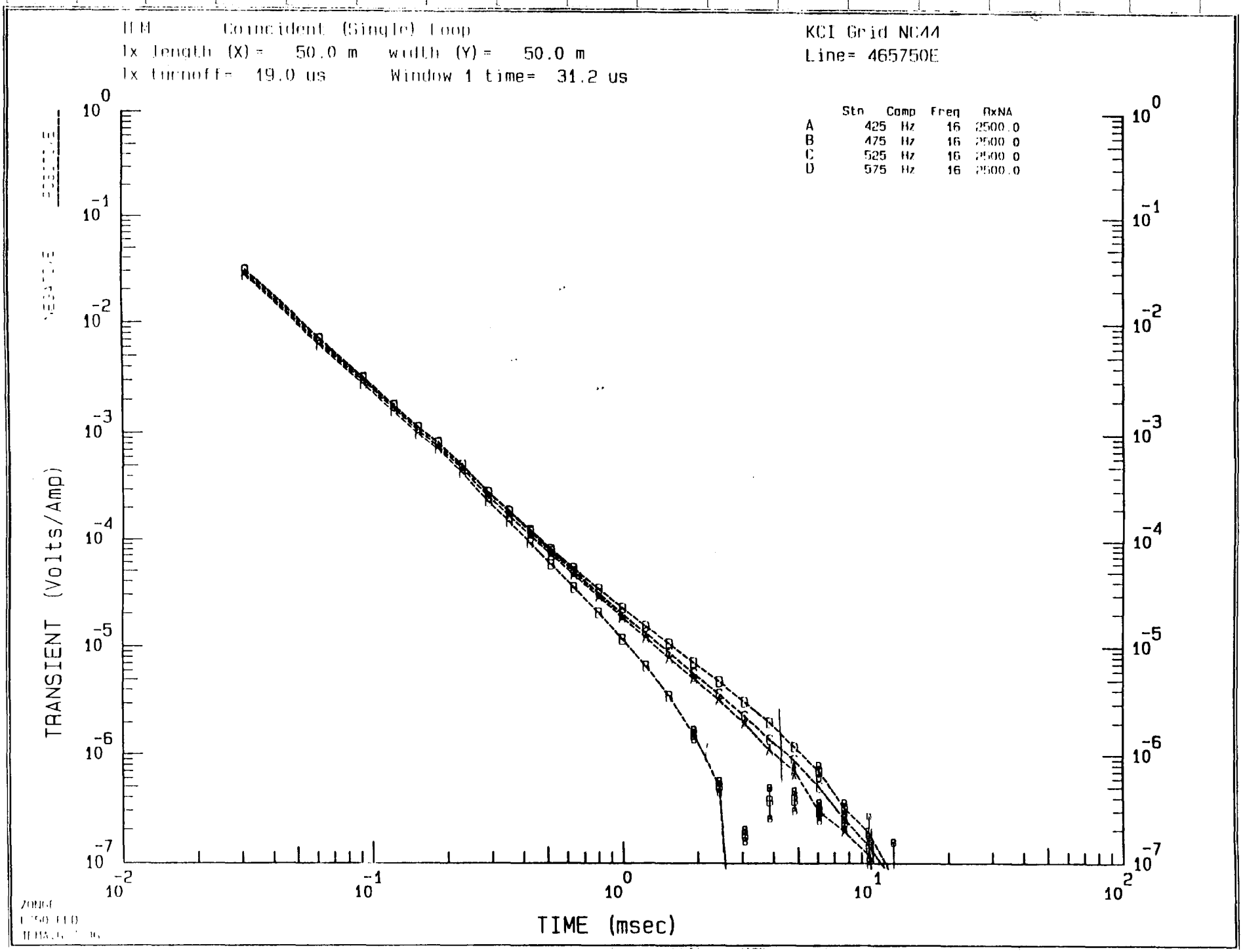

HEM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC44
Line= 4656625E
Stn Comp Freq RxNA
E 625 Hz 16 2500.0
F 575 Hz 16 2500.0
G 525 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

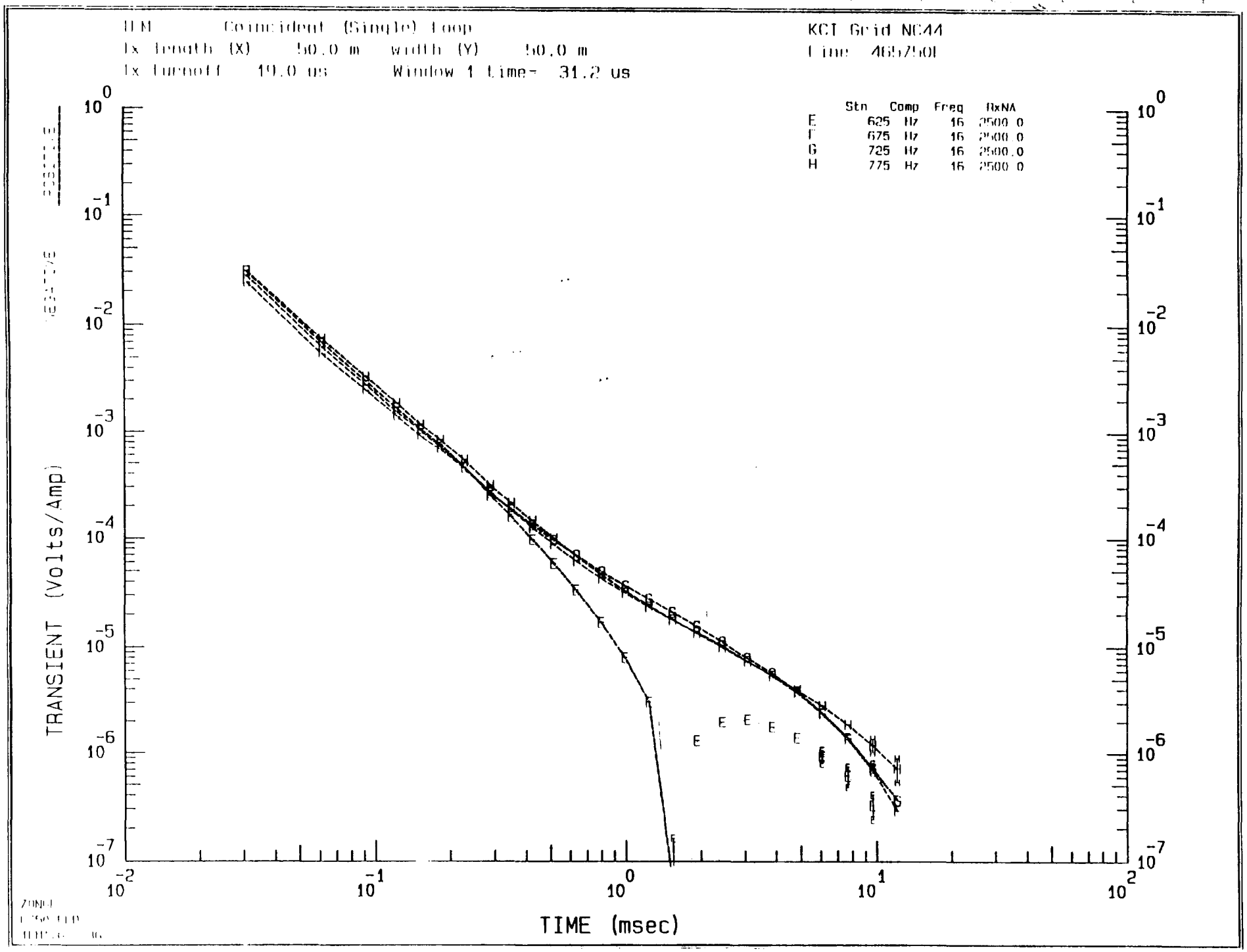

TEM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time= 31.2 us
KCT Grid NC44
Line= 4656250
Stn Comp Freq NxNA
A 025 Hz 16 2500.0
B 775 Hz 16 2500.0
C 725 Hz 16 2500.0
D 675 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

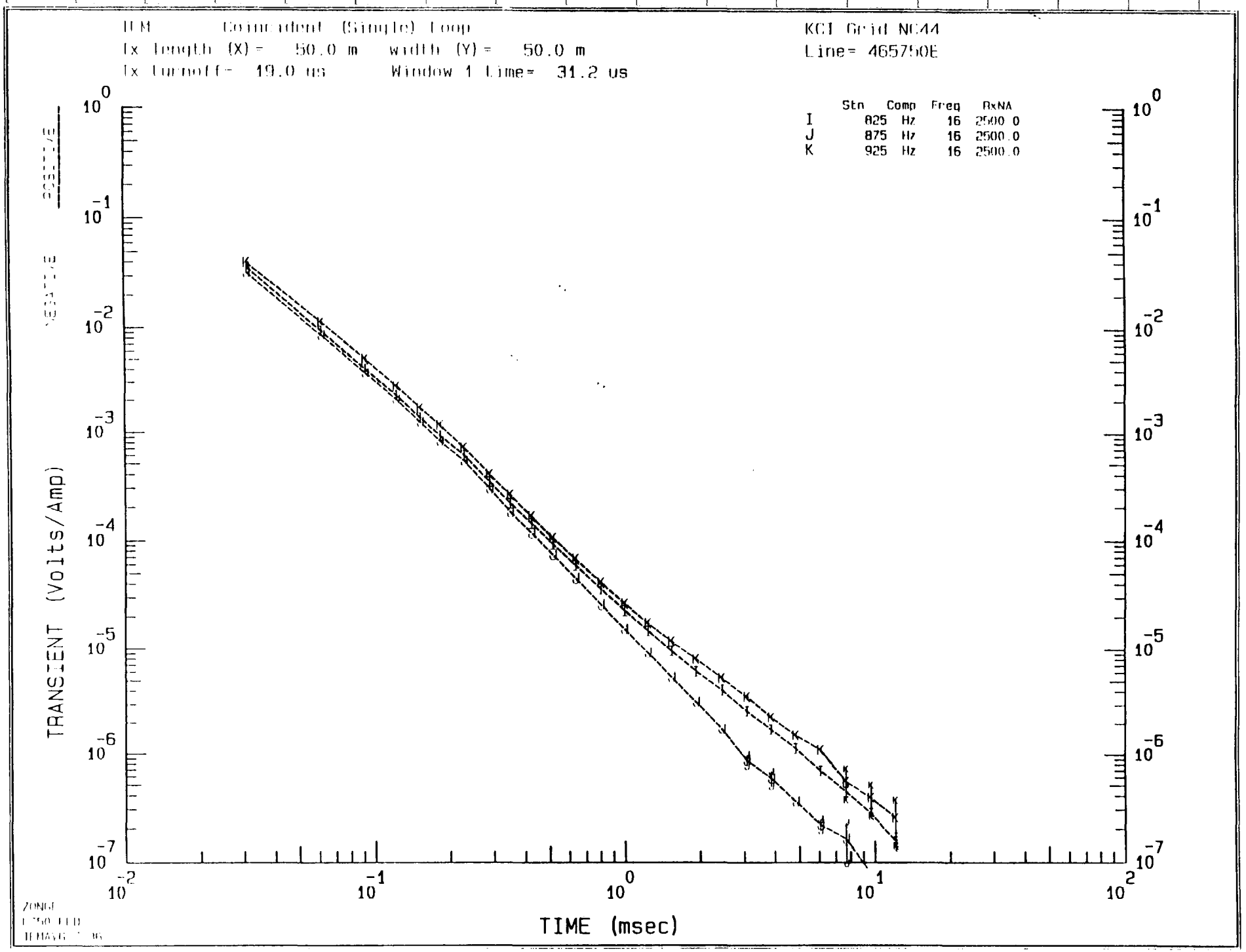

TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 Time= 31.2 us
KCI Grid NC44
Line= 465700E
Stn Comp Freq TxNA
A 575 Hz 16 2500.0
B 525 Hz 16 2500.0
C 475 Hz 16 2500.0
D 425 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

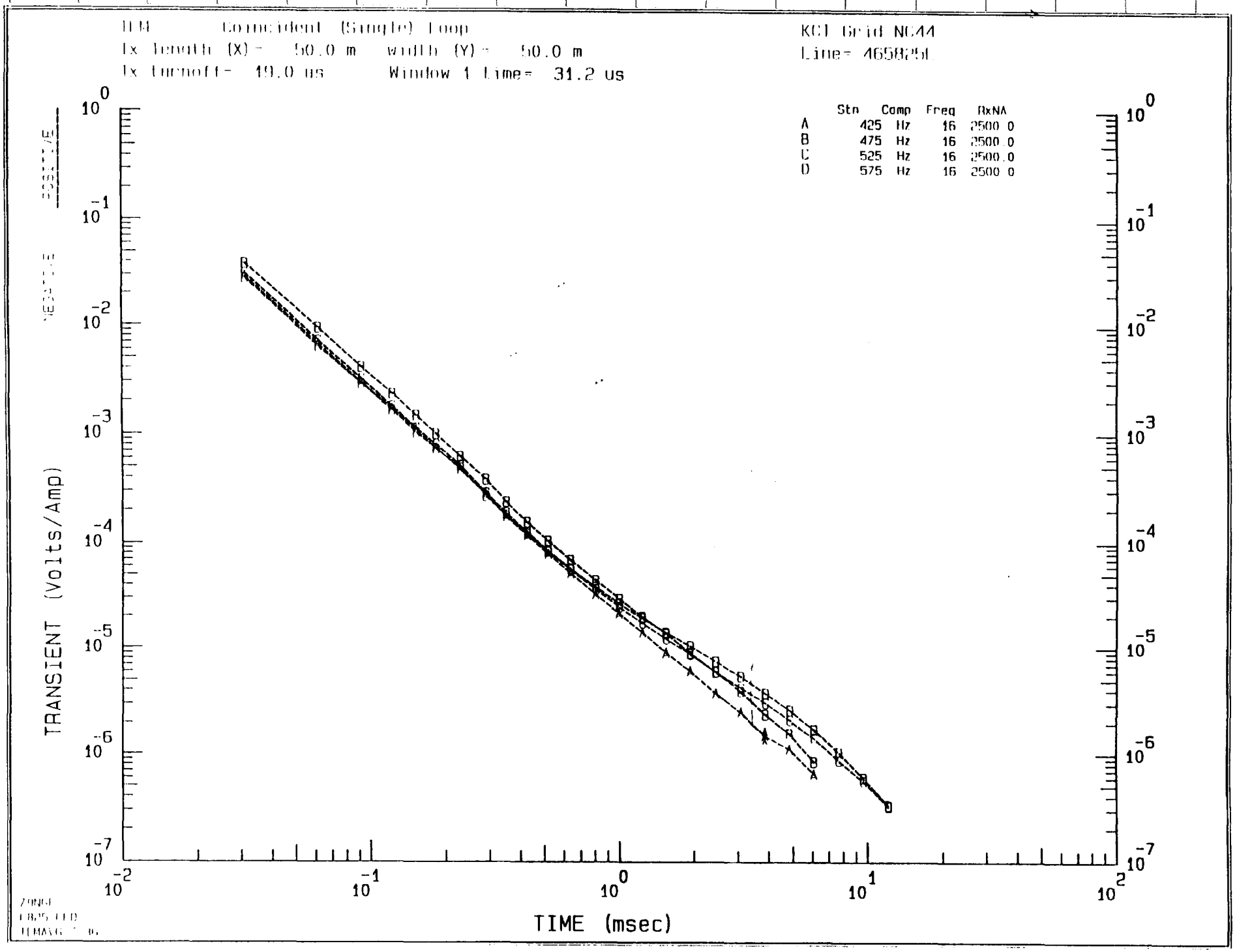

HLM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NE44
Line= 4657001
Stn Comp Freq RxNA
I 725 Hz 16 2500.0
J 675 Hz 16 2500.0
K 625 Hz 16 2500.0
L 575 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

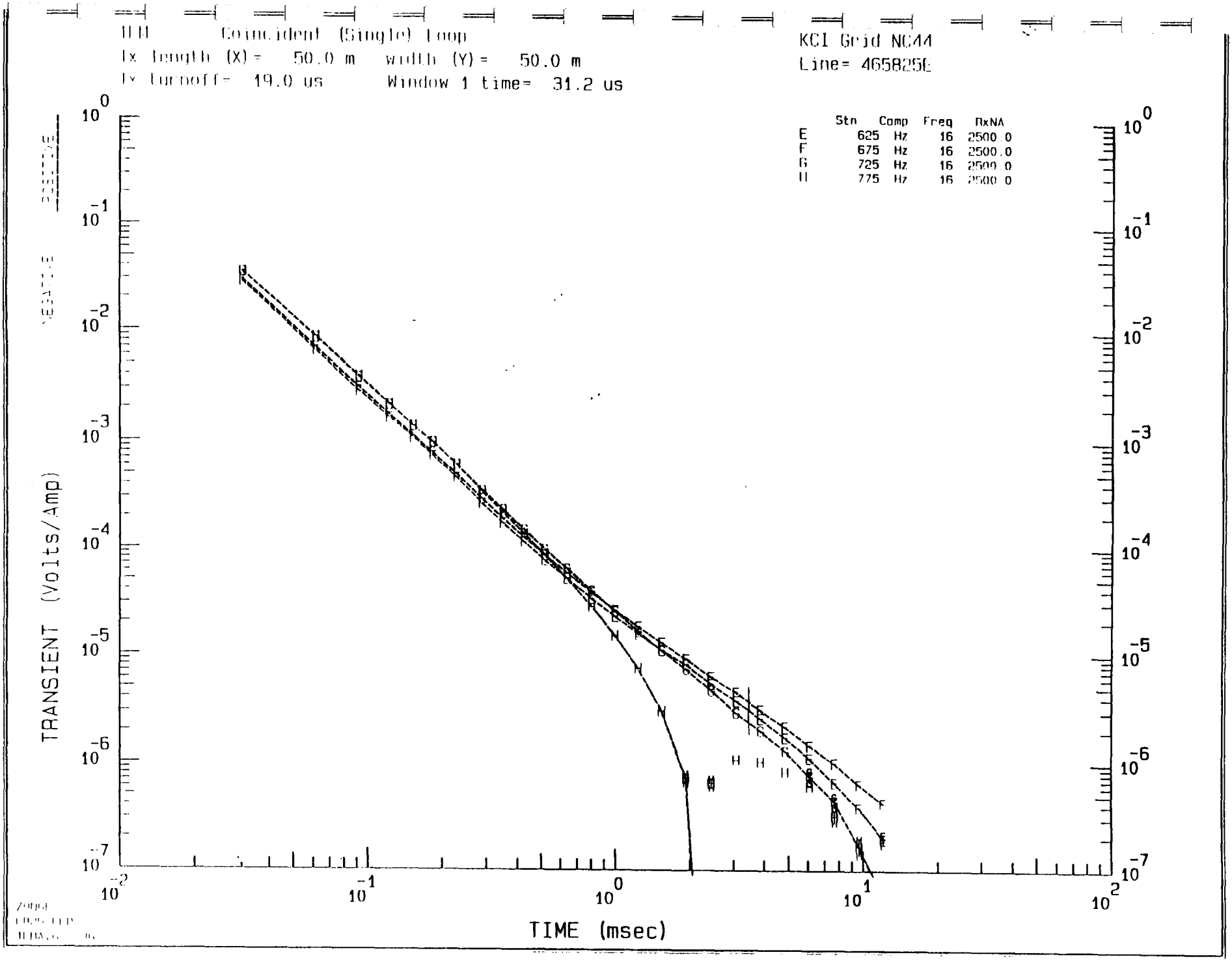

Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time= 31.2 us
KCT Grid NC44
Line= 465/001
Stn Comp Freq RxNA
E 925 Hz 16 2500.0
F 875 Hz 16 2500.0
G 825 Hz 16 2500.0
H 775 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

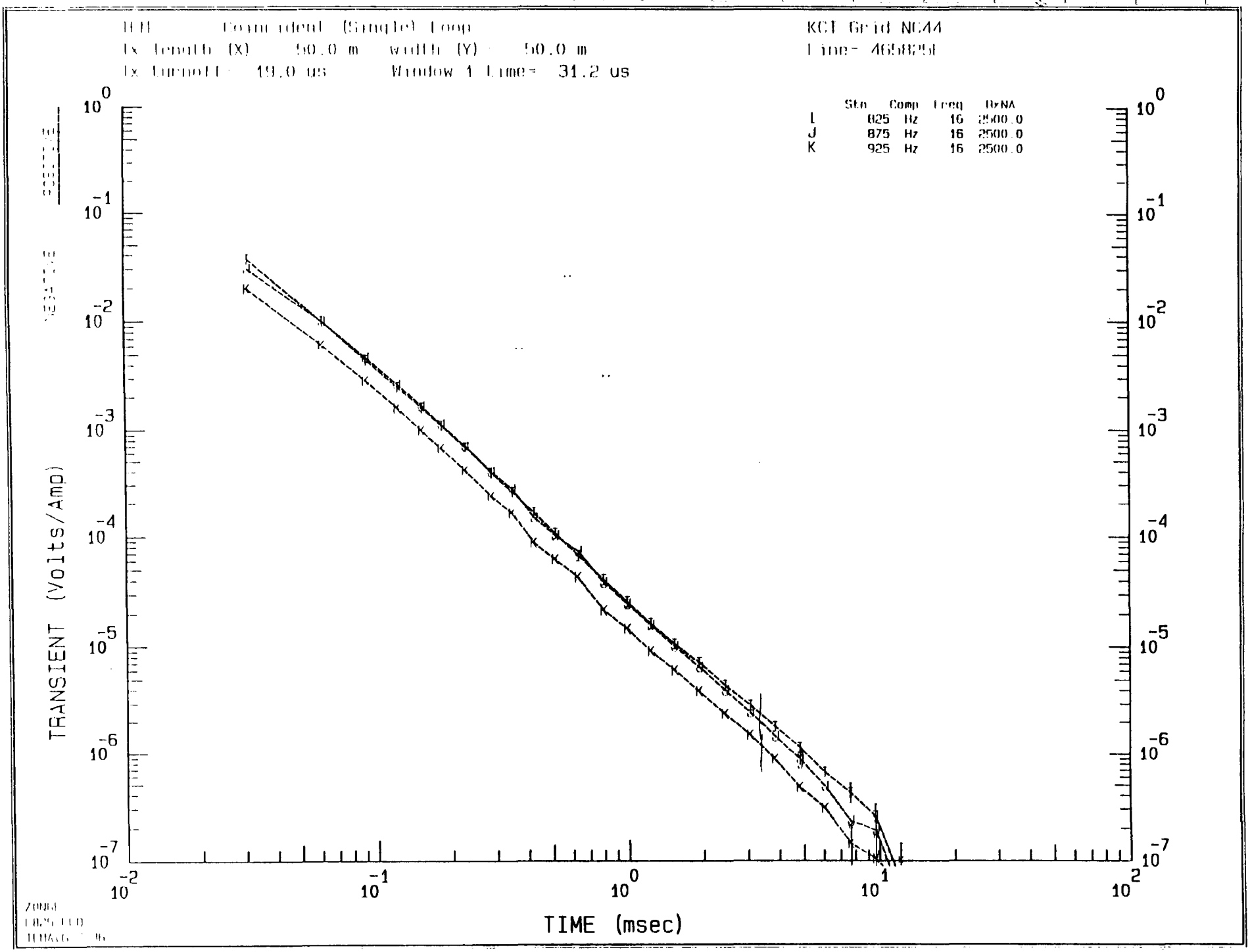

HEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time= 31.2 us
KCI Grid NC44
Line= 465750E
Stn Comp Freq RxNA
A 425 Hz 16 2500.0
B 475 Hz 16 2500.0
C 525 Hz 16 2500.0
D 575 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


UTEM Coincident (Single) Loop
Tx length (X) 50.0 m width (Y) 50.0 m
Tx turnoff 19.0 us Window 1 time= 31.2 us
KCT Grid NC44
Line 4652501
Stn Comp Freq TxNA
E 625 Hz 16 2500.0
F 675 Hz 16 2500.0
G 725 Hz 16 2500.0
H 775 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC44
Line= 465750E
Stn Comp Freq RxNA
I 825 Hz 16 2500.0
J 875 Hz 16 2500.0
K 925 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC44
Line= 4658250
Stn Comp Freq RxNA
A 425 Hz 16 2500.0
B 475 Hz 16 2500.0
C 525 Hz 16 2500.0
D 575 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


HH Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC44
Line= 465825E
Stn Comp Freq RxNA
E 625 Hz 16 2500.0
F 675 Hz 16 2500.0
G 725 Hz 16 2500.0
H 775 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


HH Coincident (Single) Loop
Tx length (X) 50.0 m width (Y) 50.0 m
Tx turnoff 19.0 us Window 1 time= 31.2 us
KCT Grid NC44
Line= 4650850
Stn Comp Freq RxNA
L 825 Hz 16 2500.0
J 875 Hz 16 2500.0
K 925 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

Line 465625E
KCI Grid NC44
for
Kennecott Canada

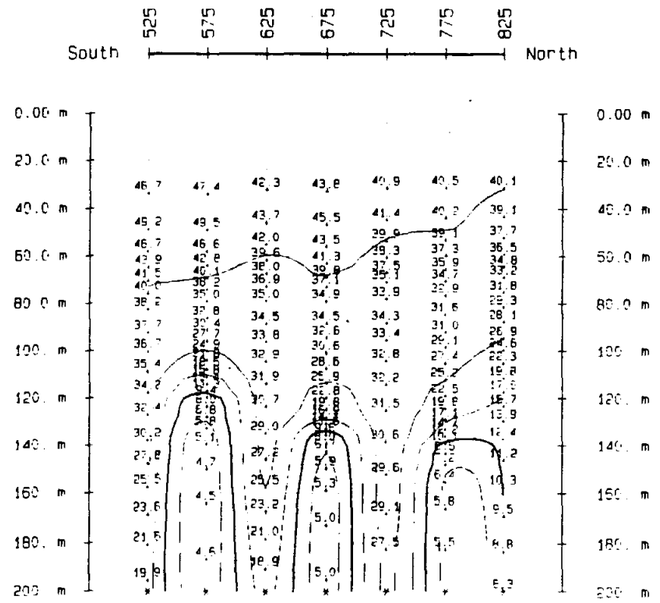
ZONGE ZPLOT 7.23
File L625.ZD. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[4.39]
6.31
10.0
15.8
25.1
39.8
[50.3]



Line 465625E
KCI Grid NC44
for
Kennecott Canada

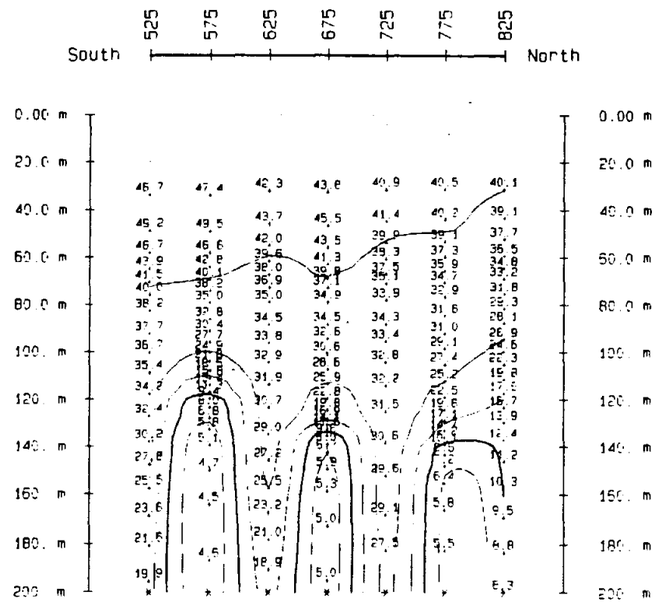
ZONGE ZPLOT 7.23
File L625.ZD, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[4.39]
6.31
10.0
15.8
25.1
39.8
[50.3]



Line 465625E
KCI Grid NC44
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L625.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

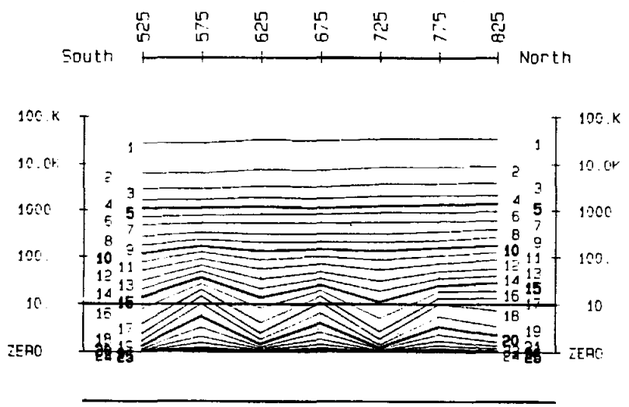
values in microV/ampere
Component: Hz, Axna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 465700E
KCI Grid NC44
for
Kennecott Canada

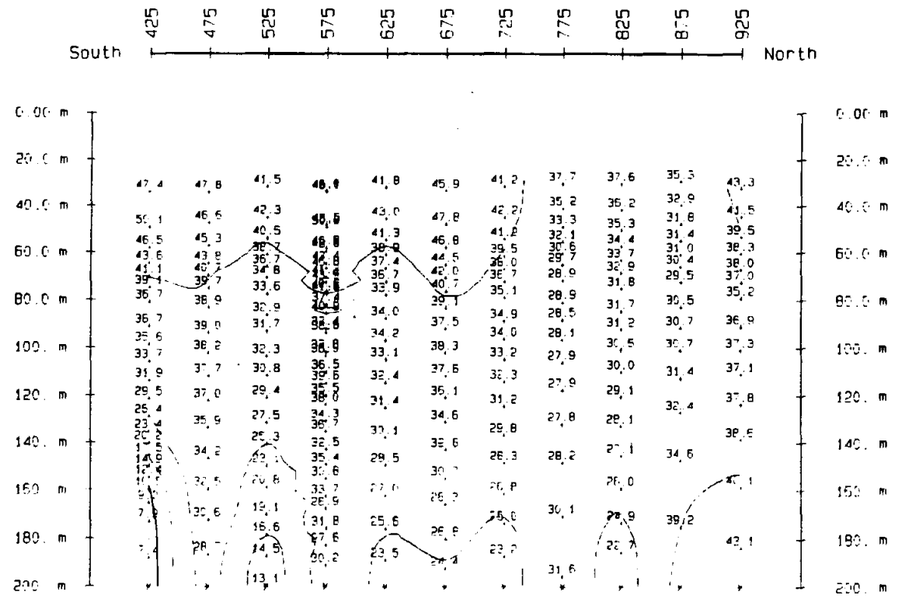
ZONGE ZPLOT 7.23
File L700.ZD. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[7.05]
10.0*
15.8
25.1
39.6
[50.2]



Line 465700E
KCI Grid NC44
for
Kennecott Canada

ZONGE ZPLOT 7.23 Duplicates Not Used
File L700.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

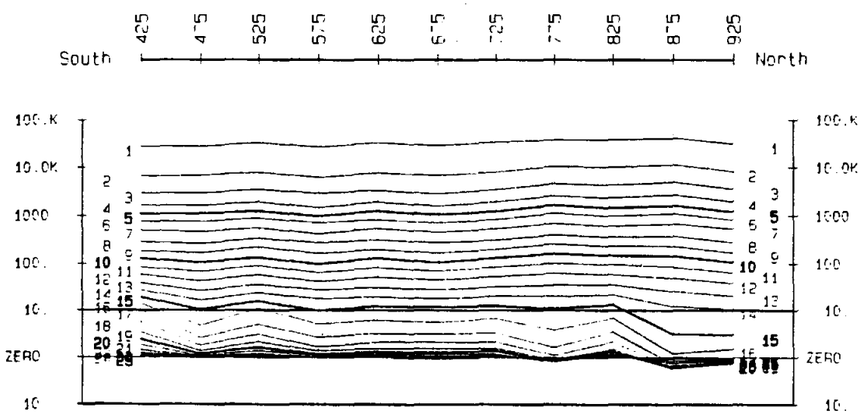
values in microV/ampere
Component: Hz, Axna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 465750E
KCI Grid NC44
for
Kennecott Canada

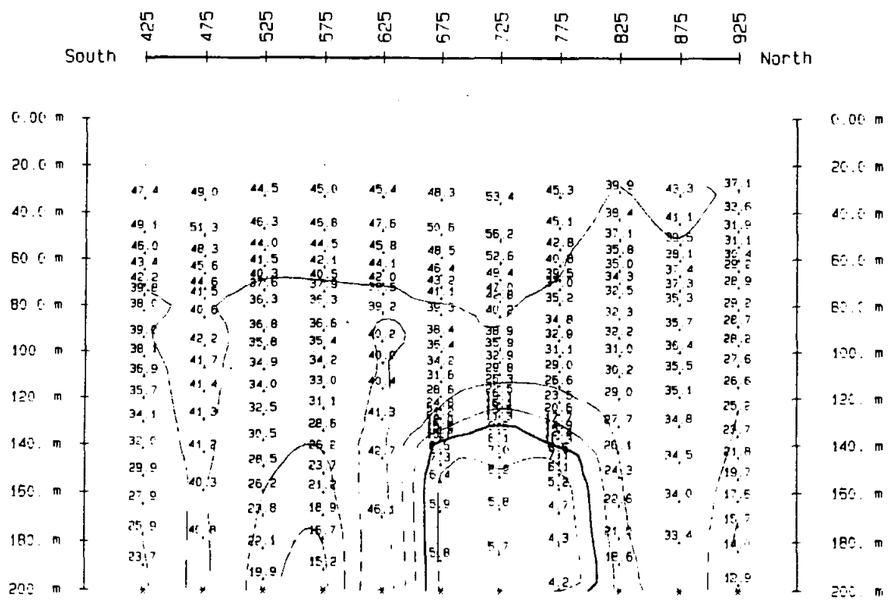
ZONGE ZPLOT 7.23
File L750.ZD. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[4.05]
6.31
10.0*
15.8
25.1
39.8
[56.4]



Line 465750E
KCI Grid NC44
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L750.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

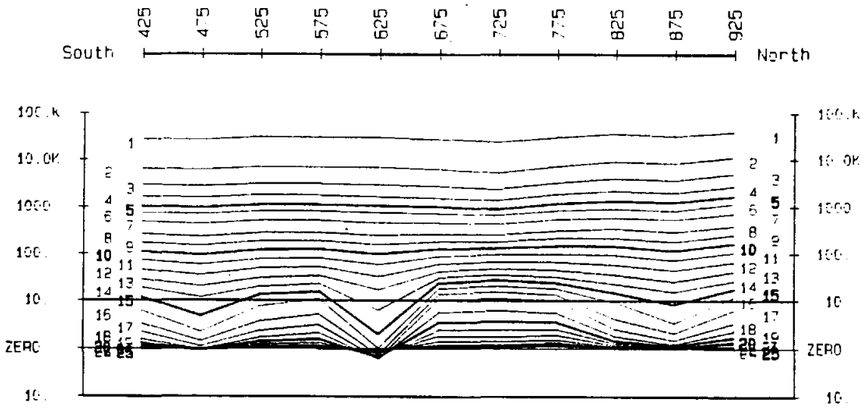
values in microv/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 465825E
KCI Grid NC44
for
Kennecott Canada

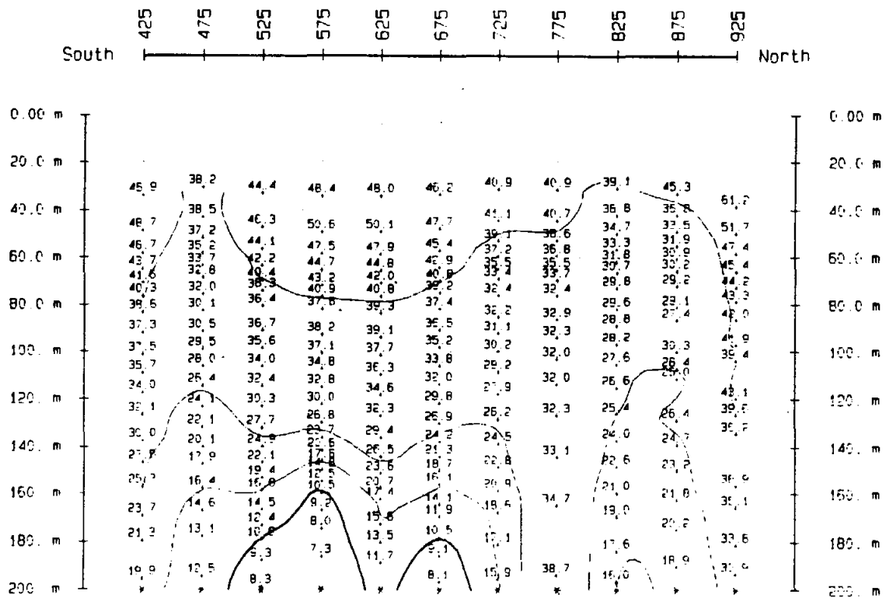
ZONGE ZPLOT 7.23
File L825.ZD. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[6.87]
10.0*
15.8
25.1
39.8
[61.2]



Line 465825E
KCI Grid NC44
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L825.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

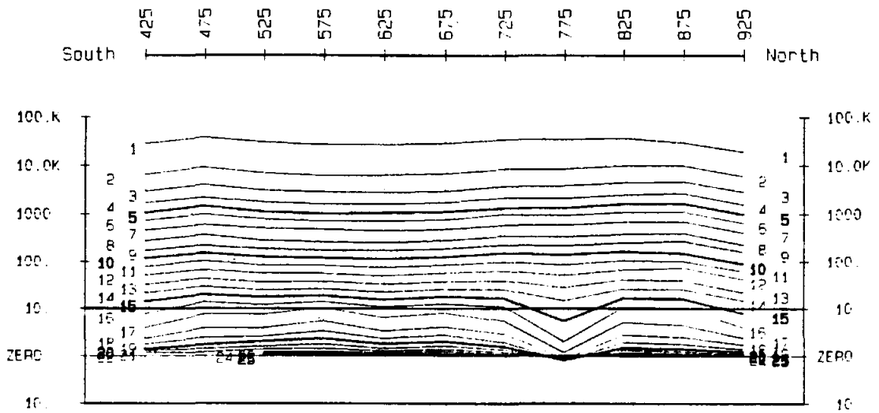
values in microV/ampere
Component: Hz, Axna: 2500.0

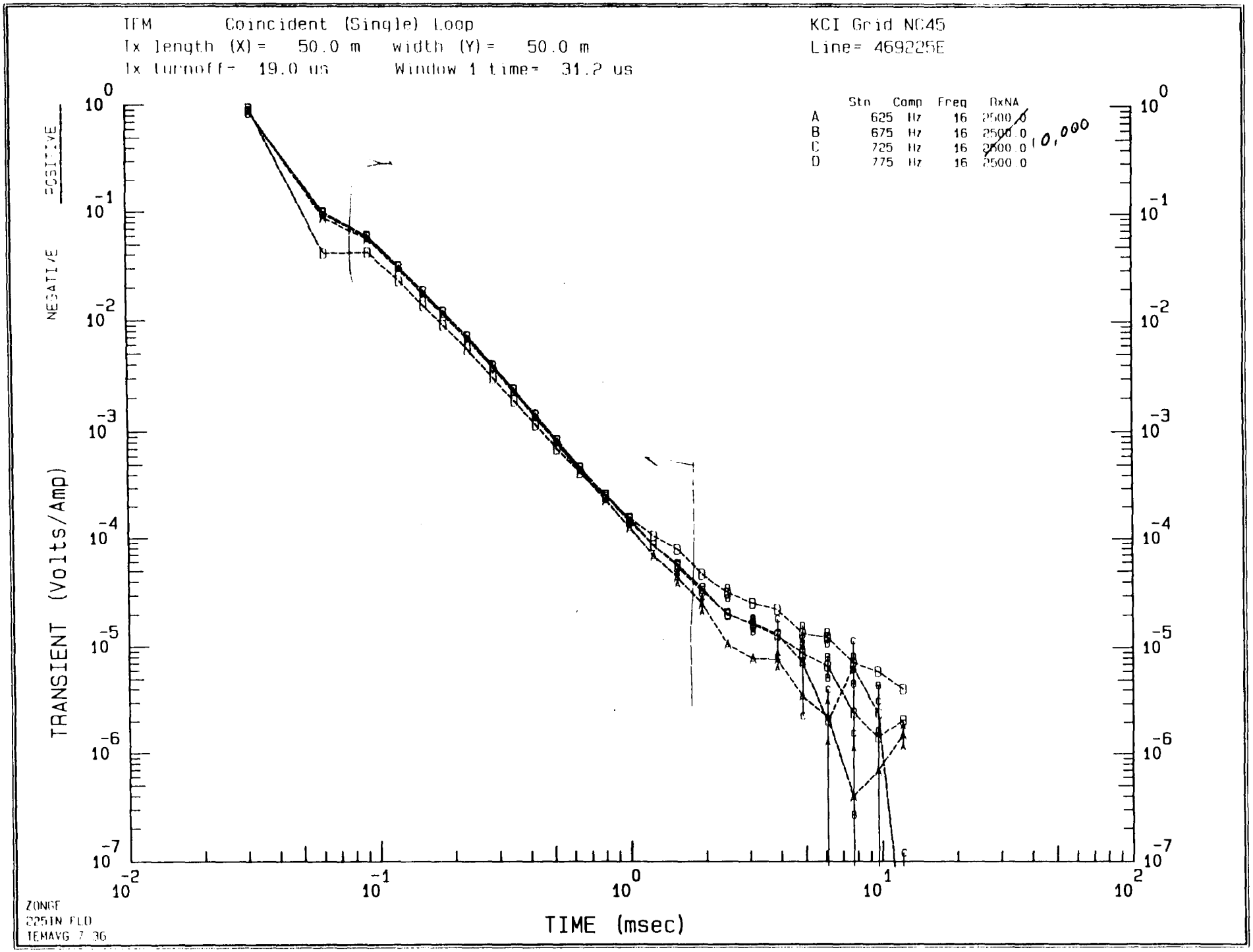
SURVEY LINE DATA
Line Orient= North

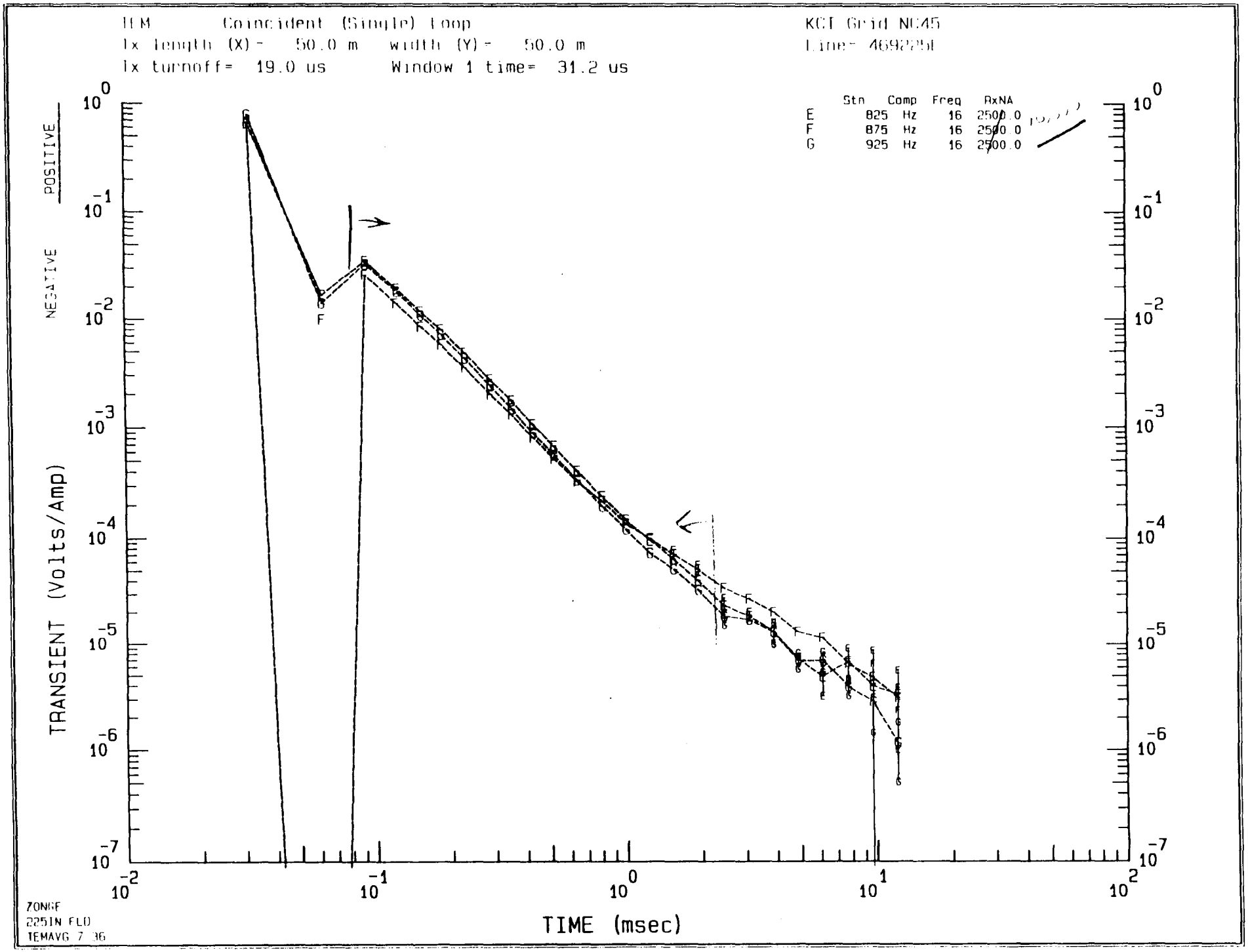
Survey Date= Jul.96

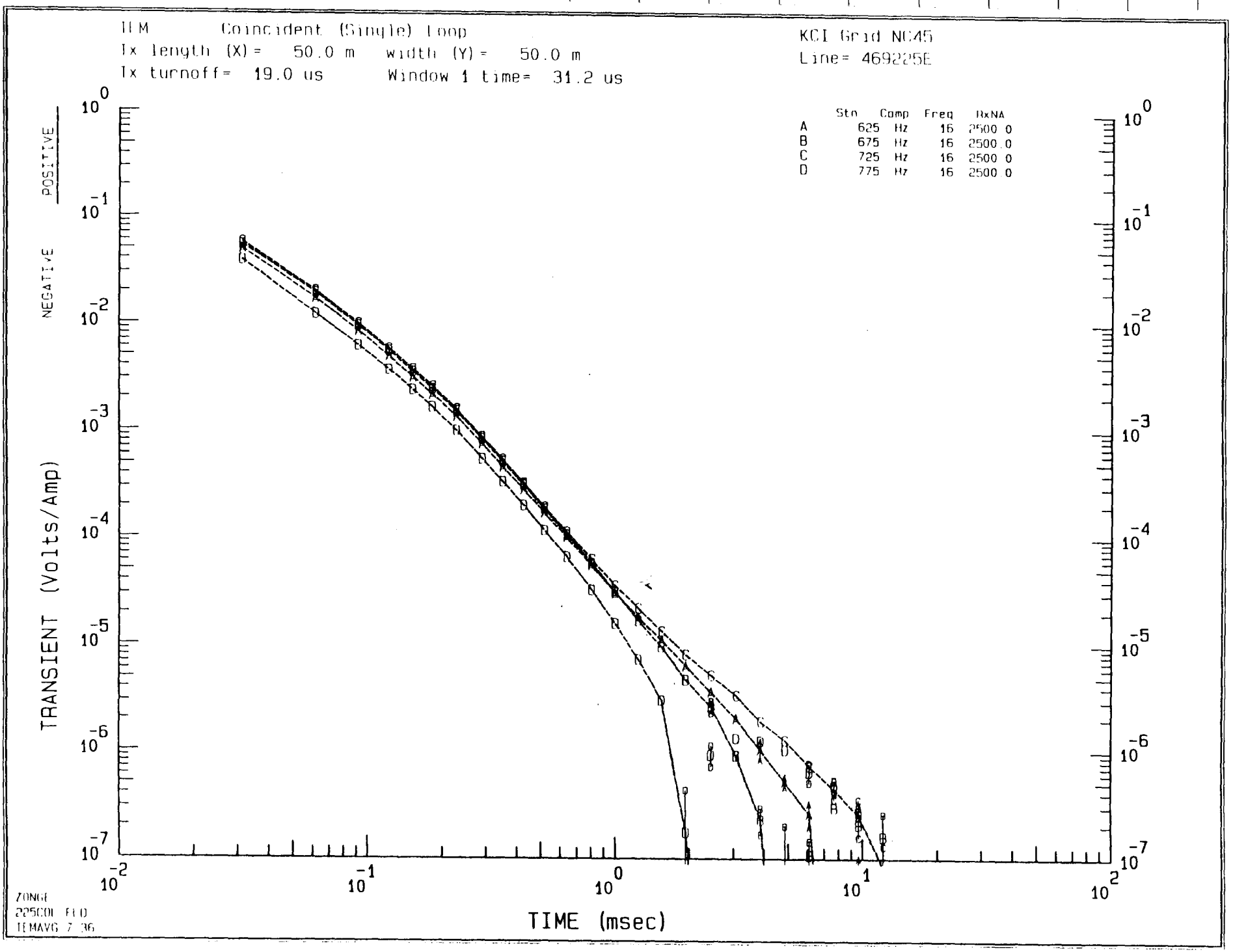
Window NUMBER and TIME (seconds)

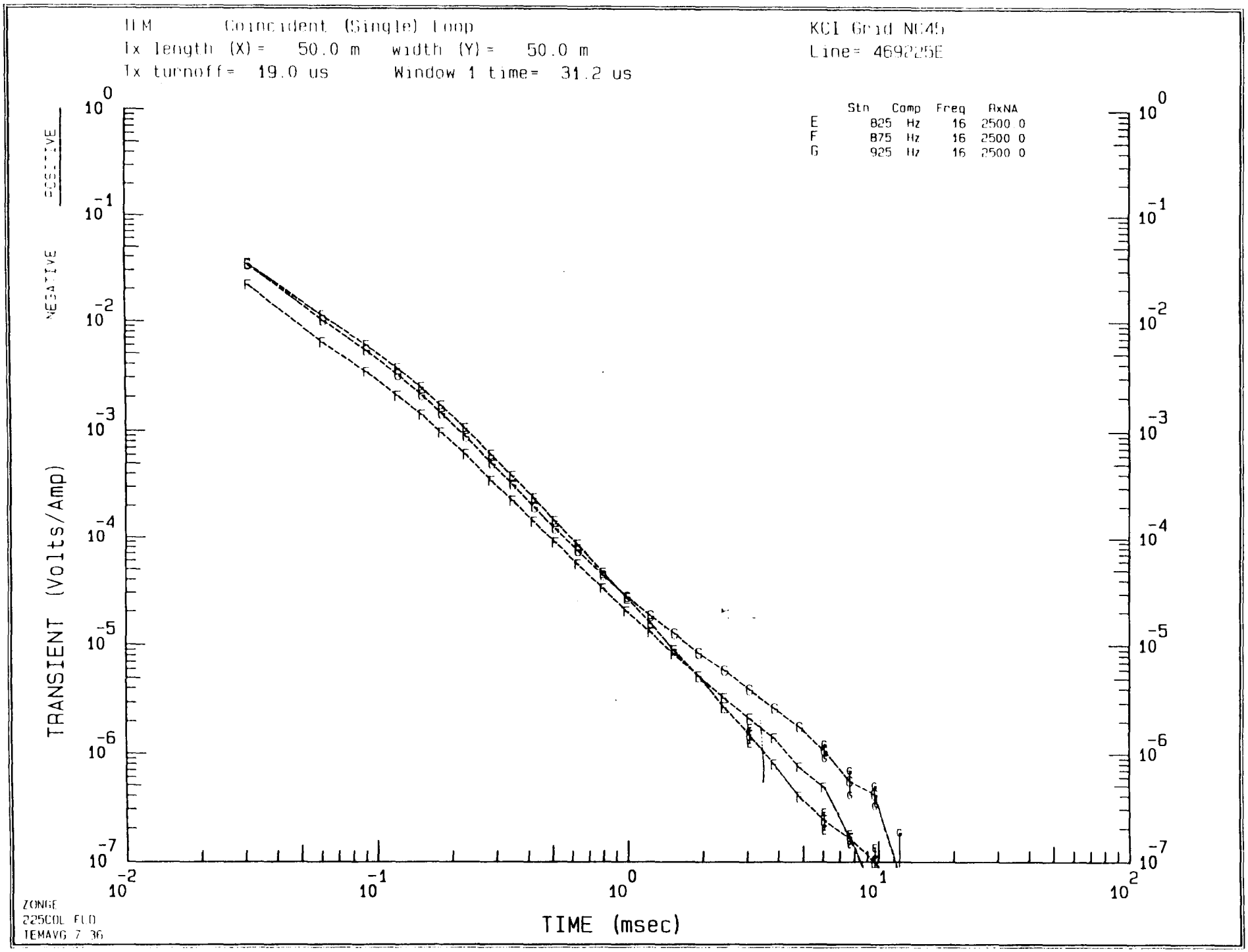
W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		




TFM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC45
Line= 469225E
Stn Comp Freq RxNA
A 625 Hz 16 2500.0
B 675 Hz 16 2500.0
C 725 Hz 16 2500.0
D 775 Hz 16 2500.0
10,000
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
225IN FLD
TEMAVG 7.36


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCT Grid NC45
Line= 4698250
Stn Comp Freq RxNA
E 825 Hz 16 2500.0
F 875 Hz 16 2500.0
G 925 Hz 16 2500.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGF
225IN ELO
TEMAVG 7 36


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC45
Line= 469225E
Stn Comp Freq RxNA
A 625 Hz 16 2500 0
B 675 Hz 16 2500 0
C 725 Hz 16 2500 0
D 775 Hz 16 2500 0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
225COIL FILO
TEMAVG 7.36


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC45
Line= 4692225E
Stn Comp Freq RxNA
E 825 Hz 16 2500 0
F 875 Hz 16 2500 0
G 925 Hz 16 2500 0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
225COIL FLD
TEMAVG 7.36

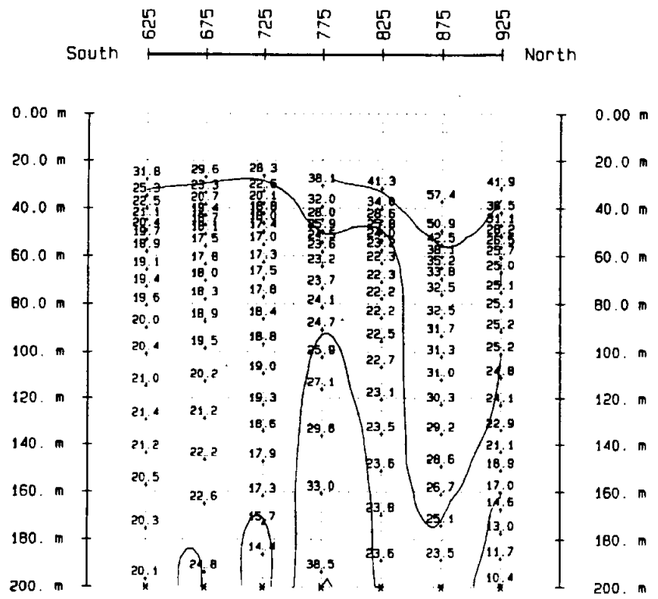
Line 469225E
KCI Grid NC45
for
Kennecott Canada

ZONGE ZPLOT 7.23
File 225COL.ZD, Plotted 31 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters
RECEIVER DATA TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[10.4]
15.8
25.1
39.8
[58.8]



31.7 cm A3

Line 469225E
KCI Grid NC45
for
Kennecott Canada

ZONGE ZPLOT 7.23
File 225COL.ZM. Plotted 31 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

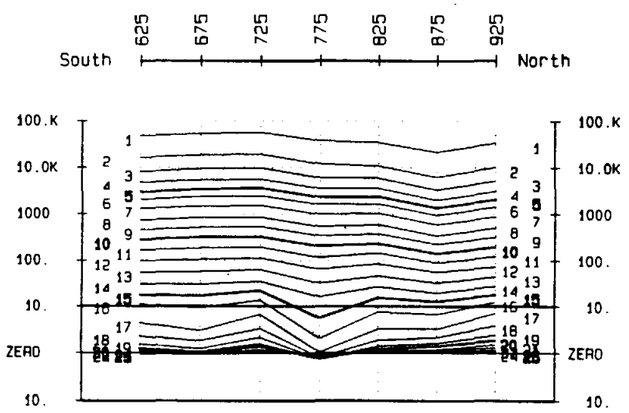
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



31.7 cm: A3

Top Loop

Line 469225E
KCI Grid NC45
for
Kennecott Canada

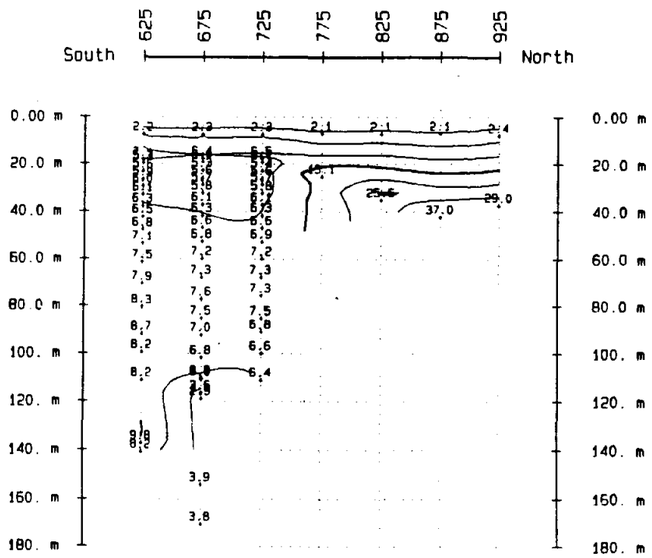
ZONGE ZPLOT 7.23
File 225IN.ZD, Plotted 31 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[2.05]
2.51
3.98
6.31
10.0*
15.8
25.1
[37.0]



31.7 cm A3

Line 469225E
KCI Grid NC45
for
Kennecott Canada

ZONGE ZPLOT 7.23
File 225IN.ZM. Plotted 31 Jul 96

cp

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

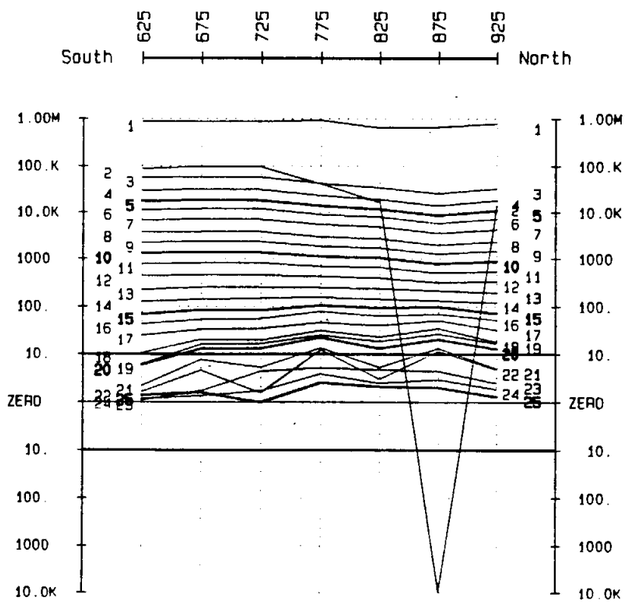
values in microV/ampere
Component: Hz, Rxna: ~~2500.0~~ 1250.0

SURVEY LINE DATA
Line Orient= North

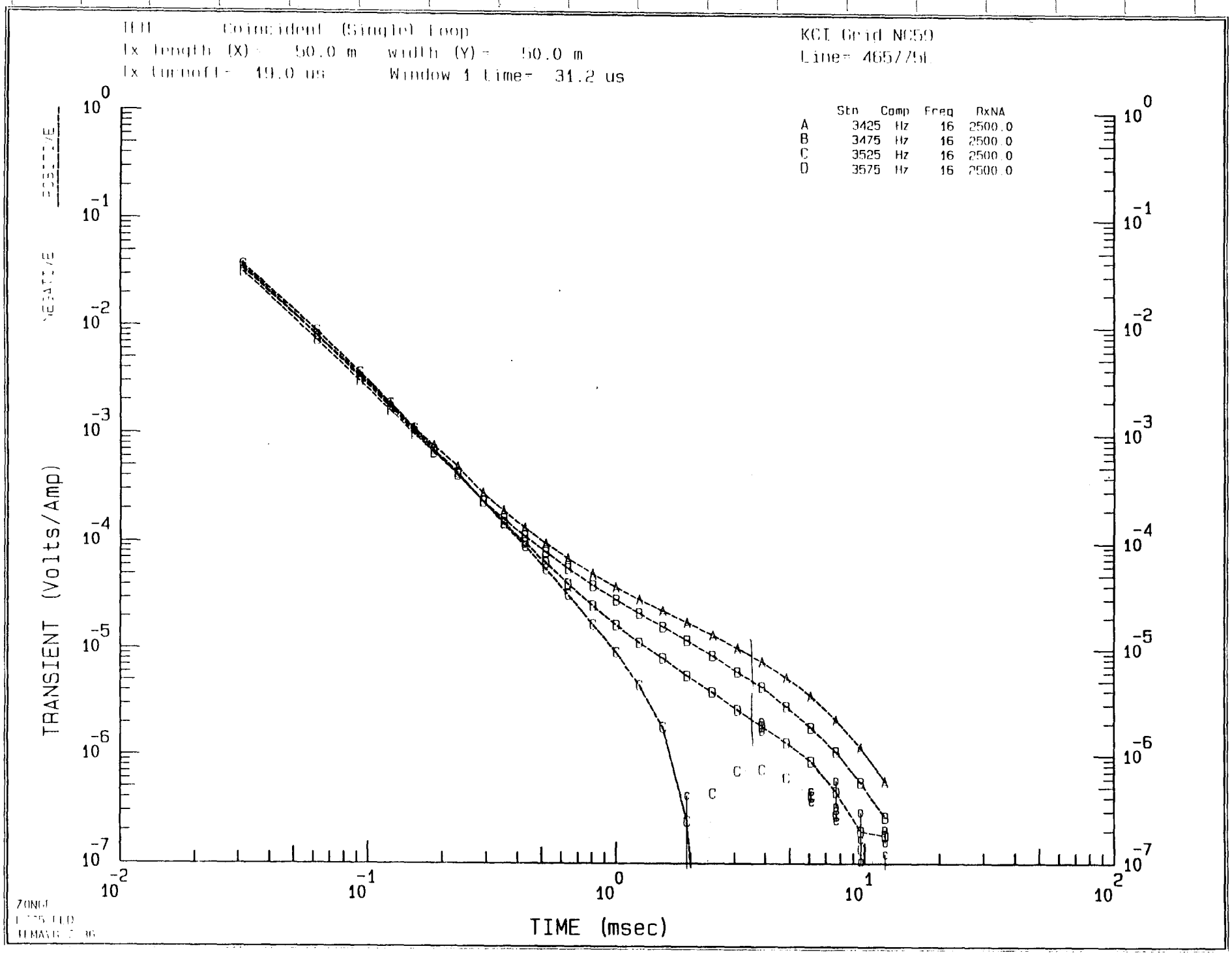
Survey Date= Jul.96

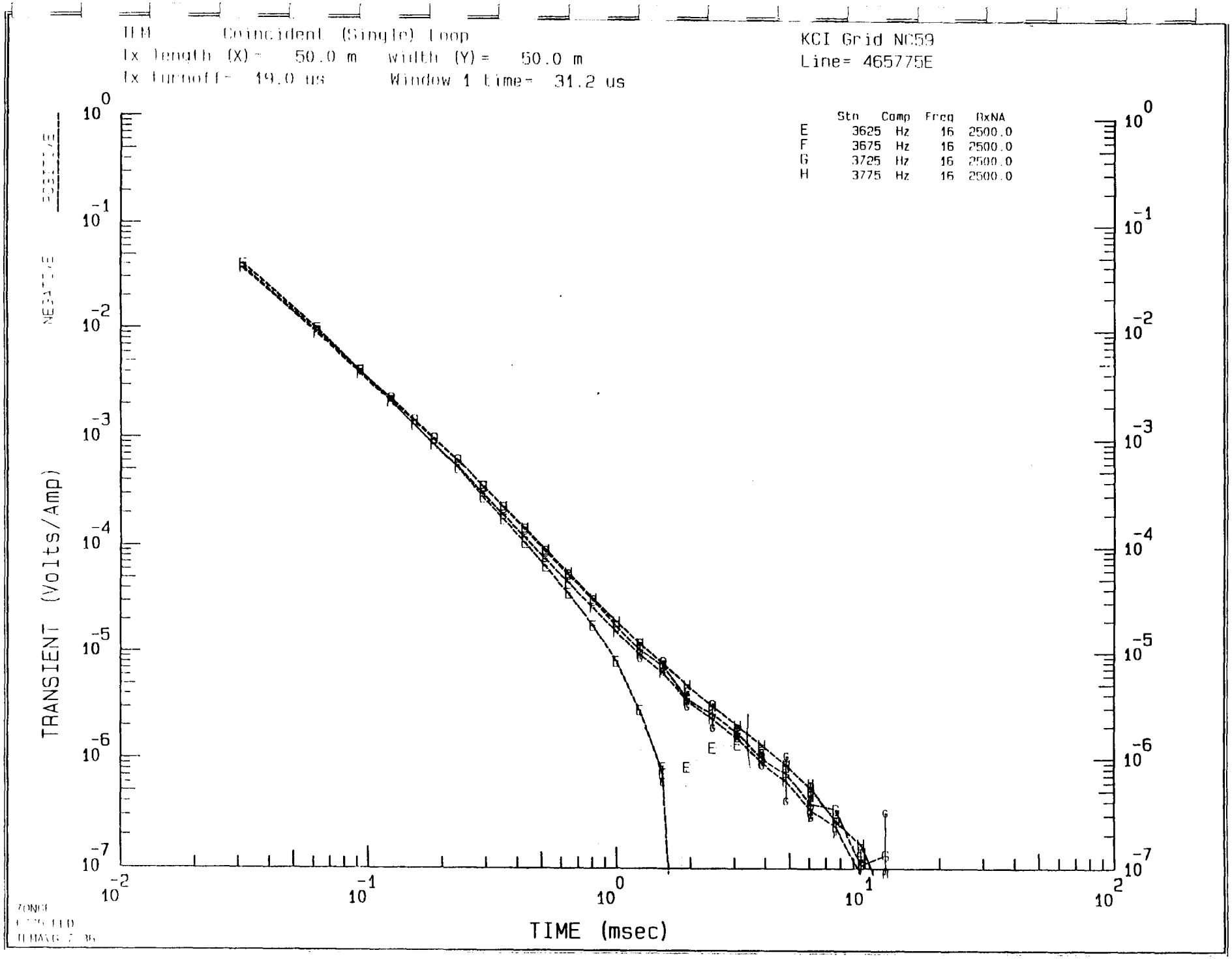
Window NUMBER and TIME (seconds)

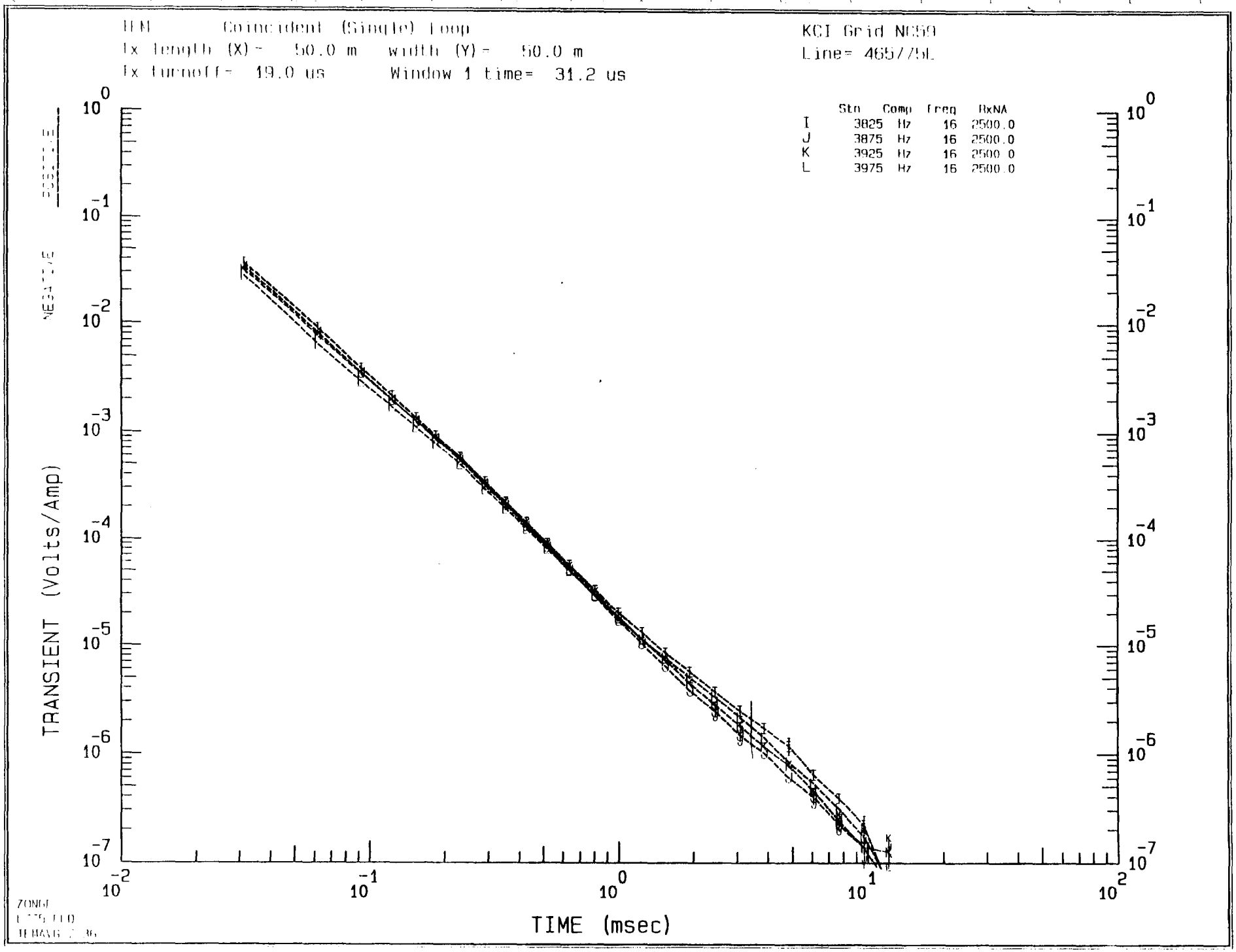
W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		

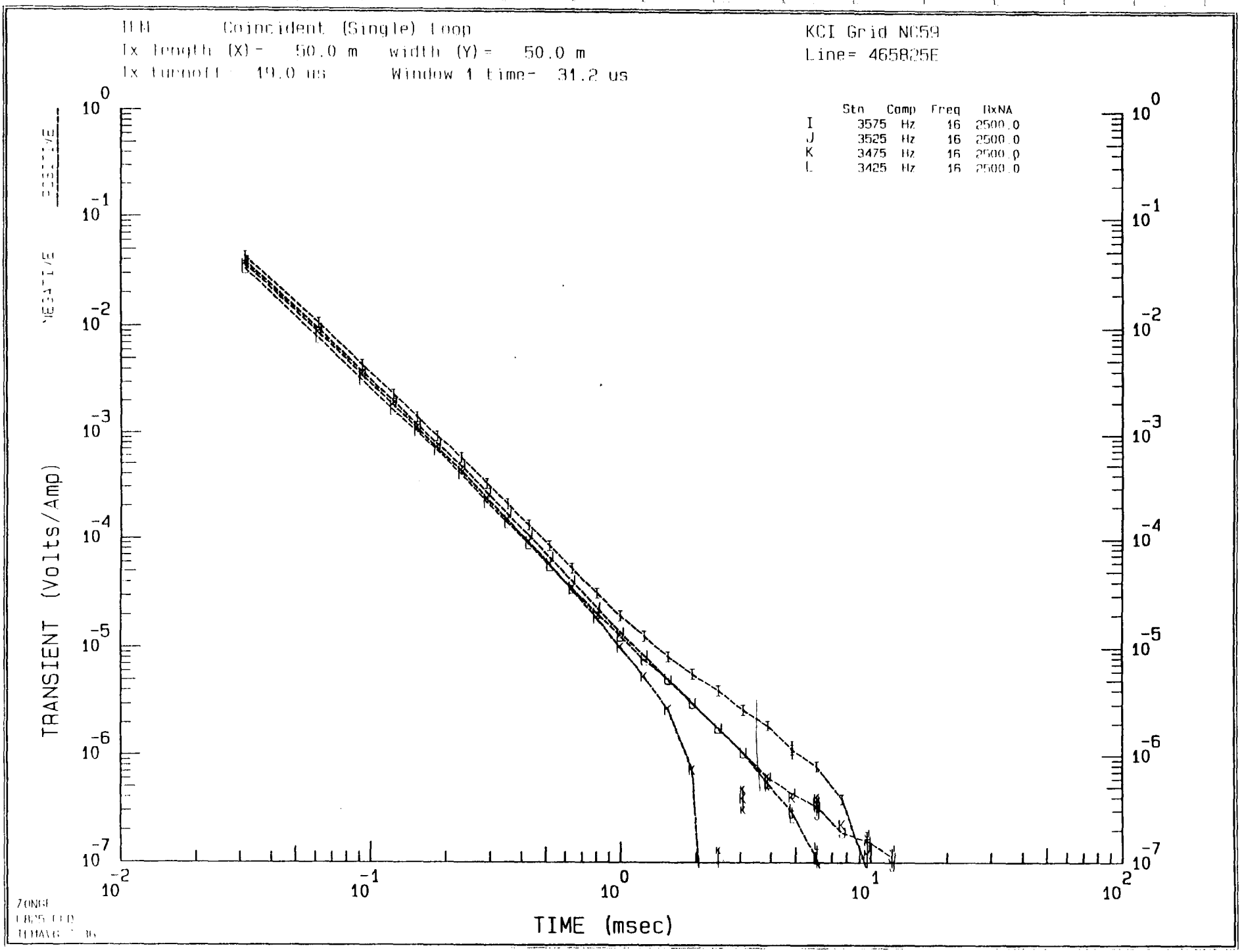


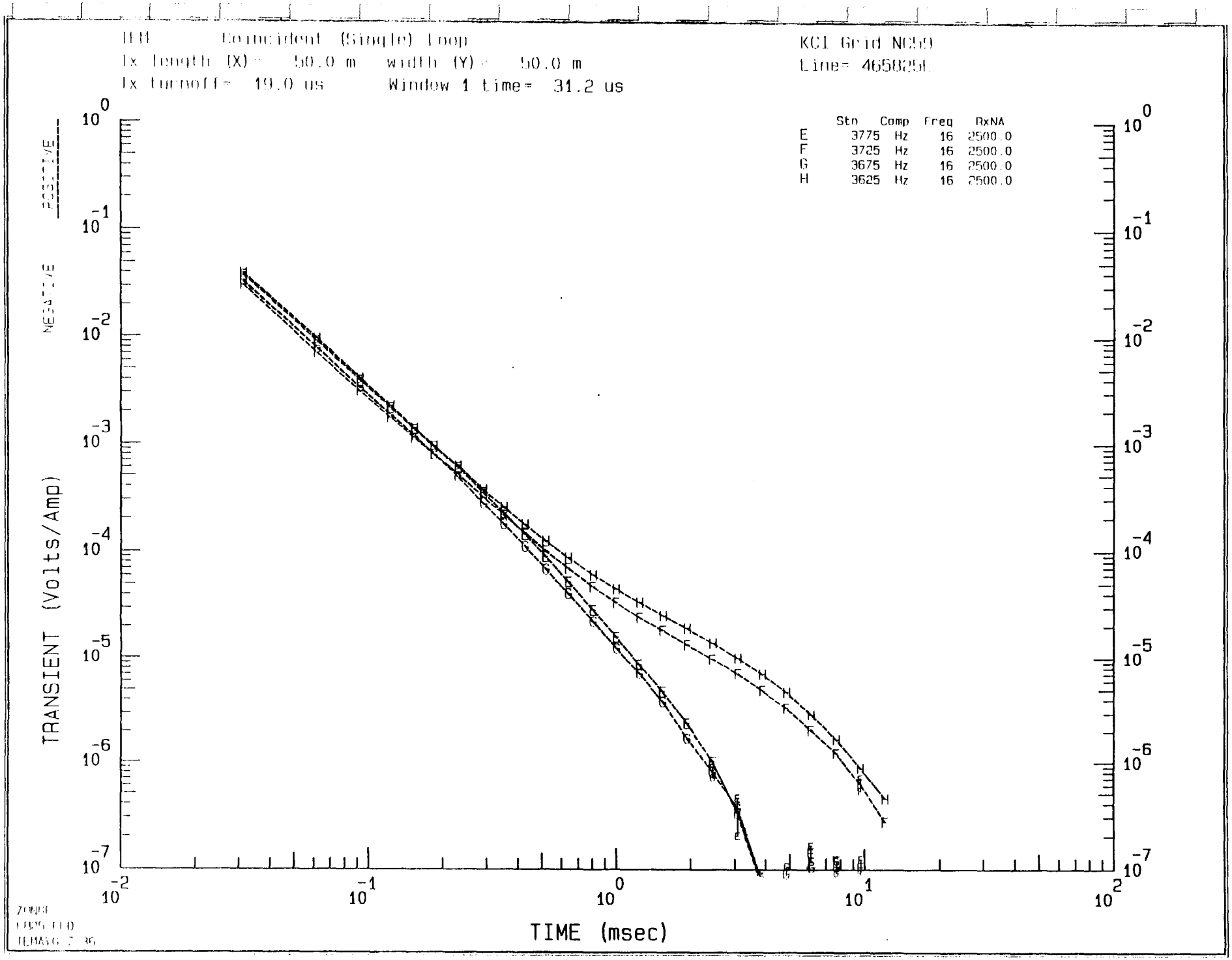
31.7 cm A3

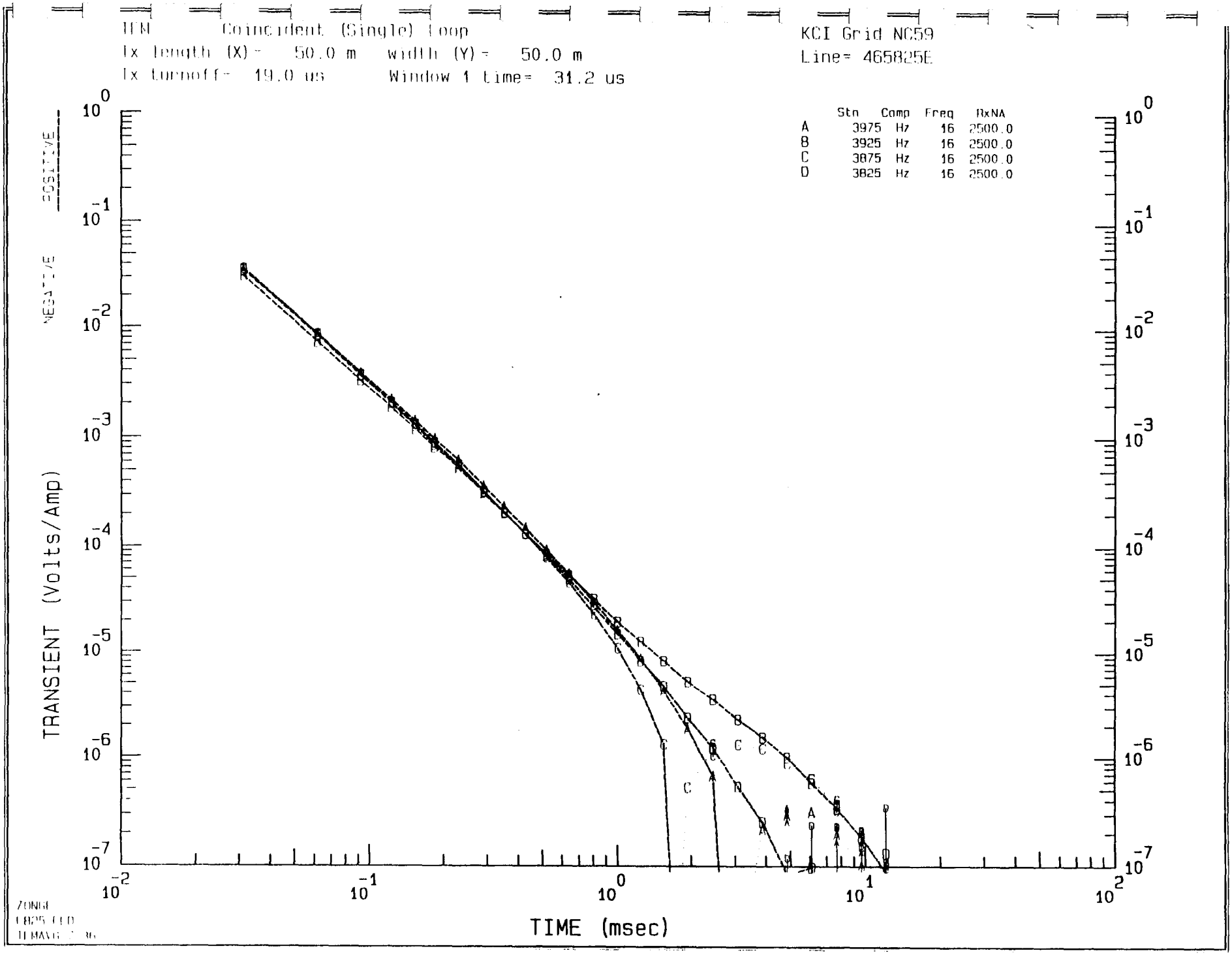

HLM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time= 31.2 us
KCI Grid NC59
Line= 465/750
Stn Comp Freq RxNA
A 3425 Hz 16 2500.0
B 3475 Hz 16 2500.0
C 3525 Hz 16 2500.0
D 3575 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

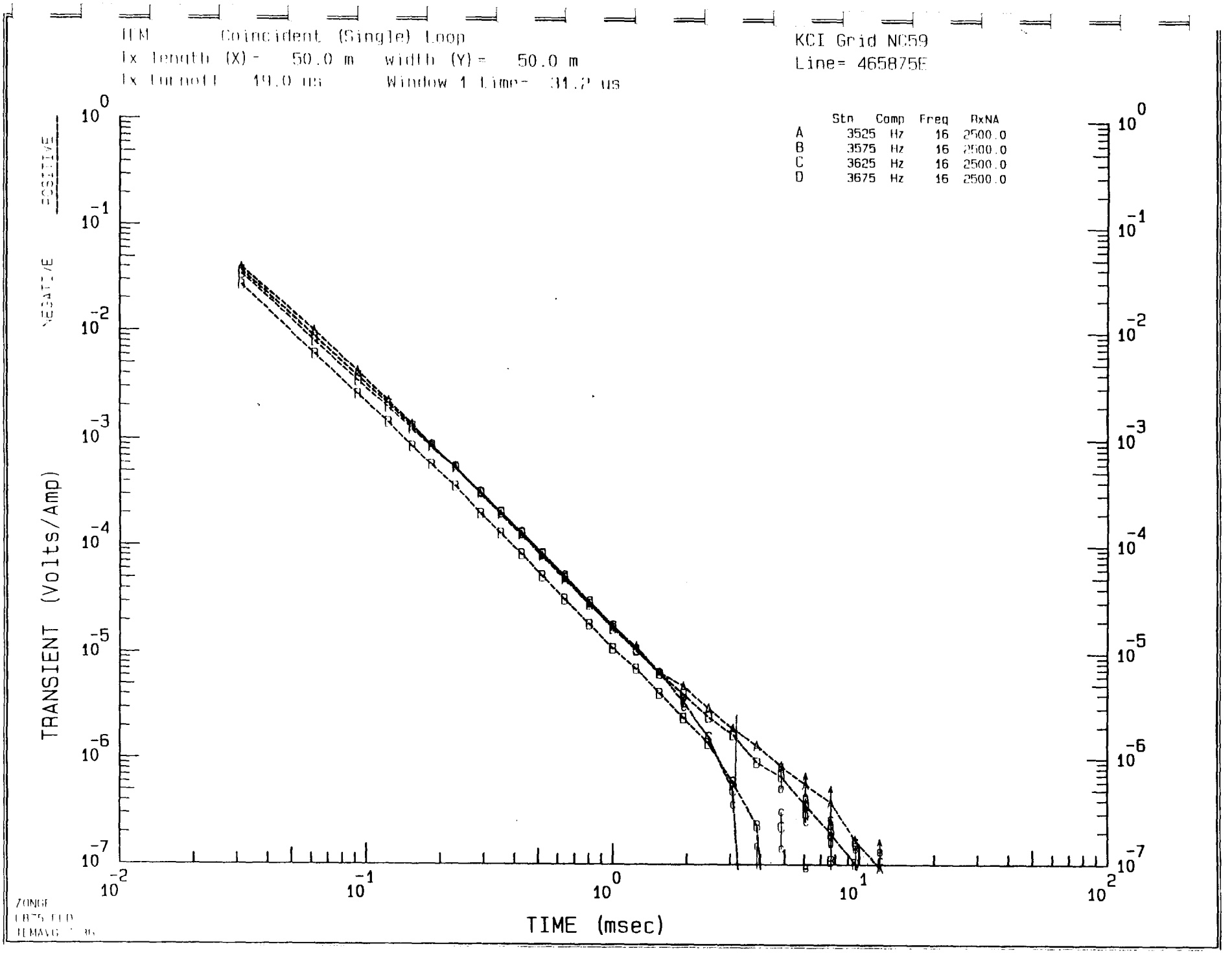

TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC59
Line= 465775E
Stn Comp Freq RxNA
E 3625 Hz 16 2500.0
F 3675 Hz 16 2500.0
G 3725 Hz 16 2500.0
H 3775 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

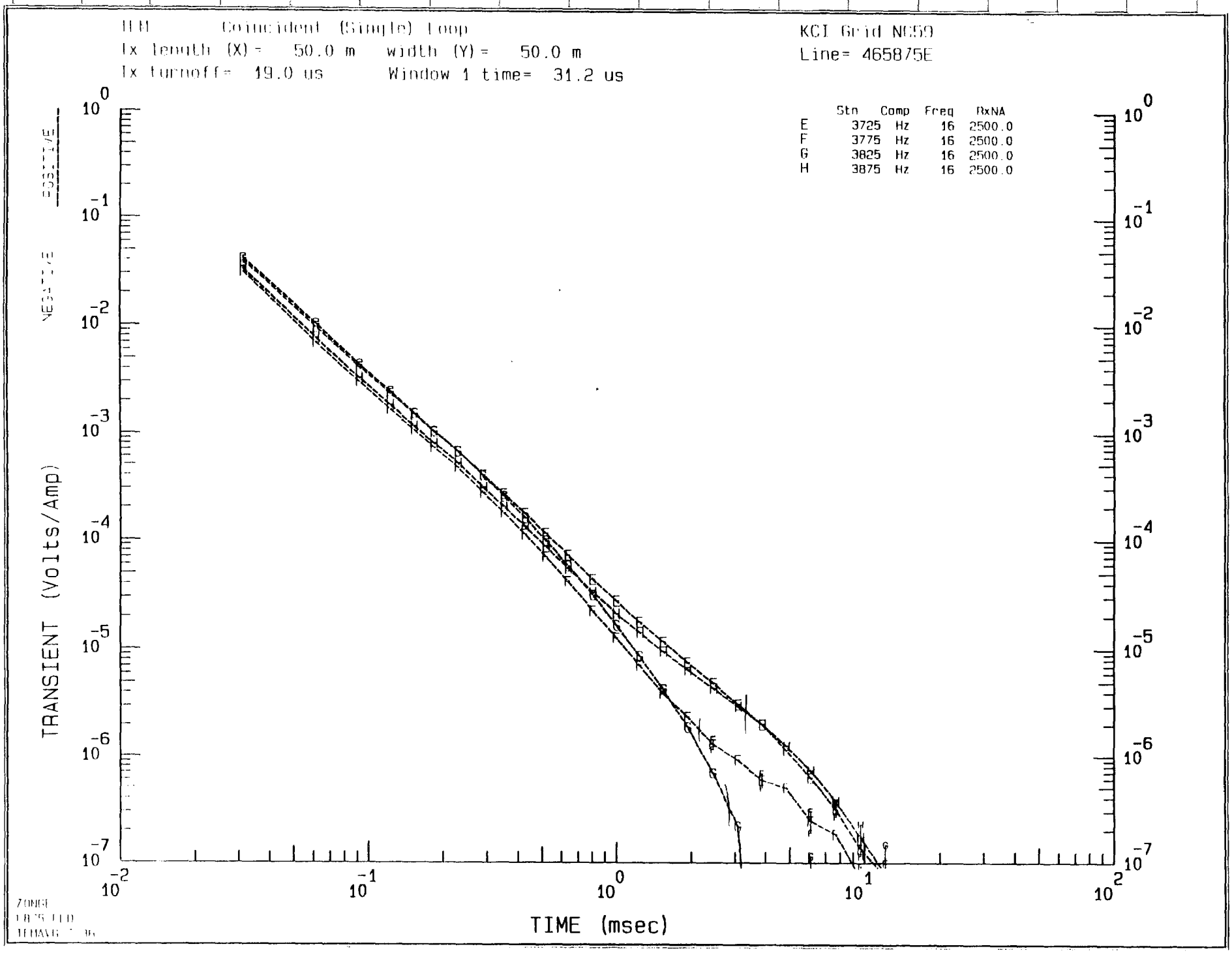

HEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC50
Line= 465/75L
Stn Comp Freq RxNA
I 3825 Hz 16 2500.0
J 3875 Hz 16 2500.0
K 3925 Hz 16 2500.0
L 3975 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

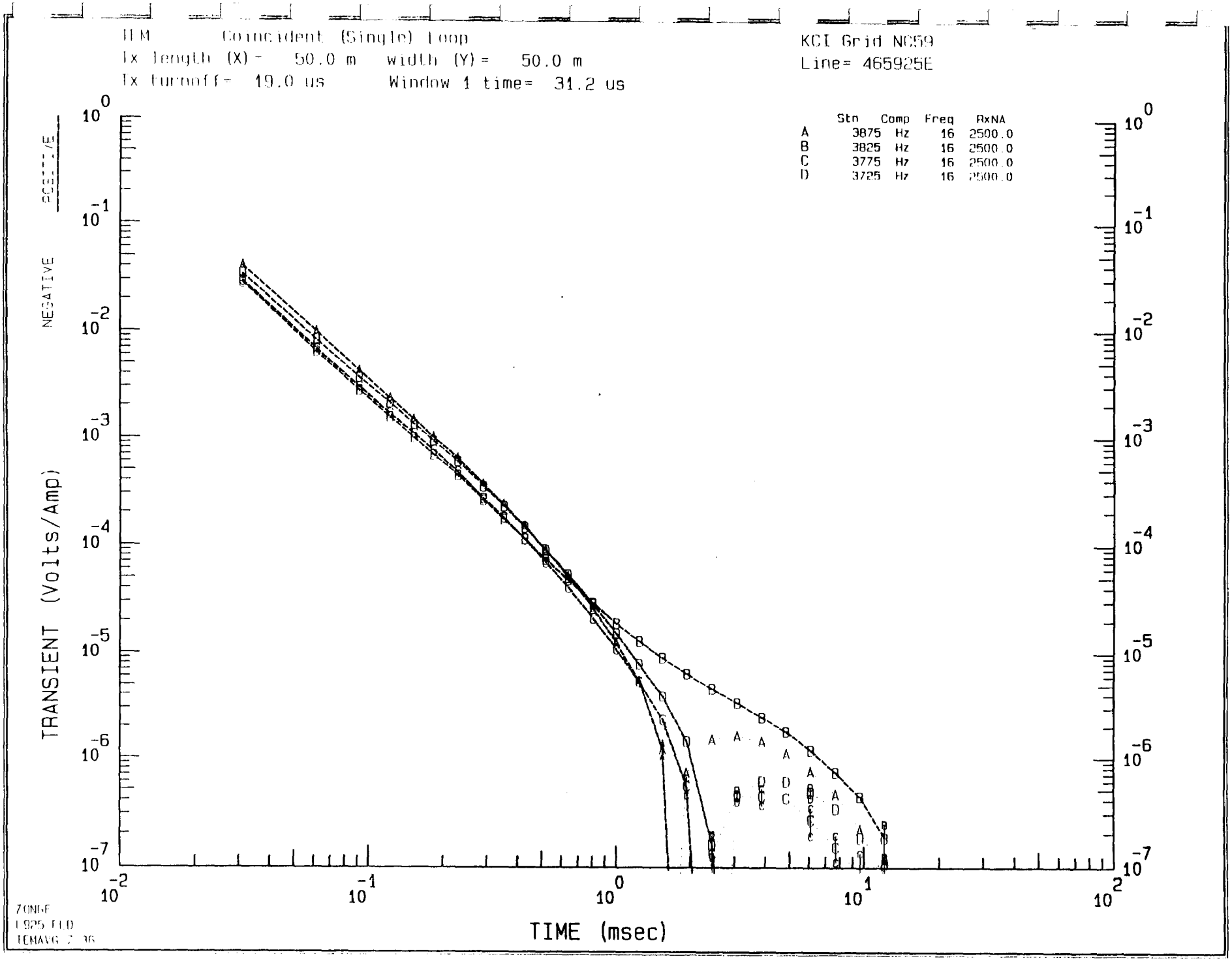

HLM Coincident (Single) Loop
Tx length (X)= 50.0 m width (Y)= 50.0 m
Tx turnoff 19.0 us Window 1 time= 31.2 us
KCI Grid NC59
Line= 465825E
Stn Comp Freq RxNA
I 3575 Hz 16 2500.0
J 3525 Hz 16 2500.0
K 3475 Hz 16 2500.0
L 3425 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

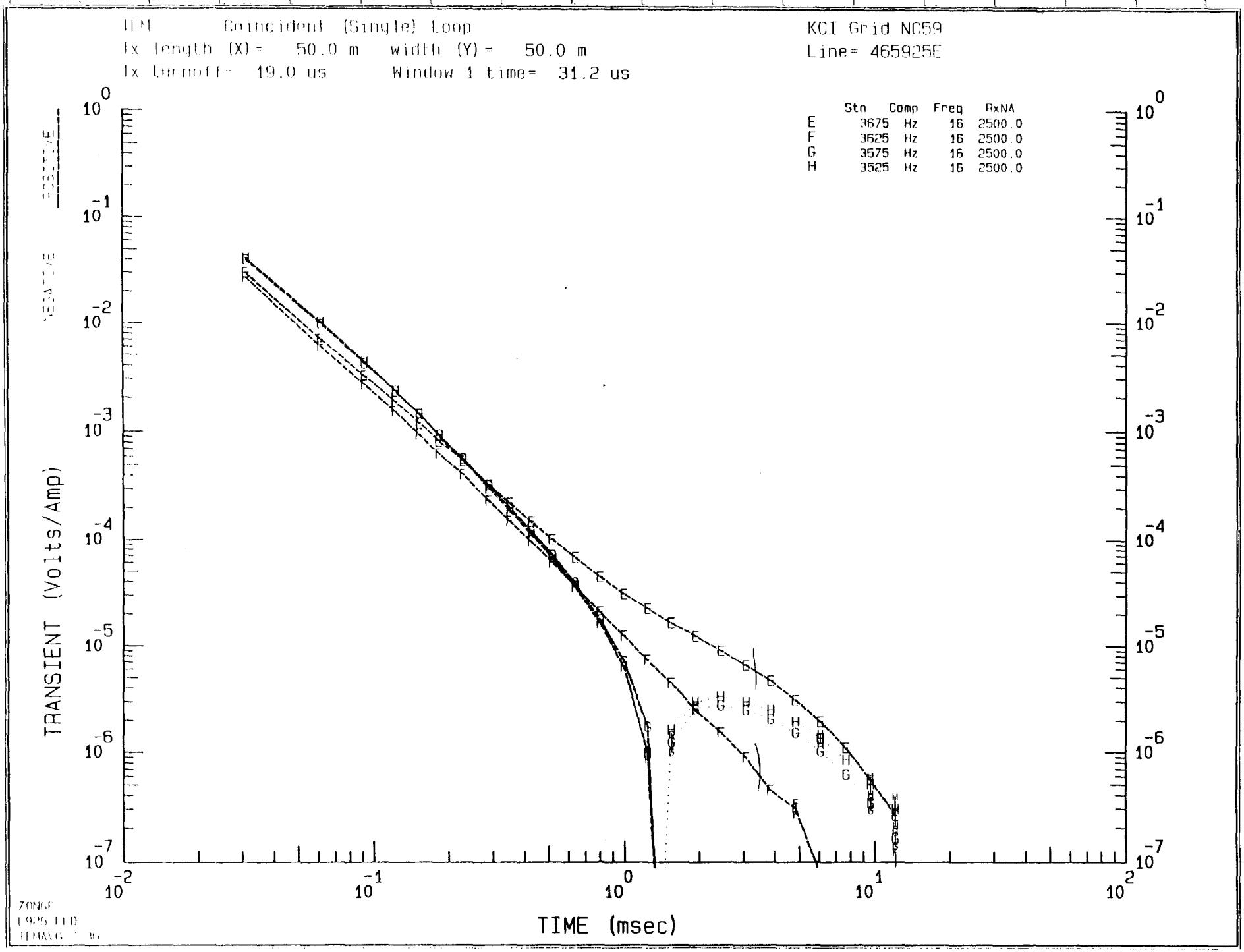

HH Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC50
Line= 465025
Stn Comp Freq RxNA
E 3775 Hz 16 2500.0
F 3725 Hz 16 2500.0
G 3675 Hz 16 2500.0
H 3625 Hz 16 2500.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC59
Line= 465825E
Stn Comp Freq RxNA
A 3975 Hz 16 2500.0
B 3925 Hz 16 2500.0
C 3875 Hz 16 2500.0
D 3825 Hz 16 2500.0
POSITIVE
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE


TEM Coincident (Single) Loop
Tx length (X)= 50.0 m width (Y)= 50.0 m
Tx turnoff 19.0 us Window 1 time= 31.2 us
KCI Grid NC59
Line= 465875E
Stn Comp Freq RxNA
A 3525 Hz 16 2500.0
B 3575 Hz 16 2500.0
C 3625 Hz 16 2500.0
D 3675 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE


HLM Coincident (Simple) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC59
Line= 465875E
Stn Comp Freq RxNA
E 3725 Hz 16 2500.0
F 3775 Hz 16 2500.0
G 3825 Hz 16 2500.0
H 3875 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) = 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid NC59
Line= 465925E
Stn Comp Freq RxNA
A 3875 Hz 16 2500.0
B 3825 Hz 16 2500.0
C 3775 Hz 16 2500.0
D 3725 Hz 16 2500.0
NEGATIVE
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE
L925 FLD
TEMAVG 2.36


TEM Coincident (Single) Loop
Tx length (X)= 50.0 m width (Y)= 50.0 m
Tx turnoff= 19.0 us Window 1 time= 31.2 us
KCI Grid NC59
Line= 465925E
Stn Comp Freq RxNA
E 3675 Hz 16 2500.0
F 3625 Hz 16 2500.0
G 3575 Hz 16 2500.0
H 3525 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)
ZONGE

Line 465775E
KCI Grid NC59
for
Kennecott Canada

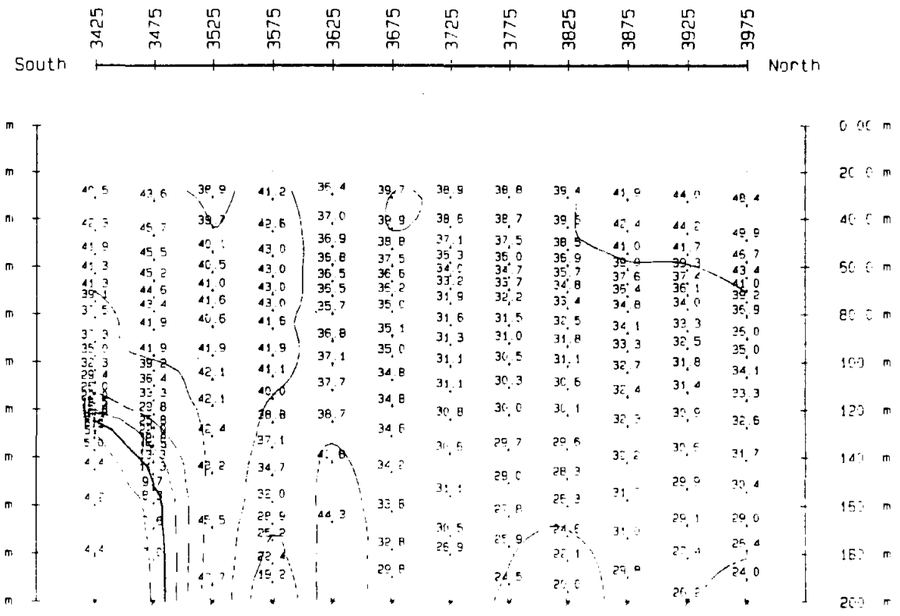
ZONGE ZPLOT 7.23
File L775.ZD, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval= 0.20)
[4.25
6.31
10.0*
15.8
25.1
39.8
[52.8]



Line 465775E
KCI Grid NC59
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L775.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

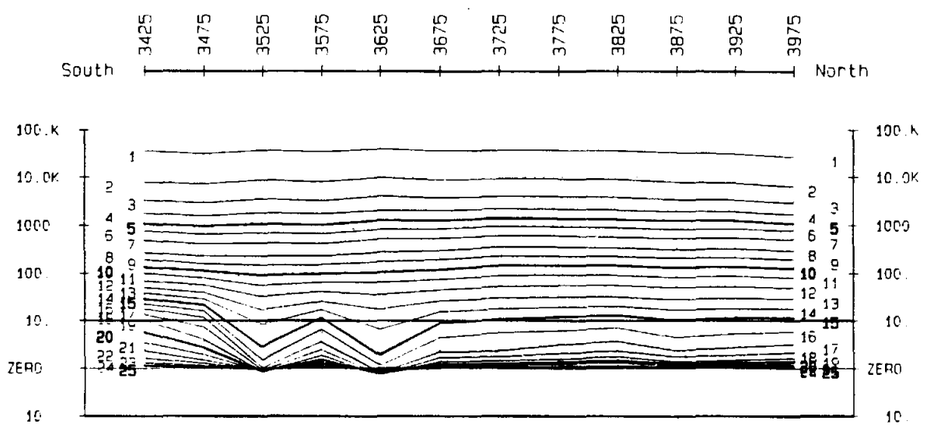
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



Line 465825E
KCI Grid NC59
for
Kennecott Canada

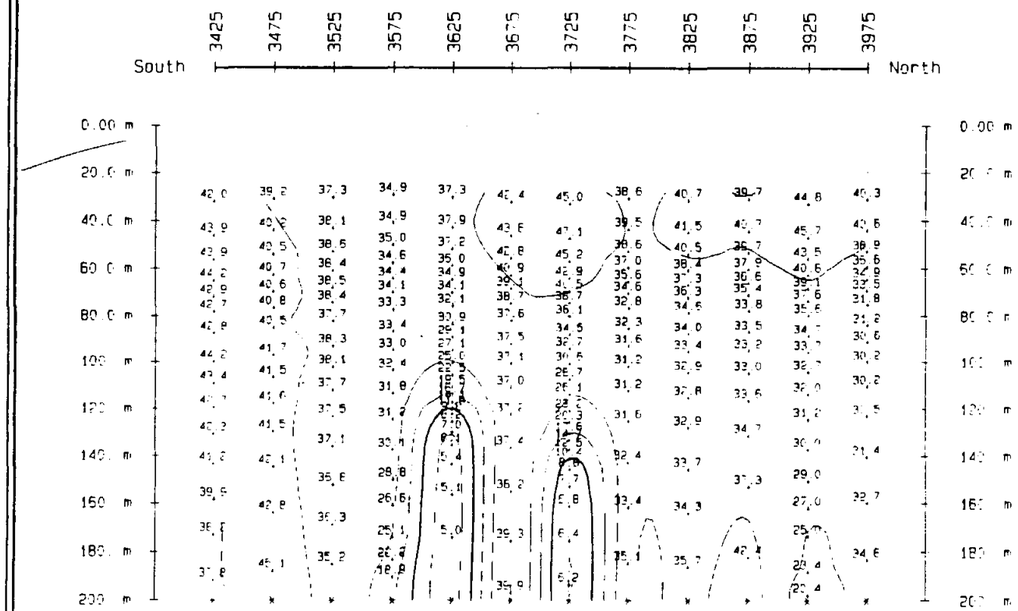
ZONGE ZPLOT 7.23
File L825.ZD. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[5.02]
6.31
10.0*
15.8
25.1
39.8
[47.7]



Line 465825E
KCI Grid NC59
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L825.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

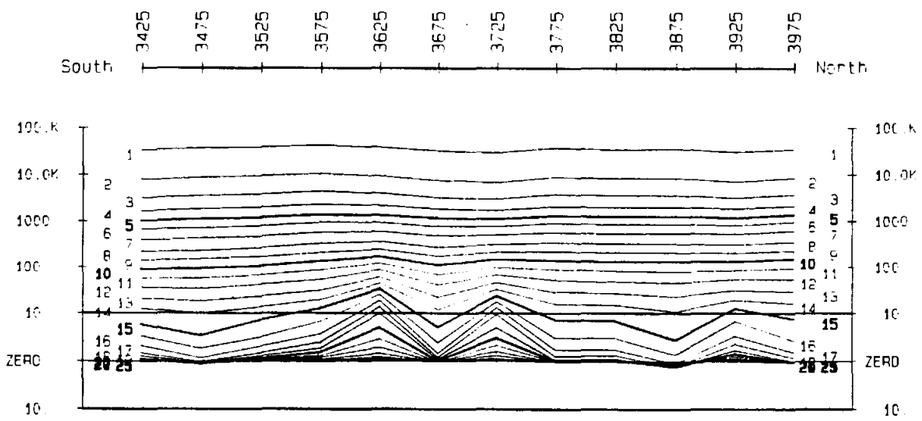
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



31.7 cm A

Line 465875E
KCI Grid NC59
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L875.ZD, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App. Res.

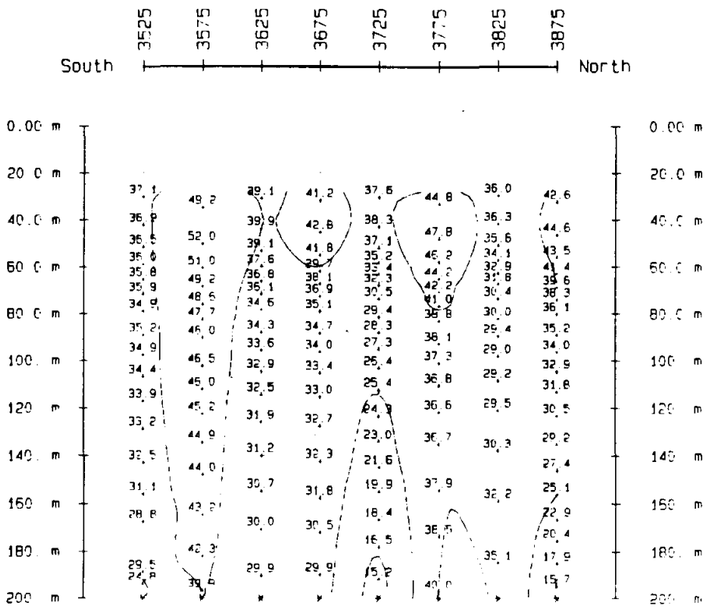
vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA

Surveyed= Jul.96
Line = North
Dipole= North

(Plot limits) and LOGARITHMIC CONTOURS
(Interval: 0.20)

(14.6]
15.8
25.1
39.8
[52.0]



Line 465875E
KCI Grid NC59
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L875.ZM, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

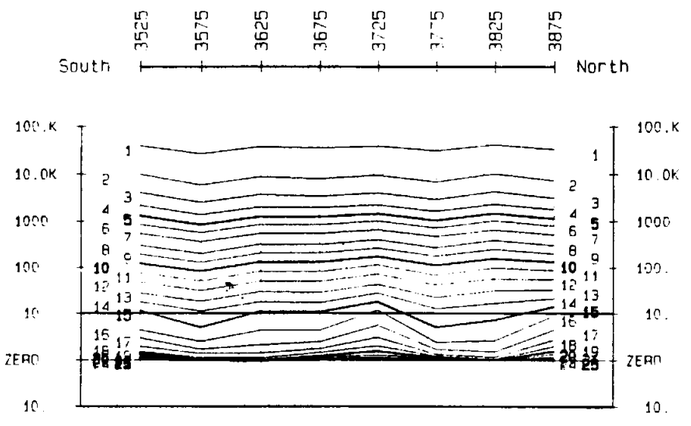
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6	183.2u	W16:	1.544m		
W 7	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9.	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



31.7 cm A3

Line 465925E
KCI Grid NC59
for
Kennecott Canada

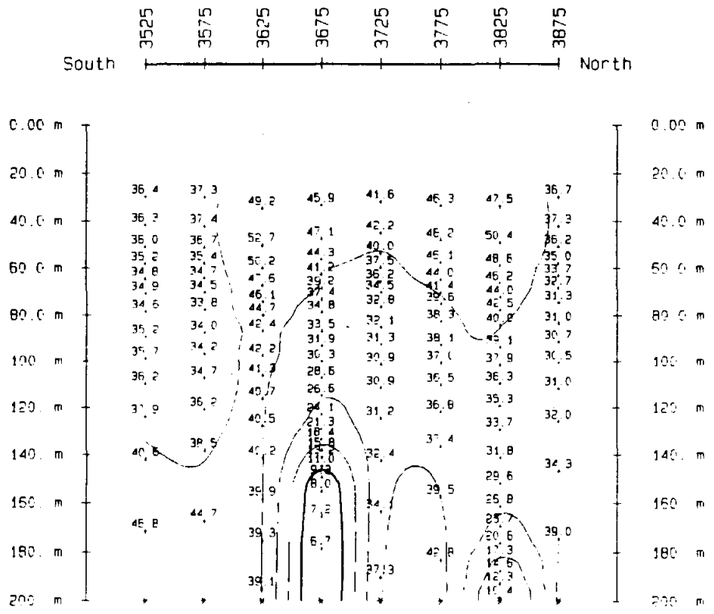
ZONGE ZPLOT 7.23
File L925.ZD, Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Ramp-Corrected App.. Res.

vs DEPTH, values in ohm-meters
Tx length (X) = 50.0 meters
Tx width (Y) = 50.0 meters

RECEIVER DATA — TRANSMITTER DATA
Line = North
Surveyed= Jul.96 — Dipole= North

[Plot limits] and LOGARITHMIC CONTOURS
(Interval: 0.20)
[6.62]
10.0*
15.8
25.1
39.8
[56.1]



Line 465925E
KCI Grid NC59
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L925.ZM. Plotted 13 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

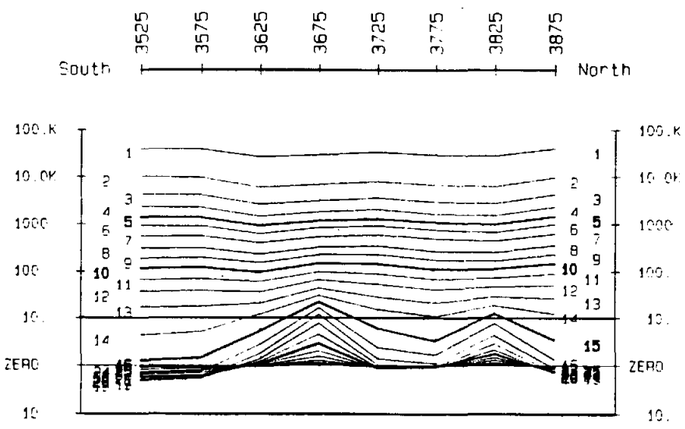
values in microV/ampere
Component: Hz, Rxna: 2500.0

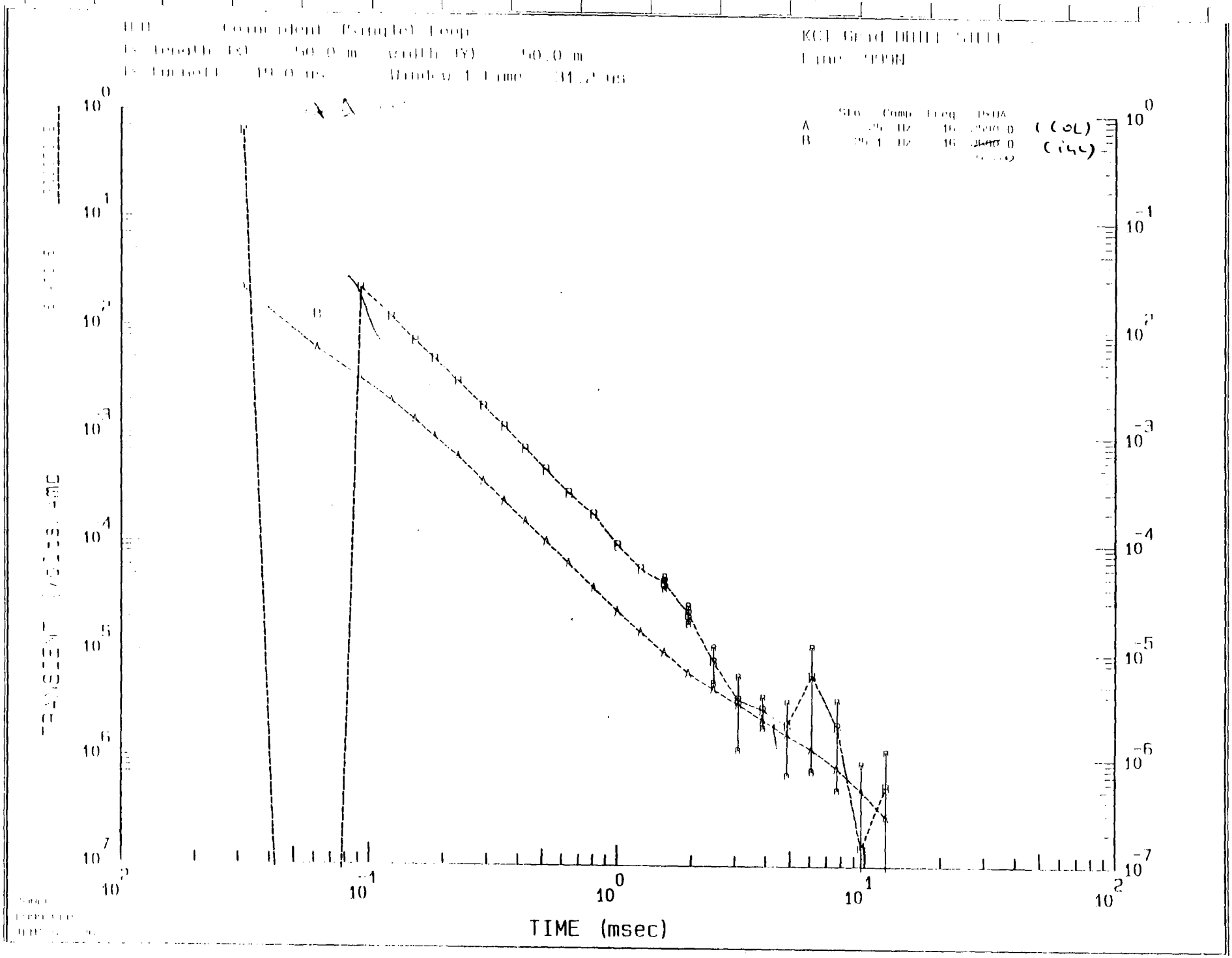
SURVEY LINE DATA
Line Orient= North

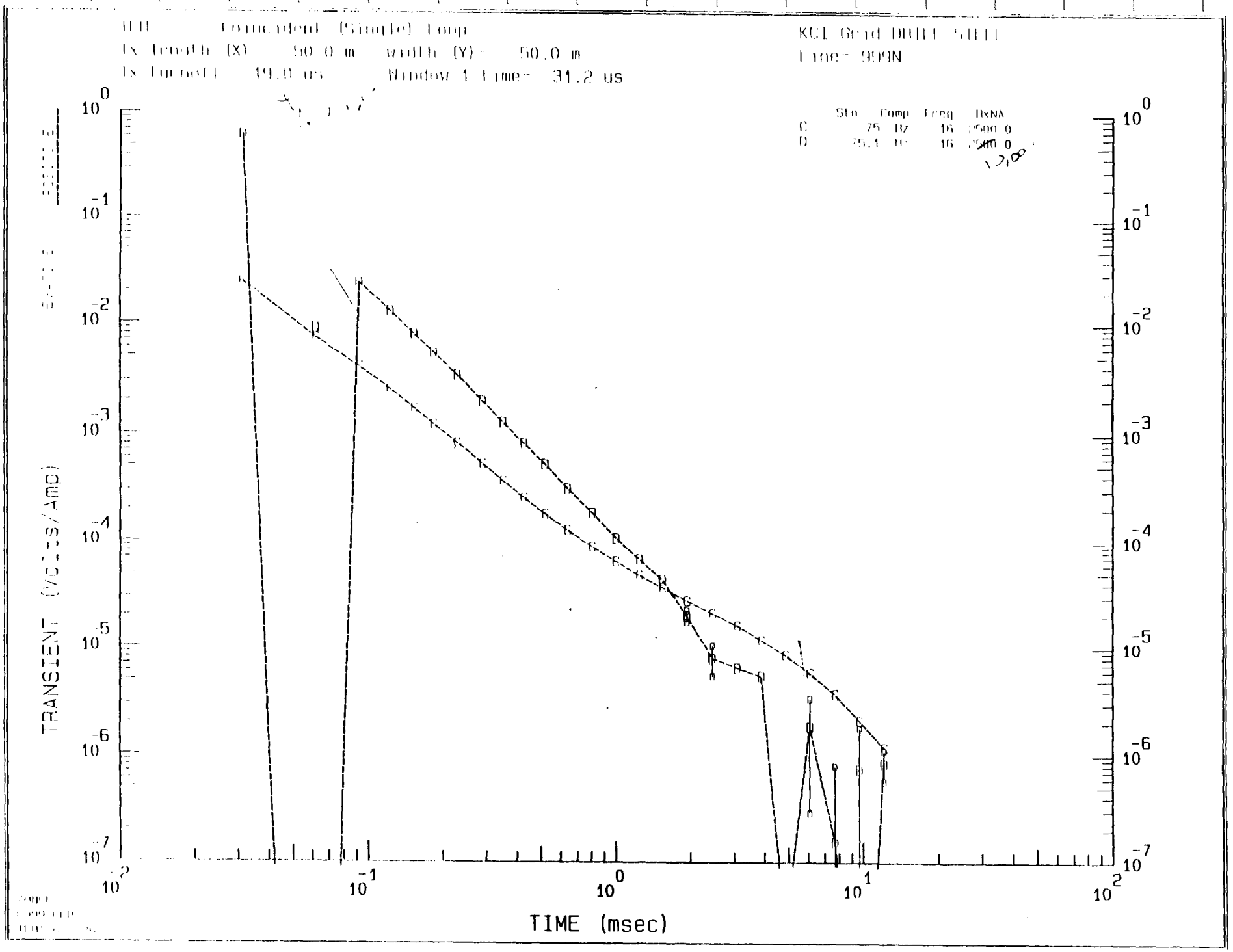
Survey Date= Jul.96

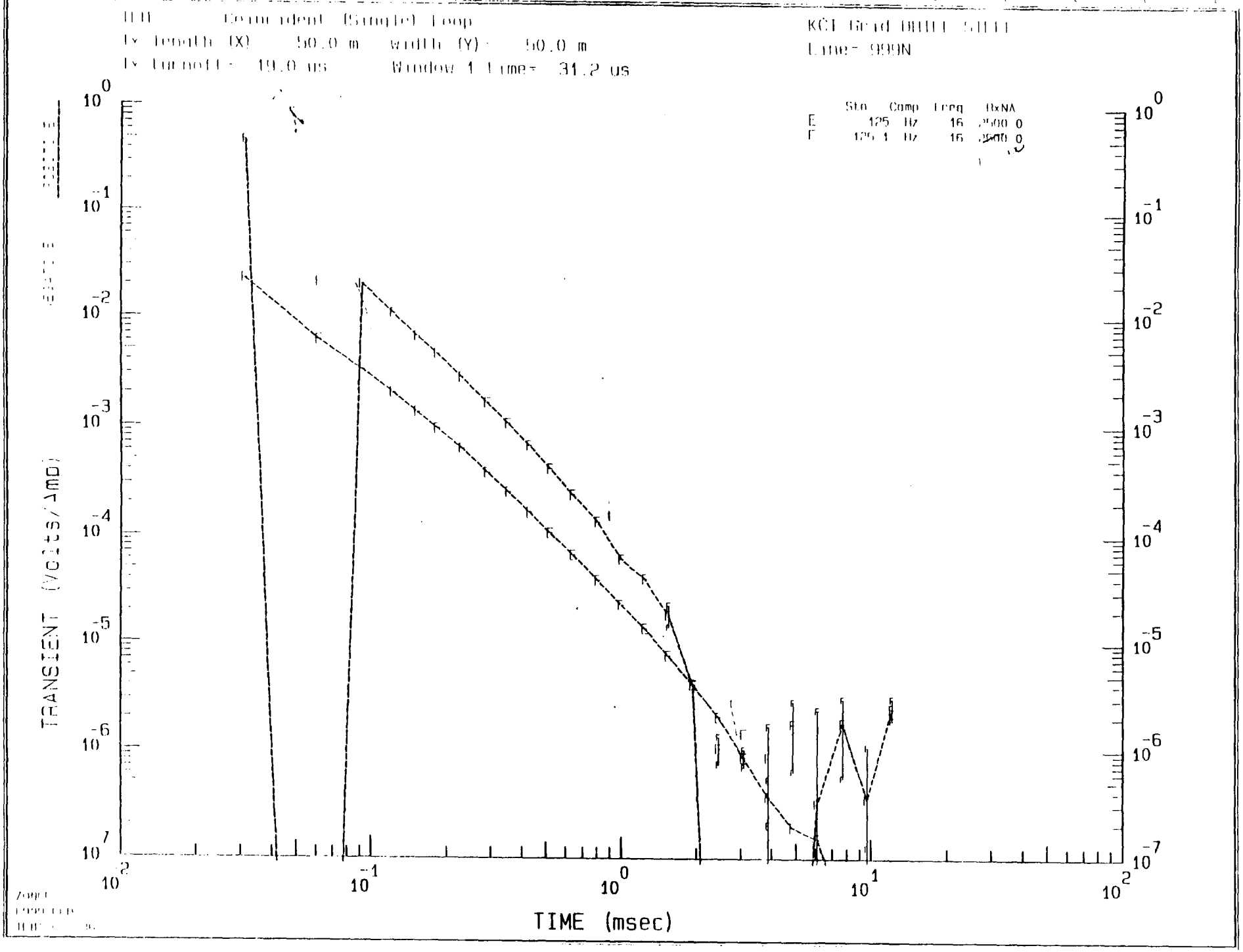
Window NUMBER and TIME (seconds)

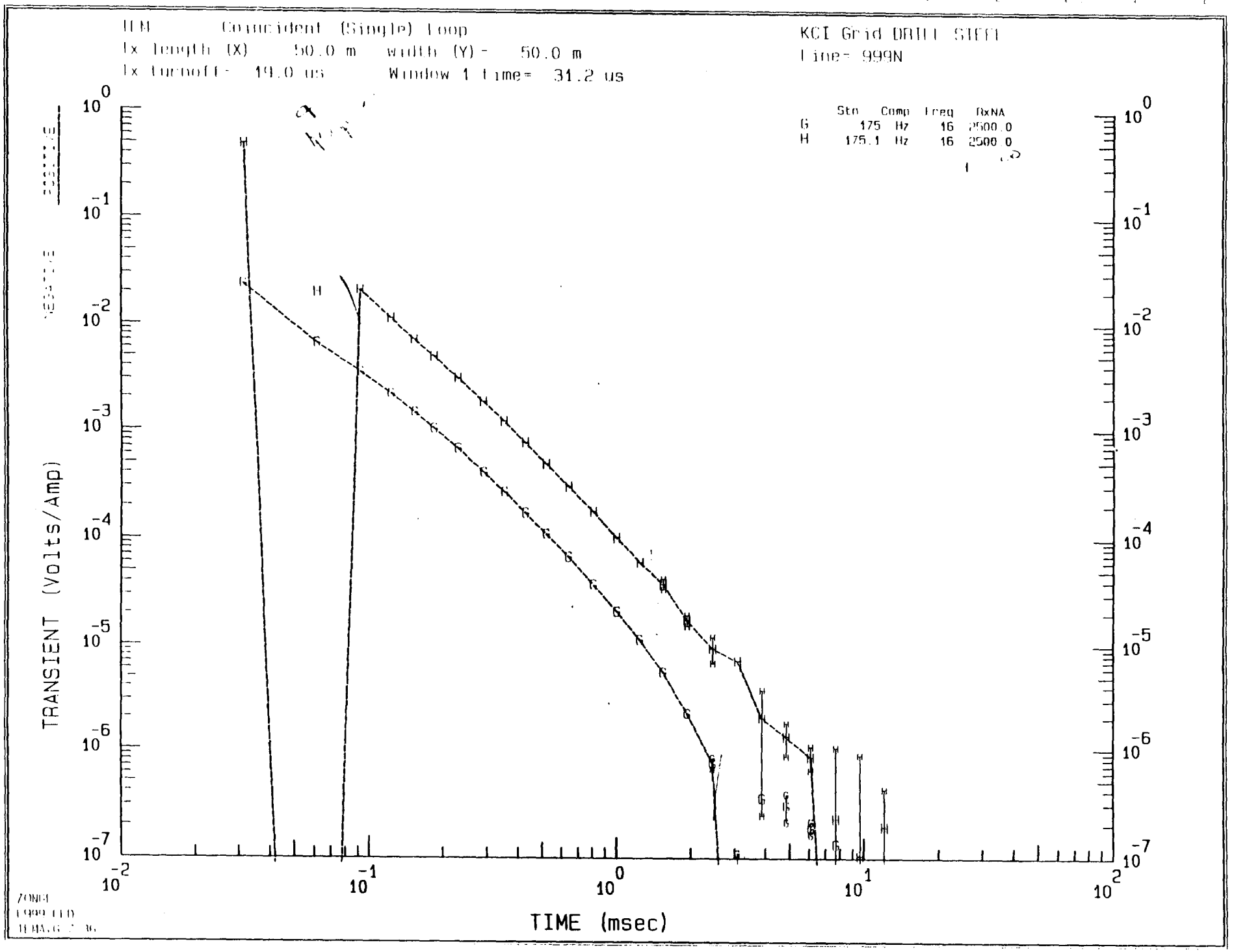
W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		




TIME (msec)


Coincident (Coupled) Loop
Tx Length (X) = 50.0 m Width (Y) = 50.0 m
Tx Turnoff = 10.0 us Window 1 Time = 31.2 us
KGL Grid DRILL SITE
Line= 990N
Stn Comp Freq RxNA
C 75 Hz 16 2500.0
D 75.1 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)


Coincident (Sampled) Loop
Tx Length (X) 50.0 m Width (Y) 50.0 m
Tx Turnoff = 19.0 us Window 1 Time= 31.2 us
KCI Grid
Line= 999N
Stn Comp Freq
E 125 Hz 16
TRANSIENT (Volts/AMP)
TIME (msec)


TEM Coincident (Single) Loop
Tx length (X) 50.0 m width (Y) = 50.0 m
Tx turnoff = 19.0 us Window 1 time = 31.2 us
KCI Grid DRILL STEP
Line= 999N
Stn Comp Freq TxNA
G 175 Hz 16 2500.0
H 175.1 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)
ZONE
999 LED

C 5L

Line 999N
KCI Grid DRILL STEEL
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L999COL.Z, Plotted 16 Jul 96

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

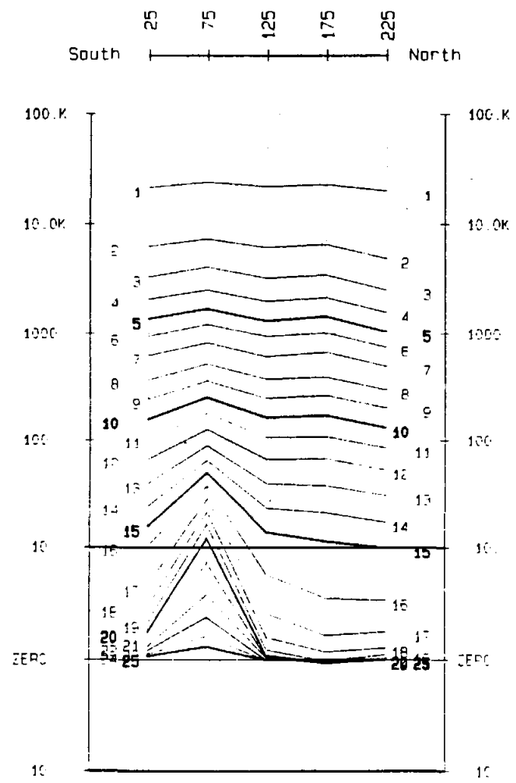
values in microV/ampere
Component: Hz, Rxna: 2500.0

SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.191m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		



inL

Line 999N
KCI Grid DRILL STEEL
for
Kennecott Canada

ZONGE ZPLOT 7.23
File L999INL.Z, Plotted 16 Jul 96

cp

TRANSIENT EM SURVEY DATA
Window MAGNITUDE

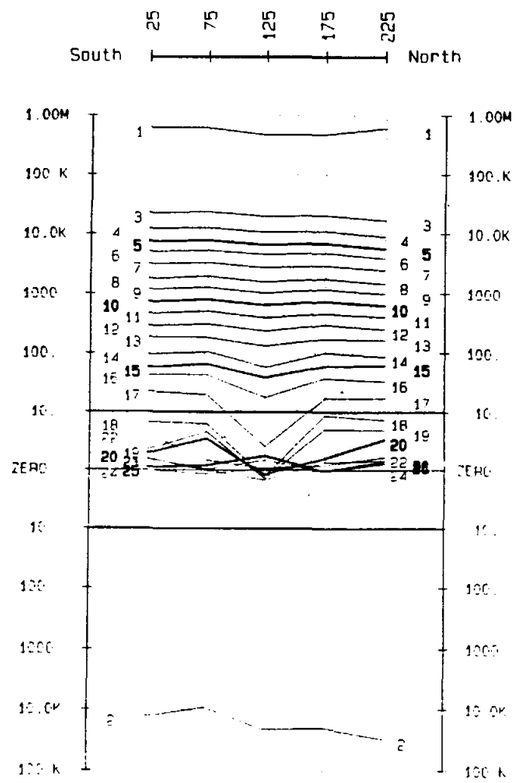
values in microV/ampere
Component: Hz, Rxna: 2500.0

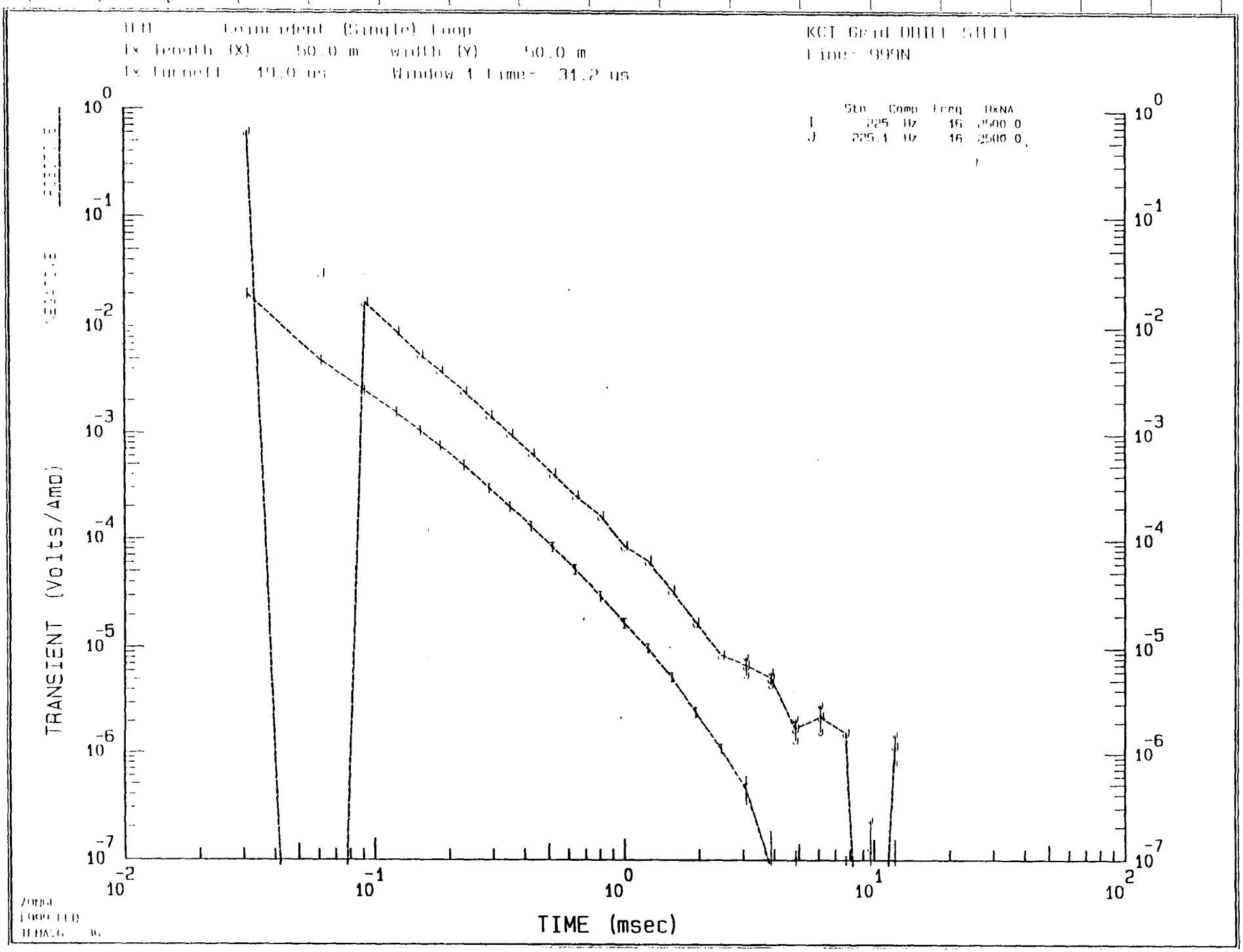
SURVEY LINE DATA
Line Orient= North

Survey Date= Jul.96

Window NUMBER and TIME (seconds)

W 1:	31.20u	W11:	516.7u	W21:	4.851m
W 2:	61.60u	W12:	636.2u	W22:	6.101m
W 3:	92.00u	W13:	802.7u	W23:	7.689m
W 4:	122.4u	W14:	999.7u	W24:	9.653m
W 5:	152.8u*	W15:	1.241m*	W25:	12.13m*
W 6:	183.2u	W16:	1.544m		
W 7:	228.2u	W17:	1.935m		
W 8:	289.2u	W18:	2.448m		
W 9:	350.0u	W19:	3.083m		
W10:	425.2u*	W20:	3.868m*		




Coincident (Single) Loop
Tx Length (X) 50.0 m Width (Y) 50.0 m
Tx Turnoff 19.0 us Window 1 Time= 31.2 us
KCT Grid DRILL SITE
Time= 999N
Stn Comp Freq RxNA
I 225 Hz 16 2500.0
J 225.1 Hz 16 2500.0
TRANSIENT (Volts/Amp)
TIME (msec)

APPENDIX IV

KOMEX INTERNATIONAL LTD.

REPORT ON GEOPHYSICAL LOGGING OF NC44-1 BOREHOLE

Suite 100, 4500 - 16th Avenue N.W.
Calgary, Alberta, Canada T3B 0M6
Telephone: (403) 247-0200
Fax: (403) 247-4811 or 247-0779
e-mail: komex@komex.com
web: http://www.komex.com

KOMEX INTERNATIONAL LTD.
ENVIRONMENTAL AND ENGINEERING CONSULTANTS

April 21, 1997

OUR FILE: KI97-4523

Kennecott Canada Inc.
Granville Square
#354 - 200 Granville Street
Vancouver, B.C.
V6C 1S4

Attention: Joel Jansen

Dear Joel:

Re: Geophysical Logging of the NC44-1 Borehole

We are pleased to provide a formal letter to follow up the delivery of a preliminary log on March 18, 1997.

Background

A number of magnetic anomalies were identified in the Hinton area by Kennecott. Both airborne and ground based magnetic data suggested that some of these anomalies may be kimberlite pipes. Drilling and coring of several of these anomalies produced only sedimentary rock showing very low magnetic susceptibilities. In order to verify the drilling results, record in situ susceptibility data, and measure susceptibilities in the overburden where poor core recovery was achieved, a high sensitivity magnetic susceptibility log (the Geonics EM39S) was run in borehole NC44-1. Natural gamma (EM39G) and formation conductivity (EM39) logs were also recorded so as to more confidently describe the various lithologies.

Field Techniques

The site was accessed by snow mobile. All data were collected with a portable 200 m winch and a laptop computer. The well was cased with 2-inch PVC. Field work was completed on March 11, 1997.

The Geonics EM39S is a new two coil susceptibility tool specifically designed to measure magnetic susceptibilites over a large dynamic range, including at very low values commonly associated with soils and sedimentary environments. The resolution of the EM39S is approximately the intercoil spacing, or 50 cm. Although the thickness of features smaller than 50 cm cannot be precisely resolved, they can still be "seen" if they are of a significant susceptibility contrast. The instrument response is generally independent of the borehole diameter. 90% of the instrument response is from earth materials within a radius of 30 cm from the borehole axis. The response of materials from 5 to 25 cm from the borehole axis is roughly uniform. The instrument is described in detail by McNeill et. al. (1996).

The EM39G counts naturally emitted gamma rays of all energy levels using a scintillation counter. The probe counts radiation from material in a sphere of a radius of approximately 20 cm. The influence of earth materials falls off with the square root of distance from the tool.

The EM39 electromagnetic conductivity tool is described in detail by McNeill (1986). It is very similar in design to the EM39S. The intercoil spacing is 50 cm, providing a vertical resolution of approximately 50 cm. Borehole effects are negligible. Formation or annular material within a radius of 18 cm from the probe contributes very little to the measured conductivity. The peak response occurs 32 cm from the borehole.

Results

The results are described in the accompanying log plot. Clearly, the only outstanding susceptibility anomaly occurs between 8 and 10 m. Here, the susceptibility reaches 6 X 10^{-3} SI. In the remainder of the borehole, the susceptibilities are very close to zero. A small spike of 1.5 X 10^{-3} SI occurs at 93 m depth. This is believed to be metal in the borehole wall left during the drilling process. The presence of metal is suggested by the twin peaks in the anomaly separated by 50 cm, the transmitter/receiver separation.

The geological interpretation is based entirely on the geophysical logs. The overburden consists of muskeg and what is probably a silty clay till. The susceptibility anomaly may be associated with magnetite (Fe_3O_4) or pyrrhotite (Fe_7S_8). The bedrock contact at 22 m is suggested by the very low terrain conductivity and the general increase in susceptibility. Bedrock consists of what is probably a very clean sandstone and shale.

Conclusions

1 The only significant susceptibility anomaly of NC44-1 is in the overburden between 8 and 10 m depth (6 X 10^{-3} SI).

2. Except for the single identified anomaly, susceptibilites in the overburden and bedrock are extremely low.

If you have any further questions, please do not hesitate to contact the undersigned.

References

McNeill, J.D. 1986. Borehole Conductivity Meter Theory of Operation, Technical Note TN-6. Geonics Limited, Mississauga, Ontario, Canada.

McNeill, J.D., Hunter, J.A., and Bosnar, M. 1996. Application of a borehole induction magnetic susceptibility logger to shallow lithological mapping: Journal of Environmental and Engineering Geophysics, v. 0, no. 2 (January 1996), pp. 77-90.

Yours truly,

KOMEX INTERNATIONAL LTD.

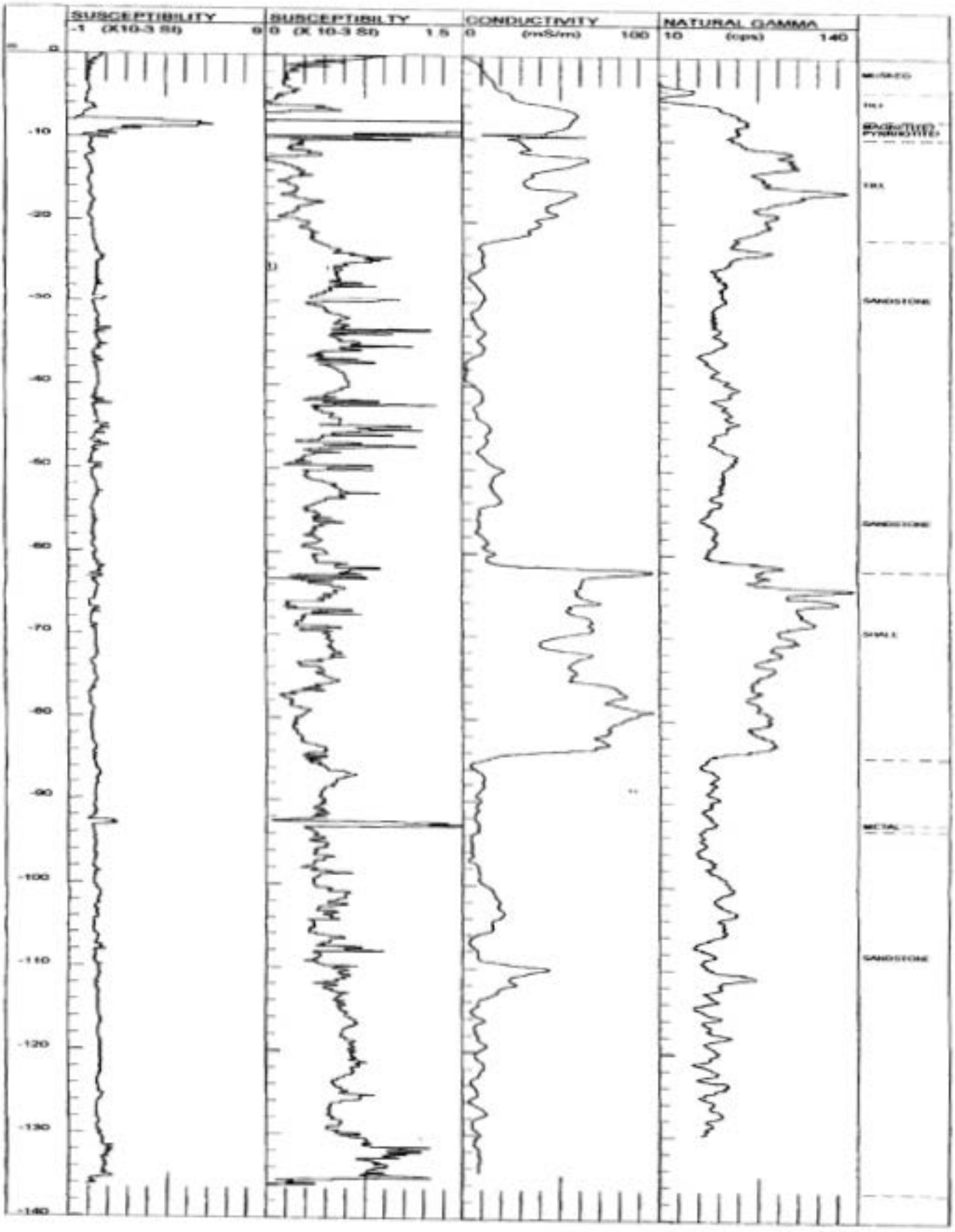
[redacted]

Paul Bauman, M.Sc., P.Eng.

J:\4523\REPORTS\AP97PBRP.DOC

Well Name: NC44-1
File Name: J:\4523\LOGS\NC44-1S4.HDR
Location: HINTON, ALBERTA
Elevation: 0 Reference: Ground Surface

Magnetic susceptibility plotted at two different scales
Depth Scale 1:10



APPENDIX V

LIST OF HEAVY MINERAL SAMPLES

MAZSAMP

EASTING	NORTHING	UTM ZONE	SAMP CHAR	TYPE	CLAIM	SAMPLE WT
441394	5980098	11U	VR63518A	STRM	NC	20.0
438707	5976427	11U	VR63677A	STRM	NC	20.0
439596	5973821	11U	VR63755A	STRM	NC	20.0
448777	5974643	11U	VR63510A	STRM	NC	20.0
447718	5975285	11U	VR63524A	STRM	NC	20.0
446845	5974844	11U	VR63526A	STRM	NC	20.0
445979	5975011	11U	VR63528A	STRM	NC	20.0
447645	5977738	11U	VR63530A	STRM	NC	20.0
451050	5980550	11U	VR63532A	STRM	NC	20.0
449810	5971925	11U	VR63619A	STRM	NC	20.0
448650	5981400	11U	VR63693A	STRM	NC	20.0
447100	5981600	11U	VR63691A	STRM	NC	20.0
458357	5973788	11U	VR63613A	STRM	NC	20.0
455664	5973542	11U	VR63623A	STRM	NC	20.0
456232	5974828	11U	VR63669A	STRM	NC	20.0
455147	5980841	11U	VR63673A	STRM	NC	20.0
456956	5975281	11U	VR63683A	STRM	NC	20.0
460982	5976066	11U	VR63787A	STRM	NC	20.0
460650	5975900	11U	VR63789A	STRM	NC	20.0
459062	5977419	11U	VR63810A	STRM	NC	20.0
463232	5979761	11U	VR63628A	STRM	NC	20.0
463509	5976475	11U	VR63671A	STRM	NC	20.0
466183	5973375	11U	VR63793A	STRM	NC	20.0
468472	5976697	11U	VR63795A	STRM	NC	20.0
445448	5965970	11U	VR63501A	STRM	NC	20.0
447719	5962676	11U	VR63505A	STRM	NC	20.0
449592	5968045	11U	VR63507A	STRM	NC	20.0
443350	5964300	11U	VR63753A	STRM	NC	20.0
446998	5966758	11U	VR63797A	STRM	NC	20.0
446875	5966504	11U	VR63799A	STRM	NC	20.0
445330	5964513	11U	VR63808A	STRM	NC	20.0
451550	5962185	11U	VR69999A	STRM	NC	20.0
455706	5969250	11U	VR63512A	STRM	NC	20.0
456963	5967777	11U	VR63522A	STRM	NC	20.0
458300	5968640	11U	VR63561A	STRM	NC	20.0

457425	5968885 11U	VR63563A	STRM	NC	20.0
460760	5967500 11U	VR63605A	STRM	NC	20.0
459125	5968075 11U	VR63606A	STRM	NC	20.0
458075	5967080 11U	VR63616A	STRM	NC	20.0
454360	5971050 11U	VR63617A	STRM	NC	20.0
453342	5968854 11U	VR63621A	STRM	NC	20.0
455488	5967607 11U	VR63625A	STRM	NC	20.0
459125	5968075 11U	VR63608A	ROCK	NC	20.0
455933	5969826 11U	VR63630A	STRM	NC	20.0
453047	5965929 11U	VR63679A	STRM	NC	20.0
459740	5966295 11U	VR63685A	STRM	NC	20.0
456559	5969362 11U	VR63690A	STRM	NC	20.0
454516	5964369 11U	VR63681A	STRM	NC	20.0
456595	5965852 11U	VR63687A	STRM	NC	20.0
459150	5969910 11U	VR63775A	STRM	NC	20.0
462409	5967757 11U	VR63803A	STRM	NC	20.0
455608	5965996 11U	VR63812A	STRM	NC	20.0
459310	5971100 11U	VR63854A	ESKR	NC	20.0
472012	5966657 11U	VR63520A	STRM	NC	20.0
467093	5965395 11U	VR63574A	STRM	NC	20.0
468825	5966270 11U	VR63576A	STRM	NC	20.0
472100	5963075 11U	VR63710A	STRM	NC	20.0
462350	5960775 11U	VR63552A	STRM	NC	20.0
457675	5957250 11U	VR63577A	STRM	NC	20.0
452788	5953775 11U	VR63634A	STRM	NC	20.0
458600	5960425 11U	VR63667A	STRM	NC	20.0
460400	5952625 11U	VR63708A	STRM	NC	20.0
455195	5956408 11U	VR63740A	STRM	NC	20.0
456530	5958450 11U	VR63742A	STRM	NC	20.0
464875	5953600 11U	VR63579A	STRM	NC	20.0
466874	5954749 11U	VR63581A	STRM	NC	20.0
471310	5954550 11U	VR63590A	STRM	NC	20.0
472250	5955000 11U	VR63598A	STRM	NC	20.0
465000	5946000 11U	VR63553A	STRM	NC	20.0
472365	5950350 11U	VR63587A	STRM	NC	20.0
465050	5941900 11U	VR63601A	STRM	NC	20.0

464350	5951075 11U	VR63652A	STRM	NC	20.0
465100	5948750 11U	VR63654A	STRM	NC	20.0
466240	5948315 11U	VR63701A	STRM	NC	20.0
465950	5948700 11U	VR63703A	STRM	NC	20.0
473150	5943423 11U	VR63750A	STRM	NC	20.0
473115	5943180 11U	VR63761A	STRM	NC	20.0
473570	5949450 11U	VR63662A	STRM	NC	20.0
463945	5982659 11U	VR63514A	STRM	NC	20.0
462140	5986760 11U	VR63675A	STRM	NC	20.0
461287	5968147 11U	VR63777A	STRM	NC	20
466582	5947681 11U	VR63706A	STRM	NC	20.0
452047	5952099 11U	VR63632A	STRM	NC	20.0
466400	5940450 11U	VR63584A	STRM	NC	20.0
465433	5961751 11U	VR63783A	STRM	NC	20.0
458575	5967750 11U	NC01	STRM	NC	
458400	5968550 11U	NC02	STRM	NC	
459700	5969550 11U	NC03	STRM	NC	
459675	5968450 11U	NC04	STRM	NC	
458525	5966925 11U	NC05	STRM	NC	
457850	5968750 11U	NC06	STRM	NC	
457375	5968900 11U	NC07	STRM	NC	
456575	5969250 11U	NC08	STRM	NC	
455400	5969100 11U	NC09	STRM	NC	
458975	5968025 11U	NC10	STRM	NC	
458100	5968950 11U	NC11	STRM	NC	
458150	5969050 11U	NC12	STRM	NC	
441675	5980100 11U	BR43	STRM	NC	
451950	5980700 11U	BR24	STRM	NC	
461600	5976000 11U	BR41	STRM	NC	

APPENDIX VI

MICROSCOPE EXAMINATION RESULTS

NEW CLAYMORE RESOURCES LTD

16 August 1995

LORING LABS
David Ko:

1995- samples

	chromite	garnet	olivine	clinopyroxene
NC01	6	1	2	1
NC02	22	2	3	
NC03	11	0	2	
NC04	7	1	1	
NC05	36	1	2	2
NC06	20	0	1	1
NC07	14	1	0	0
NC08	16	0	0	0
NC09	15	2	0	0
NC10	9	0	0	0
NC12		not yet available		
ZZ64	6	0	0	
ZZ65	7	0	0	

CRA Exploration Pty. Limited
Incorporated in New South Wales ACN 000 057125
37 Belmont Avenue, Belmont 6104, Western Australia

Telephone (09) 2709 222
Direct (09) 2709 313
FAX (09) 2709 223
Direct FAX (09) 2709 225

MINERAL LABORATORY

TO Kennecott Canada Inc. #354-200 Granville Street, Vancouver, B.C.	**FROM** CRA Exploration 37 Belmont Avenue Belmont Perth Western Australia 6104
ATTENTION Buddy Doyle	**CONTACT** Hans Lucas
PHONE 0011 1 604 669 1880	PHONE 09 270 9313
FAX NO 0015 1 604 669 5255	**FAX NO 09 270 9225**

Date: 4 March 1997

STRICTLY CONFIDENTIAL

SUBJECT: REPORT FOR WEEK 8 - CANADA

Dear Buddy,

Enclosed is the weekly report for week 8 .

Yours sincerely

[redacted]

Hans Lucas.

INDICATOR MINERAL LABORATORY WEEKLY REPORT

CANADA

DISTRIBUTION LIST : B. DOYLE

FROM : H. LUCAS

REPORT TYPE: (1) INDICATOR MINERAL RESULTS
(2) OTHER MINERALS

LEGEND

SAMPLE TYPE

G	- Drainage
L	- Loam
R	- Rock
JE	- Jig Eye
HMC	- Panned Concentrate
AU	- Auger Drill
RT	- Rotary Drill
D	- Diamond Drill
MS	- Mineral sands

OTHER MINERALS ABUNDANCE

P - Prevalent + 50%
A - Abundant 20-50%
C - Common 10-20%
S - Some 3-10%
O - Often 1-3%
F - Few 0.1-1%
R - Rare 2-10 grains
T - Trace 1 grain

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 12-MAY-97 TO 16-MAY-97

**STATE : OS **
RUN ON : 16-MAY-1997 15:44:24

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS	
52294	60-511-3	CANADA	VR63518A	G	0.25	15.0	0.001	*CHROMITE	350 x +0.25
								WEAR : FRESH WORN	
								SHAPE : SUBHEDRAL	EUHEDRAL
								SURFACE : FROSTED	
								LUSTRE : MATTE	
								TEXTURE : VITREOUS/COMPACT	
								STREAK : NOT STREAKABLE	
70 chromite picked out then estimated.									
52294	60-511-3	CANADA	VR63605A	G	0.25	15.2	0.004	*CHROMITE	147 x +0.25
								WEAR : FRESH WORN	
								SHAPE : ANHEDRAL	SUBHEDRAL
								: EUHEDRAL	
								SURFACE : FROSTED	SMOOTH
								LUSTRE : SHINY	MATTE
								TEXTURE : WITH SKIN	VITREOUS/COMPACT
52294	60-511-3	CANADA	VR63703A	G	0.25	16.4	0.003	*CHROMITE	130 x +0.25
								WEAR : FRESH WORN	FRESH
								: VERY FRESH	
								SHAPE : ROUND	SUBHEDRAL
								: EUHEDRAL	
								SURFACE : FROSTED	PITTED
								: SMOOTH	
								LUSTRE : MATTE	
								: GLOSSY	
								TEXTURE : VITREOUS/COMPACT	
GOLD-Flake. Chromites estimated.(Picked 65.)									

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 12-MAY-97 TO 16-MAY-97

**STATE : OS **
RUN ON : 16-MAY-1997 15:44:24

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63753A	G	0.25	14.0	0.001	*CHROMITE	4 x +0.4 160 x +0.25

WEAR	: FRESH WORN	
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	INDENTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Chromite nos. estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63799A	G	0.25	17.7	0.002	*CHROMITE	1 x +0.4 360 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
TEXTURE	: VITREOUS/COMPACT	

4 grains gold - flakey. Chromite estimated

OTHER MINERALS

**STATE : OS **
PERIOD 12-MAY-97 TO 16-MAY-97

**STATE : OS **
RUN ON : 16-MAY-1997 16:06:15

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63518A	G	KI	F :EPIDOTE	F :GARNET	O :LEUCOXENE
						R :PYRITE	F :SPHENE	O :TOURMALINE
						P :ROCK FRAGMENTS	F :CHROMITE	F :CHLOROTOID
70 chromite picked out than estimated.								
52294	60-511-3	CANADA	VR63605A	G	KI	F :CORUNDUM	S :GARNET	F :ILMENITE
						F :KYANITE	F :LEUCOXENE	F :LIMONITE
						T :ORTHOPYROXENE	F :RUTILE	F :ZIRCON
						P :ROCK FRAGMENTS	T :ANDRADITE	F :CHROMITE
						S :CHLOROTOID	F :ALLANITE	

OTHER MINERALS

**STATE : OS **
PERIOD 12-MAY-97 TO 16-MAY-97

**STATE : OS **
RUN ON : 16-MAY-1997 16:06:15

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63703A	G	KI	F :AMPHIBOLE	F :ANATASE	F :BARITE
						F :CLINOPYROXENE	F :CORUNDUM	F :EPIDOTE
						O :GARNET	T :GOLD	F :HEMATITE
						F :ILMENITE	F :KYANITE	C :LEUCOXENE
						F :ORTHOPYROXENE	R :PYRITE	F :RUTILE
						F :SPHENE	F :STAUROLITE	F :TOURMALINE
						F :ZIRCON	P :ROCK FRAGMENTS	O :SOIL PHOSPHATES
						F :CHROMITE	O :CHLOROTOID	R :SPHALERITE
GOLD-Flake. Chromites estimated.(Picked 65.)						F :ALLANITE		
52294	60-511-3	CANADA	VR63753A	G	KI	F :CORUNDUM	F :EPIDOTE	S :GARNET
						O :ILMENITE	F :KYANITE	O :LEUCOXENE
						F :RUTILE	F :STAUROLITE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	S :CHLOROTOID
						R :SPHALERITE	F :ALLANITE	
Chromite nos. estimated.								
52294	60-511-3	CANADA	VR63799A	G	KI	F :CORUNDUM	F :EPIDOTE	S :GARNET
						R :GOLD	O :ILMENITE	F :KYANITE
						O :LEUCOXENE	F :RUTILE	F :SPHENE
						F :STAUROLITE	F :ZIRCON	P :ROCK FRAGMENTS
						O :CHROMITE	S :CHLOROTOID	F :ALLANITE
4 grains gold - flakey. Chromite estimated.								

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:27:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63617A	G	0.25	13.8	0.004	*CHROMITE	1 x +0.4 ~480 x +0.25

WEAR	: FRESH WORN	
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

+0.25 fraction of non mag processed thru' microfusion. Chromite no
s. estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:27:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63552A	G	0.25	15.2	0.002	*CHROMITE 29 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BLOCKY	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: PITTED	SMOOTH
LUSTRE	: MATTE	GLOSSY

OTHER MINERALS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:17:48

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* Indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63552A	G	KI	F :AMPHIBOLE	F :ANATASE	R :ANDALUSITE
						R :CASSITERITE	R :EPIDOTE	F :GARNET
						F :HEMATITE	F :ILMENITE	R :KYANITE
						F :LEUCOXENE	F :MICA	T :MONAZITE
						F :MUSCOVITE	F :SILLIMANITE	F :SPINEL
						F :STAUROLITE	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID		
52294	60-511-3	CANADA	VR63617A	G	KI	F :EPIDOTE	O :GARNET	S :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :LIMONITE
						F :RUTILE	F :SILLIMANITE	R :SPHENE
						F :STAUROLITE	F :TOURMALINE	P :ROCK FRAGMENTS
						O :CHROMITE	S :CHLOROTOID	

+0.25 fraction of non mag processed thru' microfusion. Chromite no
s. estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:27:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63708 A	G	0.25	19.6	0.014	*CHROMITE	2 x +0.4 -96 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
	: SATIN SHEEN	
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Chromites estimated. 0.25 Non Mag fraction (wt 5.7) sent for MD.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:27:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECO	OBS	RESULTS
52294	60-511-3	CANADA	VR63789	G	0.25	15.3	0.005	*CHROMITE 5 x +0.4 ~361 x +0.25

WEAR : FRESH WORN
SHAPE : IRREGULAR ANHEDRAL
SURFACE : CHIPPED FROSTED
LUSIRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

*PYROPE 1 x +0.25 10 - GARNET GROUP

COLOUR : PURPLE

Olivine Mg:Fe 83.5%
Chromite estimated in 0.25mm, 130 picked out.

OTHER MINERALS

**STATE : OS **
PERIOD 5-MAY-97 TO 9-MAY-97

**STATE : OS **
RUN ON : 12-MAY-1997 15:17:48

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63708	G	KI	O :AMPHIBOLE	F :ANATASE	F :CORUNDUM
						F :EPIDOTE	O :GARNET	O :HEMATITE
						C :ILMENITE	F :KYANITE	O :LEUCOXENE
						O :LIMONITE	F :MONAZITE	F :MUSCOVITE
						F :RUTILE	F :SPHENE	F :STAUROLITE
						O :TOURMALINE	F :ZIRCON	P :ROCK FRAGMENTS
						F :SOIL PHOSPHATES	F :CHROMITE	O :CHLOROTOID

Chromites estimated. 0.25 Non Mag fraction (wt 5.7)sent for MO.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63789	G	KI	S :AMPHIBOLE	R :ANDALUSITE	R :CLINOPYROXENE
						R :CORUNDUM	F :EPIDOTE	F :GARNET
						R :ILMENITE	F :KYANITE	F :LEUCOXENE
						F :LIMONITE	T :OLIVINE	R :ORTHOPYROXENE
						R :RUTILE	R :SILLIMANITE	R :SPINEL
						F :TOURMALINE	R :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	T :SPHALERITE

Olivine Mg:Fe 83.5%
Chromite estimated in 0.25mm, 130 picked out.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:45:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSIO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63520A	G	0.25	14.8	0.004	*CHROMITE 150 x +0.25

WEAR	: FRESH WORN	
SHAPE	: SUBHEDRAL	EUHEDRAL
SURFACE	: ROUGH	SMOOTH
LUSTRE	: SHINY	MATTE

50 chromite picked out then estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSIO	RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63530A	G	0.25	16.2	0.005	*CHROMITE 4 x +0.4 72 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: PITTED	SMOOTH
LUSTRE	: SHINY	MATTE
	: SATIN SHEEN	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: BROWN	

0.25 Non Mag fraction sent for Micro Fusion . (wt 4.3g).

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:45:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63579 A	G	0.25	17.8	0.003	*CHROMITE	1 x +0.4 ~128 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
LUSTRE	: MATTE	SATIN SHEEN
	: GLOSSY	
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Chromites estimated.

52294	60-511-3	CANADA	VR63606 A	G	0.25	18.4	0.002	*CHROMITE	296 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
	: SATIN SHEEN	
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Chromite nos. estimated. Gold - flakey.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:45:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63628A	G	0.25	13.6	0.006	*CHROMITE	1 x +0.4 68 x +0.25

WEAR	: FRESH WORN	
SHAPE	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:45:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63690A	G	0.25	13.1	0.003	*CHROMITE ~124 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Chromites estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63812A	G	0.25	12.1	0.001	*CHROMITE 20 x +0.25

WEAR	: FRESH WORN	
SHAPE	: IRREGULAR	ANHEDRAL
	: SUBHEDRAL	
SURFACE	: FROSTED	
LUSTRE	: MATTE	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: NOT STREAKABLE	

OTHER MINERALS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:48:36

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63520A	G	KI	F :AMPHIBOLE	O :BARITE	F :EPIDOTE
						O :GARNET	F :ILMENITE	R :KYANITE
						O :LEUCOXENE	F :MONAZITE	F :SPHENE
						F :STAUROLITE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	F :COLLOPHANE
						F :CARBONATE	R :GAHNITE	F :ALLANITE

50 chromite picked out then estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63530A	G	KI	S :AMPHIBOLE	F :ANATASE	F :CORUNDUM
						? :EPIDOTE	O :GARNET	F :HEMATITE
						F :ILMENITE	F :KYANITE	S :LEUCOXENE
						O :LIMONITE	R :MONAZITE	O :MUSCOVITE
						O :RUTILE	S :SILLIMANITE	F :SPHENE
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	O :CHLOROTOID
						R :SPHALERITE		

0.25 Non Mag fraction sent for Micro Fusion . (Wt 4.3g).

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63579A	G	KI	F :ANATASE	R :CLINOPYROXENE	F :CORUNDUM
						F :EPIDOTE	O :GARNET	O :HEMATITE
						F :ILMENITE	R :KYANITE	C :LEUCOXENE
						S :LIMONITE	F :MUSCOVITE	F :RUTILE
						F :SPHENE	O :STAUROLITE	F :TOURMALINE
						O :ZIRCON	P :ROCK FRAGMENTS	F :SOIL PHOSPHATES
						F :CHROMITE	O :CHLOROTOID	R :SPHALERITE
						R :ALLANITE		

Chromites estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:48:36

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63606A	G	KI	F :ANATASE	R :CORUNDUM	F :EPIDOTE
						O :GARNET	T :GOLD	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	O :LIMONITE
						F :RUTILE	F :SILLIMANITE	F :TOURMALINE
						F :ZIRCON	P :ROCK FRAGMENTS	R :SOIL PHOSPHATES
						O :CHROMITE	O :CHLOROTOID	F :ALLANITE
						T :DUMORTIERITE		

Chromite nos. estimated. Gold - flakey.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63628A	G	KI	O :AMPHIBOLE	R :ANDALUSITE	F :APATITE
						F :CLINOPYROXENE	S :GARNET	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :LIMONITE
						F :ORTHOPYROXENE	F :RUTILE	F :SILLIMANITE
						F :SPHENE	R :SPINEL	F :STAUROLITE
						O :TOURMALINE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	S :CHLOROTOID	

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63690A	G	KI	F :AMPHIBOLE	O :ANATASE	F :BARITE
						R :BIOTITE	F :CORUNDUM	O :EPIDOTE
						F :GARNET	O :HEMATITE	F :ILMENITE
						C :LEUCOXENE	O :LIMONITE	R :MONAZITE
						F :RUTILE	R :STAUROLITE	O :TOURMALINE
						F :ZIRCON	P :ROCK FRAGMENTS	O :SOIL PHOSPHATES
						F :CHROMITE	S :CHLOROTOID	R :SPHALERITE
						R :ALLANITE		

Chromites estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 28-APR-97 TO 2-MAY-97

**STATE : OS **
RUN ON : 6-MAY-1997 09:48:36

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63812A	G	KI	R :EPIDOTE	I :GARNET	F :ILMENITE
						F :PYRITE	R :STAUROLITE	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 24-MAR-97 TO 27-MAR-97

**STATE : OS **
RUN ON : 27-MAR-1997 14:45:36

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63669	G	0.25	13.2	0.003	*CHROMITE 800 x +0.25

WEAR	: WORN	FRESH WORN
SHAPE	: BEVELED EDGES	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: CHIPPED	FROSTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
	: DULL	

50 chromites picked out then estimated. They have interesting morphology.

OTHER MINERALS

*STATE : OS **
ERIOD 24-MAR-97 TO 27-MAR-97

**STATE : OS **
RUN ON : 27-MAR-1997 14:52:02

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS	(* indicates Rare Mineral not in Database)	
52294	60-511-3	CANADA	VR63669	G	KI	F :ANATASE	F :EPIDOTE	O :GARNET
						C :ILMENITE	F :KYANITE	C :LEUCOXENE
						O :LIMONITE	F :ORTHOPYROXENE	F :RUTILE
						F :SPHENE	F :STAUROLITE	R :TOPAZ
						F :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID	F :CARBONATE	F :ALLANITE

50 chromites picked out then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:30:32

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63577	G	0.25	15.7	0.004	*CHROMITE	34 x +0.25	
								WEAR : FRESH WORN		FRESH
								SHAPE : SUBHEDRAL		EUHEDRAL
								SURFACE : FROSTED		ROUGH
								: SMOOTH		
								LUSTRE : SHINY		MATTE
52294	60-511-3	CANADA	VR63616	G	0.25	14.8	0.001	*PYROPE	1 x +0.25	3 - GARNET GROUP
								COLOUR : ORANGE PINK		
								*CHROMITE	51 x +0.25	
								WEAR : FRESH WORN		
								SHAPE : ANHEDRAL		SUBHEDRAL
								: EUHEDRAL		
								SURFACE : FROSTED		
								LUSTRE : MATTE		
								TEXTURE : VITREOUS/COMPACT		

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:30:32

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS-- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63654	G	0.25	18.1	0.002	*CHROMITE	85 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	EUHEDRAL
								SURFACE	: FROSTED	
								LUSTRE	: MATTE	VITREOUS
								TEXTURE	: VITREOUS/COMPACT	
								STREAK	: NOT STREAKABLE	
52294	60-511-3	CANADA	VR63662	G	0.25	14.9	0.004	*PYROPE	1 x +0.25	9 - GARNET GROUP
								COLOUR	: WINE RED	
								*CHROMITE	150 x +0.25	
								WEAR	: FRESH WORN	FRESH
								SHAPE	: SUBHEDRAL	EUHEDRAL
								SURFACE	: CHIPPED	FROSTED
									: ROUGH	SMOOTH
								LUSTRE	: SHINY	MATTE
50 Chromite picked from 0.25mm, then total estimated. Cu minerals = chalcopyrite.										
52294	60-511-3	CANADA	VR63667	G	0.25	13.1	0.002	*CHROMITE	93 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	EUHEDRAL
								SURFACE	: FROSTED	ROUGH
									: PITTED	SMOOTH
								LUSTRE	: SHINY	DULL
52294	60-511-3	CANADA	VR63685	G	0.25	13.8	0.004	*CHROMITE	1 x +0.4 200 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	EUHEDRAL
								SURFACE	: FROSTED	ROUGH
									: SMOOTH	
								LUSTRE	: SHINY	MATTE

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:30:32

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63710	G	0.25	17.9	0.004	*CHROMITE	-136 x +0.25	
								WEAR	: FRESH WORN	FRESH
								SHAPE	: ROUND	ANHEDRAL
									: EUHEDRAL	
								SURFACE	: FROSTED	PITTED
									: SMOOTH	
								LUSTRE	: MATTE	GLOSSY
								TEXTURE	: VITREOUS/COMPACT	With Skin
Chromites estimated.Picked 78 from 1/2 of 0.25 Mag fraction.										
52294	60-511-3	CANADA	VR63742	G	0.25	17.6	0.004	*CHROMITE	-130 x +0.25	
								WEAR	: FRESH WORN	FRESH
								SHAPE	: ROUND	ANHEDRAL
									: EUHEDRAL	
								SURFACE	: FROSTED	PITTED
									: SMOOTH	
								LUSTRE	: SHINY	MATTE
								TEXTURE	: VITREOUS/COMPACT	
Non Mag sent for Micro Fusion (wt 2.1).Chromites estimated.Picked 65 from 1/2.)										

OTHER MINERALS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:35:25

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63577	G	KI	F :ANATASE	O :BARITE	R :CASSITERITE
						F :CLINOZOISITE	F :CORUNDUM	? :EPIDOTE
						F :GARNET	F :ILMENITE	F :KYANITE
						S :LEUCOXENE	F :MARTITE	R :ORTHOPYROXENE
						F :RUTILE	F :SPHENE	F :STAUROLITE
						F :TOPAZ	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHLOROTOID	R :COLLOPHANE	F :CARBONATE
						F :ALLANITE		

OTHER MINERALS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:35:25

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63616	G	KI	F :EPIDOTE O :LEUCOXENE F :ZIRCON F :CHLOROTOID	S :GARNET O :LIMONITE P :ROCK FRAGMENTS	F :ILMENITE F :RUTILE F :CHROMITE
52294	60-511-3	CANADA	VR63654	G	KI	O :EPIDOTE F :LIMONITE R :STAUROLITE F :CHLOROTOID	F :GARNET F :MICA P :ROCK FRAGMENTS	F :ILMENITE R :SPINEL F :CHROMITE
52294	60-511-3	CANADA	VR63662	G	KI	R :ANATASE F :EPIDOTE F :KYANITE F :RUTILE F :ZIRCON F :CHLOROTOID F :ALLANITE	O :BARITE F :GARNET O :LEUCOXENE F :SPHENE P :ROCK FRAGMENTS F :CARBONATE T :*UVAROVITE	R :CU-MINERALS F :ILMENITE F :LIMONITE F :STAUROLITE F :CHROMITE R :SPHALERITE
52294	60-511-3	CANADA	VR63667	G	KI	R :CLINOZOISITE F :ILMENITE F :LIMONITE F :SPHENE R :TOURMALINE F :CHROMITE R :SPHALERITE	F :EPIDOTE F :KYANITE R :PYRITE F :STAUROLITE F :ZIRCON F :CHLOROTOID F :ALLANITE	F :GARNET O :LEUCOXENE F :RUTILE F :TOPAZ P :ROCK FRAGMENTS F :CARBONATE
52294	60-511-3	CANADA	VR63685	G	KI	R :AMPHIBOLE F :EPIDOTE O :ILMENITE O :LIMONITE T :SPHENE F :ZIRCON F :CHLOROTOID	R :ANATASE O :GARNET R :KYANITE F :ORTHOPYROXENE R :SPINEL P :ROCK FRAGMENTS R :SPHALERITE	F :BARITE T :GOLD O :LEUCOXENE F :RUTILE R :TOPAZ F :CHROMITE
52294	60-511-3	CANADA	VR63710	G	KI	S :AMPHIBOLE R :CLINOPYROXENE F :EPIDOTE O :ILMENITE F :LIMONITE F :SPHENE F :ZIRCON F :CHROMITE F :ALLANITE	O :ANATASE F :CLINOZOISITE F :GARNET F :KYANITE F :RUTILE F :STAUROLITE P :ROCK FRAGMENTS F :CHLOROTOID	O :ANDALUSITE F :CORUNDUM F :HEMATITE C :LEUCOXENE F :SILLIMANITE O :TOURMALINE F :SOIL PHOSPHATES R :SPHALERITE

50 Chromite picked from 0.25mm, then total estimated.
Cu minerals = chalcopyrite.

Chromites estimated.Picked 78 from 1/2 of 0.25 Mag fraction.

OTHER MINERALS

**STATE : OS **
PERIOD 19-MAY-97 TO 23-MAY-97

**STATE : OS **
RUN ON : 26-MAY-1997 10:35:25

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63742	G	KI	F :AMPHIBOLE	F :ANATASE	R :CLINOPYROXENE
						F :CLINOZOISITE	F :CORUNDUM	F :EPIDOTE
						F :GARNET	F :HEMATITE	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	O :LIMONITE
						R :MONAZITE	R :ORTHOPYROXENE	F :RUTILE
						F :SILLIMANITE	F :SPHENE	F :STAUROLITE
						F :TOURMALINE	F :ZIRCON	P :ROCK FRAGMENTS
						F :SOIL PHOSPHATES	F :CHROMITE	O :CHLOROTOID
						F :ALLANITE		

Non Mag sent for Micro Fusion (wt 2.1).Chromites estimated.Picked 65 from 1/2.)

CRA REPORT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 14-APR-97 TO 18-APR-97

**STATE : OS **
RUN ON : 22-APR-1997 15:43:53

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63507	G	0.25	13.1	0.002	*PYROPE 1 x +0.25

COLOUR : ORANGE Cr 3.4

*CHROMITE 2 x +0.4
~360 x +0.25

WEAR	: FRESH	FRESH WORN
SHAPE	: EUHEDRAL	SUBHEDRAL
	: ANHEDRAL	BEVELED EDGES
SURFACE	: SMOOTH	FROSTED
LUSTRE	: MATTE	SHINY
TEXTURE	: VITREOUS/COMPACT	WITH SKIN

Gold (2) flaky. Chromites estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63576	G	0.25	15.5	0.004	*CHROMITE 3 x +0.4 ~130 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	
LUSTRE	: SHINY	MATTE
STREAK	: BROWN	

*PYROPE 2 x +0.25 GR-3, - GARNET GROUP

Chromites estimated.

COLOUR : ORANGE

OTHER MINERALS

**STATE : OS **
PERIOD 14-APR-97 TO 18-APR-97

**STATE : OS **
RUN ON : 22-APR-1997 15:56:46

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63507A	G	KI	F :AMPHIBOLE	O :ANATASE	F :CORUNDUM
						F :EPIDOTE	O :GARNET	R :GOLD
						F :HEMATITE	S :ILMENITE	F :KYANITE
						A :LEUCOXENE	S :LIMONITE	R :MONAZITE
						R :ORTHOPYROXENE	F :RUTILE	R :SPINEL
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						A :ROCK FRAGMENTS	F :SOIL PHOSPHATES	F :CHROMITE
						O :CHLOROTOID	R :SPHALERITE	T :*UVAROVITE
Gold (2) flaky. Chromites estimated.								
52294	60-511-3	CANADA	VR63576A	G	KI	O :AMPHIBOLE	C :ANATASE	F :CLINOPYROXENE
						F :CORUNDUM	F :EPIDOTE	O :GARNET
						F :HEMATITE	F :ILMENITE	F :KYANITE
						A :LEUCOXENE	F :LIMONITE	F :MONAZITE
						F :MUSCOVITE	F :ORTHOPYROXENE	F :RUTILE
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						A :ROCK FRAGMENTS	O :SOIL PHOSPHATES	F :CHROMITE
						F :CHLOROTOID		

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 10-MAR-97 TO 14-MAR-97

**STATE : OS **
RUN ON : 14-MAR-1997 15:12:16

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63810 A	G	0.25	14.1	0.001	*CHROMITE	-4 x +0.25

WEAR	: FRESH	FRESH WORN
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	SATIN SHEEN
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

OTHER MINERALS

**STATE : OS **
PERIOD 10-MAR-97 TO 14-MAR-97

**STATE : OS **
RUN ON : 14-MAR-1997 15:25:28

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63528A	G	KI	R :ANATASE	C :BARITE	S :EPIDOTE
						C :GARNET	NG→ R :GOLD	C :ILMENITE
						O :LEUCOXENE	O :LIMONITE	F :ORTHOPYROXENE
						F :RUTILE	F :SPHENE	F :STAUROLITE
						R :TOPAZ	F :TOURMALINE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	F :CHLOROTOID
						F :COLLOPHANE	F :ALLANITE	
50 chromite picked out of 0.25mm, then estimated.								
52294	60-511-3	CANADA	VR63810A	G	KI	F :AMPHIBOLE	C :ANATASE	R :CORUNDUM
						F :EPIDOTE	I :GARNET	F :HEMATITE
						F :ILMENITE	F :KYANITE	S :LEUCOXENE
						C :LIMONITE	R :ORTHOPYROXENE	F :RUTILE
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						P :ROCK FRAGMENTS	O :SOIL PHOSPHATES	F :CHROMITE
						F :CHLOROTOID		

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 23-DEC-96 TO 10-JAN-97

**STATE : OS **
RUN ON : 13-JAN-1997 15:32:25

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS	
52294	60-511-3	CANADA	VR63512A	G	0.25	6.2	0.000	*CHROMITE	1 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	
								LUSTRE	: SHINY	VITREOUS
								STREAK	: BROWN	
52294	60-511-3	CANADA	VR63677A	G	0.25	15.5	0.001	*CHROMITE	2 x +0.4 160 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	EUHEDRAL
								SURFACE	: FROSTED	
								LUSTRE	: SHINY	
								TEXTURE	: WITH SKIN	VITREOUS/COMPACT
								STREAK	: BROWN	

Picked 80 Chromites from 0.25 fraction and estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 23-DEC-96 TO 10-JAN-97

**STATE : OS **
RUN ON : 10-JAN-1997 15:23:31

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63512A	G	KI	F :ANATASE	R :CORUNDUM	F :GARNET
						F :HEMATITE	R :ILMENITE	F :KYANITE
						F :LEUCOXENE	F :LIMONITE	F :RUTILE
						R :STAUROLITE	R :ZIRCON	P :ROCK FRAGMENTS
						T :CHROMITE	F :CHLOROTOID	
52294	60-511-3	CANADA	VR63677A	G	KI	F :ANATASE	R :CORUNDUM	F :EPIDOTE
						O :GARNET	F :HEMATITE	F :ILMENITE
						A :LEUCOXENE	F :LIMONITE	R :MONAZITE
						F :RUTILE	F :STAUROLITE	P :TOPAZ
						S :TOURMALINE	F :ZIRCON	A :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	R :GAHNITE

Picked 80 Chromites from 0.25 fraction and estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 24-FEB-97 TO 28-FEB-97

**STATE : OS **
RUN ON : 28-FEB-1997 15:17:05

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	WEIGHTS RECD	WEIGHTS OBS		RESULTS
52294	60-511-3	CANADA	VR63505A	G	0.25	16.2	0.007	*CHROMITE	1 x +0.4 82 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: PITTED	FROSTED
LUSTRE	: SHINY	MATTE
	: SATIN SHEEN	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: BROWN	

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	WEIGHTS RECD	WEIGHTS OBS		RESULTS
52294	60-511-3	CANADA	VR63561A	G	0.25	16.3	0.003	*CHROMITE	110 x +0.25

WEAR	: FRESH WORN	
SHAPE	: ANHEDRAL	SUBHEDRAL
SURFACE	: CHIPPED	ROUGH
LUSTRE	: SHINY	MATTE

50 chromite picked out than estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 24-FEB-97 TO 28-FEB-97

**STATE : OS **
RUN ON : 28-FEB-1997 15:22:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63505A	G	KI	F :AMPHIBOLE	F :ANATASE	R :CLINOPYROXENE
						R :CORUNDUM	F :EPIDOTE	O :GARNET
						R :GOLD	O :HEMATITE	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :LIMONITE
						R :MONAZITE	F :PYRITE	F :RUTILE
						F :SPHENE	O :STAUROLITE	F :TOURMALINE
						O :ZIRCON	P :ROCK FRAGMENTS	F :SOIL PHOSPHATES
						F :CHROMITE	O :CHLOROTOID	R :GAHNITE
						R :ALLANITE		
52294	60-511-3	CANADA	VR63561A	G	KI	R :ANATASE	F :EPIDOTE	A :GARNET
						C :ILMENITE	R :KYANITE	F :LEUCOXENE
						A :LIMONITE	F :RUTILE	R :SPHENE
						F :STAUROLITE	F :ZIRCON	C :ROCK FRAGMENTS
						F :CHROMITE	O :CHLOROTOID	

50 chromite picked out then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 4-MAR-97 TO 7-MAR-97

**STATE : OS **
RUN ON : 7-MAR-1997 16:38:48

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63803A	G	0.25	15.5	0.004	*CHROMITE	17 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	EUHEDRAL
SURFACE	: FROSTED	PITTED
LUSTRE	: SHINY	MATTE
TEXTURE	: VITREOUS/COMPACT	
STREAK	: BROWN	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 4-MAR-97 TO 7-MAR-97

**STATE : OS **
RUN ON : 7-MAR-1997 16:38:48

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS	
52294	60-511-3	CANADA	VR69999A	G	0.25	0.0	0.005	*PYROPE	1 x +0.25	3 - GARNET GROUP
								COLOUR	: ORANGE	
								*CHROMITE	1 x +0.4 150 x +0.25	
								WEAR	: FRESH WORN	
								SHAPE	: SUBHEDRAL	ANHEDRAL
								SURFACE	: FROSTED	

OTHER MINERALS

**STATE : OS **
PERIOD 4-MAR-97 TO 7-MAR-97

**STATE : OS **
RUN ON : 7-MAR-1997 16:43:10

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63803A	G	KI	F :ANATASE	F :CORUNDUM	F :EPIDOTE
						F :GARNET	F :ILMENITE	O :KYANITE
						A :LEUCOXENE	O :LIMONITE	R :MONAZITE
						O :RUTILE	F :SPHENE	F :STAUROLITE
						F :TOURMALINE	F :ZIRCON	A :ROCK FRAGMENTS
						O :SOIL PHOSPHATES	F :CHROMITE	F :CHLOROTOID
52294	60-511-3	CANADA	VR69999A	G	KI	R :ANATASE	R :CLINOZOISITE	F :EPIDOTE
						O :GARNET	R :GOLD	F :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :LIMONITE
						F :RUTILE	R :SPHENE	F :STAUROLITE
						F :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID	F :ALLANITE	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 1-APR-97 TO 4-APR-97

**STATE : OS **
RUN ON : 7-APR-1997 10:19:45

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63673A	G	0.25	13.3	0.001	*CHROMITE	60 x *0.25

WEAR	: FRESH WORN	
SHAPE	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	ROUGH
LUSTRE	: SHINY	MATTE

OTHER MINERALS

**STATE : OS **
PERIOD 1-APR-97 TO 4-APR-97

**STATE : OS **
RUN ON : 7-APR-1997 10:23:42

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63673	G	KI	F :ANATASE	A :BARITE	F :EPIDOTE
						S :GARNET	T :GOLD	S :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :RUTILE
						F :STAUROLITE	R :TOURMALINE	F :ZIRCON
						A :ROCK FRAGMENTS	F :CHROMITE	F :CHLOROTOID
						F :ALLANITE		

CRA REPORT

KIMBERLITIC INDICATORS

10/97

**STATE : OS **
PERIOD 10-MAR-97 TO 14-MAR-97

**STATE : OS **
RUN ON : 14-MAR-1997 15:12:16

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
S2294	60-511-3	CANADA	VR63528A	G	0.25	15.4	0.001	*CHROMITE	1 x +0.4 400 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: SUBHEDRAL	EUHEDRAL
SURFACE	: SCULPTURED	ROUGH
	: SMOOTH	
LUSTRE	: SHINY	DULL

50 chromite picked out of 0.25mm, then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 4-MAR-97 TO 7-MAR-97

**STATE : OS **
RUN ON : 7-MAR-1997 16:38:48

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63681A	G	0.25	12.2	0.002	*CHROMITE	1 x +0.4 ~21,6 x +0.25
								WEAR	: FRESH WORN — FRESH
								SHAPE	: ROUND — SUBHEDRAL
									: EUHEDRAL
								SURFACE	: FROSTED — PITTED
								LUSTRE	: MATTE
All the +0.25 fraction obsvd, but chromite numbers estimated from ¼.								STREAK	: BROWN
52294	60-511-3	CANADA	VR63691A	G	0.25	14.98	0.001	*CHROMITE	35 x +0.25
								WEAR	: FRESH WORN
								SHAPE	: SUBHEDRAL
								SURFACE	: FROSTED
								LUSTRE	: MATTE
								*PYROPE	2 x +0.25 — 3,9 - GARNET GROUP
								COLOUR	: PURPLE — ORANGE

OTHER MINERALS

**STATE : OS **
PERIOD 4-MAR-97 TO 7-MAR-97

**STATE : OS **
RUN ON : 7-MAR-1997 16:43:10

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63681A	G	KI	F :ANATASE	F :CORUNDUM	F :EPIDOTE
						O :GARNET	R :GOLD	F :HEMATITE
						F :ILMENITE	F :KYANITE	O :LEUCOXENE
						F :LIMONITE	R :MONAZITE	O :RUTILE
						R :SPHENE	F :STAUROLITE	O :TOURMALINE
						F :ZIRCON	P :ROCK FRAGMENTS	F :SOIL PHOSPHATES
						F :CHROMITE	F :CHLOROTOID	R :ALLANITE
Obs'd all the +0.25 mm fraction but chromite numbers estimated from 1/4.								
52294	60-511-3	CANADA	VR63691A	G	KI	F :EPIDOTE	F :GARNET	F :ILMENITE
						F :LEUCOXENE	F :RUTILE	R :SPHENE
						F :STAUROLITE	F :TOURMALINE	R :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	F :CHLOROTOID
						R :ALLANITE	R : Brassy sphene's (~Ce Fe N:)	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 21-APR-97 TO 25-APR-97

**STATE : OS **
RUN ON : 28-APR-1997 10:50:47

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63514A	G	0.25	15.0	0.008	*CHROMITE	3 x +0.4 220 x +0.25	
								WEAR	: FRESH	FRESH WORN
								SHAPE	: EUHEDRAL : BEVELED EDGES	ANHEDRAL
								SURFACE	: SMOOTH : ROUGH	PITTED
								LUSTRE	: SATIN SHEEN : SHINY	MATTE
								TEXTURE	: VITREOUS/COMPACT	WITH SKIN
								STREAK	: BROWN	
								*PICROILMENITE	1 x +0.4 1 x +0.25	5-9% % MgO
								SHAPE	: BLOCKY	
Chromites estimated.										
52294	60-511-3	CANADA	VR63679A	G	0.25	15.6	0.003	*CHROMITE	8 x +0.4 205 x +0.25	
								WEAR	: FRESH	
								SHAPE	: BEVELED EDGES : EUHEDRAL	ANHEDRAL
								SURFACE	: FROSTED : SMOOTH	PITTED
								LUSTRE	: MATTE : VITREOUS	SATIN SHEEN
								TEXTURE	: WITH SKIN	VITREOUS/COMPACT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 21-APR-97 TO 25-APR-97

**STATE : OS **
RUN ON : 28-APR-1997 10:50:47

DEO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS	
52294	60-511-3	CANADA	VR63750A	G	0.25	13.2	0.001	*CHROMITE	1 x +0.4 15 x +0.25	

WEAR : FRESH WORN
SHAPE : ANHEDRAL SUBHEDRAL
SURFACE : FROSTED INDENTED
LUSTRE : SHINY MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

1 green garnet - possibly uvarovite (11% Cr2O3).

DEO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	RECD	OBS		RESULTS	
52294	60-511-3	CANADA	VR63797A	G	0.25	16.1	0.003	*PYROPE	1 x +0.25	3 - GARNET GROUP

COLOUR : ORANGE PINK

*CHROMITE 2 x +0.4
410 x +0.25

WEAR : FRESH WORN
SHAPE : SUBHEDRAL
SURFACE : FROSTED INDENTED
: SMOOTH
LUSTRE : SHINY MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

1 green garnet, possible uvarovite.
7 grains of gold resembling cornflakes; 1 in 0.4mm and 6 in 0.25mm

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 21-APR-97 TO 25-APR-97

**STATE : OS **
RUN ON : 28-APR-1997 10:50:47

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63808A	G	0.25	14.2	0.002	*CHROMITE 1 x +0.4 180 x +0.25

WEAR : FRESH WORN
SHAPE : SUBHEDRAL EUHEDRAL
SURFACE : ROUGH SMOOTH
LUSTRE : SHINY

*PYROPE 1 x +0.4 9 - GARNET GROUP

COLOUR : PURPLE

Chromite number estimated in 0.25mm, 60 picked out.

OTHER MINERALS

**STATE : OS **
PERIOD 21-APR-97 TO 25-APR-97

**STATE : OS **
RUN ON : 28-APR-1997 11:01:26

OPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* Indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63514A	G	KI	C :AMPHIBOLE	F :ANATASE	R :CLINOPYROXENE
						F :CORUNDUM	F :EPIDOTE	C :GARNET
						F :HEMATITE	O :ILMENITE	F :KYANITE
						F :LIMONITE	F :MONAZITE	F :ORTHOPYROXENE
						O :RUTILE	F :SPINEL	F :STAUROLITE
						F :TOURMALINE	O :ZIRCON	P :ROCK FRAGMENTS
						F :SOIL PHOSPHATES	F :CHROMITE	F :CHLOROTOID
						R :GAHNITE	R :ALLANITE	
Chromites estimated.								
52294	60-511-3	CANADA	VR63679A	G	KI	F :ANATASE	F :CORUNDUM	R :EPIDOTE
						F :GARNET	O :HEMATITE	O :ILMENITE
						F :KYANITE	C :LEUCOXENE	S :LIMONITE
						F :MONAZITE	F :RUTILE	O :STAUROLITE
						F :TOURMALINE	O :ZIRCON	A :ROCK FRAGMENTS
						O :SOIL PHOSPHATES	F :CHROMITE	O :CHLOROTOID
						R :SPHALERITE	F :ALLANITE	
52294	60-511-3	CANADA	VR63750A	G	KI	R :ALMANDINE	R :EPIDOTE	R :GARNET
						R :ILMENITE	F :KYANITE	F :LEUCOXENE
						R :PYRITE	R :RUTILE	R :SPHENE
						R :STAUROLITE	R :ZIRCON	P :ROCK FRAGMENTS
						R :FLUORENCITE	F :CHROMITE	F :CHLOROTOID
						R :ALLANITE		
1 green garnet - possibly uvarovite (11% Cr2O3).								

OTHER MINERALS

**STATE : OS **
PERIOD 21-APR-97 TO 25-APR-97

**STATE : OS **
RUN ON : 28-APR-1997 11:01:26

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63797A	G	KI	F :ALMANDINE	R :ANATASE	R :EPIDOTE
						F :GARNET	R :GOLD	F :ILMENITE
						O :LEUCOXENE	F :LIMONITE	R :MUSCOVITE
						R :RUTILE	R :SPHENE	R :STAUROLITE
						F :TOURMALINE	R :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	R :ALLANITE

1 green garnet, possible uvarovite.
7 grains of gold resembling cornflakes; 1 in 0.4mm and 6 in 0.25mm

52294	60-511-3	CANADA	VR63808A	G	KI	R :ANATASE	F :BARITE	F :EPIDOTE
						S :GARNET	S :ILMENITE	F :LEUCOXENE
						F :LIMONITE	F :MONAZITE	? :RUTILE
						F :SPHENE	F :STAUROLITE	? :ZIRCON
						P :ROCK FRAGMENTS	R :ANDRADITE	F :CHROMITE
						O :CHLOROTOID	F :ALLANITE	

Chromite number estimated in 0.25mm, 60 picked out.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-MAR-97 TO 21-MAR-97

**STATE : OS **
RUN ON : 21-MAR-1997 15:40:40

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63501A	G	0.25	13.7	0.002	*CHROMITE 9 x +0.4 ~420 x +0.25

WEAR	: FRESH WORN : VERY FRESH	FRESH
SHAPE	: BEVELED EDGES : ANHEDRAL : EUHEDRAL	ROUND SUBHEDRAL
SURFACE	: FROSTED	PITTED
LUSTRE	: MATTE	SATIN SHEEN
TEXTURE	: WITH RIM	VITREOUS/COMPACT
*PYROPE	1 x +0.25	GR-9 - GARNET GROUP
COLOUR	: PINK	PURPLE

Observed all but estimated Chromite from 1/8 of 0.25 Chr. fraction

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63526A	G	0.25	13.4	0.002	*CHROMITE 4 x +0.4 280 x +0.25

WEAR	: FRESH WORN : VERY FRESH	FRESH
SHAPE	: ANHEDRAL : EUHEDRAL	SUBHEDRAL
SURFACE	: FROSTED : SMOOTH	PITTED
LUSTRE	: MATTE	SATIN SHEEN

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-MAR-97 TO 21-MAR-97

**STATE : OS **
RUN ON : 21-MAR-1997 15:40:40

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63574A	G	0.25	16.3	0.001	*PYROPE 1 x +0.25 9 of 11 - GARNET GROUP
								COLOUR : PURPLE
								*CHROMITE 55 x +0.25
								WEAR : FRESH WORN
								SHAPE : ANHEDRAL SUBHEDRAL
								SURFACE : ROUGH SMOOTH
								LUSTRE : SHINY MATTE
52294	60-511-3	CANADA	VR63683A	G	0.25	13.9	0.002	*CHROMITE 210 x +0.25
								WEAR : FRESH WORN
								SHAPE : ANHEDRAL SUBHEDRAL
								LUSTRE : MATTE
CU minerals = copper shavings								
52294	60-511-3	CANADA	VR63687A	G	0.25	13.4	0.002	*CHROMITE 48 x +0.25
								WEAR : FRESH WORN
								SHAPE : SUBHEDRAL
								SURFACE : FROSTED
								LUSTRE : MATTE

Mineral Laboratory Sample Report

Customer:	KENNECOTT CANADA EXPLORATION INC.	**DPO:**	**52294**
Project:	MONITELLO	**Sample Number:**	**VR63693A**
Mapsheet:	EDSON CN083F	**Sample Type:**	GRAVEL
AMG North:		**Samples completed on DPO:**	147 of 147
AMG East:		**Date Sample received:**	03/12/1996

Diamonds Recovered

Weight to caustic fusion: 0.00kg
Weight to peroxide fusion: 2.00g

Total diamonds recovered: Nil

Kimberlitic Indicators (Observed by: BP)

Weight to Observation:
Total Observed Weight: 3.80g

Grain size range (mm) Weight in Fraction (g) Observed Weight (g)	0.20 - 0.25 not obs. not obs.	0.25 - 0.40 not obs. 3.00	0.40 - 0.50 not obs. 0.80	0.50 - 0.80 not obs. not obs.	0.80 - 1.00 not obs. not obs.	>1.00 not obs. not obs.	Wear summary
CHROMITE		420	17				FRESH, FRESH WORN

Other Minerals

SOME (3-10%)	rock fragments
OFTEN (1-3%)	garnet, ilmenite, limonite, rutile
FEW (<1%)	allanite, amphibole, anatase, barite, chloritoid, chromite, corundum, epidote, hematite, leucoxene, soil phosphates, staurolite, tourmaline, zircon
RARE (2-10 gr.)	gold, spinel

Comment

Observed all but estimated Chromite for 1/3 of 0.25 Chr fraction.

OTHER MINERALS

**STATE : OS **
PERIOD 17-MAR-97 TO 21-MAR-97

**STATE : OS **
RUN ON : 21-MAR-1997 15:47:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63501A	G	KI	F :AMPHIBOLE	F :ANATASE	F :CORUNDUM
						F :EPIDOTE	F :GARNET	R :GOLD (Flakes - 6 (+0.25)
						F :HEMATITE	C :ILMENITE	S :LEUCOXENE
						S :LIMONITE	F :MUSCOVITE	F :RUTILE
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						:ROCK FRAGMENTS	F :SOIL PHOSPHATES	F :CHROMITE
						F :CHLOROTOID	F :ALLANITE	
Observed all but estimated Chromite from 1/8 of 0.25 Chr. fraction								
52294	60-511-3	CANADA	VR63526A	G	KI	R :ANATASE	O :BARITE	F :CASSITERITE
						F :CLINOZOISITE	F :EPIDOTE	O :GARNET
						R :GOLD (2 + 0.25 - flat)	O :ILMENITE	O :LEUCOXENE
						O :LIMONITE	R :PYRITE	F :RUTILE
						F :SPHENE	F :SPINEL	F :ZIRCON
						P :ROCK FRAGMENTS	T :CHRYSOBERYL	R :ANDRADITE
One Gold grain may be a hollow hemisphere.						F :CHROMITE	O :CHLOROTOID	F :ALLANITE
52294	60-511-3	CANADA	VR63574A	G	KI	F :AMPHIBOLE	R :ANATASE	F :CLINOPYROXENE
						F :EPIDOTE	F :GARNET	F :HEMATITE
						F :ILMENITE	S :LEUCOXENE	F :LIMONITE
						F :MONAZITE	F :ORTHOPYROXENE	F :RUTILE
						R :SILLIMANITE	F :SPHENE	R :SPINEL
						F :STAUROLITE	F :ZIRCON	P :ROCK FRAGMENTS
						R :ANDRADITE	F :CHROMITE	F :CHLOROTOID
						T :GAHNITE	F :ALLANITE	

OTHER MINERALS

**STATE : OS **
PERIOD 17-MAR-97 TO 21-MAR-97

**STATE : OS **
RUN ON : 21-MAR-1997 15:47:35

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63683A	G	KI	R :ANATASE	R :CU-MINERALS	R :EPIDOTE
						O :GARNET	R :GOLD (3 flakes 0.25)	F :ILMENITE
						R :KYANITE	O :LEUCOXENE	O :LIMONITE
						F :RUTILE	R :SPHENE	F :STAUROLITE
						F :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						O :CHLOROTOID	R :ALLANITE	
CU minerals = copper shavings								
52294	60-511-3	CANADA	VR63687A	G	KI	R :EPIDOTE	F :GARNET	F :ILMENITE
						R :KYANITE	O :LEUCOXENE	O :LIMONITE
						R :RUTILE	R :SPHENE	F :STAUROLITE
						F :TOURMALINE	R :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	
52294	60-511-3	CANADA	VR63693A	G	KI	F :AMPHIBOLE	F :ANATASE	F :BARITE
						F :EPIDOTE	O :GARNET	R :GOLD (6 flakes 0.25)
						F :HEMATITE	O :ILMENITE	F :LEUCOXENE
						O :LIMONITE	O :RUTILE	R :SPINEL
						F :STAUROLITE	F :TOURMALINE	F :ZIRCON
						S :ROCK FRAGMENTS	F :SOIL PHOSPHATES	F :CHROMITE
						F :CHLOROTOID	F :ALLANITE	F :CORUNDUM
Observed all but estimated Chromite from 1/3 of Chromite.								

KIMBERLITIC INDICATORS

**STATE : OB **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS	
52294	60-511-3	CANADA	VR63532	G	0.25.	15.1	0.001	*PYROPE	1 x +0.25	1 - GARNET GROUP

COLOUR : MAUVE

*CHROMITE 47 x +0.25

WEAR	: FRESH WORN	
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63553	G	0.25	18.8	0.004	*PYROPE	1 x +0.25	GR3 - GARNET GROUP

COLOUR : PINK

*CHROMITE 3 x +0.4
=150 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ROUND	ANHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Very fresh

0.25(wt 3.5)of Non Mag Fraction sent for Micro Fusion.Chromites estimated from 1/2.

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:50

OPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63532	G	KI	R :CLINOZOISITE	F :EPIDOTE	O :GARNET
						F :ILMENITE	F :KYANITE	F :LEUCOXENE
						F :LIMONITE	T :OLIVINE	F :RUTILE
						R :SPHENE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	O :CHLOROTOID	F :ALLANITE
52294	60-511-3	CANADA	VR63553	G	KI	F :AMPHIBOLE	O :ANATASE	F :ANDALUSITE
						R :CLINOPYROXENE	F :CLINOZOISITE	R :CORUNDUM
						R :EPIDOTE	F :GARNET	F :HEMATITE
						O :ILMENITE	F :KYANITE	C :LEUCOXENE
						F :LIMONITE	F :MUSCOVITE	R :ORTHOPYROXENE
						F :RUTILE	O :SILLIMANITE	F :SPHENE
						R :SPINEL	F :STAUROLITE	F :TOURMALINE
						F :ZIRCON	P :ROCK FRAGMENTS	O :SOIL PHOSPHATES
						F :CHROMITE	F :CHLOROTOID	F :ALLANITE

0.25(wt 3.5)of Non Mag Fraction sent for Micro Fusion.Chromites estimated from 1/2.

KIMBERLITIC INDICATORS

**STATE : ON **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : ON **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63581	G	0.25	16.5	0.010	*PICROILMENITE 1 x +0.4 6-11% % MgO #8 x +0.25
								*CHROMITE 9 x +0.4 #9600 x +0.25
								WEAR : FRESH SHAPE : ROUND ANHEDRAL : SUBHEDRAL EUHEDRAL SURFACE : FROSTED PITTED : SMOOTH LUSTRE : MATTE VITREOUS TEXTURE : WITH SKIN VITREOUS/COMPACT
								*PYROPE #19 x +0.25 G3,9 - GARNET GROUP
								COLOUR : PINK PURPLE COLOUR : ORANGE
								*DIAMOND 1 x +0.5
								Observed all .5,.4 Mag fraction;Observed all0.25 (wt 6.2g) Mag Pyr fraction and 1/4 of 0.25 Mag Chromite fraction (1.6g).Chromites, Pyrope and Picro estimated in the 0.25 mag fraction.
52294	60-511-3	CANADA	VR63587	G	0.25	18.0	0.006	*CHROMITE 3 x +0.4 #700 x +0.25
								WEAR : FRESH FRESH WORN SHAPE : EUHEDRAL SUBHEDRAL : ROUND SURFACE : SMOOTH PITTED : FROSTED LUSTRE : MATTE SHINY TEXTURE : VITREOUS/COMPACT
								Gold=Flake; Chromites estimated from 1/8 of 0.25 Mag fraction. Observed all.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS-- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63590	G	0.25	18.9	0.004	*CHROMITE 120 x +0.25

WEAR : FRESH WORN
SHAPE : SUBHEDRAL
SURFACE : FROSTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

Mica = fuchsite.

52291	60-511-3	CANADA	VR63598	G	0.25	19.4	0.008	*CHROMITE 2150 x +0.25

WEAR : FRESH WORN
SHAPE : IRREGULAR SUBHEDRAL
SURFACE : FROSTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

*PYROPE 6 x +0.25 3,4,9 - GARNET GROUP

COLOUR : ROSE PINK ORANGE

140 chromite picked out then estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:50

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS . (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63581	G	KI	F :AMPHIBOLE	F :ANATASE	F :ANDALUSITE
						R :CLINOPYROXENE	F :CLINOZOISITE	F :CORUNDUM
						F :EPIDOTE	S :GARNET	S :HEMATITE
						C :ILMENITE	R :KYANITE	S :LEUCOXENE
						F :LIMONITE	R :MONAZITE	R :ORTHOPYROXENE
						F :RUTILE	F :SPHENE	S :STAUROLITE
						F :TOURMALINE	F :ZIRCON	A :ROCK FRAGMENTS
						F :SOIL PHOSPHATES	F :CHROMITE	F :CHLOROTOID
						R :GAHNITE	R :SPHALERITE	F :ALLANITE

Observed all .5,.4 Mag fraction;Observed all0.25 (wt 6.2g) Mag Pyr fraction and 1/4 of 0.25 Mag Chromite fraction (1.6g).Chromites, Pyrope and Picro estimated in the 0.25 mag fraction.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS		
52294	60-511-3	CANADA	VR63587	G	KI	F :AMPHIBOLE	O :ANATASE	R :CLINOPYROXENE
						F :CORUNDUM	F :EPIDOTE	F :GARNET
						T :GOLD	F :HEMATITE	O :ILMENITE
						F :KYANITE	C :LEUCOXENE	F :LIMONITE
						R :MONAZITE	R :ORTHOPYROXENE	O :RUTILE
						S :SILLIMANITE	F :SPHENE	F :STAUROLITE
						F :TOURMALINE	F :ZIRCON	A :ROCK FRAGMENTS
						O :SOIL PHOSPHATES	F :CHROMITE	F :CHLOROTOID
						R :SPHALERITE	F :ALLANITE	

Gold-Flake; Chromites estimated from 1/8 of 0.25 Mag fraction. Observed all.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS		
52294	60-511-3	CANADA	VR63590	G	KI	R :CLINOZOISITE	F :GARNET	F :ILMENITE
						R :MICA	F :MUSCOVITE	R :PYRITE
						R :SPHENE	F :STAUROLITE	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	T :*UVAROVITE

Mica = fuchsite.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63601	G	0.25	19.0	0.004	*CHROMITE 104 x +0.25

WEAR	: FRESH WORN	
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH RIM	VITREOUS/COMPACT

Chromite nos. estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECO	OBS	RESULTS		
52294	60-511-3	CANADA	VR63619	G	0.25	15.2	0.002	*PYROPE	1 x +0.25	3 - GARNET GROUP
								COLOUR : PINK		
								*CHROMITE	270 x +0.25	
								WEAR : FRESH WORN		FRESH
								SHAPE : BEVELED EDGES		SUBHEDRAL
								: EUHEDRAL		
								SURFACE : FROSTED		SMOOTH
								LUSTRE : MATTE		SATIN SHEEN
								TEXTURE : WITH SKIN		VITREOUS/COMPACT
Non mag processed thru microfusion. Chromite nos. estimated. Chromite look interesting.										
52294	60-511-3	CANADA	VR63623	G	0.25	18.3	0.003	*CHROMITE	2 x +0.4 975 x +0.25	
								WEAR : FRESH WORN		
								SHAPE : IRREGULAR		SUBHEDRAL
								: EUHEDRAL		
								SURFACE : FROSTED		
								LUSTRE : MATTE		
								TEXTURE : VITREOUS/COMPACT		
								STREAK : NOT STREAKABLE		
								*PYROPE	2 x +0.25	9,9 - GARNET GROUP
								COLOUR : MAUVE		
100 chromite picked out than estimated.										
52294	60-511-3	CANADA	VR63634	G	0.25	18.0	0.004	*PYROPE	1 x +0.25	3 - GARNET GROUP
								COLOUR : ORANGE PINK		
								*CHROMITE	69 x -0.25	
								WEAR : FRESH WORN		FRESH
								SHAPE : SUBREDRAL		EUHEDRAL
								SURFACE : FROSTED		SMOOTH
								LUSTRE : MATTE		
								TEXTURE : WITH SKIN		VITREOUS/COMPACT
Non mag processed thru microfusion.										

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:16

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63652	G	0.25	17.3	0.004	*CHROMITE	88 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

2 grains gold - flakey.

52294	60-511-3	CANADA	VR63671	G	0.25	14.6	0.003	*CHROMITE	2 x +0.4 200 x +0.25

WEAR	: FRESH WORN	
SHAPE	: IRREGULAR	SUBHEDRAL
SURFACE	: FROSTED	
LUSTRE	: MATTE	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: NOT STREAKABLE	

100 chromite picked out thos estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63675	G	0.25	17.3	0.001	*CHROMITE 142 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

Non mag processed thru microfusion. Chromite nos. estimated.

52294	60-511-3	CANADA	VR63701	G	0.25	18.2	0.003	*CHROMITE 500 x +0.25

WEAR	: FRESH WORN	
SHAPE	: IRREGULAR	SUBHEDRAL
SURFACE	: FROSTED	
LUSTRE	: MATTE	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: NOT STREAKABLE	

65 chromite picked out then estimated.

CRA REPORT

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63598	G	KI	F :EPIDOTE	F :GARNET	F :ILMENITE
						F :LEUCOXENE	F :LIMONITE	R :RUTILE
						R :SPHENE	F :STAUROLITE	F :TOURMALINE
						R :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID	R :ALLANITE	
140 chromite picked out then estimated.								
52294	60-511-3	CANADA	VR63601	G	KI	F :EPIDOTE	C :GARNET	O :ILMENITE
						F :KYANITE	F :LEUCOXENE	F :RUTILE
						F :SPHENE	F :STAUROLITE	? :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	C :CHLOROTOID
						F :ALLANITE		
Chromite nos. estimated.								
52294	60-511-3	CANADA	VR63619	G	KI	R :CLINOPYROXENE	F :CLINOZOISITE	F :EPIDOTE
						C :GARNET	S :ILMENITE	F :LEUCOXENE
						F :LIMONITE	R :MONAZITE	F :SPHENE
						P :ROCK FRAGMENTS	O :CHROMITE	S :CHLOROTOID
						F :ALLANITE		
Non mag processed thru microfusion. Chromite nos. estimated. Chromite look interesting.								
52294	60-511-3	CANADA	VR63623	G	KI	F :AMPHIBOLE	F :EPIDOTE	F :GARNET
						F :ILMENITE	F :LEUCOXENE	F :LIMONITE
						R :RUTILE	R :SPHENE	F :STAUROLITE
						F :TOURMALINE	R :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	R :ALLANITE
100 chromite picked out then estimated.								

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:50

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63634	G	KI	R :CLINOPYROXENE	F :EPIDOTE	S :GARNET
						S :ILMENITE	F :KYANITE	F :LEUCOXENE
						F :LIMONITE	R :ORTHOPYROXENE	F :RUTILE
						F :SPHENE	F :STAUROLITE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	O :CHLOROTOID
						F :ALLANITE		

Non mag processed thru microfusion.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63652	G	KI	R :ANATASE	R :CLINOPYROXENE	F :EPIDOTE
						S :GARNET	R :GOLD	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	F :MICA
						T :ORTHOPYROXENE	F :RUTILE	F :SPHENE
						F :STAUROLITE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	O :CHLOROTOID	F :ALLANITE

2 grains gold - flakey.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63671	G	KI	O :AMPHIBOLE	F :CLINOPYROXENE	F :EPIDOTE
						F :GARNET	F :ILMENITE	I :OLIVINE
						R :ORTHOPYROXENE	R :SPHENE	P :ROCK FRAGMENTS
						R :SOIL PHOSPHATES	F :CHROMITE	F :CHLOROTOID
						R :ALLANITE		

100 chromite picked out then estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63675	G	KI	F :AMPHIBOLE	R :CLINOPYROXENE	R :CLINOZOISITE
						F :EPIDOTE	S :GARNET	O :ILMENITE
						F :LEUCOXENE	F :LIMONITE	F :STAUROLITE
						P :ROCK FRAGMENTS	F :CHROMITE	O :CHLOROTOID
						T :SPHALERITE		

Non mag processed thru microfusion. Chromite nos. estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63701	G	KI	R :CLINOZOISITE	F :EPIDOTE	O :GARNET
						O :ILMENITE	R :KYANITE	F :LEUCOXENE
						F :LIMONITE	F :MICA	R :PYRITE
						F :SPHENE	F :STAUROLITE	F :TOURMALINE
						R :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID		

65 chromite picked out then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63740	G	0.25	18.1	0.004	*CHROMITE	7 x +0.25

WEAR	: FRESH WORN	
SHAPE	: SUBHEDRAL	EDHEDRAL
SURFACE	: FROSTED	RODGR
	: SMOOTH	
LUSTRE	: SHINY	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTC	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63755	G	0.25	15.8	0.001	*CHROMITE	1 x +0.4 450 x +0.25

WEAR : FRESH WORN
SHAPE : IRREGULAR SUBHEDRAL
SURFACE : FROSTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

100 chromite picked out then estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:50

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63740	G	KI	O :BARITE	F :CLINOZOISITE	F :CORUNDUM
						F :EPIDOTE	O :GARNET	O :ILMENITE
						F :KYANITE	O :LEUCOXENE	R :PYRITE
						F :RUTILE	F :SPHENE	F :STAUROLITE
						F :ZIRCON	P :ROCK FRAGMENTS	R :CHROMITE
						F :CHLOROTOID	F :CARBONATE	R :ALLANITE
52294	60-511-3	CANADA	VR63755	G	KI	R :ANDALUSITE	R :CLINOPYROXENE	R :CLINOZOISITE
						R :DIOPSIDE	F :EPIDOTE	F :GARNET
						F :ILMENITE	F :KYANITE	F :LEUCOXENE
						C :MICA	R :PYRITE	R :SPHENE
						F :STAUROLITE	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID		

100 chromite picked out then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSIO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63787	G	0.25	13.3	0.001	*PYROPE	3 x +0.25 1,3,4 - GARNET GROUP

COLOUR : PINK
COLOUR : ROSE PINK ORANGE

*CHROMITE 400 x +0.25

WEAR : FRESH WORN
SHAPE : IRREGULAR SUBHEDRAL
SURFACE : FROSTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

50 chromite picked out then estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63793	G	0.25	17.7	0.004	*CHROMITE	2 x +0.4 76 x +0.25

WEAR : FRESH WORN
SHAPE : SUBHEDRAL
SURFACE : PITTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:09:14

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSCO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63795	G	0.25	17.2	0.007	*CHROMITE	2 x +0.4 580 x +0.25

WEAR : FRESH WORN
SHAPE : IRREGULAR SUBHEDRAL
SURFACE : FROSTED
LUSTRE : MATTE
TEXTURE : VITREOUS/COMPACT
STREAK : NOT STREAKABLE

*PYROPE 1 x +0.25 9 - GARNET GROUP

COLOUR : MAUVE

160 chromite picked out then estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 26-MAY-97 TO 30-MAY-97

**STATE : OS **
RUN ON : 30-MAY-1997 15:17:50

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63787	G	KI	R :CLINOPYROXENE	F :CLINOZOISITE	F :EPIDOTE
						F :GARNET	F :ILMENITE	F :LEUCOXENE
						O :MICA	R :ORTHOPYROXENE	R :RUTILE
						F :TOURMALINE	P :ROCK FRAGMENTS	F :CHROMITE
						T :CHLOROTOID		
50 chromite picked out then estimated.								
52294	60-511-3	CANADA	VR63793	G	KI	F :AMPHIBOLE	R :DIOPSIDE	F :EPIDOTE
						P :GARNET	F :ILMENITE	C :LEUCOXENE
						F :LIMONITE	O :ORTHOPYROXENE	F :RUTILE
						O :STAUROLITE	F :ZIRCON	F :CHROMITE
						C :CHLOROTOID	T :GAHNITE	
52294	60-511-3	CANADA	VR63795	G	KI	O :AMPHIBOLE	F :CLINOPYROXENE	F :GARNET
						F :ILMENITE	S :MICA	F :MONAZITE
						F :ORTHOPYROXENE	F :PYRITE	F :SPHENE
						F :STAUROLITE	P :ROCK FRAGMENTS	F :CHROMITE
						F :CHLOROTOID		
160 chromite picked out then estimated.								

CRA REPORT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 10-FEB-97 TO 14-FEB-97

**STATE : OS **
RUN ON : 14-FEB-1997 16:12:05

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS	
52294	60-511-3	CANADA	[redacted] VR63522A	G	0.25	11.6	0.001	*CHROMITE	40 x +0.25

WEAR	: FRESH WORN	
SHAPE	: IRREGULAR	ANHEDRAL
	: SUBHEDRAL	
SURFACE	: ROUGH	SMOOTH
LUSTRE	: SHINY	MATTE
	: DULL	

OTHER MINERALS

**STATE : OS **
PERIOD 10-FEB-97 TO 14-FEB-97

**STATE : OS **
RUN ON : 14-FEB-1997 16:16:46

OPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63522 A	G	KI	F :AMPHIBOLE	R :AMAIASE	R :CORUNDUM
						F :EPIDOTE	C :GARNET	C :ILMENITE
						A :LEUCOXENE	C :LIMONITE	F :MARTITE
						F :RUTILE	F :STAUROLITE	R :TOPAZ
						F :ZIRCON	T :FLUORENCITE	F :CHROMITE
						S :CHLOROTOID		

KIMBERLITIC INDICATORS

**STATE : ON **
PERIOD 3-FEB-97 TO 7-FEB-97

**STATE : ON **
RUN ON : 7-FEB-1997 15:03:33

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	WEIGHTS RECD	WEIGHTS OBS		RESULTS
52294	60-511-3	CANADA	VR63630AD VR63630A	G	0.25	10.8	0.001	*CHROMITE	44x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	INDENTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: VITREOUS/COMPACT	

CRA REPORT

PAGE : 1

OTHER MINERALS

**STATE : OS **
PERIOD 3-FEB-97 TO 7-FEB-97

**STATE : OS **
RUN ON : 7-FEB-1997 15:12:24

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS	(* indicates Rare Mineral not in Database)	
52294	60-511-3	CANADA	[illegible] VR63630A	G	KI	S :GARNET O :LEUCOXENE F :STAUROLITE F :CHROMITE	F :ILMENITE R :ORTHOPYROXENE F :ZIRCON O :CHLOROTOID	F :KYANITE F :RUTILE P :ROCK FRAGMENTS

CRA REPORT

PAGE : 1

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:27:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63524A	G	0.25	13.7	0.002	*CHROMITE	360 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EOHEDRAL
SURFACE	: FROSTED	INDENTED
	: SMOOTH	
LUSTRE	: SHINY	MATTE
TEXTURE	: GRANULAR	VITREOUS/COMPACT
STREAK	: BROWN	

Picked 90 chromite from +0.25 and estimated.

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:27:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECO	OBS		RESULTS
52294	60-511-3	CANADA	VR63563A	G	0.25	14.8	0.008	*CHROMITE	360 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: INDENTED	SMOOTH
LUSTRE	: SHINY	MATTE
	: VITREOUS	FROSTED
TEXTURE	: GRANULAR	VITREOUS/COMPACT

60 chromite picked out from +0.25 and estimated.

52294	60-511-3	CANADA	VR63613A	G	0.25	13.4	0.002	*CHROMITE	65 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: IRREGULAR	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
TEXTURE	: VITREOUS/COMPACT	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:27:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSIO	--WEIGHTS--- RECD	OBS	RESULTS		
52294	60-511-3	CANADA	VR63621A	G	0.25	12.0	0.001	*PICROILMENITE	1 x +0.4	5 % MgO
								SHAPE : BLOCKY		
								SURFACE : FROSTED		
								TEXTURE : VITREOUS/COMPACT		
								*CHROMITE	62 x +0.25	
								WEAR : FRESH WORN		FRESH
								SHAPE : BEVELED EDGES		ANHEDRAL
								: SUBHEDRAL		EUHEDRAL
								SURFACE : FROSTED		INDENTED
								: SMOOTH		
								LUSTRE : SHINY		MATTE
								TEXTURE : GRANULAR		VITREOUS/COMPACT
								STREAK : BROWN		
52294	60-511-3	CANADA	VR63625A	G	0.25	13.3	0.001	*CHROMITE	34 x +0.25 ~400 x +0.18	
								WEAR : FRESH WORN		
								SHAPE : ANHEDRAL		SUBHEDRAL
								SURFACE : PITTED		
								LUSTRE : MATTE		
								*PYROPE	1 x +0.25	G3 - GARNET GROUP
								COLOUR : ORANGE PINK		
Indicator minerals in this sample very fine, mostly <0.25. Estimated ~400 chromites in +0.18mm fraction.										
52294	60-511-3	CANADA	VR63761A	G	0.25	15.7	0.005	*CHROMITE	2 x +0.4 121 x +0.25	
								WEAR : FRESH WORN		FRESH
								SHAPE : BEVELED EDGES		SUBHEDRAL
								: EUHEDRAL		
								SURFACE : FROSTED		PITTED
								LUSTRE : MATTE		VITREOUS
								STREAK : BROWN		

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:27:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS	RESULTS	
52294	60-511-3	CANADA	VR63775A	G	0.25	14.5	0.001	*CHROMITE	30 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: CHIPPED	FROSTED
	: ROUGH	
LUSTRE	: SHINY	MATTE
	: DULL	
TEXTURE	: VITREOUS/COMPACT	

OTHER MINERALS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:40:39

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63524A	G	KI	P :CORUNDUM	S :GARNET	F :ILMENITE
						O :LEUCOXENE	F :LIMONITE	F :RUTILE
						O :ZIRCON	P :ROCK FRAGMENTS	O :CHROMITE
						O :CHLOROTOID		

Picked 90 chromite from +0.25 and estimated.

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS		
52294	60-511-3	CANADA	VR63563A	G	KI	R :EPIDOTE	A :GARNET	O :ILMENITE
						F :KYANITE	S :LEUCOXENE	O :LIMONITE
						F :RUTILE	F :STAUROLITE	F :ZIRCON
						A :ROCK FRAGMENTS	O :CHROMITE	O :CHLOROTOID
						R :SPHALERITE		

60 chromite picked out from +0.25 and estimated.

OTHER MINERALS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:40:39

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* Indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63613A	G	KI	R :BARITE	F :EPIDOTE	O :GARNET
						F :ILMENITE	O :LEUCOXENE	F :RUTILE
						R :SPHENE	R :STAUROLITE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	O :CHLOROTOID
						T :ALLANITE		
52294	60-511-3	CANADA	VR63621A	G	KI	R :AMPHIBOLE	R :ANATASE	F :GARNET
						F :ILMENITE	F :KYANITE	O :LEUCOXENE
						R :RUTILE	R :STAUROLITE	F :ZIRCON
						P :ROCK FRAGMENTS	F :CHROMITE	S :CHLOROTOID
						R :GAHNITE		
52294	60-511-3	CANADA	VR63625A	G	KI	R :CLINOPYROXENE	R :EPIDOTE	S :ILMENITE
						R :KYANITE	F :LEUCOXENE	C :LIMONITE
						F :MONAZITE	F :RUTILE	F :STAUROLITE
						R :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE
						S :CHLOROTOID		
Indicator minerals in this sample very fine, mostly <0.25. Estimated ~400 chromites in +0.18mm fraction.								
52294	60-511-3	CANADA	VR63761A	G	KI	O :ANATASE	F :ANDALUSITE	F :CLINOPYROXENE
						F :CORUNDUM	F :EPIDOTE	O :GARNET
						O :HEMATITE	F :ILMENITE	O :KYANITE
						A :LEUCOXENE	R :PYRITE	O :RUTILE
						O :SPHENE	O :STAUROLITE	F :TOURMALINE
						F :ZIRCON	A :ROCK FRAGMENTS	O :SOIL PHOSPHATES
						F :CHROMITE	O :CHLOROTOID	R :ALLANITE
52294	60-511-3	CANADA	VR63775A	G	KI	R :EPIDOTE	F :GARNET	F :ILMENITE
						F :LEUCOXENE	O :LIMONITE	R :ORTHOPYROXENE
						F :RUTILE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	F :CHLOROTOID	

OTHER MINERALS

**STATE : OS **
PERIOD 10-MAR-97 TO 14-MAR-97

**STATE : OS **
RUN ON : 14-MAR-1997 15:25:28

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS (* indicates Rare Mineral not in Database)		
52294	60-511-3	CANADA	VR63810*	G	KI	F :AMPHIBOLE	C :ANATASE	R :CORUNDUM
						F :EPIDOTE	T :GARNET	F :HEMATITE
						F :ILMENITE	T :KYANITE	S :LEUCOXENE
						C :LIMONITE	R :ORTHOPYROXENE	F :RUTILE
						F :STAUROLITE	P :TOURMALINE	F :ZIRCON
						R :ROCK FRAGMENTS	O :SOIL PHOSPHATES	F :CHROMITE
						F :CHLOROTOID		

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 10-MAR-97 TO 14-MAR-97

**STATE : OS **
RUN ON : 14-MAR-1997 15:12:16

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECD	OBS		RESULTS
52294	60-511-3	CANADA	VR63810 A	G	0.25	14.1	0.001	*CHROMITE	-4 x +0.25

WEAR	: FRESH	FRESH WORN
SHAPE	: ANHEDRAL	SUBHEDRAL
	: EUHEDRAL	
SURFACE	: FROSTED	PITTED
	: SMOOTH	
LUSTRE	: SHINY	SATIN SHEEN
TEXTURE	: WITH SKIN	VITREOUS/COMPACT

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 24-FEB-97 TO 28-FEB-97

**STATE : OS **
RUN ON : 28-FEB-1997 15:17:05

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS--- RECO	OBS	RESULTS	
52294	60-511-3	CANADA	VR63777A	G	0.25	17.0	0.001	*CHROMITE	74 x +0.25

WEAR	:	FRESH WORN	FRESH
SHAPE	:	BEVELED EDGES	ANHEDRAL
	:	SUBHEDRAL	EUHEDRAL
SURFACE	:	FROSTED	SMOOTH
LUSTRE	:	SHINY	MATTE
TEXTURE	:	VITREOUS/COMPACT	

OTHER MINERALS

**STATE : OS **
PERIOD 24-FEB-97 TO 28-FEB-97

**STATE : OS **
RUN ON : 28-FEB-1997 15:22:29

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS	(* indicates Rare Mineral not in Database)	
52294	60-511-3	CANADA	VR63777A	G	KI	R :AMPHIBOLE	R :EPIDOTE	O :GARNET
						F :ILMENITE	O :LEUCOXENE	F :RUTILE
						F :STAUROLITE	F :ZIRCON	P :ROCK FRAGMENTS
						F :CHROMITE	O :CHLOROTOID	

KIMBERLITIC INDICATORS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:27:30

DPO	COST CODE	AREA	SAMPLE NO	TYPE	OBSTO	--WEIGHTS-- RECD	OBS	RESULTS
52294	60-511-3	CANADA	VR63510A	G	0.25	11.7	0.002	*CHROMITE 294 x +0.25

WEAR	: FRESH WORN	FRESH
SHAPE	: BEVELED EDGES	ANHEDRAL
	: SUBHEDRAL	EUHEDRAL
SURFACE	: FROSTED	SMOOTH
LUSTRE	: SHINY	MATTE
	: SATIN SHEEN	
TEXTURE	: VITREOUS/COMPACT	

147 chromite picked out of 1/2 +0.25 fraction. (Chromite No. est.)

52294	60-511-3	CANADA	VR63524A	G	0.25	13.7	0.002	*CHROMITE 360 x +0.25

WEAR	: FRESH WORN	FRESH	
SHAPE	: BEVELED EDGES	ANHEDRAL	
	: SUBHEDRAL	EUHEDRAL	
SURFACE	: FROSTED	INDENTED	
	: SMOOTH		
LUSTRE	: SHINY	MATTE	
TEXTURE	: GRANULAR	VITREOUS/COMPACT	
STREAK	: BROWN		

Picked 90 chromite from +0.25 and estimated.

52294	60-511-3	CANADA	VR63584A	G	0.25	19.1	0.005	*CHROMITE 110 x +0.25

WEAR	: FRESH WORN	FRESH	
SHAPE	: IRREGULAR	SUBHEDRAL	
	: EUHEDRAL		
SURFACE	: CHIPPED	FROSTED	
LUSTRE	: MATTE		
TEXTURE	: VITREOUS/COMPACT		
STREAK	: NOT STREAKABLE		

52294	60-511-3	CANADA	VR63783	G	0.25	14.6	0.005	*CHROMITE 130 x +0.25

WEAR	: FRESH WORN	
SHAPE	: IRREGULAR	SUBHEDRAL
SURFACE	: FROSTED	
LUSTRE	: MATTE	
TEXTURE	: VITREOUS/COMPACT	
STREAK	: NOT STREAKABLE	

50 chromite picked out then estimated.

52294	60-511-3	CANADA	VR63706	G	0.25	16.9	0.002	*CHROMITE 112 x +0.25

WEAR	: FRESH WORN	FRESH	
SHAPE	: BEVELED EDGES	ANHEDRAL	
	: SUBHEDRAL	EUHEDRAL	
SURFACE	: FROSTED	SMOOTH	
LUSTRE	: SHINY	MATTE	
	: SATIN SHEEN		
TEXTURE	: WITH SKIN	VITREOUS/COMPACT	

Chromite nos. estimated.

52294	60-511-3	CANADA	[illegible]	G	0.25	0.0	0.001	*CHROMITE 51 x +0.25

VR63632A

WEAR	: FRESH WORN	FRESH	
SHAPE	: SUBHEDRAL		
SURFACE	: FROSTED		

OTHER MINERALS

**STATE : OS **
PERIOD 17-FEB-97 TO 21-FEB-97

**STATE : OS **
RUN ON : 25-FEB-1997 08:40:39

DPO	COST CODE	AREA	SAMPLE NO	TYPE	WORK	RESULTS			(* indicates Rare Mineral not in Database)
52294	60-511-3	CANADA	VR63510A	G	KI	F :EPIDOTE	S :GARNET	T :GOLD	
						O :ILMENITE	F :KYANITE	O :LEUCOXENE	
						F :LIMONITE	F :RUTILE	F :STAUROLITE	
						F :ZIRCON	P :ROCK FRAGMENTS	O :CHRONITE	
						O :CHLOROTOID	F :ALLANITE		
147 chromite picked out of 1/2 +0.25 fraction. (Chromite No. est.)									
52294	60-511-3	CANADA	VR63632A	G	KI	F :ANATASE	R :BARITE	R :EPIDOTE	
						O :GARNET	F :ILMENITE	R :KYANITE	
						O :LEUCOXENE	F :LIMONITE	T :PYRITE	
						R :RUTILE	R :SPHENE	F :STAUROLITE	
						T :TOURMALINE	R :ZIRCON	F :ROCK FRAGMENTS	
						F :CHROMITE	O :CHLOROTOID		
52294	60-511-3	CANADA	VR63706	G	KI	T :CLINOPYROXENE	S :GARNET	O :ILMENITE	
						F :KYANITE	F :LEUCOXENE	F :LIMONITE	
						F :RUTILE	F :SPHENE	F :STAUROLITE	
						F :ZIRCON	P :ROCK FRAGMENTS	F :CHROMITE	
						S :CHLOROTOID	F :SPHALERITE	F :ALLANITE	
Chromite nos. estimated.									
52294	60-511-3	CANADA	VR63584A	G	KI	R :CLINOPYROXENE	R :EPIDOTE	F :GARNET	
						R :ILMENITE	F :KYANITE	F :LIMONITE	
						R :RUTILE	R :SPHENE	F :STAUROLITE	
						P :ROCK FRAGMENTS	F :CHROMITE	F :CHLOROTOID	
52294	60-511-3	CANADA	VR63783	G	KI	O :AMPHIBOLE	R :CLINOZOISITE	F :EPIDOTE	
						F :GARNET	F :ILMENITE	R :KYANITE	
						F :LEUCOXENE	R :MONAZITE	R :PYRITE	
						R :SPHENE	F :STAUROLITE	P :ROCK FRAGMENTS	
						F :CHROMITE	F :CHLOROTOID		
50 chromite picked out then estimated.									

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MINERAL LABORATORY

MEMO TO: B. Doyle

COPY TO: K. Kivi
H. Lucas

FROM: J. Syms

DATE: 21 February, 1997

Wear on Chromites - DPO 52294

The following comments are my observations concerning the wear on the chromites from the VR samples. Except for a group of six samples that were looked at together, no attempt has been made to compare samples with each other.

Sample Number	Comments
VR63510A	Chromites - most but not all edges showing some degree of abrasion varying from light to moderate abrasion. Vertices of many chipped. Several with bevelled edges showing little or no wear. Other anhedral grains with fine matte pitted surface (frosted) no wear on edges.
VR63522A	Chromites: the majority are anhedral(fragments) with no obvious wear. About 4 were subhedral. 5 had a rounded appearance (octahedral shape almost spherical) or with rounded edges.
VR63524A	Chromites fresher than VR63771A and VR63621A. Edges relatively sharp on euhedral grains. Other rounded more worn grains also present. One with remnant faces with bevelled edges.
VR63563A	Chromites - Mostly anhedral fresh - little sign of wear. Some with rough surfaces, others pitted and frosted. At least one with smooth surface. One subhedral grain with bevelled edges.
VR63613A	Chromites - mostly fairly fresh with only a few grains showing chipped vertices and light abrasion on edges.
VR63621A	Chromites - surface features look interesting (fine pitting and frosted). Most rounded and show some minor signs of wear. One euhedral grains with a smooth shiny surface and bevelled edges also present.
VR63625A	Garnet - fragment, sharp edges. Chromites - wear not evident. They look fresh, yet edges on some octahedra rounded.
VR63761A	Chromites - Octahedra ranging from fresh sharp edges with chipped vertices and the occasional light scratch on surfaces, to more rounded octahedra on edges and vertices. Other grains anhedral fractured. Outer surfaces with fine matte pitting and light abrasion on some edges with a few chips here and there. Low degree of wear, relatively fresh.

VR63775A

Chromites - 2 euhedral with well defined but slightly rounded edges. 5 grains rounded appearance - octahedral shape becoming vague. 1 euhedral with bevelled edges showing abrasion. 2 anhedral sharp edged matte grain - minor chipping on edges. Remainder anhedral shiny to dull, rough surfaces showing abrasion. Several fragments showing shiny fracture surfaces, sharp edges showing a few tiny chips.

[redacted]

Joyce Syms
Senior Mineralogist

Martelli, Zdenka

From: Lucas, Hans
Sent: Wednesday, 28 May 1997 9:43
To: Martelli, Zdenka
Subject: FW: Good VR results

From: Lucas, Hans
Sent: Wednesday, 28 May 1997 9:43
To: 'Buddy Doyle'
Subject: Good VR results

Buddy,
Three VR samples are very interesting

1. Sample VR 63581

Diamond x 1

Size 0.675 x 0.55mm
Crystal Form = irregular
Colour = yellow
Inclusions = few
Inclusion colour = black
Surface features = striations, step layered, heavily frosted
Light conductivity = transparent
Comments = Probably a fragment, possibly from an octahedron.

Pyrope

5 x group 9 (to be confirmed by scanning)
90 x group 3 (to be confirmed by scanning)

Chrome diopside x 1

(to be confirmed by scanning RI=1.75, very low bi-refringence, almost biaxial figure)

Chromite x 9600 estimated

Picro ilmenite x 16 (to be confirmed by scanning)

Anomaly Name | Request No SEM 110 | Submitted By B.DOYLE

Geologist's Date 10/6/97 | Cost Code 60-511-3 | Geol File No

Geological Background

Sample No	250 000 Mapsheet	+0.8	+0.5	+0.4	+0.25	Total
VR63581					45	45

Comments

Urgency Top Priority

SCANNING NOTES Cores Only

Report To BD/CBS

v/cc is vitreous compact core

Sample No	Grain Sequence	+0.4	+0.25	Morphological Description
VR63581	1-6		*	purple G9, orange & pink G3
	7-16		*	very pale pink
	17-25		*	pale orange with pale red flash
	26-45		*	pale yellow orange, no flash.

Summary

Eleven grains were pyrope. Four were peridoditic G9's with a maximum of 4.5wt% Cr_2O_3, which is on the low side for good diamond prospectivity. The numbers of grains are very low, however, so this interpretation should be noted with caution. The remainder of the pyrope grains were eclogitic G3 and G4's.

Sample No	Assessor's Recommendation
VR63581	High priority follow up.

Assessor E. Bullock

Date

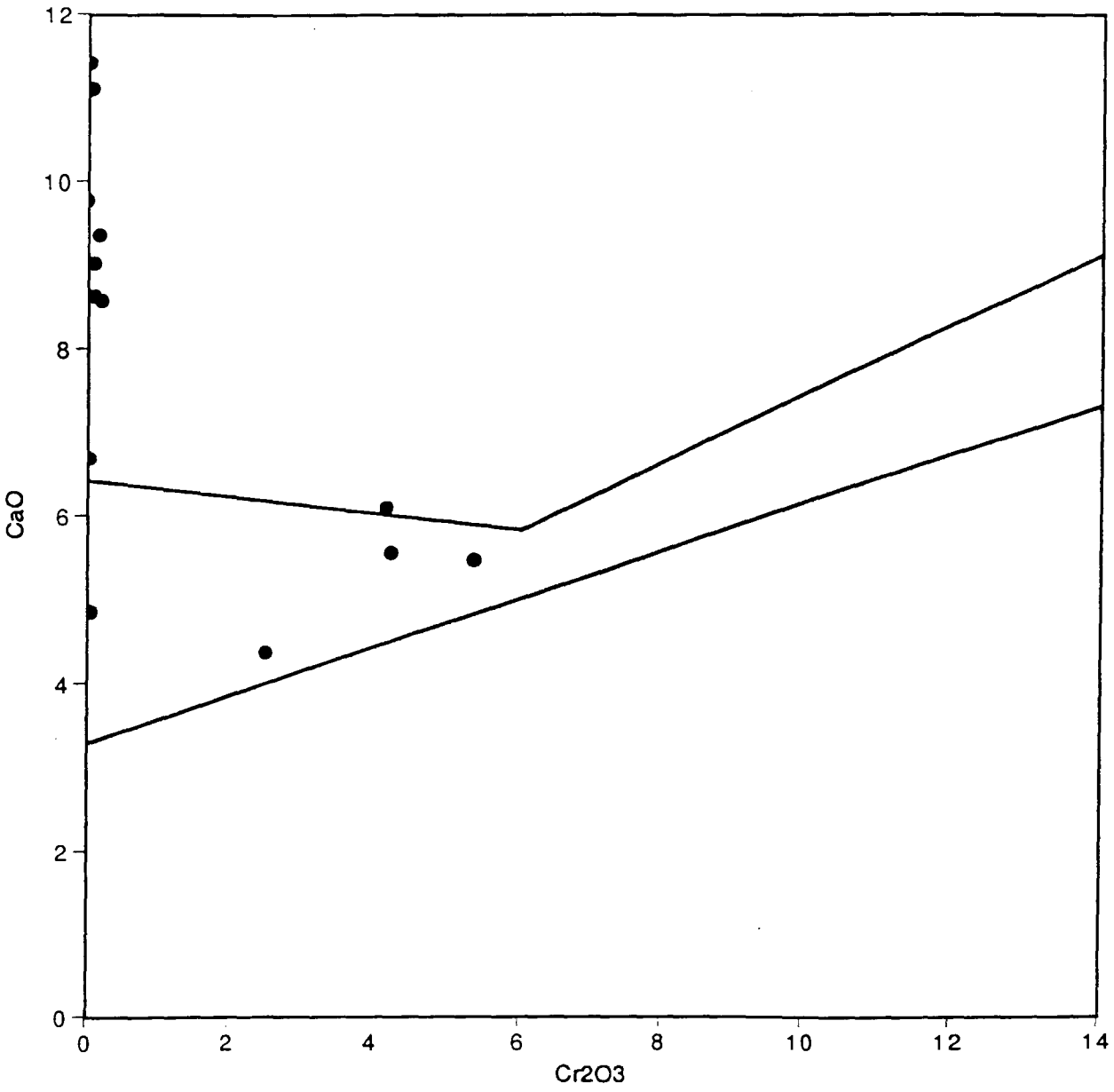
Plot GEN

Slide

Garnet Plot

Legend

● VR63581



Anomaly Name		Request No	SEM 115	Submitted By	B. DOYLE	
Geologist's Date	10/6/97	Cost Code	60-511-3	Geol File No		
Geological Background						

Sample No	250 000 Mapsheet	+0.8	+0.5	+0.4	+0.25	Total
VR63553				3	47	50

Comments

Urgency Top Priority

SCANNING NOTES Cores Only

Report To BD/CBS

v/cc is vitreous compact core

Sample No	Grain Sequence	+0.4	+0.25	Morphological Description
VR63553	1-3	•		Rounded, roughly pitted,matt, v/cc.
	4-15		•	Rounded, roughly pitted, matt, v/cc.
	16-50		•	Subhedral, roughly pitted, matt , v/cc

Summary

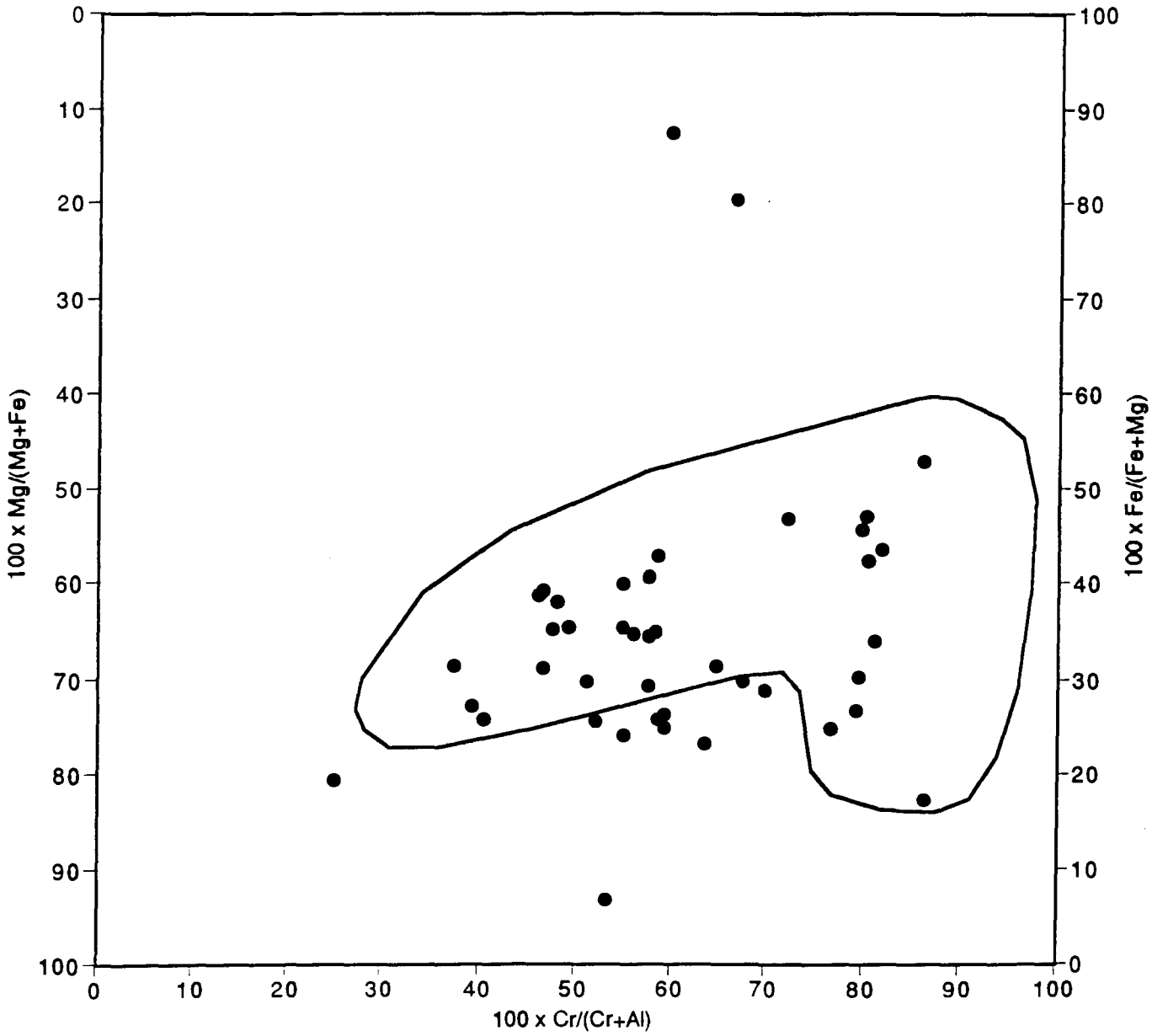
Most of the chromites plot within the kimberlite field, following the mantle trend. Several grains plot above Cr# 70 , indicating that they may come from the diamond stability field.

Sample No	Assessor's Recommendation		
VR63553	High priority follow up	**Assessor**	E. Bullock
		Date	3/7/97
		Plot	OS17F
		Slide	

Chromite Plot

Legend

● VR63553



Anomaly Name		**Request No**	SEM 117	**Submitted By**	B. DOYLE		
Geologist's Date	10/6/97	**Cost Code**	60-511-3	**Geol File No**			
Geological Background							

Sample No	**250 000 Mapsheet**	**+0.8**	**+0.5**	**+0.4**	**+0.25**	**Total**
VR63619					50	50

Comments

Urgency Top Priority

SCANNING NOTES Cores Only

Report To BD/CBS

v/cc is vitreous compact core

Sample No	**Grain Sequence**	+0.4	+0.25	**Morphological Description**
VR63619	1-14		*	Rounded, (resorbed?), fine pitting, matt, v/cc.
	15-50		*	Subhedral, moderately pitted, matt, v/cc.

Summary

The majority of the grains plot in the kimberlitic field, following the mantle trend. The low Mg# outliers belong to a different population which is non kimberlitic. Several grains plot at the high Cr# end of the kimberlitic field, indicating that they may have come from the diamond stability field.

Sample No	**Assessor's Recommendation**
VR63619	High priority follow up

Assessor E. Bullock

Date 7/7/97

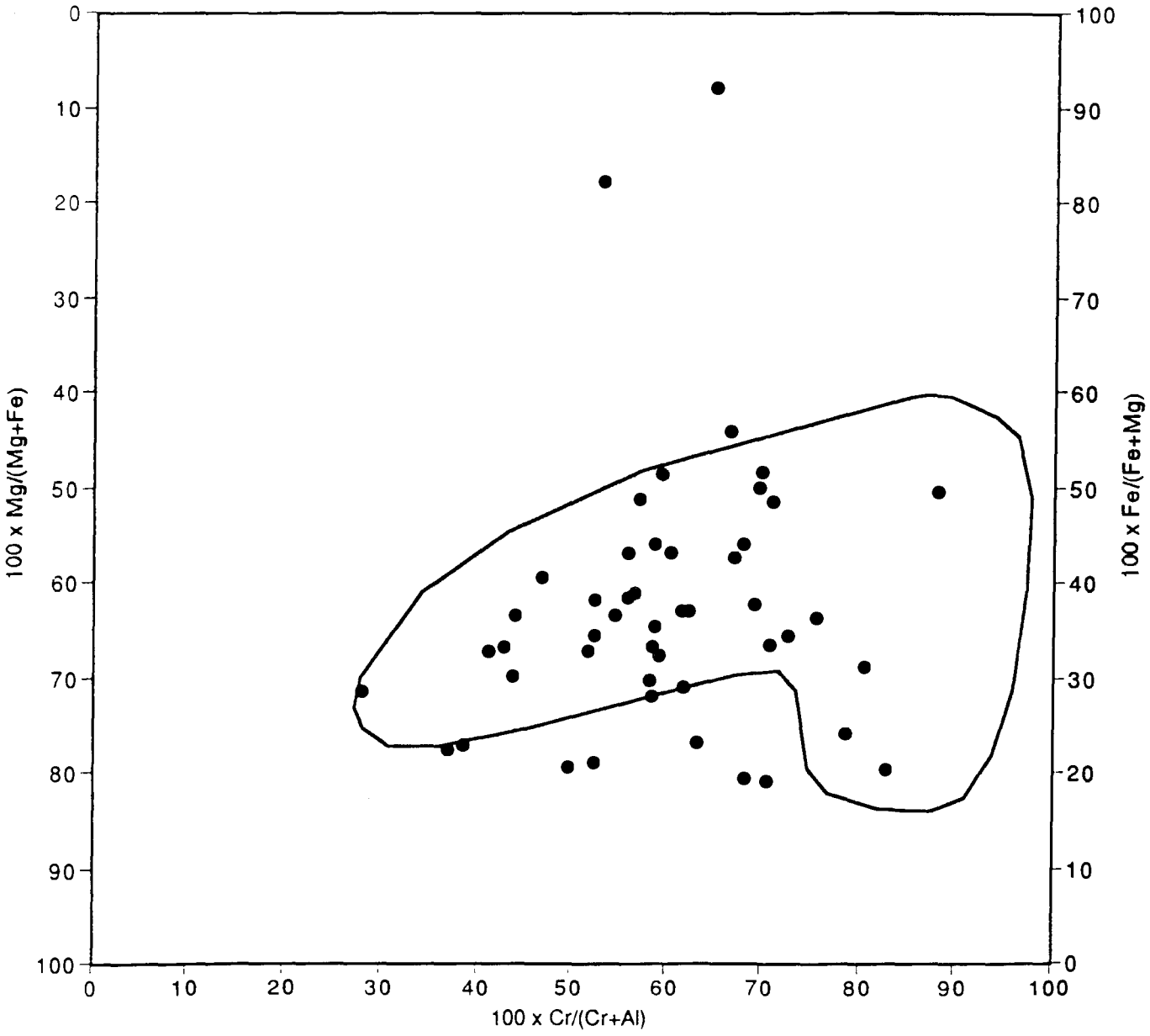
Plot OS17B

Slide

Chromite Plot

Legend

● VR63619



Anomaly Name | Request No SEM 114 | Submitted By B. DOYLE

Geologist's Date 10/6/97 | Cost Code 60-511-3 | Geol File No

Geological Background

Sample No	250 000 Mapsheet	+0.8	+0.5	+0.4	+0.25	Total
VR63706				0	50	50

Comments

Urgency Top Priority

SCANNING NOTES Cores Only

Report To BD/CBS

v/cc is vitreous compact core

Sample No	Grain Sequence	+0.4	+0.25	Morphological Description
VR63706	1-14		*	Rounded (resorbed?) Moderately, to finely pitted, matt, v/cc.
	15-50		*	Euhedral to subhedral, moderately pitted, matt, vcc.

Summary

Most of the chromites plot within the kimberlitic field, following the mantle trend. Approximately a third of the grains plot at the high Cr# end, indicating a potentially very prospective source for diamond.

Sample No	Assessor's Recommendation
VR63706	High priority follow up.

Assessor E. Bullock

Date 7/7/97

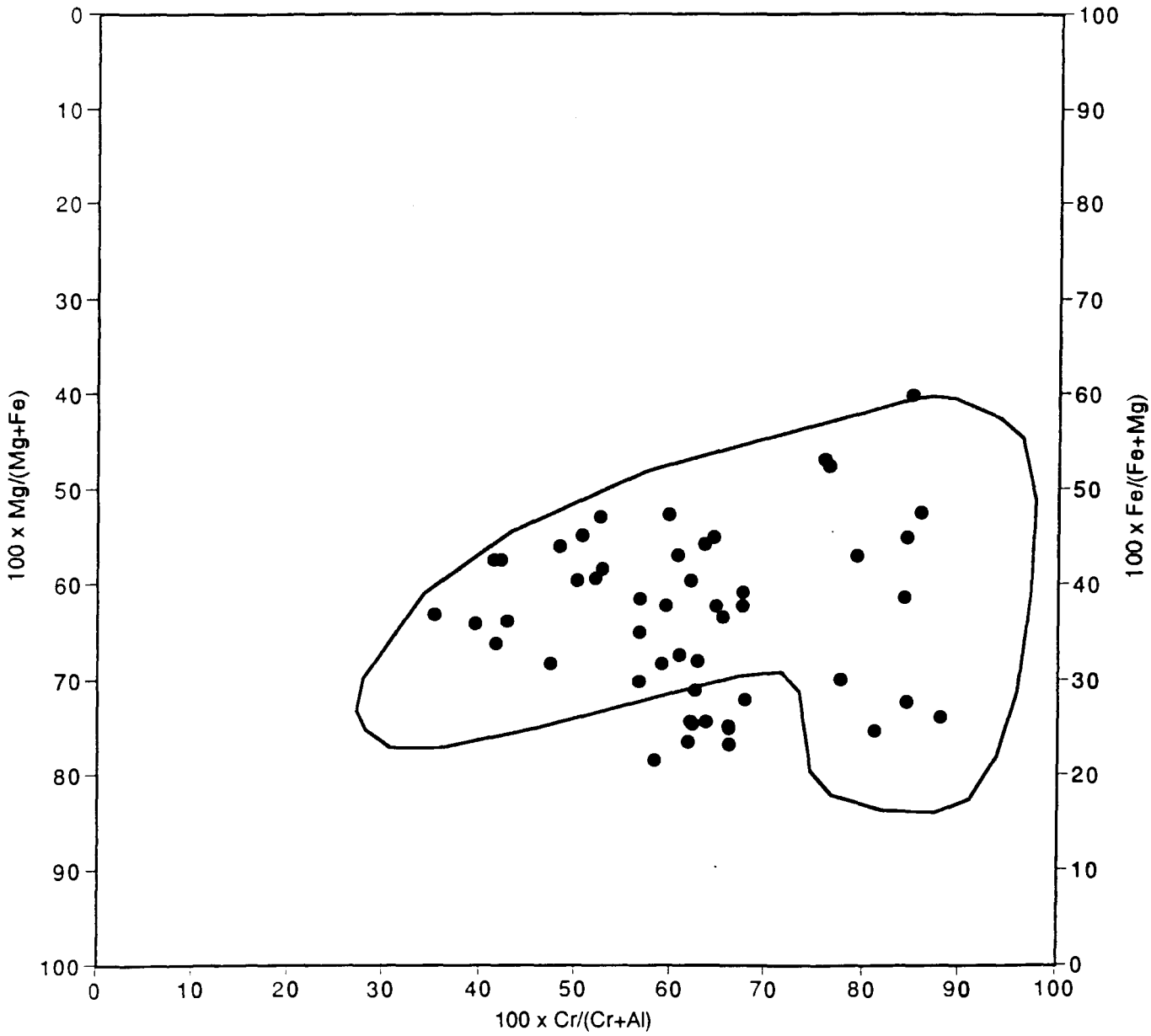
Plot OS17C

Slide

Chromite Plot

Legend

● VR63706



APPENDIX VII

ELECTRON MICROPROBE ANALYSIS RESULTS

Sampchar	Grtype	Grainno	Sio2	Tio2	Al2o3	Cr2o3	Feo	Mno	Mgo	Cao	K2o	Na2o	Nio	P	Zno	Sum	Date
ZZ80	OPX	17	57.69	0.05	0.46	0.42	4.35	0.01	36.42	0.50	0.01	0.15	0.10	0.00	0.00	100.16	06/08/95
ZZ77	OLI	6	40.94	0.00	0.00	0.00	6.65	0.05	52.06	0.01	0.01	0.02	0.00	0.00	0.00	100.04	06/08/95
ZZ77	OLI	7	41.13	0.00	0.00	0.00	6.12	0.02	52.31	0.00	0.00	0.00	0.40	0.00	0.00	99.98	06/08/95
ZZ77	OLI	8	40.74	0.00	0.00	0.00	6.42	0.03	51.85	0.03	0.02	0.02	0.40	0.00	0.00	99.51	06/08/95
ZZ80	OLI	16	40.47	0.00	0.00	0.00	7.96	0.04	51.61	0.00	0.00	0.01	0.32	0.00	0.00	100.41	06/08/95
ZZ77	CPX	1	54.15	0.19	1.57	0.86	2.98	0.09	17.61	20.30	0.05	1.35	0.00	0.00	0.00	99.15	06/08/95
ZZ62	OPX	13	58.02	0.05	0.44	0.40	4.44	0.00	36.50	0.44	0.02	0.16	0.09	0.00	0.00	100.56	06/11/95
ZZ63	OLI	1	40.06	0.04	0.00	0.00	10.98	0.04	48.39	0.03	0.02	0.01	0.26	0.00	0.00	99.83	06/11/95
ZZ62	CPX	2	53.88	0.11	0.98	0.00	3.52	0.00	16.00	24.50	0.02	0.66	0.00	0.00	0.00	99.67	06/11/95
ZZ62	CHR	3	0.13	0.11	8.12	61.10	15.56	0.22	14.94	0.00	0.00	0.00	0.25	0.00	0.00	100.43	06/11/95
ZZ62	CHR	4	0.06	0.09	31.22	36.35	14.64	0.07	17.81	0.00	0.00	0.00	0.41	0.00	0.00	100.65	06/11/95
ZZ62	CHR	6	0.05	0.60	7.17	36.37	41.64	0.27	12.54	0.00	0.00	0.00	0.42	0.00	0.02	99.08	06/11/95
ZZ76	CHR	2	0.04	0.44	8.68	51.76	22.18	0.14	16.58	0.00	0.00	0.00	0.40	0.00	0.00	100.22	06/11/95
ZZ76	CHR	3	0.00	0.00	34.42	34.48	13.44	0.06	17.94	0.00	0.00	0.00	0.23	0.00	0.00	100.57	06/11/95
ZZ76	CHR	4	0.01	0.20	22.88	43.81	20.40	0.40	11.60	0.00	0.00	0.00	0.26	0.00	0.00	99.56	06/11/95
ZZ62	CHR	3	0.13	0.11	8.12	61.10	15.56	0.22	14.94	0.00	0.00	0.00	0.25	0.00	0.00	100.43	06/11/95
ZZ62	CHR	4	0.06	0.09	31.22	36.35	14.64	0.07	17.81	0.00	0.00	0.00	0.41	0.00	0.00	100.65	06/11/95
ZZ62	CHR	6	0.05	0.60	7.17	36.37	41.64	0.27	12.54	0.00	0.00	0.00	0.42	0.00	0.02	99.08	06/11/95
ZZ76	CHR	2	0.04	0.44	8.68	51.76	22.18	0.14	16.58	0.00	0.00	0.00	0.40	0.00	0.00	100.22	06/11/95
ZZ76	CHR	3	0.00	0.00	34.42	34.48	13.44	0.06	17.94	0.00	0.00	0.00	0.23	0.00	0.00	100.57	06/11/95
ZZ76	CHR	4	0.01	0.20	22.88	43.81	20.40	0.40	11.60	0.00	0.00	0.00	0.26	0.00	0.00	99.56	06/11/95
ZZ60	CHR	1	0.07	2.07	1.13	57.01	30.59	0.55	7.97	0.00	0.00	0.00	0.35	0.00	0.11	99.85	06/30/95
ZZ60	CHR	1	0.05	0.63	11.63	36.68	27.06	0.62	21.77	0.00	0.00	0.00	0.24	0.00	0.00	98.68	06/30/95
ZZ60	CHR	2	0.00	0.00	18.74	51.39	17.13	0.36	12.26	0.00	0.00	0.00	0.17	0.00	0.07	100.12	06/30/95
ZZ60	CHR	3	0.00	1.44	14.53	46.51	23.86	0.23	12.78	0.00	0.00	0.00	0.34	0.00	0.00	99.69	06/30/95
ZZ60	CHR	4	0.00	2.97	6.91	34.52	46.16	0.50	7.02	0.00	0.00	0.00	0.45	0.00	0.05	98.58	06/30/95
ZZ60	CHR	5	0.00	1.22	18.55	44.18	20.58	0.20	14.76	0.00	0.00	0.00	0.37	0.00	0.00	99.86	06/30/95
ZZ60	CHR	8	0.00	0.00	31.42	36.75	16.86	0.18	14.79	0.00	0.00	0.00	0.17	0.00	0.00	100.17	06/30/95
ZZ60	CHR	10	0.00	0.00	19.97	45.29	23.65	0.34	10.91	0.00	0.00	0.00	0.17	0.00	0.11	100.44	06/30/95
ZZ60	CHR	11	0.01	1.02	18.01	46.41	20.12	0.21	14.37	0.00	0.00	0.00	0.35	0.00	0.00	100.50	06/30/95
ZZ60	CHR	14	0.00	0.13	19.88	49.03	16.55	0.21	14.49	0.00	0.00	0.00	0.23	0.00	0.00	100.52	06/30/95
ZZ60	CHR	15	0.00	0.71	19.99	43.30	24.01	0.32	10.92	0.00	0.00	0.00	0.15	0.00	0.13	99.53	06/30/95
ZZ60	CHR	17	0.00	0.04	17.68	46.64	25.35	0.25	9.78	0.00	0.00	0.00	0.25	0.00	0.03	100.02	06/30/95
ZZ60	CHR	18	0.00	1.17	16.94	47.04	20.29	0.23	14.47	0.00	0.00	0.00	0.33	0.00	0.02	100.48	06/30/95
ZZ60	CHR	19	0.00	0.35	31.59	32.93	15.85	0.16	16.86	0.00	0.00	0.00	0.27	0.00	0.00	100.01	06/30/95
ZZ70	CHR	3	0.00	0.70	20.10	47.45	14.57	0.23	16.15	0.00	0.00	0.00	0.45	0.00	0.00	99.65	06/30/95
ZZ77	CHR	12	0.51	0.00	27.04	40.79	16.83	0.19	14.01	0.00	0.00	0.00	0.18	0.00	0.03	99.58	06/30/95
ZZ77	CHR	13	0.00	1.08	18.75	44.71	21.11	0.21	14.13	0.00	0.00	0.00	0.39	0.00	0.00	100.38	06/30/95
ZZ77	CHR	15	0.00	0.77	20.15	43.41	20.35	0.25	14.84	0.00	0.00	0.00	0.30	0.00	0.00	100.07	06/30/95
ZZ80	CHR	6	0.00	0.40	29.47	27.20	29.41	0.25	12.68	0.00	0.00	0.00	0.27	0.00	0.00	99.68	06/30/95
ZZ80	CHR	9	0.00	0.31	37.89	20.14	14.58	0.11	18.26	0.00	0.00	0.00	0.32	0.00	0.00	99.81	06/30/95
ZZ80	CHR	11	0.00	0.15	15.81	52.93	16.71	0.23	14.10	0.00	0.00	0.00	0.23	0.00	0.00	100.16	06/30/95

APPENDIX VIII

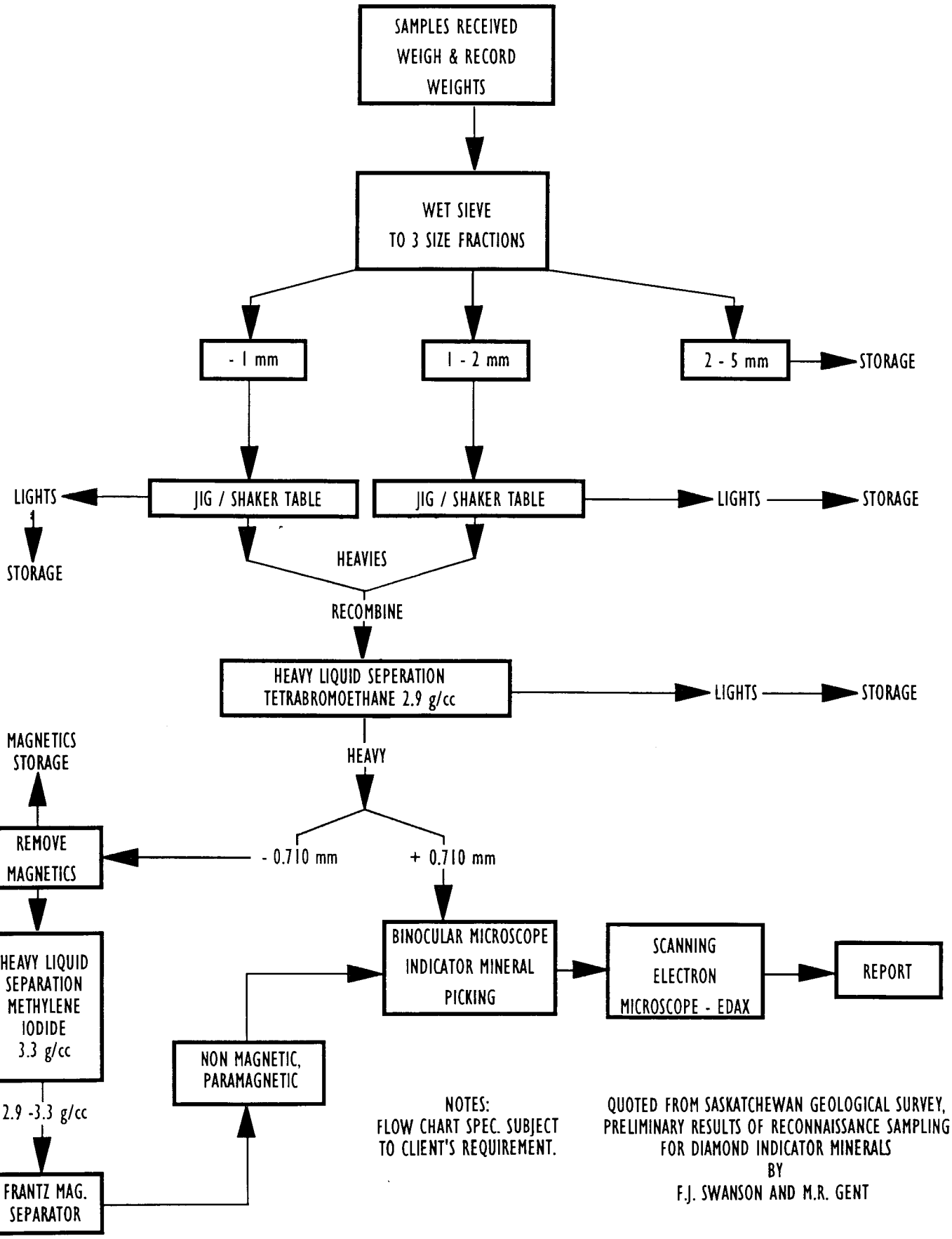
LABORATORY PROCEDURES:

HEAVY MINERAL SAMPLE PROCESSING

LORING LABORATORIES LTD.

DIAMOND EXPLORATION SERVICES

SAMPLE PROCESSING FLOW CHART



NOTES:
FLOW CHART SPEC. SUBJECT TO CLIENT'S REQUIREMENT.

QUOTED FROM SASKATCHEWAN GEOLOGICAL SURVEY,
PRELIMINARY RESULTS OF RECONNAISSANCE SAMPLING
FOR DIAMOND INDICATOR MINERALS
BY
F.J. SWANSON AND M.R. GENT

APPENDIX IX

LABORATORY PROCEDURES: METHODOLOGY OF SAMPLE PREPARATION FOR ELECTRON MICROPROBE ANALYSIS

METHODOLOGY OF SAMPLE PREPARATION AND ELECTRON MICROPROBE ANALYSIS

The purpose of this section is to describe the manner in which the mineral grains are mounted polished and analyzed with an electron microprobe.

The mineral grains of interest: garnet, clinopyroxene, olivine, ilmenite and chromite, are sent to R.L. Barnett fixed to paper with cellotape. Each individual grain is identified by a number written immediately adjacent to each mineral grain.

The basic technique of electron microprobe mineral analysis requires that the surface of each grain be highly polished. The method of mounting and polishing the grains is as follows:

(i) All grains are mounted on rectangular glass slides that are commonly used to make standard petrographic thin sections. The actual mounting surface of the glass slide is first etched with acid to ensure good adherence of the mounting medium, plastic.

(ii) Before the individual grains are removed from their location on the paper, their corresponding numbers are written into two or three parallel rows on the surface of the etched glass with the aid of a binocular microscope. Care is taken to use an ink which is not soluble in plastic. A small dab of plastic is then placed beside each number.

(iii) With the aid of a binocular microscope and using sharp tweezers, the cellotape is carefully pulled back to expose one grain at a time. Using a sharp point, the grain is then coated in a small amount of plastic to prevent unpredictable movement due to static electricity. The plastic-coated grain is then carefully removed from the cellotape and transferred to the waiting dab of plastic beside the proper number. In this manner between 25 and 40 grains can be mounted on one rectangular glass slide. The actual number of grains per slide is determined largely by the size of the grains involved.

Throughout the mounting procedure, extreme care is taken to ensure that the grains are not lost and the proper grain is mounted and identified with the proper grain.

(iv) The slide is then put on a hot plate at 150 degrees for one hour, to set the plastic enclosing each grain.

(v) Next, small grains of quartz are placed in the plastic at the ends and strategically about the margin of each slide to provide resistance during the polishing process. The entire glass slide is then covered in a layer of plastic and put on the hot plate and allowed to harden slowly, over a period of several hours with moderate heat.

(vi) Using exteme care, the section is then polished by Mr. John Forth. The surface of the polished grain mount is examined and re-examined throughout the polishing process to

ensure that the individual grains are present at the surface of the plastic. It is necessary to ensure that no grains are too thin and in danger of being wiped off the glass slide.

Althougn the grains , as sent, are mounted in sequential numerical order, it is essential that grains of similar size be mounted on the same glass slide. In this way the grains all appear at the polished surface simultaneously. If larger grains are mixed with smaller grains, the larger grains appear at the polished surface, leaving the smaller grains still covered in plastic.

(vii) As silicate mineral grains and plastic do not conduct electrical current, the next step in the process is to coat the polished grain mounts with a thin layer of carbon. To eliminate problems of differential conductivity, which can introduce some analytical error, the mineral standards are routinely cleaned on a polishing lap and the standards and polished grain mounts are coated simultaneously with carbon vapour in a vacuum evaporator-carbon coater.

(viii) It is extremely important that the polished grains be easily located and identified once the polished and carbon-coated grain mounts are in the sample chamber of the electron microprobe. A map of each polished grain mount is made and with the aid of a binocular microscope each grain number is written directly into the carbon-coated with a scribe. This scribing process perturbs the conductivity of the thin layer of carbon, and the number is easily seen using the secondary electron detector on the microprobe.

(ix) The final step is analysis of the individual, carbon-coated mineral grains. All mineral analyses are produced by R.L. Barnett in London, Ontario, using two different electron microprobes. A Model JXA-8600 JEOL electron microprobe in the Department of Geology at The University of Western Ontario is equipped with four wavelength x-ray spectrometers and a Tracor Northern EDS, spectrometer and stage automation system. A Model JXA-733 JEOL electron microprobe in the laboratory of R.L. Barnett Geological Consulting Inc. is equipped with five wavelength spectrometers and a Tracor Northern EDS, spectrometer and stage automation system.

R.L. Barnett has over 25 years experience with electron microprobe analytical techniques and has been Director of the Electron Microprobe Analytical Laboratory at The University of Western Ontario since 1973. The mineral standards used have been assembled by R.L. Barnett over the last 20 years and have, during this interval, been the basis for hundreds of theses and scientific papers. These mineral standards have been obtained from various sources such as the Geophysical Laboratory and Smithsonian Institute in Washington, D.C.. Most recently R.L. Barnett obtained clinopyroxene and chrome-pyrope mineral standards used by Dr. Nockolai Sobolev.

Electron microprobe mineral analysis is a comparative analytical technique in which the x-ray yields of mineral standards of accurately known composition are compared with the x-ray yields of the unknown minerals. It is important that appropriate standards be used for

each unknown mineral species, to minimize certain inequities in the data reduction programs. Garnet reference standards are used for pyrope mineral analyses, clinopyroxene standards for unknown clinopyroxenes, ilmenite for ilmenite, etc. The electron microprobe compares the counts per second of the standard mineral with the counts per second of the unknown mineral, and assumes that the remainder of the sample os oxygen. A standard conversion program calculates the oxide values from the x-ray yields (or counts).

A backscattered electron detector, BSE, on the electron microprobe is used to examine in detail the surface and possible compositional variation on the polished surface of each mineral grain. The backscattered electron detector displays by variation in grey level intensity on a CRT screen. The variation in mean atomic number of the area roistered by the electron beam reflects compositional variation. Using the backscattered electron detector, the surface of each grain is examined at a magnification of 40 - 2000 times in an attempt to identify and avoid mineral inclusions and fine-scale cracks that might perturb the electron beam - sample interaction and lead to analytical error.

Throughout the entire analytical procedure, all attempts are made to ensure reproducibility and analytical accuracy. Special attention is given to chrome and reference mineral standards are repeatedly and intermittently analyzed to ensure optimum accuracy.

APPENDIX X

DIAMOND DRILL LOGS

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC05-1	Date Started:	February 14/97
Dip:	-90 Deg.	Date Completed:	February 17/97
Northing:	5954500	Core Size:	NQ
Easting:	458300	Date Logged:	February 18/97
Drill Contractor:	Aggressive	Logged By:	S. Ball

0.0 - 26.0 m	**OVERBURDEN** - peat and clay/ pebbles/ boulders
20.42 - 21.5	Massive, cohesive grey clay
21.5 - 21.65	Loosely consolidated silt containing pebbles quartzite and rare sandstone
21.65 - 22.0	Clay/ minor pebbles
22.0 - 26.0	Boulders quartzite/ rare jasper(?)
26.0 - 92.25 m	**SANDSTONE** - light to medium grey color - medium to coarse grained, locally very coarse - mainly weakly bedded, but varies to strongly bedded - unit has very uniform appearance throughout - very competent overall; >90% recovery; average unbroken length 50cm; common open fractures - calcareous - composed of grains of quartz, feldspar, and hornblende. - rare rock fragments (mudstone) throughout/ local conglomerate beds - rare mm scale coal seams
26.0 - 43.0	Blocky/ groundwater alteration. Average unbroken length 12 cm. Interval becoming less blocky and altered down section
31.0	Moderately bedded @ 75 deg tca
32.0 - 33.0	Open fracture set @ 90 deg tca
41.9 - 42.0	Two, 1 cm wide grey mud seams
51.8	Moderately bedded @ 77 deg tca
56.05	Contact of very coarse sandstone with a medium grained sandstone @ 75 deg tca
58.3	Medium grey color, subangular, 4 cm size siltstone clast
58.3 - 63.5	Mudstone/ siltstone clasts. Subangular to subrounded; 0.2 - 4 cm size; many are laminated; increasing in frequency down section
68.0 - 69.8	Very coarse
69.8 - 69.9	Conglomerate bed. Subround to subangular clasts of mudstone and shale; 1- 5 cm size.
69.9	Irregular contact between coarse and fine-grained sandstone (erosional?)
79.5	Weak bedding @ 70 deg tca
92.25 - 97.2	**SHALE/ SILTSTONE** - weakly calcareous (along fractures) to non-calcareous

	- moderately competent; recovery >90%. Siltstone more competent than shale; 12 cm average unbroken length throughout - 80% shales: Mainly very soft, friable, very waxy texture. Contains minor mica. Common blocky fracture. Fine-grained. Medium grey color. - 20% siltstone: fine-grained. Light grey color - massive to strongly bedded throughout - local coal seams - upper contact sharp, but broken up. Lower contact gradational.
92.45 - 92.5	Coarse sandstone bed containing subangular rock fragments up to 1 cm
95.0	Shale laminated @ 76 deg tca
97.2 - 99.4 m	**SANDSTONE** - fine-grained - strongly bedded, mm to cm scale - competent; recovery >90%; average unbroken length 15 cm - medium grey color - local contorted bedding - non-calcareous to moderately calcareous - composed of grains of quartz, feldspar, hornblende.
99.4 - 115.2 m	**SANDSTONE** - similar to interval at 26.0 - 92.25 m depth. - locally very coarse
108.9	Strongly bedded @ 80 deg tca
115.2	Contact sharp @ 85 deg tca
115.2 - 122.0 m	**INTERBEDDED SHALE/ SANDSTONE/ SILTSTONE** - units as uphole - approximate equal proportions of each rock type - coarsening down section - siltstone and sandstone calcareous/ shale locally calcareous - shale: medium to dark grey color/ massive to weakly laminated/ muddy/ blocky fracture. Varies from having blocky fracture to being very cohesive(does not break with hands, but soft enough to scratch with knife). 1% very friable/soft green shale associated with coal seams. - <5% coal throughout
120.85	Flame structures in fine-grained sandstone/siltstone
121.0 - 121.8	Beds of massive, coarse-grained sandstone alternating with beds of fine-grained sandstone (3-10 cm scale beds). Contacts sharp @ 80-85 deg tca
121.1	Fine-grained sandstone, finely laminated @ 77 deg tca
122.0 - 140.1 m	**SANDSTONE** - as uphole - medium to very coarse-grained - massive to strongly bedded - calcareous - shale and siltstone beds (<5%)
124.3 - 124.4	Friable siltstone
128.0	Laminated @ 84 deg tca (mm scale)
138.4 - 139.4	Fine-grained, finely laminated sandstone @ 80-90 deg tca
140.1 - 205.1 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE**

	- units as uphole - 40% sandstone/ 30% shale/ 30% siltstone - common bituminous coal (weakly competent) - local friable, waxy textured, green shale - >90% recovery. Competent throughout - varies from non-calcareous (some shales) to strongly calcareous (sandstone). - massive to strongly bedded throughout all units (mm - cm scale) - local flame structures - shale may have blocky fracture/ varies to mudstone/ locally fossiliferous
144.6	Strong bedding @ 85 deg tca (fine-grained sandstone)
151.8 - 156.2	Shales and coal. Chalky white-grey to green color. Very friable/ local waxy texture. Chalky white color where coal content higher.
162.8 - 163.6	Very friable/ crumbles with hands
182.2	Siltstone laminated @ 87 deg tca
184.65 - 185.25	Massive, non-calcareous silicified(?) siltstone. Sugary texture
205.1 - 221.59	**SANDSTONE** - as uphole - massive to moderately bedded
218.4	Bedding @ 67 deg tca (cm scale)
221.59	**EOH**

Representative Samples

96.2 m	Waxy shale
112.65 - 112.7 m	Coarse sandstone

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC05-2	Date Started:	February 22/97
Dip:	- 50 Deg	Date Completed:	February 25/97
Northing:	5954550	Core Size:	NQ
Easting:	458230	Date Logged:	February 26/97
Drill Contractor:	Aggressive	Logged By:	S. Ball
Azimuth:	308 Deg		

0.0 - 38.2 m

OVERBURDEN
- peat/clay/sand
- boulders quartz/quartzite/sandstone

38.2 - 120.8 m

SANDSTONE
- light grey in color
- medium to coarse-grained
- common yellow-brown groundwater alteration concentrated along fractures. Less common down section
- common coal seams/ strings, increasing in frequency down section
- weakly to moderately bedded
- composed of grains of quartz/feldspar/mica/hornblende
- calcareous
- blocky up section, but very competent down section. Recovery >90%
- 1-2% mudstone clasts throughout/ local conglomerate beds

38.2 - 42.0	Blocky/ Average unbroken length 5 cm
47.8	Bedding @ 50 deg tca
68.8	Bedding (cm scale) @ 53 deg tca
90.0 - 91.4	Conglomerate bed, subround to subangular clasts of shale, mudstone, and cherty mudstone. 1-5 cm size clasts in sandstone matrix
96.6	Bedding @ 60 deg tca
99.9 - 100.0	Mud seam
100.2 - 100.6	Conglomerate sequence. Clasts consist mainly of subround to subangular mudstone (plus rare exotics) in a coarse sandstone matrix. Clasts up to 4 cm size
117.3	Bedding @ 50 deg tca
120.65 - 120.7	Quartzite clast, rounded
120.7 - 120.8	Mud seam

120.8 - 126.6 m

MUDSTONE
- very friable/ blocky fracture/ average unbroken length 8 cm
- very fine-grained
- medium grey varying to greenish grey or brownish grey in color
- weakly to strongly laminated
- local chalky white laminations
- carbonate along fractures only
- minor coal (bitumen)

126.3	Laminated @ 50 deg tca
126.6	Lower contact @ 50 deg tca
126.6 - 132.5 m	**INTERBEDDED SANDSTONE/ SILTSTONE/ SHALE** - 65% sandstone/ 25% siltstone/ 10% shale - sandstone: fine to medium-grained/ light grey color/ weakly to very strongly bedded/ contorted bedding/ minor cross-bedding - siltstone: light to medium grey color/ massive to strongly bedded - shale: varies from friable and brownish grey in color to competent and black in color - local flame structures - only the sandstone is calcareous
129.9 - 130.0	Mud seam containing angular siltstone clasts
130.3	Sandstone, strongly bedded @ 40 deg tca
132.5 - 152.55 m	**SANDSTONE** - same as at 38.2 - 120.8 m - massive to moderately bedded - local cm scale medium to fine-grained beds intercalated with coarse-grained sandstone. - Generally fining down section (alternating coarse and fine beds)
132.5	Upper contact with overlying fine-grained sandstone @ 42 deg tca
142.4	Bedding @ 40 deg tca
152.55	Contact @ 60 deg tca
152.55 - 160.6 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE** - 40% shale/ 30% siltstone/ 30% sandstone - local coal - general coarsening down section - shale: varies to mudstone/ dark grey to black in color/ massive to laminated/ non to weakly calcareous/ competent to very friable with blocky fracture/ locally fissile - siltstone: light grey to greenish grey color/ massive to laminated/ competent/ calcareous - sandstone: light grey in color/ fine-grained varying to medium-grained/strongly bedded/ calcareous
158.6	Shale laminated @ 42 deg tca
159.9 - 160.2	Contorted, folded siltstone and sandstone. Flame structures
160.6 - 164.7 m	**SANDSTONE** - differs texturally but not compositionally from previous sandstone - fine to medium-grained sandstone - weakly to moderately bedded @ 55-60 deg tca - light grey color - competent - calcareous
164.4 - 164.7	Siltstone laminated @ 45 deg tca. Upper contact @ 45 deg tca. Lower contact @ 55 deg tca. Dull, light to medium grey color.
164.7 - 185.85 m	**SANDSTONE** - as at 38.2 - 120.8 m - 5% broken up into 1-5 cm fragments - uniform - massive to weakly bedded @ 60 deg tca
185.5 - 185.85	5-8% clasts of rounded, cherty, light brown ironstone(?) plus elongate,

	rounded grey mudstone and shale clasts plus rare exotics. Clasts 1 to 2 cm size. 1-2% sigmoidal and discontinuous stringers and chunks of coal.
185.85 - 188.1 m	**MUDSTONE** - fine-grained - medium grey color - weakly bedded @ 58 deg tca - competent, varying to very friable and soft/ blocky fracture - local coal - very weakly to non-calcareous
188.1 m	**EOH**

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC19-1	Date Started:	February 17/97
Dip:	- 90 Deg	Date Completed:	February 19/97
Northing:	5954445	Core Size:	NQ
Easting:	458669	Date Logged:	February 21/97
Drill Contractor:	Aggressive	Logged By:	S. Ball

0.0 - 24.7 m	**OVERBURDEN** - peat/ clay/ pebbles of quartzite
12.2 - 12.25	Organic clay
12.25 - 15.0	Light grey in color, massive, highly calcareous clay
15.0 - 15.24	Sandstone boulder
15.24 - 24.7	Medium grey to greenish grey color clay containing 10% quartzite clasts up to 4 cm size, rounded.
24.7 - 91.0 m	**SANDSTONE** - medium to very coarse-grained (mainly coarse) - weakly bedded - light grey to yellowish grey in color - common groundwater alteration especially along fractures - 1% shale/mudstone fragments concentrated especially where unit is coarser - very uniform appearance - calcareous - minor coal seams, up to 2 cm size - competent, >90% recovery - composed of grains of quartz/feldspar/hornblende, minor mica.
24.7 - 26.9	Blocky. Average unbroken length 4 cm. Fractured cleanly, @90 deg tca
47.7	Bedding @ 75 deg tca
59.65	Rounded quartzite clast, 3 cm size
82.55 - 82.6	35% subangular to subround shale fragments
87.48 - 87.7	Mudstone: Very competent/hard; brown in color; calcareous
88.6 - 90.5	Very coarse sandstone containing fragments of quartzite, mudstone, mixed exotics up to 4cm size, but <1 cm average size
91.0 - 96.7 m	**SHALE/ MUDSTONE** - very fine-grained - medium to dark, dull grey color - friable to very friable/ blocky fracture - weakly to moderately laminated - local beds of fine-grained sandstone
96.7 - 111.9 m	**SANDSTONE** - as uphole - locally beds of coarse-grained sandstone are intercalated(cm scale) with medium-grained sandstone

	- minor mm scale coal stringers
96.7 - 99.2	Fine-grained sandstone
111.9 - 120.15 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE** - shales and sandstone similar to uphole - siltstone: fine-grained; light grey in color; massive to strongly bedded - sandstone: light grey in color; laminated - 40% sandstone/ 35% siltstone/ 25% shale
118.2	Fine-grained sandstone, laminated @ 77 deg tca
120.15 - 138.55 m	**SANDSTONE** - as uphole - very uniform - massive to laminated - medium to coarse-grained with <5% very finely laminated intervals (contacts between coarse and fine units sharp)
122.35 - 122.5	Fine-grained sandstone bed. Upper and lower contacts @ 85 deg tca
126.5 - 126.7	Fine-grained sandstone bed. Upper contact @ 60 deg tca. Lower @ 63 deg tca
137.9 - 138.55	Common coal strings, mm scale. 5% subrounded clasts of shale and light brown chert; 2mm - 2 cm size (0.5 cm average size)
138.55 - 163.6 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE** - units as uphole - 40% shale/ 20% siltstone/ 40% sandstone - relatively competent, recovery >90% - shale: Massive to laminated/ varies to mudstone/ non-calcareous to weakly calcareous/ less competent than other units/ medium grey to black in color/ local ironstone(?) clasts throughout/ locally waxy and friable. - sandstone: Light grey color/ massive to strongly laminated/ calcareous - siltstone: Light to medium grey color/ calcareous - coal occurs locally. Core more broken up around and within coal seams
143.3	Fine-grained sandstone, strongly laminated @ 78 deg tca
157.6	Fine-grained sandstone, strongly laminated @ 80 deg tca
163.6 - 167.7 m	**SANDSTONE** - as uphole - brownish grey to light grey color - local coal seams and discontinuous stringers - very weak varying to moderate bedding @ 55-80 deg tca
163.6 - 164.0	Brownish grey color
167.7 - 173.9 m	**INTERBEDDED SHALE/ SILTSTONE** - units as uphole - non-calcareous - common coal/ rock friable around coal seams - light grey to medium greenish grey color throughout - locally shale has a chalky grey-white surface exfoliation - siltstone 75% massive/ 25% laminated - shale 20% massive/ 80% laminated - bedding @ 75-85 deg tca
169.6	Flame structure, 3 cm length

173.9 - 178.3 m	**SANDSTONE** - as uphole - upper contact gradational/ lower @ 75 deg tca - local cross-bedding - weakly to moderately calcareous - weak bedding @ 50-85 deg tca
178.0	Bedding @ 65 deg tca
178.3 - 188.06 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE** - units as uphole - 40% shale: medium grey color/ weakly calcareous/ weak bedding/ competent/ rare brown laminations. - 35% sandstone: fine-grained/ competent/ strongly bedded - 25% siltstone: laminated/ locally cross-bedded - common coal - local flame structures - 20% of shale friable, waxy, greenish grey color
184.7 - 185.0	Contorted bedding
185.7 - 188.06	Fossiliferous shale (bivalves/gastropods)
188.06 m	**EOH**

Representative Sample

51.4 - 51.45 m	Coarse sandstone

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC19-2	Date Started:	February 19/97
Dip:	-50 Deg	Date Completed:	February 21/97
Northing:	5954515	Core Size:	NQ
Easting:	458636	Date Logged:	February 23/97
Drill Contractor:	Aggressive	Logged By:	S. Ball
Azimuth:	330 Deg		

0.0 - 35.6 m	**OVERBURDEN** - peat/clay - boulders quartzite (70%)/ slate/ sandstone/ mixed exotics
31.0 - 31.1	Sandy clay
35.6 - 126.3 m	**SANDSTONE** - light grey in color - medium to very coarse-grained - weakly bedded - composed of grains of quartz/feldspar/hornblende/ mica - very uniform appearance throughout - local brownish groundwater alteration, concentrated around fractures - mm scale coal seams common - very competent. Average unbroken length 30 cm. - rare shale beds <30 cm length - local conglomerate sequences containing subrounded to subangular clasts of mainly mudstone and rare rounded chert and quartzite - calcareous
41.7	Bedding @ 45 deg tca
51.0	Bedding @ 53 deg tca
71.6 - 72.0	20% clasts of mainly quartzite, minor shale, jasper, and mixed exotics. Clasts are subangular to rounded. Average size 0.4 cm. Interval is weakly bedded @ 45 deg tca. Contains one 4cm size, rounded quartzite clast.
103.2	Coal stringers parallel bedding @ 60 deg tca
103.7 - 104.6	Subround, 1 cm average size, clasts mudstone/shale
107.3 - 107.6	Dark grey shale bed. Blocky fracture. Upper contact @ 30 deg tca. Lower @ 47 deg tca.
109.6 - 110.0	15% mudstone clasts, 0.5 - 3cm size
111.6 - 111.9	Common coal 'clots' and discontinuous stringers
111.9 - 113.45	30% ironstone clasts up to 5 cm size. Subround to subangular. Greenish grey and dark grey colors
124.6 - 124.9	20% fragments ironstone/chert/quartzite in very coarse sandstone
126.3 - 134.7 m	**INTERBEDDED SHALE/ SILTSTONE/ SANDSTONE** - 65% shale/ 25% siltstone/ 10% sandstone - moderately to strongly bedded - shale grey-green to dark grey in color/ siltstone and sandstone light grey in

	color - frequency of siltstone and sandstone beds increases down section - shale locally very friable/ blocky fracture/ soft and clayey - local chalky white, friable intervals of clay. Dull varying to sugary texture
126.3	Contact @ 37 deg tca
129.8	Shale laminated @ 45 deg tca
130.15 - 130.2	Mud seam containing angular, 0.5-2 cm size shale fragments
130.3 - 130.85	Chalky grey, sugary textured, very friable shale. Locally micaceous
130.85 - 131.3	Coal and shale intercalated. Shale very soft/ deforms with hands like mud
133.9	Bedding mm scale @ 55 deg tca
134.7 - 136.1 m	**STRONGLY BEDDED SANDSTONE** - fine-grained sandstone interbedded with medium-grained sandstone - strongly bedded - composed of grains of quartz/feldspar/hornblende/mica - local cross-bedding - upper contact @ 50 deg tca. Lower @ 30 deg tca - locally laminated with 1mm size black beds (coal?)
136.1 - 154.53 m	**SANDSTONE** -as at 35.6-126.3m - medium to very coarse-grained - calcareous - massive to moderately bedded
148.5	Bedding @ 45 deg tca
154.53 - 165.6 m	**INTERBEDDED SHALE/SANDSTONE/SILTSTONE** - units as uphole - weakly to strongly laminated - 35% shale/ 35% sandstone/ 30% siltstone - shale dark grey to black in color/ siltstone and sandstone light grey in color - local contorted laminations and flame structures - minor coal - sandstone is calcareous/ shale and siltstone non-calcareous varying to weakly calcareous
156.5	Laminated @ 52 deg tca
159.9	Laminated @ 45 deg tca
165.6 - 178.92 m	**SANDSTONE** - as uphole - medium-grained - very uniform - massive to weakly bedded (cm scale) - very rare, local siltstone beds, <5 cm length.
173.0	Bedding @ 55 deg tca
178.92 m	**EOH**

Representative Sample

111.86 - 112.05 m	Conglomerate consisting of ironstone clasts in sandstone
126.7 - 126.8 m	Friable, greyish green shale

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC20-1	Date Started:	Feb 1/97
Dip:	-90 Deg	Date Completed:	Feb 6/97
Northing:	5973210	Core Size:	NQ
Easting:	435812	Date Logged:	Feb 7/97
Drill Contractor:	Aggressive	Logged By:	S. Ball

0.0 - 9.14 m

OVERBURDEN
- peat and clay

9.14 - 15.2 m

SHALE/SILTSTONE/COAL
- blocky ground
- common mud seams between blocks
- 3-4 cm average unbroken length
- weakly calcareous to non-calcareous

15.2 - 18.75 m

INTERBEDDED SHALE/SILTSTONE/SANDSTONE
- moderately competent; >90% recovery; 12 cm average unbroken length
- calcareous throughout
- all units are soft/ scratch easily with knife
- coal seams occur locally. May contain (rare) amber
- shale: medium to dark grey color
  laminated
  fine grained
- siltstone: light grey color
  fine grained
  weakly to moderately bedded
- sandstone: medium grey color
  fine to medium grained
  weakly to moderately bedded
  composed of grains of quartz/feldspar/hornblende

14.3 - 15.4 Common mud seams within massive siltstone unit

17.0 Shale laminated @ 80 deg tca

18.75 - 71.0 m

INTERBEDDED SANDSTONE/SHALE
- sandstone: light grey to brownish grey
  medium to coarse grained
  strongly bedded
  compositionally similar to sandstone uphole/calcareous
  contains local conglomerate beds, 10-15 cm length/clasts of quartz/shale/soft mudstone/jasper/chert
- shale: dark grey color
  laminated
  calcareous
  fossiliferous (gastropods/bivalves)
- contacts between units generally very sharp. Locally may grade to siltstone between contacts (over not more than 30 cm).

18.75 - 19.0	Subround shale clasts
20.7 - 21.8	Common cross-bedding
22.8	Bedding @ 78 deg tca
24.45 - 24.6	Clasts of sandstone/shale and mudstone (dominantly)/quartz/chert. Subround and elongate parallel to bedding @ 78 deg tca. Clasts 1-3 cm size.
24.8 - 24.9	Clasts as above
24.9 - 29.0	Fine grained, competent, dark grey to black, fossiliferous shale. Upper contact sharp @ 82 deg tca; lower @ 87 deg tca.
29.0	Coarse grained sandstone, fining downsection.
33.0 - 36.9	Shale sequence. Upper contact gradational; Lower sharp, but slightly irregular @ 80 deg tca.
36.9 - 52.2	Very competent sandstone interval. Coarse to very coarse grained with <5% rock fragments throughout, but normally concentrated in thin beds 5-10 cm wide. Some well defined beds of fine grained sandstone. Contacts sharp (erosional?). Generally massive, but locally bedded. Lower contact (with fine grained sandstone) sharp @ 65 deg tca
39.0	Contact with fine grained sandstone sharp @ 75 deg tca
48.8 - 48.85	Vuggy. Chert and jasper clasts.
55.9 - 56.2	Fine grained sandstone bedded @ 85 deg tca. Upper contact sharp @ 88 deg tca. Lower contact sharp @ 65 deg tca (Contact with coarser sandstone).
57.6 - 59.2	Alternating beds of shale and siltstone
62.5 - 63.4	Shale
65.9 - 66.2	Bituminous coal
66.2	Blocky fracture, 1-2 cm average lengths. Silty shale, grey-green in color.
70.4	Strongly bedded sandstone @ 70 deg tca
71.0 - 181.97 m	**SHALES locally interbedded with SILTSTONE and/or SANDSTONE** - units similar to those uphole - shales 70% ; siltstone and fine to medium grained sandstone 30%. - medium grey to black color - mainly massive, but varies locally to strongly bedded - common coal seams. Local mud seams - calcareous - local shell fragments (gastropods/bivalves) - local green-brown alteration zones - minor calcite fracture fill
71.0 - 72.3	Core broken up into 3-4 cm average size chunks. Coal and shale.
71.75 - 71.8	Waxy, soft, green colored seam
80.8	Sandstone/shale contact with worm burrow tube(?) oriented down section. Contact slightly irregular @ 85 deg tca
81.3	Abundant amber in coal
81.38 - 82.8	Medium grained sandstone. Weakly bedded @ 60-80 deg tca. Upper contact with coal has a blackened appearance. Lower contact @ 70 deg tca
84.6 -84.9	Chalky grey/friable/waxy texture
88.9	Shale, well laminated @ 82 deg tca
90.6 - 90.8	Bivalve/gastropod fragments
97.0 - 100.0	70% coal. Local very friable, chalky, green-grey colored intervals
104.0 - 121.0	Sandstone beds increasing in frequency. Local coarse sandstone.
120.6	Sandstone bedded @ 70 deg tca
143.3	Fine grained sandstone, bedded @ 66 deg tca
143.8 - 144.1	Laminated siltstone/shale. Local cross-bedding and truncated beds (cm scale). Minor contorted laminations.
148.6	Load structure. Worm burrow(?) Sandstone into shale
149.4 - 149.45	Band of fine grained, green-grey, highly calcareous rock with phenocrysts

148.6	Load structure. Worm burrow(?) Sandstone into shale
149.4 - 149.45	Band of fine grained, green-grey, highly calcareous rock with phenocrysts of carbonate. Irregular orientation roughly @ 70 deg tca. Rep Sample taken.
156.4	Load structures
161.7 - 163.45	Very fissile/platy fracture within shales and coal
163.3 - 163.4	Waxy, green, soft interval
169.7	Flame structure
177.25 - 177.7	Very soft grading to less soft. Crumbles with hands.
177.5 - 177.7	Blocky fracture. Breaks into elongate subrounded to subangular "clast" shapes <1 cm size.

181.97 **EOH**

SAMPLES TAKEN

149.4 - 149.45 m	Carbonate rich rock. Thin Section to identify rock type.

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC20-2	Date Started:	Feb 5/97
Dip:	-50 Deg	Date Completed:	Feb 6/97
Northing:	5973152	Core Size:	NQ
Easting:	435778	Date Logged:	Feb 8/97
Drill Contractor:	Aggressive	Logged By:	S. Ball
Azimuth:	214 Deg		

0.0 - 12.1 m	**OVERBURDEN** - cohesive massive clay, light grey in color
12.1 - 18.4 m	**SANDSTONE/SILTSTONE/SHALE** - blocky ground - recovery >80%, pieces average 5 cm length - mainly non-calcareous varying to moderately calcareous - common mud seams
18.4 - 25.3 m	**INTERBEDDED SHALES/SILTSTONE/SANDSTONE** - all units vary from massive to strongly bedded - calcareous - shale to siltstone contacts generally gradational. Sharp contacts, sandstone to shale - shale: fine-grained/ dark grey to black in color - siltstone: fine-grained/ light grey color - sandstone: fine to medium-grained/ light grey color - common open fractures parallel bedding @ 45-55 deg tca - coal occurs locally
25.3 - 31.0 m	**SANDSTONE** - fine to coarse- grained - light grey color - composed of grains of quartz/feldspar/hornblende/mica and minor rock fragments - strongly bedded @ 40-55 deg tca (mm to cm scale bedding) - calcareous
29.7	Well bedded @ 40 deg tca
30.2 - 31.0	Medium-grained, grading downsection to coarse-grained
30.8 - 30.9	Conglomerate bed consisting of fragments of shale in sandstone matrix
30.95 - 31.0	Very coarse, massive sandstone
31.0	Lower contact sharp @ 58 deg tca
31.0 - 37.5 m	**SHALE** - fine-grained - dark grey in color - massive to strongly laminated - fissile

	- competent. Recovery >90%.
	- fossiliferous (bivalves/gastropods)
	- calcareous
35.8	Laminated @ 53 deg tca
37.5	Lower contact @ 45 deg tca
37.5 - 43.0 m	**SANDSTONE**
	-as uphole
	- light grey to medium grey color
	- grain size varies dramatically from very coarse upsection to fine-grained downsection.
	- locally massive, but generally moderately to strongly bedded @ 45-60 deg tca
	- calcareous
	- very competent. Recovery >90%. Average unbroken length 40 cm.
	- grades locally to siltstone
	- local discontinuous to very fine (<0.5 mm) coal stringers.
43.0 - 47.85 m	**SILTSTONE/LOCAL SHALES**
	- competent. >90% recovery
	- medium grey color
	- fine-grained
	- calcareous
	- well bedded (laminated) @ 50 deg tca
	- shales fissile
47.8 - 47.85	Mud seam
47.85 - 78.3 m	**SANDSTONE**
	- as uphole
	- massive to moderately bedded (Mainly massive)
	- light grey color
	- calcareous
	- contains 1% shale fragments (concentrated in coarser grained intervals)
	- medium to very coarse-grained
	- highly competent. Recovery >90%. Unbroken lengths average 40 cm
	- upper contact sharp @ 50 deg tca
54.5	Weakly bedded @ 45 deg tca
54.5 - 56.1	Very coarse with shale fragments up to 1 cm size
56.5 - 57.9	Abundant (25%) clasts; 1-6 cm size/ hard, brown mudstone(chert?)and grey shale clasts/rounded. 5-10% are shale clasts; 15-20% are ironstone. Brown ironstone clasts have a higher magnetic susceptibility (0.6-1.4) than matrix. Representative Sample taken from 56.5 - 56.6 m.
71.0 - 71.7	Core broken up 2-4 cm chunks.
75.1	Strongly bedded @ 45 deg tca
76.1 - 76.8	Finely bedded (mm scale) @ 49 deg tca
78.3 - 78.8 m	**BITUMINOUS COAL SEAM**
	- black/ friable
78.8 - 81.2 m	**BLACK SHALE**
	- dark grey to black in color
	- fine grained
	- competent, recovery >90%
	- massive/ locally mottled brown (with higher magnetic susceptibility)
	- lower contact gradational to fine-grained sandstone

81.2 - 85.8 m	**SANDSTONE** - as uphole - weakly to moderately calcareous - bedded @ 45-50 deg tca - local shale beds up to 10 cm length
84.5	Flame structure
85.8	Contact @ 55 deg tca
85.8 - 117.6 m	**INTERBEDDED SHALES/SILTSTONE/SANDSTONE** - units as uphole - competent throughout, >90% recovery - local coal seams - local brown ironstone layers/clasts, some cherty clasts - weakly to moderately calcareous - 20% sandstone: fine-grained - 40% siltstone: fine-grained/ light grey color/ massive to weakly bedded - 40% shale: fine-grained/ massive/ locally friable/ medium to dark grey color/ locally fossiliferous
88.0	Siltstone laminated @ 58 deg tca
90.5 - 90.9	Friable/ blocky fracture/ green-grey color
92.9	Mud seam
94.7 - 94.9	Core broken up into 2-3 cm chunks of coal
99.6	Shale bedded @ 54 deg tca
101.5	Frequency of sandstone beds increasing downsection
106.0	Ironstone clast, 2 cm, rounded
108.9 - 117.6	Sandstone beds and coal seams increase in frequency. Locally strongly bedded
112.3	Sandstone/Shale contact @ 52 deg tca
114.7 - 115.2	Waxy, green in color, friable
115.2 - 115.6	30% ironstone clasts/ rounded/ higher magnetic susceptibility than matrix
117.6	Flame structure
117.6 - 120.7 m	**SANDSTONE** - as uphole - fine to medium-grained - weakly to strongly bedded - grades to siltstone downhole
119.0	Well bedded @ 65 deg tca
120.7 - 140.6 m	**INTERBEDDED SHALES/SILTSTONE** - units as uphole - grey to black in color - massive to strongly laminated - calcareous throughout - common coal seams - competent, recovery >90% - fossiliferous - minor fine-grained sandstone beds - local clasts of brown, ironstone up to 4 cm size with higher magnetic susceptibility than matrix.
129.6 - 129.75	Interval of brown ironstone
130.3	Flame structures
130.3 - 130.6	Contorted/folded bedding
132.0 - 135.0	Abundant coal. Core a bit broken up. Locally waxy/greenish in color/soft.
138.6 - 139.1	Core soft (clayey)/ broken up

140.6 - 144.25 m	**SANDSTONE** - as uphole - weakly to strongly bedded - medium to fine-grained - upper contact gradational; lower contact @ 35 deg tca
140.7 - 141.2	Core very soft/ breaks with hands
143.3 - 143.5	Fold
143.7	Bedded (cm scale) @ 40 deg tca
144.25 - 194.16 m	**INTERBEDDED SHALES/SILTSTONE/SANDSTONE** - units as uphole - weakly to strongly bedded throughout - locally clayey / waxy / green to chalky in color - competent throughout; >90% recovery - minor coal seams - 50% shale: Dark grey color/ fine-grained/ massive/ locally fissile - 30% siltstone: Light to medium grey to green-grey color/ fine-grained - 20% sandstone: Fine-grained/ light grey in color
152.3	Laminated @ 52 deg tca. Cross-bedding (cm scale)
166.0	Shale laminated @ 45 deg tca
181.9	Siltstone/ Shales interbedded @ 45 deg tca
185.4	Strongly laminated shales @ 40 deg tca
194.16 m	**EOH**

REPRESENTATIVE SAMPLES

56.5 - 56.6 m	Brown ironstone clasts in sandstone matrix

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC44-1	Date Started:	February 27/97
Dip:	-90 Deg	Date Completed:	February 28/97
Northing:	5975640	Core Size:	NQ
Easting:	465825	Date Logged:	March 3/97
Drill Contractor:	Aggressive	Logged By:	S. Ball

0.0 - 13.0 m	**OVERBURDEN** - peat and clay - mudstone and quartzite boulders
13.0 - 22.7 m	**INTERBEDDED SANDSTONE/ SILTSTONE/ MUDSTONE** - 40% sandstone/ 35% siltstone/ 25% mudstone - sandstone: Fine to medium-grained/ mainly strongly bedded, locally massive/ common cross-bedding (cm scale beds)/ light grey in color/ calcareous/ composed of grains of quartz, feldspar, hornblende, mica. - siltstone: Fine-grained/ medium to dark grey color, locally greenish grey/ calcareous/ locally very soft and friable. - mudstone: Very fine-grained/ medium grey to brownish in color/ massive to weakly laminated/ soft, locally malleable/ calcareous. - common mud seams and broken core throughout. >85% recovery
13.2 - 13.5	Core broken up/muddy
16.76 - 17.0	Mud seam
18.1 - 21.0	Sandstone finely bedded @ 70-85 deg tca. Common cross-bedding
20.42 - 22.7	Sandstone broken up into chunks up to 4 cm size. Approx. 60 cm core lost.
22.7 - 61.6 m	**SANDSTONE** - light grey in color - medium to coarse-grained. Mainly coarse. - weakly bedded to massive - competent/ >90% recovery - composed of grains of quartz/feldspar/hornblende/mica - 1-2 % rock fragments throughout (mainly mudstone or quartzite up to 3 cm size/ rounded to subrounded) - calcareous
33.2 - 33.8	Blocky/ open fractures @ 90 deg tca every 2-4 cm
57.3 - 57.4	20% mudstone clasts up to 2 cm size; rounded
60.45 - 60.55	10% quartzite/ mudstone/ mixed exotic clasts in sandstone; subrounded
60.6 - 60.7	Mud seam containing 1- 4 cm size rounded quartzite clasts
61.6 - 84.8 m	**INTERBEDDED SILTSTONE/ SANDSTONE/ SHALE and MUDSTONE** -as uphole - 50% siltstone/ 10% sandstone/ 40% shale and mudstone - sandstone: Fine-grained/ locally cross-bedded - siltstone: Friable/ blocky fracture/ non to strongly calcareous

	- shale and mudstone: Grey to black in color/ massive to laminated/ fissile to blocky fracture/ non to strongly calcareous. - massive to weakly laminated throughout - relatively competent; average unbroken length 7 cm. - local coal
66.6	Shale laminated @ 75 deg tca
74.9 - 75.0	Very hard, carbonate rich, coarse textured rock
78.3	Laminated @ 80 deg tca
84.8	Contact @ 75 deg tca
84.8 - 136.25 m	**SANDSTONE** - as uphole (22.7-61.6 m) - mainly coarse-grained, but varies to medium-grained - minor coal - 1-3% mudstone clasts up to 7 cm size, rounded - massive to weakly bedded - 1% fragments quartzite, chert and siltstone up to 3 cm size. Locally concentrated in conglomerate beds.
119.9	Bedding @ 85 deg tca
136.15 - 136.25	Conglomerate bed consisting of 25% rounded clasts of quartzite/mudstone/
chert	up to 3 cm size.
136.25 m	**EOH**

Representative Sample

74.9 - 74.95	Very competent, carbonate-rich rock

Samples to be crushed and checked for indicators:

22.8 - 61.6 m	VR63695A
84.8 - 136.2 m	VR63696A

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC44-2	Date Started:	March 1/97
Dip:	- 50 Deg	Date Completed:	March 2/97
Northing:	5975575	Core Size:	NQ
Easting:	465830	Date Logged:	March 4/97
Drill Contractor:	Aggressive	Logged By:	S. Ball
Azimuth:	177 Deg		

0.0 - 15.4 m	**OVERBURDEN** - clay - boulders of quartzite and mudstone
15.4 - 22.8 m	**INTERBEDDED MUDSTONE/SANDSTONE/SILTSTONE** - 45% mudstone; 45% sandstone; 10% siltstone - mudstone: very fine-grained; massive to laminated; very soft and malleable varying to competent; blocky fracture/locally fissile; medium greenish grey color. - sandstone: fine-grained; massive to laminated; light grey in color; highly competent. - siltstone: fine-grained; massive; light to medium grey in color. - calcareous throughout - > 90% recovery throughout - local coal, very fissile - local mud seams
16.9 - 17.0	Clasts of carbonate-rich mudstone in a mudstone matrix. Clasts subangular and up to 1cm size.
20.4	Sandstone bedded @ 62 deg tca (cm scale bedding)
21.7 - 21.8	Mud seam; greenish clay containing mudstone fragments
21.9 - 22.0	Mud seam; greenish clay containing mudstone fragments
22.8 - 82.9 m	**SANDSTONE** - medium to coarse-grained. Medium-grained near top of section/ dominantly coarse-grained throughout - light to medium grey in color, locally brownish - generally competent throughout. Some broken intervals. Average unbroken length 15 cm. - massive to moderately well bedded - calcareous - composed of grains of quartz, feldspar, hornblende, mica. - local quartzite clasts - rare mudstone fragments up to 0.7 cm size, subangular - minor coal stringers - locally, medium-grained sandstone beds alternate with coarse beds
24.0	Bedding @ 48 deg tca (cm scale)
56.0	Bedding @ 38 deg tca
67.0 - 67.2	Open fracture set @ 48 - 50 deg tca, parallels bedding

71.7 - 82.9	Coarse sandstone containing locally abundant clasts of mudstone, quartzite, chert, mixed exotics/ rounded to subangular/ up to 5 cm size. Minor coal chunks.
72.2 - 73.3	5% rock fragments
80.8 - 81.0	30% rock fragments. mudstone/ ironstone/ mixed exotics/ coal. Subround to subangular in nature.
81.38 - 81.5	Rounded quartzite clasts, 4 cm size.
82.9 - 113.4 m	**INTERBEDDED SILTSTONE/ MUDSTONE/ SANDSTONE** - units as uphole - massive to laminated throughout - local conglomerate beds - rare coal - > 90% recovery - mudstone: varies from friable blocky fracture to locally fissile/ locally fossiliferous/ non to strongly calcareous/ increases in abundance down section - sandstone: fine-grained/ calcareous - siltstone: non to strongly calcareous
96.5	Mudstone laminated @ 54 deg tca
102.95 - 103.45	35% rounded to subangular clasts of mostly mudstone plus a few exotics/ 1-2 cm average size/ abundant carbonate
103.8	Siltstone laminated @ 53 deg tca
113.4	Contact @ 50 deg tca
113.4 - 180.75 m	**SANDSTONE** - as at 22.8 - 82.9 m - weakly bedded - 1- 4% mudstone fragments throughout/ 0.5 - 20 cm size/ subangular to subround/ locally aligned parallel to foliation
118.2	Bedding @ 50 deg tca
134.4	Bedding @ 35 deg tca
146.4 - 147.25	Very coarse-grained. 20% rock fragments of mudstone/ironstone/mixed exotics
171.9 - 172.15	Siltstone
172.8 - 173.7	Hard, highly calcareous mudstone
172.9 - 173.0	Polished fracture @ 20 deg tca
180.75	Contact parallels bedding @ 55 deg
180.75 - 185.01 m	**INTERBEDDED MUDSTONE/ SILTSTONE/ SANDSTONE** -as uphole - approximately equal proportions of each rock type - common coal seams up to 10 cm length - mudstone is very friable/ sandstone and siltstone very competent - sandstone weakly calcareous. Mudstone and siltstone non-calcareous
185.01 m	**EOH**

Representative Sample

147.5 - 147.7 m	Coarse-grained sandstone containing rock fragments

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC45-1	Date Started:	March 5/97
Dip:	- 90 Deg	Date Completed:	March 6/97
Northing:	5979835	Core Size:	NQ
Easting:	469238	Date Logged:	March 8/97
Drill Contractor:	Aggressive	Logged By:	S. Ball

0.0 - 14.5 m	**OVERBURDEN** - clay - boulders of quartzite (95%) and granite
14.5 - 32.4 m	**SANDSTONE** - light grey in color - medium to coarse-grained - relatively competent; >90% recovery; locally friable - calcareous - weakly to moderately bedded - composed of grains of quartz/feldspar/hornblende/mica - 1-3% mudstone clasts up to 3 cm size, subround to subangular - minor coal stringers
23.6	Bedding @ 70 deg tca
32.4 - 52.6 m	**INTERBEDDED MUDSTONE/SILTSTONE/SANDSTONE** - 35% mudstone/ 35% siltstone/ 30% sandstone - mudstone: light to medium grey varying to greenish grey in color; very fine-grained; varies from blocky fracture to fissile; massive to laminated; contains bivalve and gastropod fossils; calcareous; friable - siltstone: medium grey color; laminated; common cross-bedding; calcareous; competent; local contorted bedding - sandstone: fine to medium-grained; light grey in color; massive to strongly bedded; calcareous; competent
38.8	Sandstone bedded @ 58 deg tca
49.15	Mudstone/siltstone contact @ 65 deg tca
49.5	Truncated and contorted laminations in siltstone
52.6 - 127.1 m	**SANDSTONE** - as at 14.5 - 32.4 m - contains <1% quarzite clasts and 1-3% mudstone clasts - local fine-grained beds
52.6 - 56.8	Fine-grained, coarsening downsection to medium-grained
55.7	Bedding @ 84 deg tca
59.7	Bedding @ 63 deg tca
96.2 -96.3	Mudstone (clast? bed?). Includes narrow sand layer with flame structure
97.5 - 97.8	25% mudstone clasts up to 5 cm size, subangular to subround
100.0 - 100.25	Medium to fine-grained sandstone. Strongly bedded @ 78-85 deg tca. Contacts sharp, upper @ 80 deg tca; lower @ 85 deg tca
108.8 - 108.95	Round quartzite clast, 2 cm size and an angular, red (jasper?) clast, 2 cm size.

	10% mudstone clasts; 1% coal chunks.
121.15 - 124.0	Very coarse-grained sandstone. 20% rock fragments: mudstone, quartzite, mixed exotics. <1 to 15 cm size. Average size 0.5 cm. Some purple quartz clasts.
127.1 - 139.15 m	**INTERBEDDED SILTSTONE/ MUDSTONE/ SANDSTONE** - as uphole - calcareous throughout - minor coal - sandstone is fine to medium-grained and locally cross-bedded - mudstone is laminated/blocky fracture
135.9	Laminated @ 82 deg tca
139.15 - 139.29 m	**SANDSTONE** - as at 14.5 - 32.4 m
139.29 m	**EOH**

Samples (Crush and check for indicators):

14.4 - 32.4 m	VR63697A
52.6 - 91.7 m	VR63698A
91.7 - 127.1 m	VR63699A

KENNECOTT CANADA EXPLORATION INCORPORATED
1997 EXPLORATION DRILLING
MASUMEKA

Drill Hole:	97NC45-2	Date Started:	March 6/97
Dip:	- 50 Deg	Date Completed:	March 8/97
Northing:	5979887	Core Size:	NQ
Easting:	469215	Date Logged:	March 9/97
Drill Contractor:	Aggressive	Logged By:	S. Ball
Azimuth:	351 Deg		

0.0 - 16.8 m	**OVERBURDEN** - peat/clay - boulders of quartzite
16.8 - 17.9 m	**SILTSTONE** - fine-grained - medium to light grey color - sugary texture. Looks somewhat metamorphosed. - weakly bedded @ 45 deg tca - very competent
17.9 - 44.3 m	**SANDSTONE** - light grey in color - medium to coarse-grained - weakly to moderately bedded - calcareous - competent, >90% recovery - composed of grains of quartz/feldspar/hornblende/mica - <1% rock fragments. Mainly mudstone plus local quartzite and mixed exotics.
17.9 - 18.8	Finer-grained, harder, interval. A bit metamorphosed?
22.3	Bedding @ 60 deg tca
44.3 - 52.5 m	**INTERBEDDED MUDSTONE/SILTSTONE** - 90% mudstone/ 10% siltstone - mudstone: very friable/ average unbroken length 5 cm/ blocky fracture/ medium greenish grey varying to dark grey/ locally fissile/ calcareous/ contains local bivalves and gastropod fragments/ massive to laminated/ rare rounded clasts of a slightly more competent, brownish ironstone - siltstone: massive/ light grey in color/ fine-grained/ calcareous/ competent
51.5	Mudstone laminated @ 55 deg tca
52.5 - 55.7 m	**SANDSTONE** - light grey color - medium-grained - calcareous

	- very competent - weakly bedded - a somewhat "baked' appearance
52.5 - 52.6	Reddish brown, fine-grained sandstone. Contacts sharp. Upper @ 40 deg tca; lower @ 55 deg tca
53.8	Bedding @ 55 deg tca
54.2 - 55.7	Unit becomes medium to coarse-grained
55.7 - 72.8 m	**INTERBEDDED SANDSTONE/ SILTSTONE/ MUDSTONE** - as uphole - non to moderately calcareous throughout - sandstone: fine-grained; strongly bedded; locally cross-bedded - common coal seams/stringers
57.0	Sandstone bedded @ 35 deg tca (cm scale)
68.3	Flame structure
72.8 - 173.9 m	**SANDSTONE** - as at 17.9 - 44.3 m - locally finer grained and strongly bedded - very competent. Average unbroken length 35 cm - minor coal stringers - 1-5% grey mudstone clasts; subround; 1-2 cm average size, but ranging up to 20 cm; locally concentrated in conglomerate beds. - 1% rounded quartzite clasts. May occur independent of, or in beds with mudstone clasts. Average size 1-2 cm
72.8 - 76.15	Fine-grained. Strongly bedded @ 45-50 deg tca
98.3 - 98.7	30% mudstone clasts; subangular to subround; aligned parallel to bedding @ 52 deg tca; <1 - 3 cm size
99.1 - 99.2	50% mudstone clasts; <1 - 3 cm size
99.7 - 100.6	40% mudstone clasts; <1 - 5 cm size; grey and greenish grey in color
100.6 - 101.0	Sigmoidal, discontinuous coal stringers
100.9	0.75 cm size pyrite chunk
101.0 - 101.5	35% clasts of 1 cm average size; rounded to subangular. Mudstone, ironstone(?), quartzite, coal chunks, chert.
104.5 - 105.2	Sigmoidal, discontinuous coal stringers
110.8	Bedding @ 45 deg tca
133.1	Bedding @ 60 deg tca
143.0 - 143.5	Conglomerate bed. Approx. 50% clasts (mudstone/quartzite etc) in sandstone matrix
144.4 - 144.9	Shale bed (clast?). Friable
144.9 - 144.95	Conglomerate bed as at 143.0m
169.0 - 170.45	5% ironstone clasts; rounded; <1-3 cm size; brown in color. Also 5% mudstone. Clasts oriented parallel to bedding @ 70 deg tca
173.9 - 178.92 m	**INTERBEDDED MUDSTONE/ SILTSTONE** - as uphole - weakly laminated @ 45 deg tca on average
173.9	Contact @ 55 deg tca
178.92 m	**EOH**

Representative Sample:

160.75 - 160.85 m	Sandstone containing clasts of mudstone, mixed exotics

APPENDIX XI

HEAVY MINERAL ANALYSIS RESULTS: DIAMOND DRILL CORE

KENNECOTT CANADA EXPLORATION INC.
1300 West Walsh Street
Thunder Bay, Ontario
P7E 4X4

sampchar	prefix	sampnum	suffix	sieve	fraction	pyr	ecl	cpx	ilm	chr	opx	oli	remarks	picker	date
VR63695A	VR	63695	A	40	MAG	0	0	0	0	0	0	0		ZM	24-Apr-97
VR63696A	VR	63696	A	40	MAG	0	0	0	0	0	0	0		ZM	17-Apr-97
VR63697A	VR	63697	A	40	MAG	0	0	0	0	0	0	0		ZM	24-Apr-97
VR63698A	VR	63698	A	40	MAG	0	0	0	0	0	0	1		ZM	17-Apr-97
VR63699A	VR	63699	A	40	MAG	0	0	0	0	0	0	0		ZM	24-Apr-97

APPENDIX XII

I.C.P. ANALYSIS RESULTS

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

A96444

Comments: ATTN: ROB VAN EDGMOND

CERTIFICATE A9644423

(KAV) - KENNECOTT CANADA, INC.

Project: 60-511-3
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 14-JAN-97.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	145	Dry, sieve to -80 mesh
202	145	save reject
3289	145	X-RAY pellet prep charge
285	145	ICP - HF digestion charge

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
983	145	Au ppb: Fuse 30 g sample	FA-AAS	5	10000
578	145	Ag ppm: 24 element, rock & core	AAS	0.2	100.0
573	145	Al %: 24 element, rock & core	ICP-AES	0.01	25.0
565	145	Ba ppm: 24 element, rock & core	ICP-AES	10	10000
575	145	Be ppm: 24 element, rock & core	ICP-AES	0.5	1000
561	145	Bi ppm: 24 element, rock & core	ICP-AES	2	10000
576	145	Ca %: 24 element, rock & core	ICP-AES	0.01	25.0
562	145	Cd ppm: 24 element, rock & core	ICP-AES	0.5	500
563	145	Co ppm: 24 element, rock & core	ICP-AES	1	10000
569	145	Cr ppm: 24 element, rock & core	ICP-AES	1	10000
577	145	Cu ppm: 24 element, rock & core	ICP-AES	1	10000
566	145	Fe %: 24 element, rock & core	ICP-AES	0.01	25.0
584	145	K %: 24 element, rock & core	ICP-AES	0.01	10.00
570	145	Mg %: 24 element, rock & core	ICP-AES	0.01	15.00
568	145	Mn ppm: 24 element, rock & core	ICP-AES	5	10000
554	145	Mo ppm: 24 element, rock & core	ICP-AES	1	10000
583	145	Na %: 24 element, rock & core	ICP-AES	0.01	10.00
564	145	Ni ppm: 24 element, rock & core	ICP-AES	1	10000
559	145	P ppm: 24 element, rock & core	ICP-AES	10	10000
560	145	Pb ppm: 24 element, rock & core	AAS	2	10000
582	145	Sr ppm: 24 element, rock & core	ICP-AES	1	10000
579	145	Ti %: 24 element, rock & core	ICP-AES	0.01	10.00
572	145	V ppm: 24 element, rock & core	ICP-AES	1	10000
556	145	W ppm: 24 element, rock & core	ICP-AES	10	10000
558	145	Zn ppm: 24 element, rock & core	ICP-AES	2	10000
2891	145	Ba ppm: XRF	XRF	5	50000
2067	145	Rb ppm: XRF	XRF	2	50000
2898	145	Sr ppm: XRF	XRF	2	50000
2973	145	Nb ppm: XRF	XRF	2	50000
2978	145	Zr ppm: XRF	XRF	3	50000
2974	145	Y ppm: XRF	XRF	2	50000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

Project : 60-511-3
Comments: ATTN: ROB VAN EDGMOND

Page Number : 1-A
Total Pages : 4
Certificate Date: 14-JAN-97
Invoice No. : 19644423
P.O. Number :
Account : KAV

CERTIFICATE OF ANALYSIS A9644423

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm AAS	Al % (ICP)	Ba ppm (ICP)	Be ppm (ICP)	Bi ppm (ICP)	Ca % (ICP)	Cd ppm (ICP)	Co ppm (ICP)	Cr ppm (ICP)	Cu ppm (ICP)	Fe % (ICP)	K % (ICP)	Mg % (ICP)	Mn ppm (ICP)	Mo ppm (ICP)	Na % (ICP)	Ni ppm (ICP)	P ppm (ICP)
VR63502A	201	202	< 5	< 0.2	6.03	700	1.0	< 2	0.97	< 0.5	9	48	10	2.44	1.43	0.58	535	< 1	0.89	18	660
VR63506A	201	202	125	< 0.2	4.75	680	0.5	8	0.70	< 0.5	7	48	6	1.62	1.30	0.41	385	< 1	1.19	14	460
VR63508A	201	202	1300	< 0.2	5.72	790	1.0	< 2	1.03	< 0.5	10	53	14	2.47	1.34	0.55	805	< 1	0.96	24	700
VR63511A	201	202	15	< 0.2	5.10	710	1.0	< 2	0.81	< 0.5	7	44	7	1.71	1.32	0.46	350	< 1	0.97	13	660
VR63513A	201	202	< 5	< 0.2	5.65	820	1.0	2	1.06	1.0	19	53	16	3.93	0.91	0.45	3130	1	0.50	47	1990
VR63515A	201	202	< 5	< 0.2	4.47	690	0.5	< 2	1.11	0.5	6	40	9	1.60	1.04	0.45	150	1	0.91	16	820
VR63519A	201	202	< 5	< 0.2	5.45	700	1.0	< 2	2.11	0.5	10	53	12	2.49	1.34	0.95	310	< 1	1.11	24	820
VR63521A	201	202	< 5	< 0.2	4.62	590	0.5	< 2	2.20	< 0.5	9	39	9	1.94	1.31	0.69	535	< 1	0.91	20	660
VR63523A	201	202	< 5	< 0.2	6.23	750	1.0	< 2	0.65	0.5	9	52	14	2.48	1.37	0.58	375	< 1	1.01	25	680
VR63525A	201	202	< 5	< 0.2	4.08	560	0.5	< 2	0.83	< 0.5	4	27	5	1.08	1.10	0.36	205	< 1	0.91	12	510
VR63527A	201	202	65	< 0.2	5.21	800	0.5	< 2	1.24	< 0.5	9	42	9	2.23	1.35	0.68	380	1	0.93	16	770
VR63529A	201	202	< 5	< 0.2	5.15	700	0.5	2	2.50	0.5	10	45	9	2.01	1.35	0.85	670	< 1	1.02	17	710
VR63531A	201	202	< 5	< 0.2	5.00	740	0.5	< 2	1.88	< 0.5	10	48	7	2.48	1.34	0.93	510	< 1	0.98	21	740
VR63533A	201	202	< 5	< 0.2	5.10	650	0.5	< 2	1.28	< 0.5	7	46	12	1.93	1.19	0.57	395	< 1	1.04	22	670
VR63554A	201	202	< 5	< 0.2	4.74	680	0.5	< 2	0.74	< 0.5	7	35	10	1.72	1.24	0.46	305	< 1	1.02	19	660
VR63562A	201	202	< 5	< 0.2	6.23	770	1.0	2	0.84	< 0.5	10	47	14	2.06	1.39	0.61	260	< 1	1.14	24	770
VR63564A	201	202	< 5	< 0.2	6.28	840	1.0	8	0.83	< 0.5	11	45	14	2.22	1.50	0.61	435	< 1	1.24	25	750
VR63575A	201	202	< 5	< 0.2	4.15	530	0.5	< 2	0.81	< 0.5	6	29	6	1.51	1.11	0.49	440	< 1	0.89	13	570
VR63578A	201	202	< 5	< 0.2	3.21	360	0.5	2	0.96	< 0.5	5	27	4	1.23	0.95	0.45	450	< 1	0.61	9	460
VR63580A	201	202	< 5	< 0.2	4.69	690	0.5	< 2	0.88	< 0.5	7	38	7	1.66	1.26	0.53	470	< 1	1.06	17	620
VR63582A	201	202	25	< 0.2	4.71	670	0.5	< 2	1.33	< 0.5	8	40	8	1.64	1.27	0.60	410	< 1	1.06	19	600
VR63585A	201	202	< 5	< 0.2	4.92	690	0.5	< 2	0.82	< 0.5	8	38	11	2.00	1.22	0.46	655	< 1	1.00	19	620

CERTIFICATION :

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

Project: 60-511-3
Comments: ATTN: ROB VAN EDGMOND

Page Number : 2 A
Total Pages : 4
Certificate Date: 14-JAN-97
Invoice No. : 19644423
P.O. Number :
Account : KAV

CERTIFICATE OF ANALYSIS A9644423

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm AAS	Al % (ICP)	Ba ppm (ICP)	Be ppm (ICP)	Bi ppm (ICP)	Ca % (ICP)	Cd ppm (ICP)	Co ppm (ICP)	Cr ppm (ICP)	Cu ppm (ICP)	Fe % (ICP)	K % (ICP)	Mg % (ICP)	Mn ppm (ICP)	Mo ppm (ICP)	Na % (ICP)	Ni ppm (ICP)	P ppm (ICP)
VR63586A	201	202	< 5	< 0.2	5.13	730	0.5	< 2	0.83	< 0.5	7	42	10	1.97	1.36	0.53	310	< 1	1.09	17	670
VR63591A	201	202	< 5	< 0.2	5.67	650	1.0	< 2	1.30	< 0.5	9	47	15	2.08	1.54	0.70	305	1	0.85	24	600
VR63599A	201	202	< 5	< 0.2	5.24	660	0.5	< 2	1.54	0.5	7	42	13	1.99	1.53	0.82	475	< 1	0.90	19	660
VR63604A	201	202	< 5	< 0.2	5.39	740	0.5	< 2	0.78	< 0.5	8	42	11	2.09	1.42	0.56	800	< 1	0.96	19	680
VR63607A	201	202	< 5	< 0.2	5.91	790	0.5	< 2	0.66	< 0.5	9	53	15	3.19	1.41	0.57	460	< 1	0.96	22	820
VR63610A	201	202	< 5	< 0.2	4.64	720	0.5	< 2	0.90	0.5	6	36	7	1.82	1.37	0.49	760	< 1	1.06	11	610
VR63614A	201	202	< 5	< 0.2	6.18	730	0.5	< 2	1.17	0.5	9	65	15	2.82	1.18	0.57	625	< 1	0.72	32	1290
VR63618A	201	202	125	< 0.2	5.51	700	0.5	< 2	0.64	< 0.5	7	41	10	2.08	1.20	0.48	600	< 1	0.82	17	700
VR63620A	201	202	35	< 0.2	5.07	770	0.5	< 2	0.79	0.5	4	39	8	1.73	1.30	0.46	455	1	0.93	15	500
VR63622A	201	202	< 5	< 0.2	5.06	590	0.5	< 2	0.88	0.5	10	47	10	3.41	0.87	0.42	1365	< 1	0.52	24	1350
VR63624A	201	202	< 5	< 0.2	5.21	780	0.5	< 2	0.60	0.5	7	41	11	1.95	1.39	0.44	340	< 1	1.01	17	610
VR63626A	201	202	< 5	< 0.2	6.58	830	0.5	< 2	0.67	0.5	11	60	14	3.24	1.61	0.63	745	< 1	1.03	28	700
VR63629A	201	202	< 5	< 0.2	4.34	650	0.5	< 2	1.42	0.5	4	31	7	1.23	1.12	0.40	205	< 1	1.00	12	640
VR63633A	201	202	< 5	< 0.2	5.43	710	0.5	< 2	1.08	< 0.5	7	51	12	2.09	1.46	0.65	380	< 1	0.86	19	710
VR63635A	201	202	< 5	< 0.2	4.77	620	0.5	2	1.48	< 0.5	7	42	11	1.95	1.36	0.68	475	< 1	0.69	19	740
VR63653A	201	202	< 5	< 0.2	4.35	610	0.5	< 2	1.29	0.5	10	41	9	2.98	1.15	0.49	2380	< 1	0.65	15	910
VR63655A	201	202	< 5	< 0.2	3.89	530	0.5	< 2	0.61	< 0.5	6	33	6	1.26	1.16	0.37	315	1	0.79	11	540
VR63661A	201	202	< 5	< 0.2	4.93	700	0.5	< 2	0.89	0.5	7	37	8	1.61	1.37	0.43	370	< 1	1.17	13	670
VR63668A	201	202	< 5	< 0.2	4.37	530	0.5	2	3.30	< 0.5	9	42	10	1.85	1.39	1.16	460	< 1	0.76	15	640
VR63670A	201	202	< 5	< 0.2	5.09	740	0.5	< 2	0.60	< 0.5	6	41	10	1.43	1.42	0.42	170	< 1	1.04	16	490
VR63672A	201	202	< 5	< 0.2	5.12	720	0.5	< 2	0.61	< 0.5	10	52	12	1.95	1.39	0.48	315	< 1	1.00	20	550

CERTIFICATION [redacted]

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
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To: KENNECOTT CANADA, INC

354 - 200 GRANVILLE ST
VANCOUVER, BC
V6C 1S4

Project: 60-511 3
Comments: ATTN: ROB VAN EDGMOND

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Account: KAV

*CORRECTED COPY

CERTIFICATE OF ANALYSIS A9644423

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VR63674A	201	202	< 5	< 0.2	1.78	320	< 0.5	30	18.10	0.5	4	14	8	0.24	0.52	0.44	360	< 1	0.32	7	640
VR63678A	201	202	< 5	< 0.2	3.87	490	0.5	8	6.40	< 0.5	7	45	12	1.58	1.22	1.73	305	1	0.56	16	890
VR63680A	201	202	< 5	< 0.2	5.49	780	0.5	< 2	1.11	< 0.5	10	67	15	2.15	1.42	0.58	705	< 1	0.89	21	740
VR63684A	201	202	< 5	< 0.2	5.91	770	0.5	2	0.80	< 0.5	8	52	13	1.98	1.56	0.56	275	< 1	0.99	18	680
VR63686A	201	202	< 5	< 0.2	6.30	760	0.5	< 2	0.78	< 0.5	11	59	15	2.77	1.47	0.61	810	1	0.91	22	840
VR63688A	201	202	< 5	< 0.2	5.32	610	0.5	< 2	0.92	0.5	7	44	14	1.85	1.26	0.54	185	< 1	0.82	21	640
VR63689A	201	202	< 5	< 0.2	5.88	820	0.5	< 2	0.89	0.6	10	48	14	2.43	1.67	0.55	795	1	0.94	24	880
VR63692A	201	202	110	< 0.2	4.65	640	0.5	2	1.41	< 0.5	9	48	10	2.11	1.22	0.55	705	1	0.79	15	820
VR63694A	201	202	< 5	< 0.2	4.43	670	0.5	6	0.83	0.8	7	40	6	1.61	1.19	0.43	405	< 1	0.94	10	670
VR63702A	201	202	< 5	< 0.2	4.55	650	0.5	< 2	0.82	< 0.5	7	38	10	1.62	1.32	0.51	315	< 1	0.91	15	630
VR63705A	201	202	100	< 0.2	4.92	690	0.5	< 2	1.33	< 0.5	9	48	9	1.71	1.52	0.69	260	< 1	1.06	16	620
VR63707A	201	202	< 5	< 0.2	4.09	570	0.5	2	0.92	< 0.5	8	40	6	1.91	1.20	0.40	815	< 1	0.72	10	860
VR63709A	201	202	< 5	< 0.2	4.53	520	0.5	4	1.05	< 0.5	10	41	8	2.43	1.47	0.52	545	< 1	0.71	11	830
VR63711A	201	202	< 5	< 0.2	4.75	610	0.5	< 2	0.60	< 0.5	8	36	8	1.77	1.38	0.42	345	< 1	0.92	14	660
VR63741A	201	202	< 5	< 0.2	3.26	450	< 0.5	6	3.81	< 0.5	7	23	6	1.83	1.17	1.14	480	1	0.48	9	500
VR63743A	201	202	< 5	< 0.2	3.10	400	< 0.5	< 2	3.09	< 0.5	5	25	5	1.15	1.10	0.84	200	1	0.59	11	490
VR63751A	201	202	25	< 0.2	4.33	740	0.5	< 2	1.33	< 0.5	9	39	8	2.51	1.16	0.48	2470	< 1	0.74	14	680
VR63756A	201	202	< 5	< 0.2	5.52	760	0.5	< 2	0.89	< 0.5	11	42	11	2.29	1.51	0.65	390	1	1.08	19	750
VR63762A	201	202	< 5	< 0.2	4.20	700	0.5	2	1.01	< 0.5	8	28	6	2.08	1.21	0.42	1435	< 1	0.87	13	690

*DUPLICATE VR63655A FOR Be, Rb, Sr, Nb, Zr and Y

CERTIFICATION [redacted]

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

Project: 60-511-3
Comments: ATTN: ROB VAN EDGMOND

Page Number :4-A
Total Pages :4
Certificate Date: 14-JAN-97
Invoice No. :19644423
P.O. Number :
Account :KAV

CERTIFICATE OF ANALYSIS A9644423

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm AAS	Al % (ICP)	Ba ppm (ICP)	Be ppm (ICP)	Bi ppm (ICP)	Ca % (ICP)	Cd ppm (ICP)	Co ppm (ICP)	Cr ppm (ICP)	Cu ppm (ICP)	Fe % (ICP)	K % (ICP)	Mg % (ICP)	Mn ppm (ICP)	Mo ppm (ICP)	Na % (ICP)	Ni ppm (ICP)	P ppm (ICP)
VR63776A	201	202	< 5	< 0.2	4.88	630	0.5	< 2	0.58	< 0.5	7	42	13	1.86	1.28	0.48	280	< 1	0.77	21	570
VR63778A	201	202	< 5	< 0.2	5.02	670	0.5	< 2	0.86	< 0.5	9	39	8	2.47	1.27	0.54	1750	1	0.98	21	790
VR63784A	201	202	85	< 0.2	4.93	560	0.5	< 2	1.46	< 0.5	7	46	10	1.80	1.38	0.99	165	< 1	0.82	17	630
VR63788A	201	202	< 5	< 0.2	4.28	560	0.5	< 2	1.04	< 0.5	5	29	10	1.47	0.92	0.38	205	< 1	0.68	14	570
VR63790A	201	202	< 5	< 0.2	5.12	740	0.5	< 2	0.64	0.5	10	43	10	2.14	1.25	0.47	1030	< 1	0.95	17	630
VR63794A	201	202	< 5	< 0.2	4.77	680	0.5	< 2	0.67	< 0.5	7	40	8	1.61	1.24	0.43	405	< 1	1.12	17	530
VR63796A	201	202	< 5	< 0.2	5.24	720	0.5	< 2	0.67	< 0.5	9	45	9	2.26	1.36	0.50	285	< 1	1.11	19	730
VR63798A	201	202	< 5	< 0.2	5.28	730	0.5	< 2	0.78	< 0.5	10	40	11	2.22	1.31	0.52	305	< 1	0.94	21	630
VR63800A	201	202	< 5	< 0.2	5.39	770	0.5	< 2	0.87	< 0.5	7	40	8	1.71	1.55	0.52	330	< 1	0.97	13	530
VR63804A	201	202	< 5	< 0.2	3.79	480	0.5	2	3.81	< 0.5	7	40	12	1.61	1.21	1.47	310	1	0.55	19	960
VR63809A	201	202	10	< 0.2	5.12	720	0.5	< 2	0.80	< 0.5	7	38	6	1.78	1.34	0.48	435	1	0.97	16	570
VR63811A	201	202	< 5	< 0.2	4.31	570	0.5	< 2	1.43	< 0.5	8	41	11	1.58	0.96	0.39	630	< 1	0.63	23	830
VR63852A	201	202	< 5	< 0.2	3.58	520	0.5	< 2	1.12	< 0.5	5	28	5	1.46	1.07	0.45	440	< 1	0.83	8	420
VR69998A	201	202	< 5	< 0.2	3.44	470	0.5	< 2	1.17	< 0.5	5	27	5	1.28	1.10	0.60	255	< 1	0.67	10	800

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To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

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VR63502A	201	202	12	175	0.25	69	< 10	72	760	94	192	12	288	20
VR63506A	201	202	6	165	0.25	57	< 10	38	700	56	176	12	684	18
VR63508A	201	202	10	154	0.26	75	< 10	62	835	68	168	12	429	20
VR63511A	201	202	8	157	0.22	57	< 10	58	770	68	174	10	432	16
VR63513A	201	202	6	99	0.17	79	< 10	106	915	60	108	8	171	40
VR63515A	201	202	6	177	0.20	51	< 10	66	750	52	194	10	372	16
VR63519A	201	202	6	187	0.25	67	< 10	66	730	64	204	10	291	18
VR63521A	201	202	8	148	0.23	51	< 10	52	625	56	160	10	645	18
VR63523A	201	202	10	144	0.24	77	< 10	74	805	78	158	10	192	18
VR63525A	201	202	6	148	0.16	39	< 10	42	635	52	164	16	252	12
VR63527A	201	202	10	178	0.22	58	< 10	62	825	68	194	16	372	18
VR63529A	201	202	8	178	0.21	59	< 10	58	745	66	196	12	270	16
VR63531A	201	202	8	163	0.21	62	< 10	64	790	64	184	12	282	16
VR63533A	201	202	6	171	0.24	65	< 10	56	710	60	188	12	288	16
VR63554A	201	202	6	146	0.23	56	< 10	44	675	54	150	10	537	20
VR63562A	201	202	8	180	0.25	74	< 10	76	810	74	192	10	213	18
VR63564A	201	202	8	192	0.26	75	< 10	76	840	72	194	10	294	16
VR63575A	201	202	6	127	0.17	40	< 10	40	555	50	136	10	411	22
VR63578A	201	202	6	96	0.13	29	< 10	32	370	44	100	10	354	14
VR63580A	201	202	6	153	0.21	50	< 10	46	695	54	158	10	495	18
VR63582A	201	202	8	157	0.20	50	< 10	46	685	56	162	10	318	14
VR63585A	201	202	4	152	0.22	54	< 10	58	680	56	152	10	312	16

CERTIFICATION: [redacted]

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To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

Project : 60-511-3
Comments: ATTN: ROB VAN EDGMOND

Certificate Date: 14-JAN-9
Invoice No. :19644423
P.O. Number :
Account :KAV

CERTIFICATE OF ANALYSIS A9644423

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VR63586A	201	202	6	175	0.21	57	< 10	54	720	58	174	10	441	16
VR63591A	201	202	4	147	0.22	68	< 10	60	615	68	142	12	375	18
VR63599A	201	202	8	145	0.21	63	< 10	56	655	64	146	10	267	20
VR63604A	201	202	8	161	0.22	65	< 10	74	695	62	154	10	237	14
VR63607A	201	202	8	163	0.25	76	< 10	68	780	66	162	10	264	18
VR63610A	201	202	6	163	0.19	47	< 10	46	675	52	154	10	363	14
VR63614A	201	202	8	130	0.24	79	< 10	88	710	64	132	12	285	28
VR63618A	201	202	8	129	0.24	66	< 10	60	705	58	130	12	348	20
VR63620A	201	202	8	162	0.21	56	< 10	52	775	62	168	12	327	14
VR63622A	201	202	10	96	0.17	68	< 10	116	630	48	100	8	192	24
VR63624A	201	202	10	154	0.22	61	< 10	60	810	62	154	10	321	14
VR63626A	201	202	10	160	0.28	90	< 10	90	815	78	156	12	231	18
VR63629A	201	202	6	183	0.30	44	< 10	60	655	48	188	8	321	16
VR63633A	201	202	10	146	0.24	73	< 10	64	690	66	146	12	258	18
VR63635A	201	202	10	124	0.21	62	< 10	52	590	60	124	10	282	18
VR63653A	201	202	6	133	0.18	53	< 10	68	580	58	132	12	261	16
VR63655A	201	202	4	117	0.19	43	< 10	42	240	22	54	6	282	12
VR63661A	201	202	8	177	0.20	50	< 10	70	650	50	170	10	312	14
VR63668A	201	202	10	144	0.20	52	< 10	46	485	52	136	10	312	16
VR63670A	201	202	10	152	0.22	57	< 10	52	695	58	148	10	387	16
VR63672A	201	202	8	149	0.23	64	< 10	56	665	56	144	10	336	16

CERTIFICATION: [redacted]

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VR63674A	201	202	< 2	330	0.08	28	< 10	28	330	20	336	4	81	8
VR63678A	201	202	8	127	0.18	69	< 10	58	550	52	140	12	225	16
VR63680A	201	202	8	189	0.22	72	< 10	72	860	68	206	10	204	16
VR63684A	201	202	10	159	0.26	74	< 10	62	780	70	160	12	354	20
VR63686A	201	202	8	141	0.24	81	10	86	825	76	150	12	255	20
VR63688A	201	202	8	181	0.20	64	< 10	58	710	66	206	10	249	22
VR63689A	201	202	8	162	0.22	74	< 10	78	910	74	176	10	249	20
VR63692A	201	202	6	134	0.21	62	10	66	675	64	140	10	384	18
VR63694A	201	202	4	158	0.20	52	< 10	50	730	60	170	10	384	18
VR63702A	201	202	6	135	0.19	53	< 10	48	730	60	152	10	297	16
VR63705A	201	202	6	157	0.21	55	< 10	52	730	60	166	10	414	18
VR63707A	201	202	4	119	0.18	51	< 10	60	600	58	126	10	417	18
VR63709A	201	202	6	112	0.20	54	10	50	490	56	100	10	456	16
VR63711A	201	202	6	133	0.23	53	< 10	68	645	60	138	12	480	18
VR63741A	201	202	8	103	0.15	35	< 10	34	445	46	102	8	483	20
VR63743A	201	202	6	114	0.14	34	< 10	32	420	42	120	8	345	16
VR63751A	201	202	8	163	0.17	51	< 10	64	790	58	172	8	249	16
VR63756A	201	202	10	171	0.25	67	< 10	66	805	70	178	10	312	16
VR63762A	201	202	6	175	0.18	46	< 10	60	700	52	182	8	273	14

CERTIFICATION: [redacted]

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: KENNECOTT CANADA, INC.

354 - 200 GRANVILLE ST.
VANCOUVER, BC
V6C 1S4

Project : 60-611-3
Comments: ATTN: ROB VAN EDGMOND

Page Number :4 B
Total Pages :4
Certificate Date: 14-JAN-97
Invoice No. :19644423
P.O. Number :
Account :KAV

CERTIFICATE OF ANALYSIS A9644423

SAMPLE	PREP CODE		Pb ppm AAS	Sr ppm (ICP)	Ti % (ICP)	V ppm (ICP)	W ppm (ICP)	Zn ppm (ICP)	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm
VR63774A	201	202	8	183	0.23	57	< 10	50	745	60	188	10	423	18
VR63778A	201	202	8	155	0.20	58	< 10	60	745	62	168	10	249	16
VR63784A	201	202	10	123	0.24	61	< 10	68	585	66	134	12	633	24
VR63788A	201	202	6	120	0.18	48	< 10	62	585	56	128	8	312	14
VR63790A	201	202	6	145	0.22	64	< 10	62	715	64	152	10	267	18
VR63794A	201	202	6	170	0.24	52	< 10	50	640	54	178	12	1225	22
VR63796A	201	202	4	177	0.25	62	< 10	54	660	56	176	10	777	18
VR63798A	201	202	6	158	0.23	66	< 10	72	685	62	162	10	396	18
VR63800A	201	202	6	182	0.20	61	< 10	58	710	72	176	10	243	14
VR63804A	201	202	6	135	0.18	69	< 10	62	425	48	132	12	297	18
VR63809A	201	202	6	175	0.23	58	< 10	64	635	60	166	14	456	14
VR63811A	201	202	6	127	0.18	53	< 10	92	530	50	128	8	210	18
VR63852A	201	202	4	145	0.15	35	< 10	30	465	40	142	8	198	10
VR69998A	201	202	6	110	0.18	45	< 10	36	420	42	108	10	540	14

CERTIFICATION: [redacted]

APPENDIX XIII

COST STATEMENT AND DISTRIBUTION OF COSTS TO CLAIMS

MASUMEKA-NEW CLAYMORE PROPERTY, ALBERTA
1997 Assessment Filing

Permit Number	Range	Township	Section	Size (HA)		Anniv.Date	Extension Date	Assess.Require	Assessment Filed	Report Due
9393031002	24	53;54	29-32; 2-11,1		8960.00	3/31/97	6/30/97	$89,600.00	$89,600.00	09/29/97
9393031003	24	55	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031004	25	55	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031005	24	56	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031006	25	56	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031007	26	56	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031008	24	57	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031009	25	57	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031010	26	57	1-36		9216.00	3/31/97	6/30/97	$92,160.00	$92,160.00	09/29/97
9393031011	27	57	1-5,6E,7E,8-		8726.00	3/31/97	6/30/97	$87,260.00	$87,260.00	09/29/97
			Totals		91,414.00			$914,140.00	$927 577.60	

COST STATEMENT

NEW CLAYMORE CLAIM GROUP

(See attached notes for detailed explanation of components of specific line items)

Ground Geophysical Surveys		
27 Magnetic Surveys	$	252 000.00
10 EM Surveys		90 500.00
Diamond Drilling (1007 m)	$	327 947.60
Stream Sediment Samples		
Samples Collected: 100 @ $2565	$	256 500.00
Mineral Grains Probed: 42 @ $15	$	630.00
TOTAL ASSESSMENT COSTS	$	927 577.60

NOTE TO COST STATEMENT

The ground geophysical survey cost is all inclusive, including salaries of Kennecott and contractor personnel, personnel support (room and board, transportation), vehicle support, and in house office support.

The diamond drilling cost is all inclusive, including salaries of Kennecott and contractor personnel, personnel support, direct contractor charges for the drill equipment and all supplies, fuel, mobilization and demobilization and drill processing costs, and in house office support.

The stream sediment sample cost is all inclusive, including salaries, personnel support, supplies such as sample bags, vehicle support with fuel, sample shipping, laboratory processing and microscope work, and in house office support.

The mineral grain probe cost includes the cost of electron microprobe analysis and the preparation by Kennecott personnel of each mineral grain probed, and in house office support.

APPENDIX XIV

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Susan Ball, hereby certify that:

1. I am presently employed by Kennecott Canada Exploration Inc. as a Geologist.

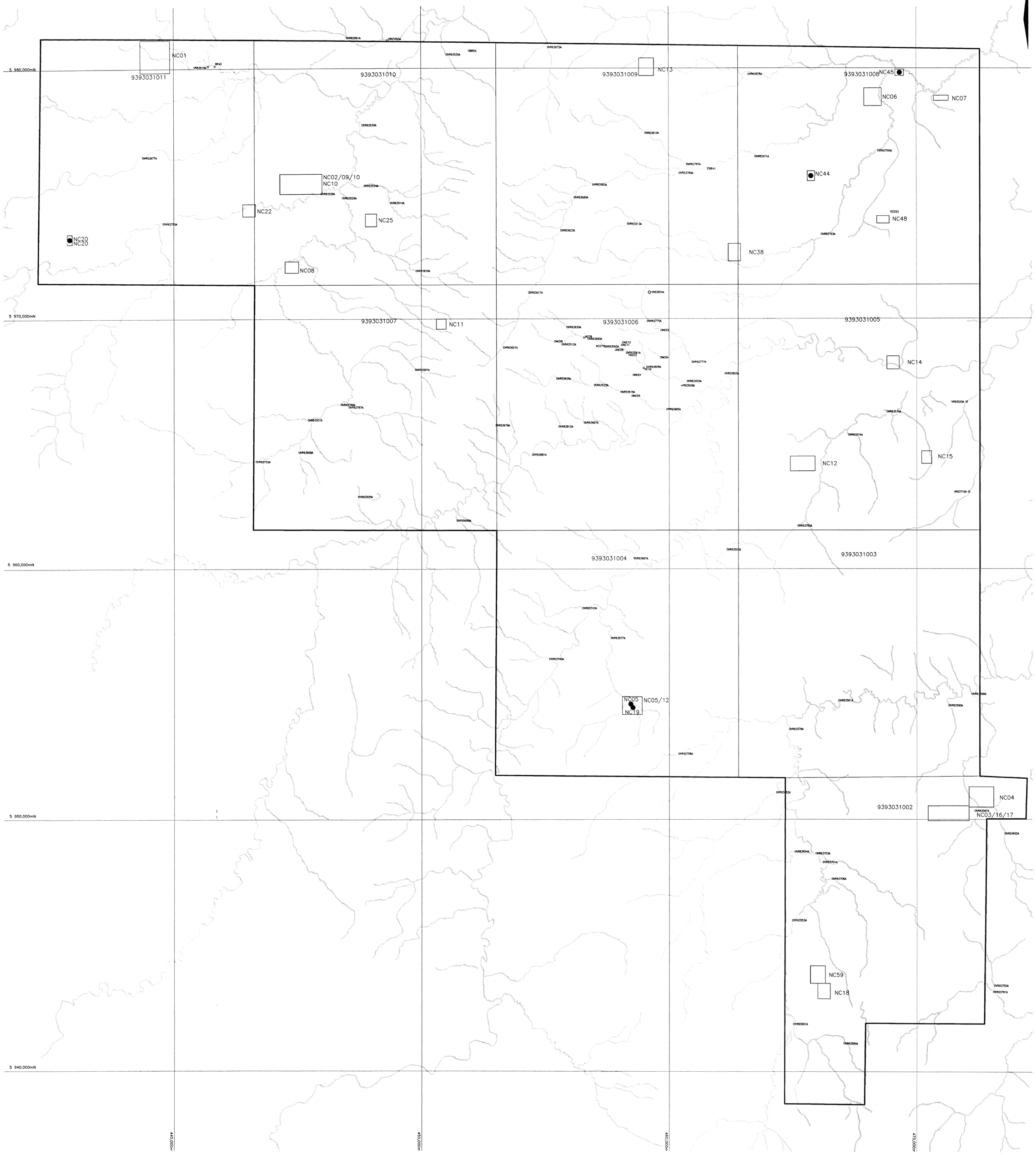
2. I am a graduate of the University of Saskatchewan, BSc. (Geology), 1987.

3. I have practiced my profession as a geologist for 10 years.

4. The information used in this report is based on reports, maps, and data lists on file at Kennecott Canada Exploration Inc., and the author's familiarity with the project area.

Dated this 26 day of September, 1997 at Vancouver, B.C.

[redacted]



NC25 GEOPHYSICAL GRID

NC20 DRILL HOLES

STREAM SILT SAMPLE

ROCK SAMPLE

ESKER SAMPLE

scale: 1:50,000

0 1 2 kilometres

Kennecott Canada Exploration Inc.
Vancouver

MASUMEKA PROJECT - NEW CLAYMORE BLOCK

COMPILATION MAP

ALBERTA, CANADA

NTS: 82F/12,13	Projection: UTM(NAD27)	Drawn by: MJD
Date: 24/09/97	Author:	Figure 2
File: 7NCLAY50	Scale: 1:50,000	

Index # 19970008