1992 EXPLORATION PROGRAM SUMMARY
SHAW DOME PROPERTY

TIMMINS NICKEL INC.

TECHNICAL SUBMISSION TO ACCOMPANY
OMIP GRANT APPLICATION
DESIGNATION #0M92-019

42A07SW0032 OM92-019 REDSTONE

010C

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1.0 Introduction

Timmins Nickel Inc. was approved for a grant of $300,000 representing up to 50 percent of eligible expenditures on the Shaw Dome Property, Timmins.

During 1992, $604,511.65 has been spent on exploration on the Shaw Dome Property as follows:

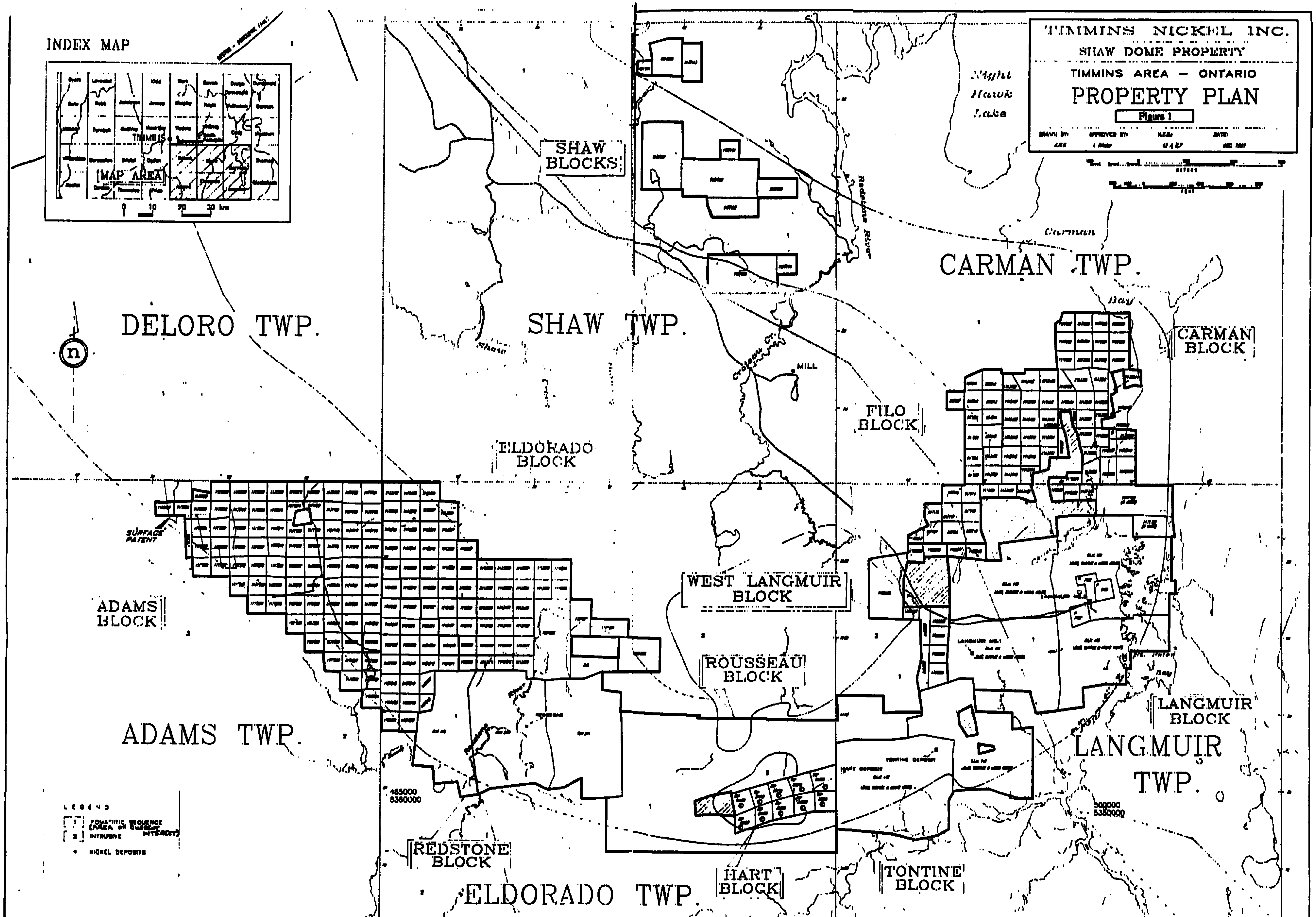
	Applied Expenditures
Surface Exploration	$331,988.08
Underground Exploration [1]	
Langmuir - Diamond drilling	18,737.30
Redstone - development	209,000.00
Column Floatation Test	16,000.00
Total Property Expenditures	575,725.38
5% overhead allowance	28,786.27
Total	604,511.65

Note : [1] Costs do not include indirect operating costs.

2.0 Property, Location and Access

The Shaw Dome property covers approximately 24,733.93 acres (10,009.5 hectares), most forming a single contiguous block extending, in the west, from the Adams-Deloro township boundary to the southern part of Carman township - figure 1. Timmins Nickel Inc. (TMN) has a 100% undivided interest in this ground. The property is composed of 621 claims or claim units, of which 221 are leased. An additional 19 claims have sufficient credits to be brought to lease. Lease descriptions and list of unpatented claims, with due dates and applied credits, is appended. (Appendix 1).

Access to the Shaw Dome Property is achieved by car along the Langmuir Road, southeast from South Porcupine, Ontario. Numerous gravel roads and trails pro[illegible] boundary.


TIMMINS NICKEL INC.
SHAW DOME PROPERTY
TIMMINS AREA – ONTARIO
PROPERTY PLAN
Figure 1
INDEX MAP
TIMMINS
MAP AREA
0 10 20 30 km
Night Hawk Lake
Redstone River
Carman
CARMAN TWP.
Bay
CARMAN BLOCK
DELORO TWP.
SHAW TWP.
SHAW BLOCKS
MILL
FILO BLOCK
ELDORADO BLOCK
WEST LANGMUIR BLOCK
ROUSSEAU BLOCK
LANGMUIR NO.1
LANGMUIR BLOCK
LANGMUIR TWP.
SURFACE PATENT
ADAMS BLOCK
ADAMS TWP.
485000
5350000
500000
5350000
TONTINE DEPOSIT
HART DEPOSIT
REDSTONE BLOCK
HART BLOCK
TONTINE BLOCK
ELDORADO TWP.
LEGEND
NICKEL DEPOSITS

3.0 Geological Setting

3.1 Regional Geology

The Shaw Dome property lies within the western part of the Abitibi Greenstone Belt, an east-west trending tectonic - stratigraphic sequence composed predominantly of green schist facies metavolcanic, subvolcanic and metasedimentary rock with mafic and felsic intrusions, bounded by large granitic batholiths. The Abitibi Greenstone Belt is located in the Superior Province of the Canadian shield and is bounded to the north and south by Archean genetic and metasedimentary rocks. To the west it is truncated by the Kapuskasing gneiss belt and to the east by gneisses of the Greenville Province.

The Shaw Dome property [illegible] of a major [illegible] fault zone, the Destor-Porcupine fault.

Pyke (1980) recognized the presence of a semi-continuous horizon of ultramafic flows (komatiitic volcanics) within the volcanic stratigraphy of the Timmins area, both to the north and south of the Destor-Porcupine fault. He suggested that this horizon was essentially chronostratigraphic and could thus provide the basis for a regional stratigraphic correlation. Recent dating indicates that the volcanic sequence north of the Destor-Porcupine fault may be significantly younger than that to the south. Komatiitic flow sequences, however, are now recognized as a common component of Archean/Proterozoic volcanic successions worldwide.

The komatiite hosted nickel deposits in the Timmins area, with exception of the Alexo, are located south of the Destor-Porcupine fault in an area measuring approximately 60km (north-south) by 20km (east-west). The nickel deposits are associated with a succession of komatiitic flows which can be traced continuously along strike for approximately 50km around the Shaw Dome and, intermittently, over a strike length of 50km, along the west limb of a parallel synclinal fold to the west and southwest of the Shaw Dome between Fripp Township in the north and Sothman Township in the south.

Around the Shaw Dome, the Komatiitic flows rest with apparent conformity on a succession of tholeiitic to calc-alkalic volcanic rocks designated the Deloro Group by Pyke (1982). The Komatiitic rocks and overlying tholeiitic basalts he designated the Tisdale Group. To the west and southwest of the Shaw Dome, Pyke outlined two komatiitic formations, a lower formation he placed at the base of the Deloro Group and an upper formation, he equated stratigraphically with the komatiitic formation around the Shaw Dome. Seven major nickel deposits and a number of small nickel showings have been discovered associated with this formation. The major deposits are listed in Table 1. Of these the Redstone and Langmuir #1 are currently being worked by Timmins Nickel and the Langmuir #2 and Texmont are past producers.

These deposits are strikingly similar geologically to deposits worked since 1967 in the southern part of the Norseman-Wiluna greenstone belt of Western Australia, where a cluster of deposits, in a similarly sized area measuring approximately 60km (north-south) by 40km (east-west), have yielded ore containing over 600,000t of nickel metal. In Western Australia, exploration has maintained nickel resources at almost constant levels since 1972. In June 1988, measured and indicated resources stood at 25Mt at 3.2% nickel. Annual production in 1987-1988 was 1.2Mt at 2.96% nickel and 0.21% copper for 34,140t of recovered nickel metal. Individual deposits range from 5Mt down to less that 1Mt. Each deposit is typically comprised of a number of discrete, smaller ore bodies which are mined independently.

TABLE 2

HISTORICAL GEOLOGICAL RESERVES FOR SIGNIFICANT NICKEL DEPOSITS SOUTH OF THE DESTOR-PORCUPINE FAULT

TIMMINS, ONTARIO

Deposit	Tonnes	% Ni	Comments
Redstone	390,000	3.38	TMN - Production 153,300 tonnes at 2.52% Ni to March 31, 1991 Proven and Probable undiluted reserve at April 1, 1991 is 207,500 tonnes at 3.12% Ni
	1,250,000	2.50	Potential to 1067m
Langmuir #1	150,000	2.10	TMN - Production 38,500 tonnes at 1.04% Ni to May 31, 1991 Commercial production started June, 1991. Mine currently on care and maintenance pending higher nickel prices.
Langmuir #2	1,400,000	1.87	Produced 1.1 million tonnes at 1.45% Ni
Tontine	431,600	1.19	In situ, undiluted
Texmont	3,800,000	1.00	Diluted reserve-Coad 1979 Minor production 1971-1972
Sothman	210,000	1.29	Coad 1979

3.2 Shaw Dome Geology

The Shaw Dome volcanic succession is divided by Pyke (1980) into two lithostratigraphic Groups, the Deloro and Tisdale.

The Deloro Group is subdivided into two Formations. The lower, Formation II, is composed almost entirely of calc-alkaline basaltic and andesitic flows with subsidiary pyroclastic rocks which increase upwards to dominate at the top of the formation. Pyke placed the upper boundary of this formation at the base of the first recognizable and persistent unit of dacitic volcanic rocks, most of which are pyroclastic.

Formation III, the upper unit of the Deloro Group, is dominated by calc-alkaline dacitic and [illegible] The volcaniclastics range from coarse, unbedded agglomerates to finely bedded, fine grained lapilli tuffs. Only locally do flow rocks appear to be important, notably in the vicinity of the Langmuir #2 deposit. The calc-alkaline rocks would have been deposited, in the main, proximal to the vents from which they were derived. Typically, a topographically complex depositional surface, dominated by vent localized, coalescing low ridges and cones would be expected during deposition of these rocks. As will be discussed later, one such cone can be delineated in detail at the Langmuir #2 deposit.

The Tisdale Group is sub-divided into three Formations. The lowest, Formation IV, is described as peridotitic komatiites overlain by interlayered komatiites and mg-tholeiitic basalts. The middle formation, Formation V, which is poorly exposed south of the Destor-Porcupine fault, is dominated by Fe-rich tholeiitic basalt. Formation VI relates to units exposed north of the Destor-Porcupine fault.

A series of semi-continuous peridotitic to dunitic komatiitic units within the upper part of the Deloro Group (Formation III), were interpreted as intrusive sills by both Muir (1979) and Pyke (1980). This was based on the massive nature and mineralogy of these bodies. In keeping with recent re-interpretation of similar lenticular bodies of peridotite/dunite in Western Australia, especially within the Agnew-Wiluna belt, i.e. Agnew and Six Mile Well complex, these units are more likely to be extrusive flows. On this basis, much, if not all of Pykes Formation III (the upper part of the Deloro Group) would fall within Formation IV (the lower part of the Tidsdale Group).

The nickel sulphide deposits are within Formation IV. Formations III and IV are readily identifiable, around the perimeter of the Shaw Dome, using regional airborne magnetic and electromagnetic survey data, as a belt, 3km to 5km in width; consisting of a series of overlapping, lensoidal areas of high magnetic susceptibility, paralleling regional stratigraphy, with numerous associated input EM conductors.

Within this belt, the areas of highest magnetic susceptibility correspond largely to komatiitic peridotite and dunite units. Areas of lowest magnetic susceptibility are generally underlain by calc-alkalic units. Areas of intermediate magnetic susceptibility are underlain by both komatiites and komatiitic rocks; especially komatiitic basalts but also, locally, altered komatiites and komatiitic peridotites; and calc-alkalic rocks. The komatiites and komatiitic rocks tend to be associated with the upper end of the range of susceptibilities and the calc-alkalics with the lower end, considerable overlap, however, does occur. The distributional patterns formed by the areas of high and low magnetic susceptibility are complex and vary along strike, around the dome. In our opinion, these patterns are almost entirely the result of primary stratigraphic distribution rather than tectonic disruption or repetition. The reasons for this opinion will become apparent later in this report.

Formations III & IV would appear to have been deposited in a complex, submarine, volcanic environment in which calc-alkaline and komatiitic volcanic rocks, derived from geographically separate vent areas, were being deposited together. This fits with recently developed concepts on the origins and nature of komatiitic volcanics.

The komatiite bearing stratigraphic succession, lithostratigraphic Formation III of the Deloro Group and Formation IV of the Tidsdale Group, almost certainly forms a single chronostratigraphic unit.

3.3 Geological Concept - Exploration Model

The current state of knowledge indicates that komatiitic nickel deposits formed within dynamic lava channels. Komatiite eruptions were voluminous. The high Mg0 content produced lava with a very low viscosity which flowed turbulently and reacted to topography in a fashion akin to water. Flows would have formed strongly channelized rivers which could have traveled at high speed and covered large distances, reaching perhaps hundreds or even thousands of kilometres from the vent. Komatiite lavas were probably extruded at 1500 to 1800°C and were able to thermally erode any underlying rock which had a liquidus below the final crystallization temperature of the komatiitic lava, around 1180°C, i.e. all rocks other than older komatiites.

Fractional crystallization and accumulation during flow resulted in the development of facies within the eruptive unit. Proximal to distal facies along the direction of flow away from the vent and channel to shelf facies perpendicular to individual channels.

Sulphides were probably derived from and incorporated in the flow through thermal erosion of iron sulphides within substrate sediments and volcanics. Molten iron sulphide droplets entrained within the flow are thought to have assimilated nickel from the silicate melt. These droplets, having a high specific gravity, would have accumulated within the channels where some could have concentrated presumably during the waning stages of the
flow, to form nickel sulphide deposits. The primary objective of the explorationist is to identify the lava channels within the komatiite succession.

In comparison to the komatiite stratigraphies of Western Australia, the Shaw Dome Komatiite Series appears to be highly variable and combines both proximal facies (cf. Leinster) and distal facies (cf. Kambalda and St. Ives) in close proximity to each other. The differences are due entirely to differing depositional environments.

The Kambalda-St. Ives- Widgiemooltha successions appear to have been deposited in a stable, volcanically quiet area resulting in a relatively simple "layer cake" stratigraphy. In contrast, the Shaw Dome Komatiite Series was deposited in an area of very active calc-alkalic volcanism (back-arc environment?) with numerous volcanic centers, considerable local volcanic topography and variable subsidence rates. At Kambalda-St. Ives-Widgiemooltha only the initial komatiite eruption had a large source of sulphide. In the Shaw Dome area the active calc-alkalic volcanism recharged the system with sulphide continuously, during the sequence of komatiite eruptions. As a result, most of the nickel deposits in the Kambalda-St. Ives-Widgiemooltha area occur at the base of the oldest Komatiite whilst in the Shaw Dome area known nickel deposits occur at four chronostratigraphic horizons at least.

Around the Shaw Dome a number of large proximal channels, similar to those at Leinster/Agnew and Mount Keith, have previously been interpreted as intrusive bodies and remain completely unexplored. These are concentrated within the lower part of the Shaw Dome Komatiite Series.

4.0 1991 - 1992 Exploration

The objectives of the 1991-1992 exploration program were:

1) To become familiar with recent advances in the field of komatiite hosted nickel sulphide deposits through a literature search and a field trip to Western Mining operations in Western Australia.

2) Compile and reinterpret the existing data base in light of recent advances in komatiite geology.

- establish regional and local stratigraphies and compare and contrast with
- reinterpret the geology of existing deposits and compare and contrast with deposits in other areas
- establish chronostratigraphic relationships between the Shaw Dome area
- establish a geological model specific to the Shaw Dome deposits.

3) Establish specific exploration techniques

4) Identify and prioritize target areas around the Shaw Dome and specific targets within these areas.

5) Establish a firm basis for ongoing exploration decisions.

6) Test for down-dip potential at the Redstone and Langmuir Number 1 deposits.

These objectives were generally achieved. On reinterpretation, the Shaw Dome deposits compare well, in an overall sense, with the Western Australian komatiite hosted nickel deposits in terms of both geometry and stratigraphic relationships. In detail, however, there are a number of significant differences. These all relate to the depositional environment. Unlike the Western Australian areas of nickel mineralization, the Shaw Dome was an area of very active calc-alkalic volcanism and considerable local topographic relief. This active depositional environment has resulted in a complex stratigraphy and, unlike at Kambalda, a large number of target horizons.

4.1 Summary of 1992 Exploration Activities

1992 exploration comprised the following:

1) Compilation and interpretation including:
   - a literature review, especially recent publications concerning the Western Australian nickel deposits.
   - field trip to Western Australia.
   - review of previous work on the Shaw Dome property.

- review of regional geology and geophysics.
- re-interpretation of known nickel deposit geology.
- re-logging of North Zone drill core.

2) A total of 111.75 km of line cutting; 20.29 km on the Langmuir block, 12.8 km on the Tontine block and 78.66 km on the Adams/Eldorado blocks.

3) Magnetometer surveys (141.78 line km) on the 1991/1992 Langmuir, Tontine and Adams/Eldorado grids. MaxMin Em surveys (163.44 line km) on the Langmuir and Adams/Eldorado grids and TEM survey (12.8 line km) of the Tontine grid.

4) Overburden geochemical surveying consisting of 43 percussion holes on the Langmuir west block.

5) Surface diamond drilling. A total of 21 holes for a total of 12,473 feet of drilling on the Langmuir property.

6) Four underground exploration diamond drill holes to test the down rake potential of the Langmuir Number 1 zone.

7) PEM down-hole surveys of 9 holes including two underground holes at Langmuir.

8) Exploration cross-cut and underground exploration drilling below Redstone probable reserve.

4.2 Linecutting

During 1991 and 1992 linecutting was completed on the Carman, Langmuir, Tontine and Adams blocks (Table overpage). With exception of the Tontine grid all linecutting was completed by crews from Forpro Resources Ltd., P.O. Box 1513, South Porcupine, Ontario, P0N 1H0. The Tontine grid was completed by a crew from Goulet & Lamarche Explorations Inc., 71 Parent, Val d'Or, Quebec, J9P 5P1.

Linecutting was completed on the Langmuir block in stages. Initial cutting was done to extend the pre- existing 1989 grid for control of the overburden geochemistry drill program (Grids 1, 2 and 3). Upon implementation of the main exploration program in late 1991 the majority of the 1989 grid was brushed-out (recut) and rechained (Grids 4 and 5) with some new extensions on Grid 4. The 1989 grid was re- established in order to provide continuity from the 1989-90 exploration work. In hindsight it would probably have been more beneficial to have cut a new grid given the now apparent errors in chaining and location of the original grid. Grid 1 was extended over the ice of Nighthawk Lake in January and February 1992. A survey along the Langmuir #2 road has assisted in determining the orientation of the grids on Langmuir block relative to the Langmuir #1 and #2 mine coordinates. The survey indicates that the grid may be 80 feet longer (over approximately one mile) in a grid east-west direction than that chained by the linecutting crews. The discrepancy remains unresolved at this time and the grid is currently plotted relative to chaining lengths provided by the linecutting crews.

TABLE --: 1992 LINECUTTING

BLOCK	GRID	TOTAL CUT	DATE COMPLETED	LINE SPACING	STATION INTERVAL	CONTROL TL/BL
LANGMUIR	1 extension	20.29 km	Jan-92	200 ft	100 ft	TL81E
ADAMS	East	30.2 km	Feb-92	100 m	25 m	BL 0
	West	48.46 km	Feb-92	100 m	25 m	L35E - L53E : BLO L22E - L34E : TL10N
TONTINE		12.8 km	Feb-92	100 m	25 m	BL 0
	TOTAL 1992	111.75 km				

4.3 1992 Geophysical Surveys

The following geophysical surveys were completed during 1992:

- ground magnetic surveys of parts of the Langmuir, Tontine and Adams-Eldorado blocks. Total 141.78 line km.

- MaxMin EM surveys of parts of the Langmuir and Adams-Eldorado blocks. Total 163.44 line km.

- TEM survey of part of the Tontine block centered on the Tontine deposit. Total 12.8 line km.

- A magnetic susceptibility reading of drill core was taken approximately every ten feet down hole.

- Borehole PEM surveys of six surface holes; 92-11, 92-13, 92-14, 92-17, 92-20 and 92-21; and two underground holes at Langmuir Number 1; 91-11 and 91-14. Survey results are included as appendix 8.

Langmuir Block Magnetic and MaxMin EM surveys

Results have been summarized by R.W. Woolham P.Eng. See Appendix 5, Report on the Geophysical Surveys, Langmuir Property, Timmins, Ontario. February 26, 1992. Of the total 154.01 line km of magnetics and 147.42 line km of MaxMin EM, only 53.75 line km and 75.41 line km respectively, were completed in 1992.

Detailed ground magnetic surveys are by far the most important exploration tool in the search for komatiite hosted nickel deposits. Combined with stratigraphic data from diamond drilling magnetics aid in the identification of lava channels.

A MaxMin Em survey was conducted over the same area as the magnetic survey. The primary use of EM is to identify sulphidic and graphitic metasedimentary for stratigraphic control. None of the Shaw Dome nickel deposits responded to EM surveys in the past and it can now be seen that much of earlier diamond drilling footage was poorly utilized testing EM responses to various metasedimentary horizons.

Tontine Magnetic and TEM Surveys

A small area of the Tontine Block, centered on the Tontine deposit, was covered by a magnetic survey along lines 200 feet apart with readings every 50 feet along the lines and by a pulse EM survey. The latter was undertaken as a test of the method and results proved completely negative in terms of identifying the nickel mineralization.

Results are summarized in Appendix 5, Report on the Geophysical Surveys, Tontine Project Area, Langmuir Township, Timmins, Ontario; by R.W. Woolham P.Eng.

Eldorado-Adams Magnetic and MaxMin Em Surveys

Results to be submitted.

Down-hole PEM Surveys

Survey profiles are included as Appendix 8. For hole locations see figure 2.

Magnetic Susceptibility Measurements of Drill Core

A magnetic susceptibility measurement, using a scintrex SM.5 unit, was taken approximately every ten feet along the drill core during logging. Results are presented on the summary graphic logs of the 1991-1992 drill holes and relogs of two of the 1989 drill holes - See section 4.5.

The primary objective of taking these measurements was to enable correlation between drill core and ground magnetic surveys.

The magnetic susceptibility survey of the drill core indicates that the non-ultramafic volcanic and sedimentary rocks and all dikes have extremely low magnetic susceptibilities of 0.0 to $0.3x10^{-3}$ cgs. The only exceptions are diabase dikes in hole L91-3 and L92-9 with magnetic susceptibilities of up to $3.0x10^{-3}$ cgs and pyrrhotite-rich sections of siliceous metasediments which have magnetic susceptibilities of up to $4.0x10^{-3}$ cgs.

The magnetic susceptibility of the ultramafic rocks is extremely erratic, varying from 0.1 to greater than $10.0x10^{-3}$ cgs. The variability is a reflection of primary mineralogy and the type and degree of alteration. Serpentinized ultramafics generally have the greatest magnetic susceptibilities but it varies depending on primary mineralogy and degree of carbonization. The magnetic susceptibility of the talc-carbonate altered ultramafics is quite variable again likely due to primary mineralogy and degree of carbonization. Ultramafic rocks which have been extensively overprinted by calcite carbonate generally have some of the lowest magnetic susceptibilities of the ultramafics. The chloritic aphanitic ultramafic zones (frequently marginal to dikes) also have extremely low magnetic susceptibilities of 0.0 to $0.5x10^{-3}$ cgs. It is common to see a drop in magnetic susceptibility of the ultramafics within several feet of a dike contact.

As demonstrated by the magnetic surveys and diamond drilling, the use of magnetics to identify ultramafic stratigraphy must be done with some caution. Areas of low magnetic response which may have been interpreted as non- ultramafic may in fact represent intensely carbonatized and altered ultramafics. At Langmuir however, this seems to have affected only the sheet flow facies and not the larger cumulate channels.

4.4 Overburden Geochemistry

In 1972, Inco conducted an orientation basal till sampling survey over the Langmuir Number 1 deposit. Three holes, using a hand-held Pionjar percussion drill, were sited over the sub-outcrop of the mineralization and 100 and 200 ft. down-ice of the sub-outcrop. Basal till samples were recovered utilizing a piston-type sampler. The samples were sieved to obtain a -10+100mesh fraction and a heavy mineral concentrate of this fraction was obtained. A split of the concentrate was pulverized to -100 mesh and analyzed for nickel and copper. Results clearly indicated the presence of a significant detrital dispersion anomaly within a thin basal till horizon beneath 20 to 40ft of clay and sand.

Basal till overburden sampling using such light weight, hand- held drills provides a relatively rapid and inexpensive method for not only prioritizing and testing geophysical targets prior to diamond drilling, but also of detecting low grade, relatively small zones of sub-outcropping bedrock mineralization which may not provide a characteristic geophysical response, but which might represent weaker peripheral mineralization, especially in this case disseminated hanging wall zones, to a more substantial body at depth.

In mid-February, 1991, a test program of reverse circulation drilling was performed immediately south, down-ice of the Redstone nickel deposit. The recovered overburden sample was subjected to standard heavy mineral separation techniques developed and conducted by Overburden Drilling Management. The heavy mineral concentrate was then analyzed by standard geochemical techniques. It was concluded that the sulphide mineralization was readily detectable from a distance of 100 metres to 300 metres down-ice. The outlined dispersal train is a textbook example with a predictable orientation, length, width and grade.

On the basis of the reverse circulation test results, and the large number of overburden samples which would be required to test the basal contacts of the numerous ultramafic units, Timmins Nickel initiated a program to develop a method of sample recovery and analysis which would have an operational effectiveness similar to the reverse circulation technique but at a much lower cost per sample.

A decision was made to proceed with a whole till recovery program similar to the Pionjar recovery system however a more robust and mobile system was required, capable of drilling to depths in excess of 100 feet and through bouldery gravels. A design was finally reached which utilized readily available components and which could be assembled in a short time period by the mine maintenance department. The persession drill rig comprises an underground longhole drill mounted in a vertical position at the rear of a steel sled. Mounted on the front of the sled is a Joy industrial compressor which provides the compressed air required by the drill. A compressed air winch assembly (tugger) was also added to assist in recovering the drill string from deep holes. The drill rods consist of standard 4ft longhole rods with external couplings. The sled is pulled by a Clark skidder which gives the drill good maneuverability and limits the width of trails and time required for moves between holes. Very few trees need to be cut except in areas of dense mature growth.

Attached to the end of the rod string is a whistle-type flow- through sampler. The sampler consists of a 1.5ft long, 2 inch diameter hardened steel rod. A standard longhole rod thread is milled on the upper 4 inches of the sampler to allow the sampler to be coupled to the drill rods. At the base of the rod a 10 inch long, 1 inch diameter hole is bored along the rod axis. This creates the sample tube with 1/2 inch thick walls which can withstand the percussion impact of the longhole drill. An ejector port is milled at a 30 degree angle to the rod axis through the side of the rod to intersect the blind end of the bonehole.

The overburden drill crew consists of a skidder/drill operator and a geologist/sampler who also acts as rod handler. The sampling procedure is as follows: The drill is pulled onto a level site and the cleaned sampler is coupled to a rod and driven into the overburden using the percussion mode on the drill. No rotation is required. Additional rods are added and driven into the overburden until the drill can no longer advance the rod string. As the sampler is driven into the overburden the unconsolidated material flows through the tube and is ejected out the port. Only the lowermost 9 inches of overburden drilled is retained in the tube and extracted from the hole. During the drilling process the geologist notes overburden composition based on variations in the drill advance i.e. clay is drilled rapidly and with great ease whereas drill advance in a bouldery gravel is characterized by sudden jerky changes in the rate of drill advance. When the sampler has been as deep as possible into the overburden the rods and sample tube are then extracted from the hole. The sample averaging 100 to 200 grams is extracted from the sample tube by the geologist and placed into a kraft soil bag. During the summer months on-site initial notes are made by the geologist with respect to sample composition. The sample tube is then cleaned and the drill advanced to the next site.

Inherent advantages and disadvantages of this sample retrieval method are recognized, namely:

Advantages

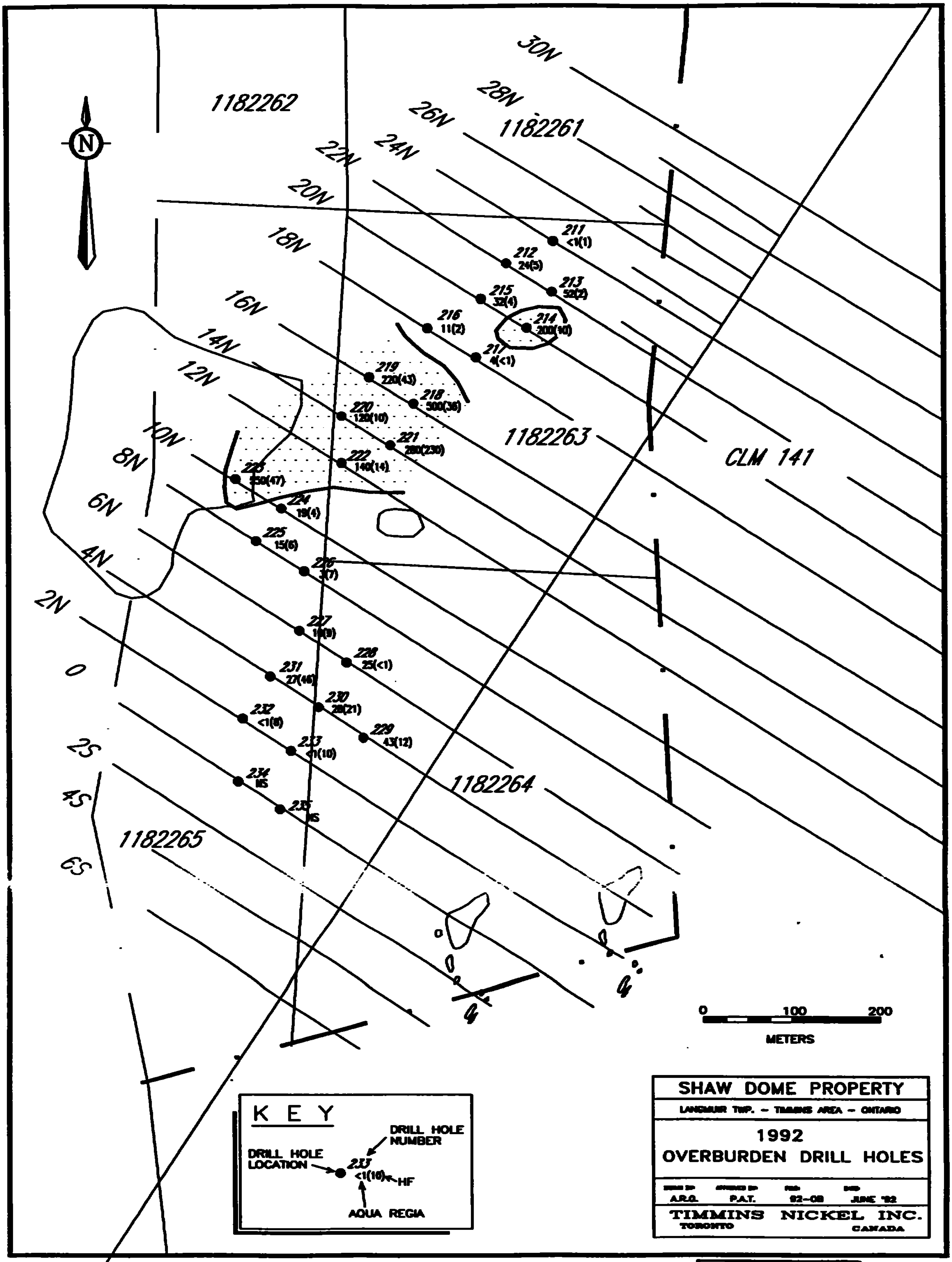
1) A lower cost per hole than reverse circulation.
2) The percussion drill is capable of pushing through bouldery gravels where a hand-held Pionjar system cannot.
3) A complete sample is recovered which can be considered representative of the -1inch fraction of the overburden sampled. The reverse circulation method recovers only the coarser fraction.
4) The percussion drill unit is more mobile and requires less trail construction than the larger reverse circulation rig i.e. more "environmentally friendly".
5) The percussion rig uses a smaller crew and does not require a water supply.
6) A "bedrock" chip is often recovered at the bottom of the sampler.

Disadvantages

1) Cannot be certain that the percussion drill has reached bedrock. A large boulder can stop the percussion drill. The reverse circulation drill can drill through boulders and it is standard practice to drill at least 10 feet into rock to make certain bedrock has been intersected. This procedure also allows mapping and sampling of the bedrock.
2) Extremely dense till or water-saturated sand can also bind the drill rods preventing further advance to the most basal till. It also hampers extraction of the rod string.
3) Relatively small sample size.
4) The external couplings on the rods can catch on boulders preventing retrieval of the rod string.
5) Rods can snap at the thread after prolonged use or with excessive bending around boulders.

To reduce sample preparation and analytical costs a decision was made to proceed with whole till analysis utilizing selective extraction techniques rather than continue with the heavy mineral separation technique. Aside from cost considerations the chosen sample recovery technique provides a sample of limited size which may not be adequate to obtain a valid heavy mineral separate. Because of the high background nickel content held in the silicate phases of the ultramafics the objective of a selective extraction is to isolate sulphide derived nickel from silicate nickel derived from the ultramafic fraction of the till sample.

A total of 43 holes for 814 feet of drilling were completed in 1992 - figure 2. See Appendix 2 for logs and analytical results.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OVERBURDEN DRILL HOLES
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P.A.T.
92-08
JUNE '92
TIMMINS NICKEL INC.
TORONTO
CANADA

Figure 2

This has been costed at $6.11 per foot which is as per OMIP Grant Application OM91-098 submitted in February, 1992, less assay costs ($6.42 per foot - 0.31 per foot for assaying).

4.5 Surface Diamond Drilling

A total of 21 holes totalling 12,473 feet were completed in January and February, 1992, on the Langmuir Block. These are tabulated overpage together with summary graphic logs showing lithologies and contacts, alteration, location of lithogeochemical samples and magnetic susceptibility readings. See Appendix 2 for full drill logs and assay certificates. Hole locations are shown on figure 3.

Drill holes 92-11, 92-14, 92-15, 92-16 and 92-19 were sited to test the northern strike extension of the North Zone mineralization intersected in 1989. All other holes were sited to test other prospective ultramafic contacts on the property.

L E G E N D

ULTRAMAFIC ROCKS

- *Spinifex*
- *Orthocumulate*
- *Olivine – Sulphide Orthocumulate*
- *Harrisitic*
- *Breccia/Pseudobreccia*
- *Primary Texture destroyed by Alteration/Metamorphism*

CALC-ALKALIC VOLCANIC/SEDIMENTARY ROCKS

- *Andesite/Dacite Volcanic*
- *Siliceous Metasediment/ Sulphide Facies Iron Formation*
- *Argillite*
- *Interbedded Tuff and Magnetite/ Oxide Facies Iron Formation*

INTRUSIVE ROCKS

- *Dyke (Diabase, Diorite, Feldspar Porphyry)*
- *Soft Dyke/Xenolith ?*

A L T E R A T I O N

T	*Talc*
C	*Carbonate*
TC	*Talc – Carbonate*
CHL	*Chlorite*
CC	*Chlorite Carbonate*
SERP	*Serpentine*
BIO	*Biotite*

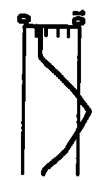
S Y M B O L S

Overburden

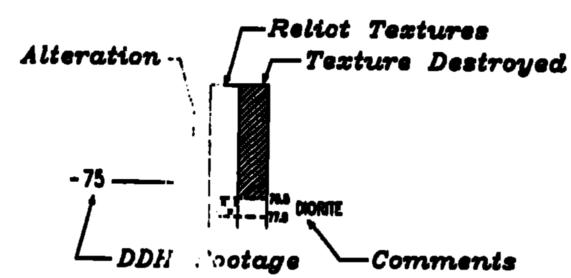
1890 *22.50 — *Sample No.* *%MgO Volatile Free*

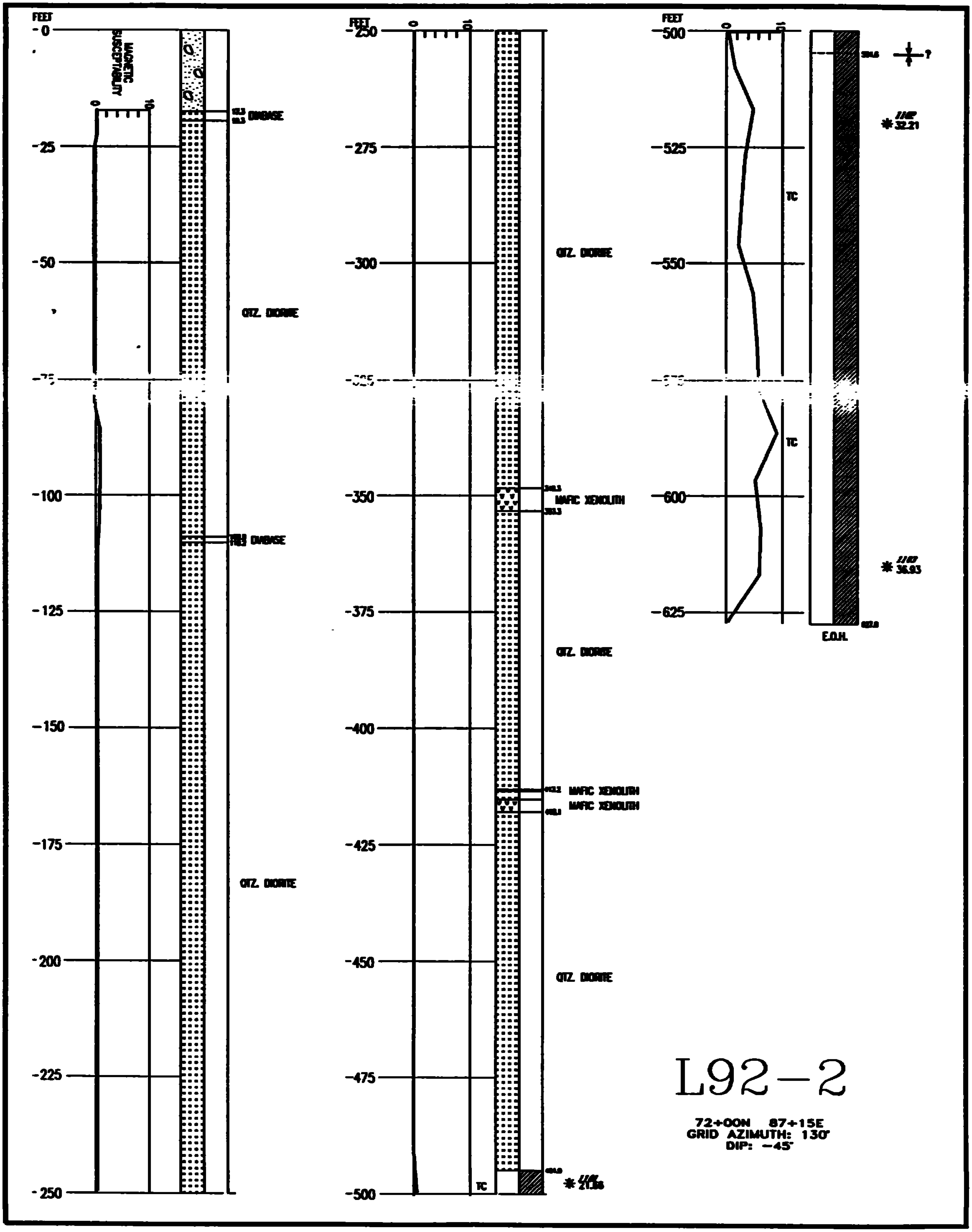
Flow Contact

Possible Flow Contact

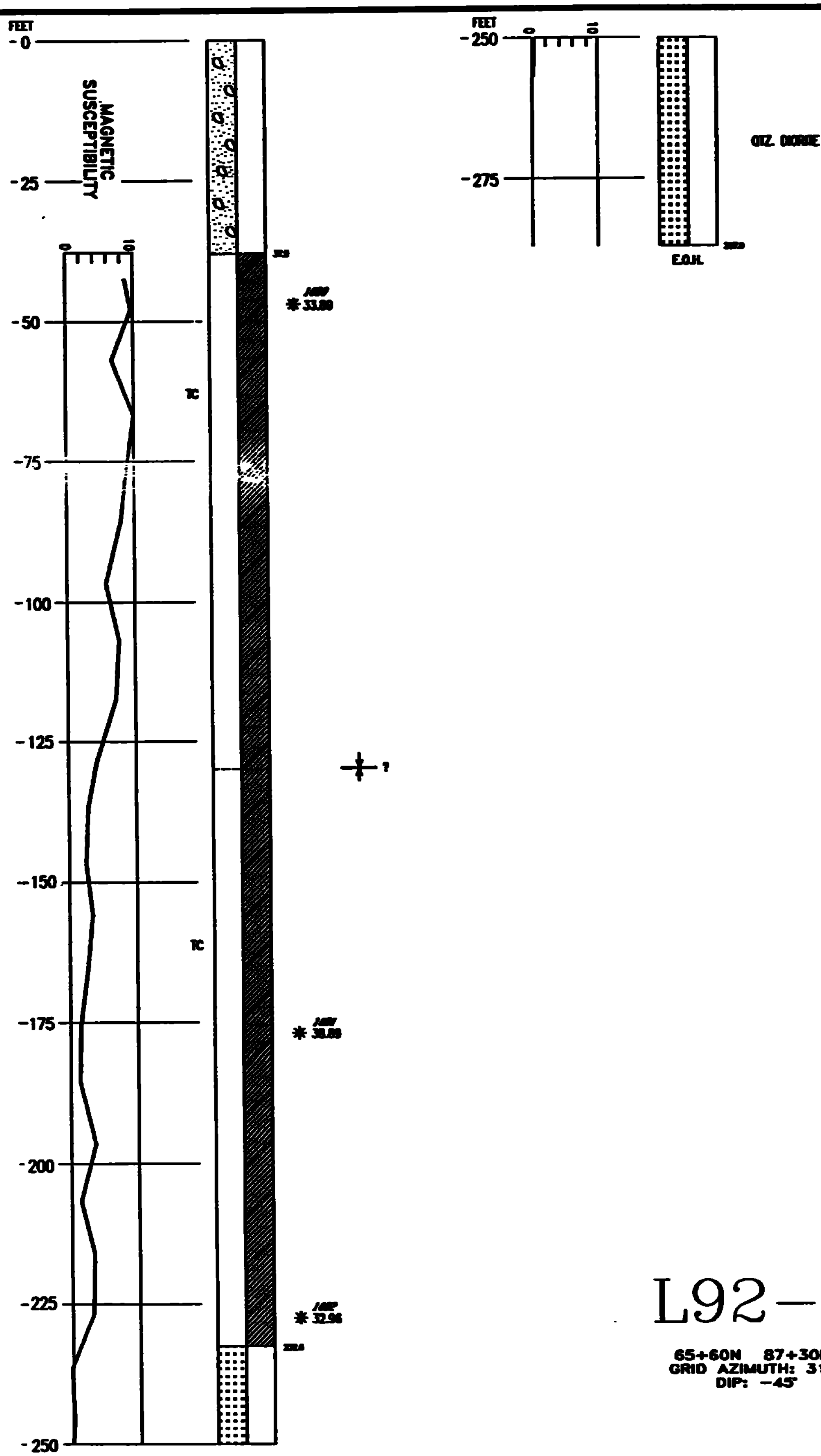


Magnetic Susceptibility (10⁻³ cgs)



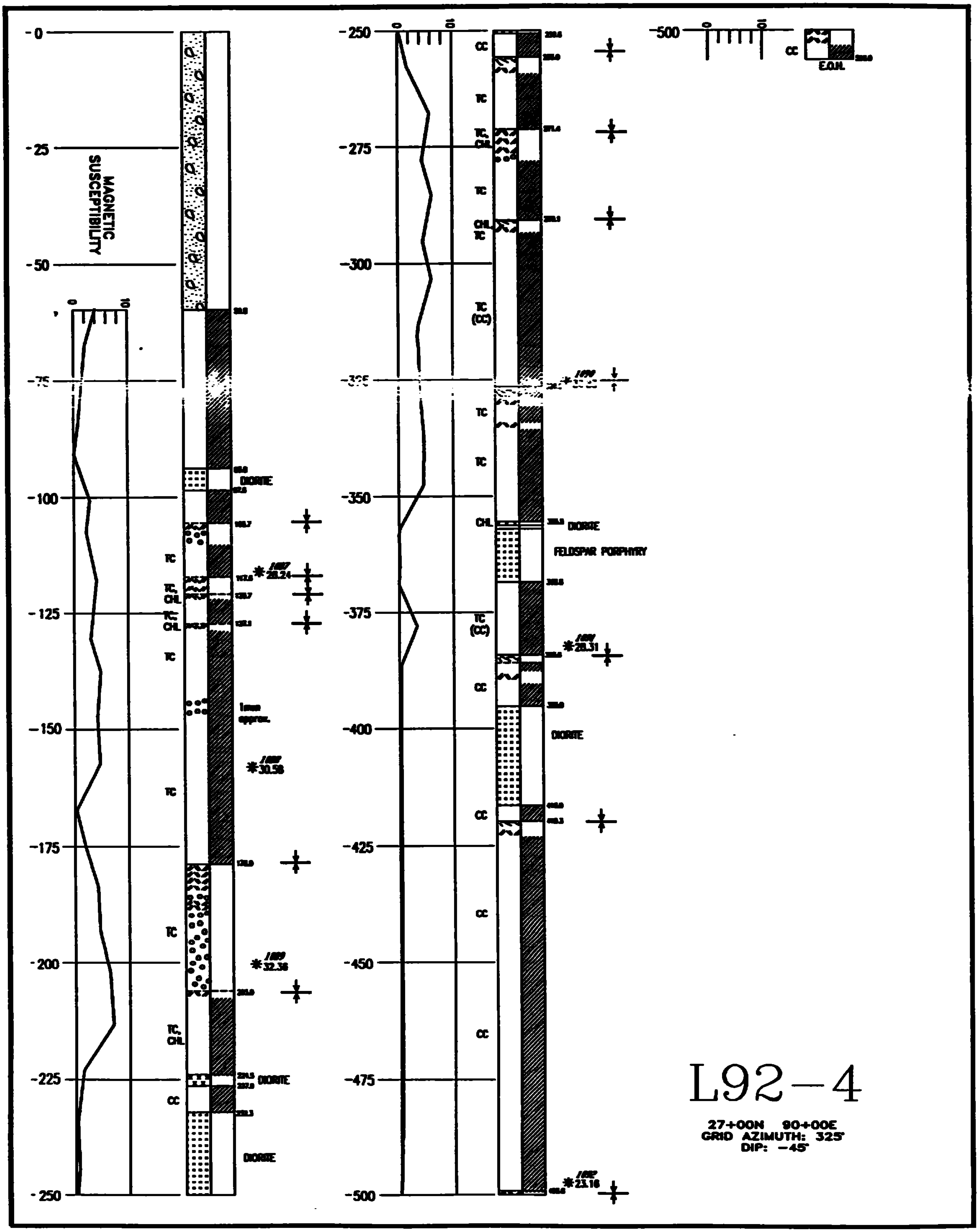


FEET
MAGNETIC SUSCEPTIBILITY
0
10
DIABASE
QTZ. DIORITE
DIABASE
QTZ. DIORITE
-0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
FEET
-250
-275
-300
-325
-350
-375
-400
-425
-450
-475
-500
QTZ. DIORITE
MAFIC XENOLITH
QTZ. DIORITE
MAFIC XENOLITH
MAFIC XENOLITH
QTZ. DIORITE
TC
21.38
FEET
-500
-525
-550
-575
-600
-625
TC
TC
32.21
36.93
E.O.H.
L92-2
72+00N 87+15E
GRID AZIMUTH: 130°
DIP: -45°



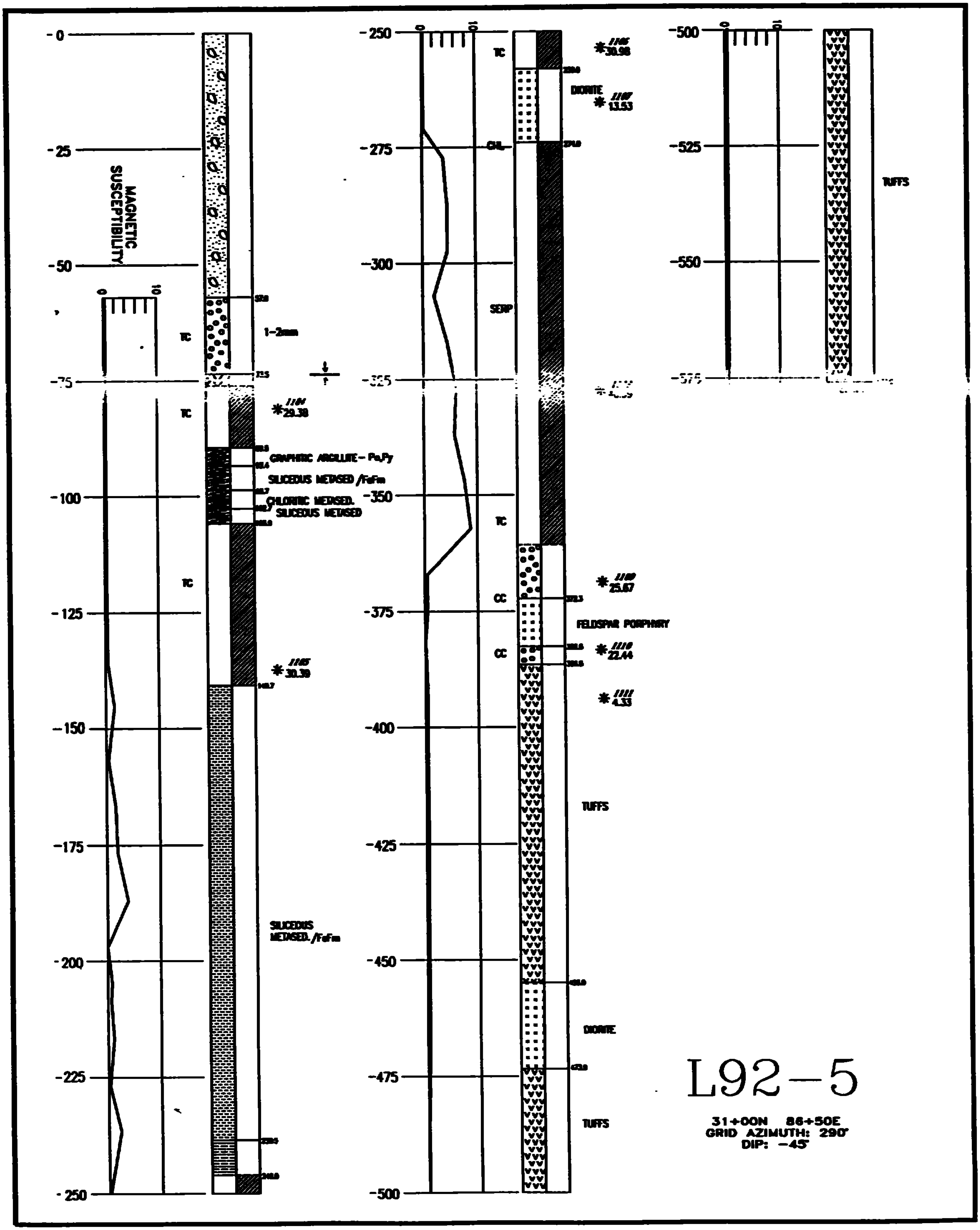
L92-3

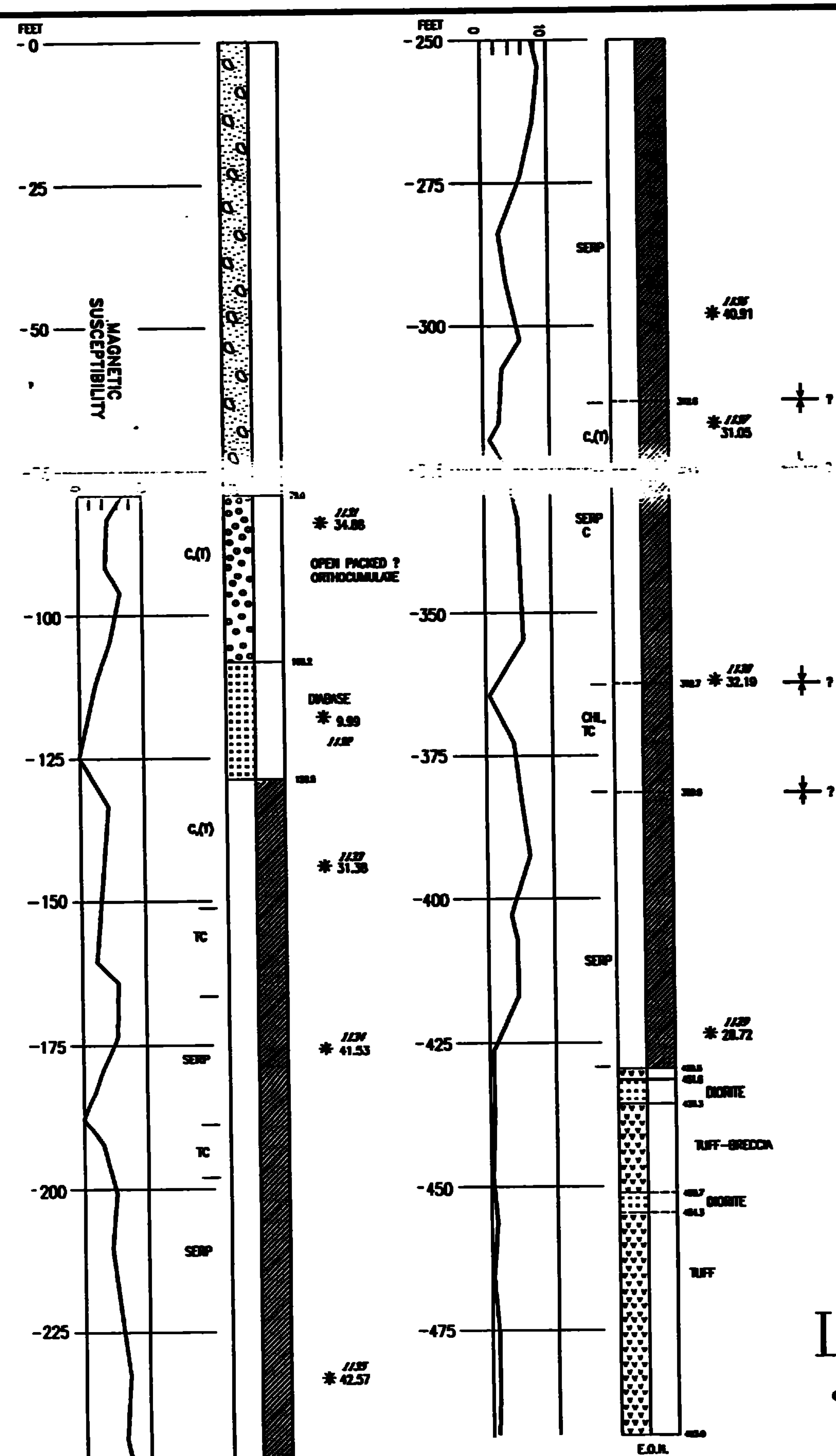
65+60N 87+30E
GRID AZIMUTH: 310°
DIP: −45°



L92-4

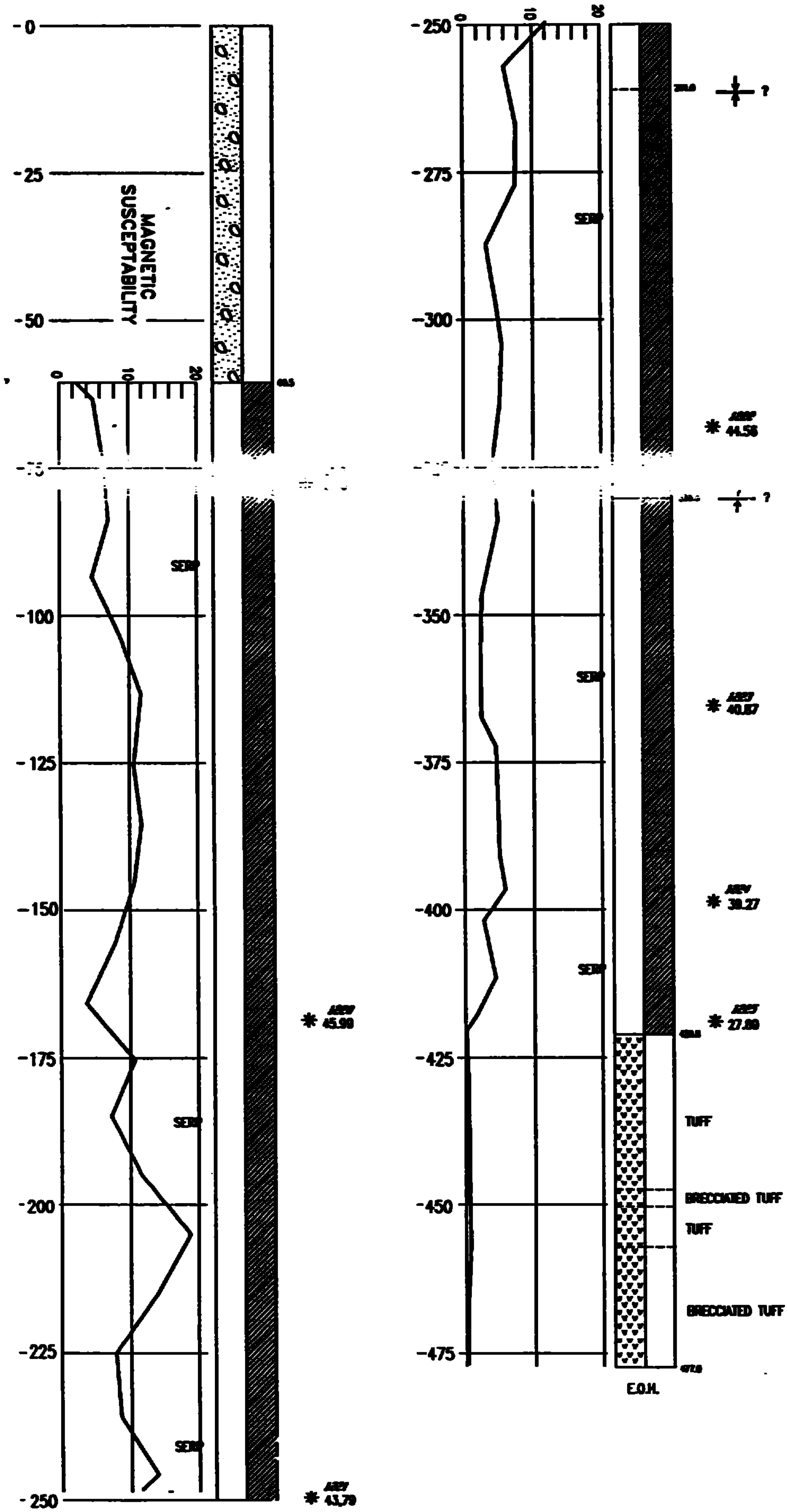
27+00N 90+00E
GRID AZIMUTH: 325°
DIP: -45°


MAGNETIC SUSCEPTIBILITY
0
10
TC
1-2mm
GRAPHITIC ARGILLITE - Po,Py
SILICEOUS METASED /FeFm
CHLORITIC METASED.
SILICEOUS METASED
SILICEOUS METASED. /FeFm
DIORITE
CHL
SERP
CC
FELDSPAR PORPHYRY
TUFFS
*1106 30.98
*1107 13.53
*1104 29.38
*1105 30.39
*1109 25.67
*1110 22.44
*1111 4.33
-0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-350
-375
-400
-425
-450
-475
-500
-525
-550
L92-5
31+00N 86+50E
GRID AZIMUTH: 290°
DIP: -45°



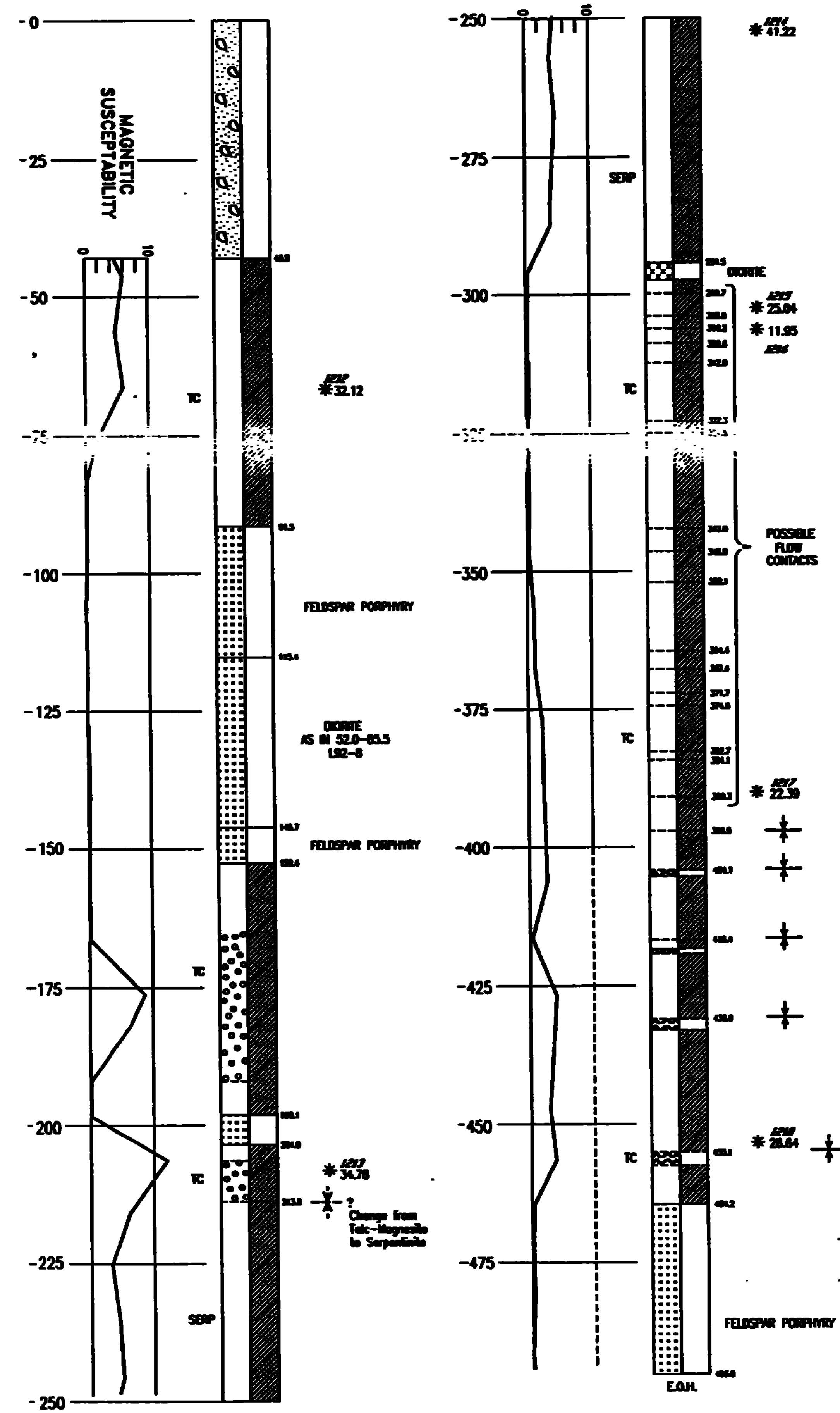
L92-6

16+00N 77+00E
GRID AZIMUTH: 260°
DIP: -45°



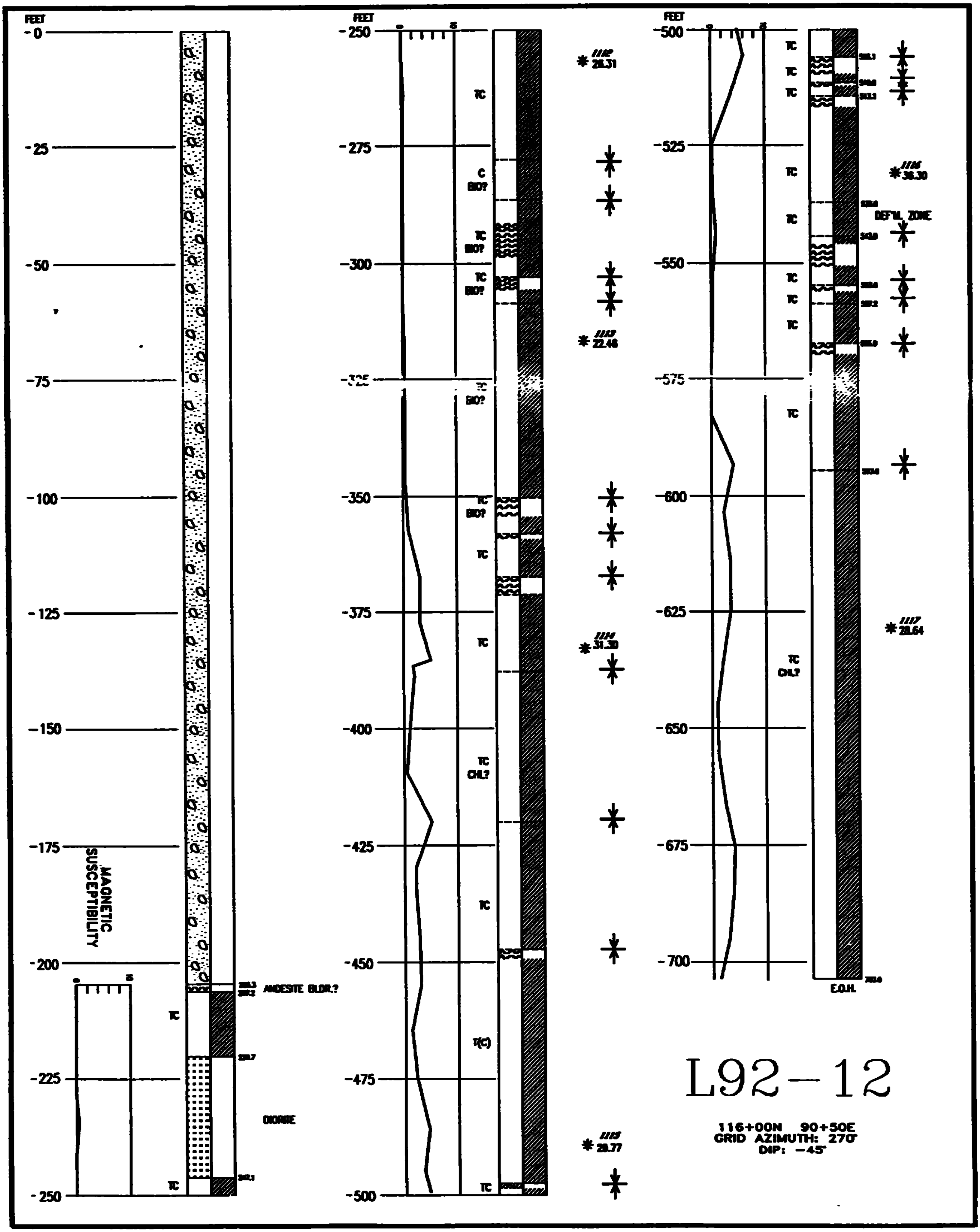
L92-7

65+50N 104+00E
GRID AZIMUTH: 295°
DIP: -45°

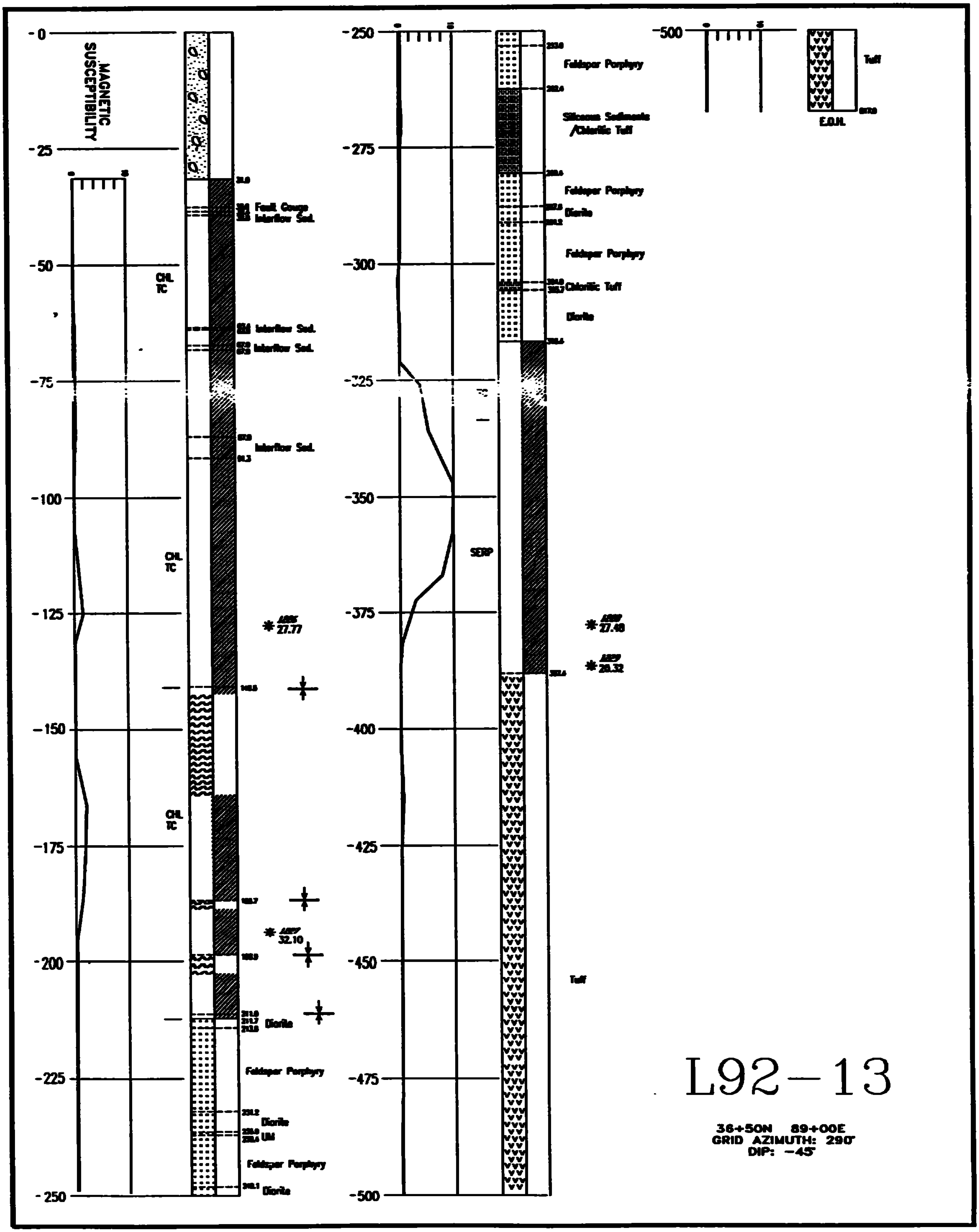


L92-10

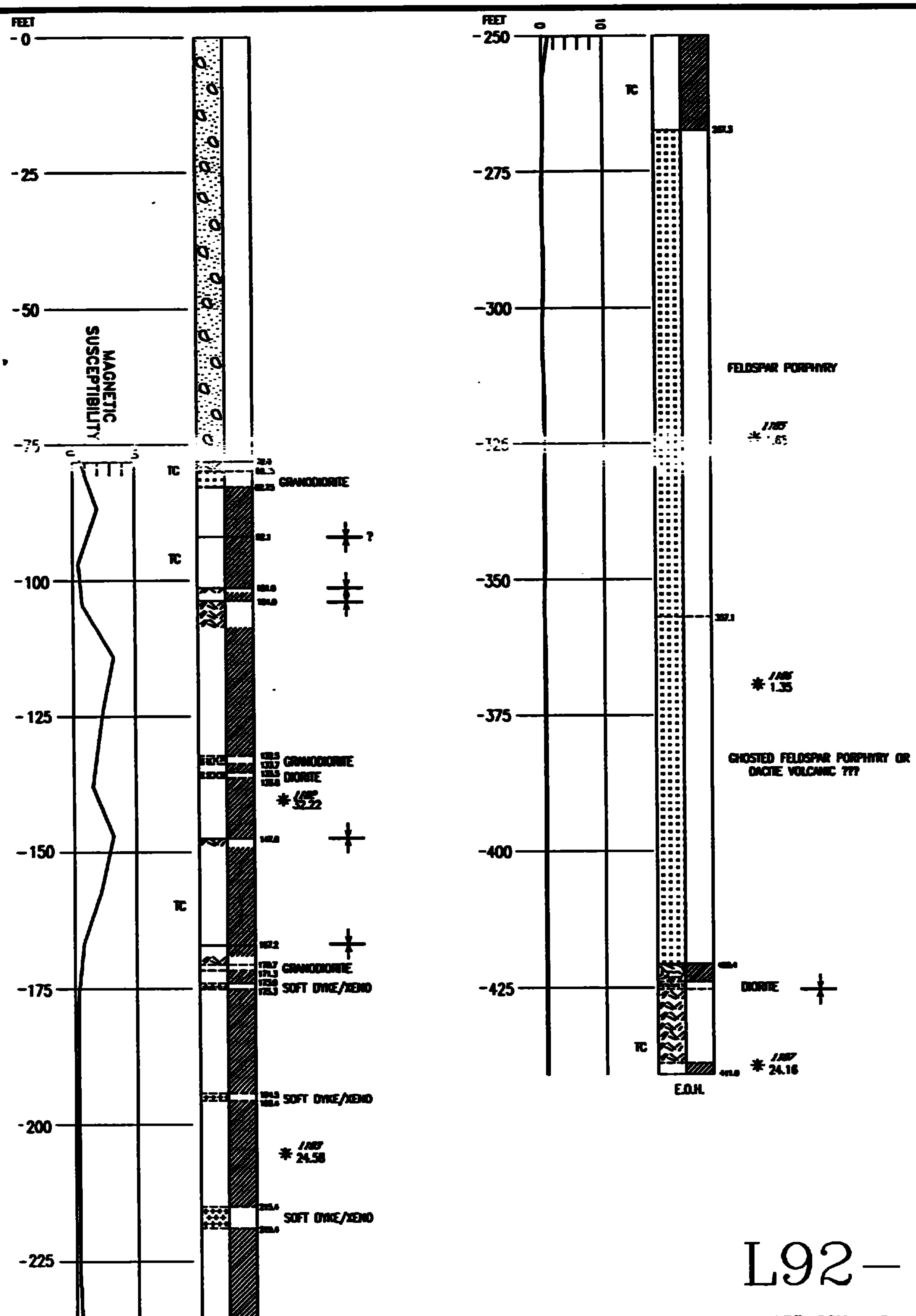
71+00N 70+50E
GRID AZIMUTH: 300°
DIP: -45°



FEET
MAGNETIC SUSCEPTIBILITY
ANDESITE BLDR.?
TC
DIORITE
C
BIO?
TC BIO?
TC CHL?
T(C)
DEF'M. ZONE
TC CHL?
E.O.H.
L92-12
116+00N 90+50E
GRID AZIMUTH: 270°
DIP: -45°

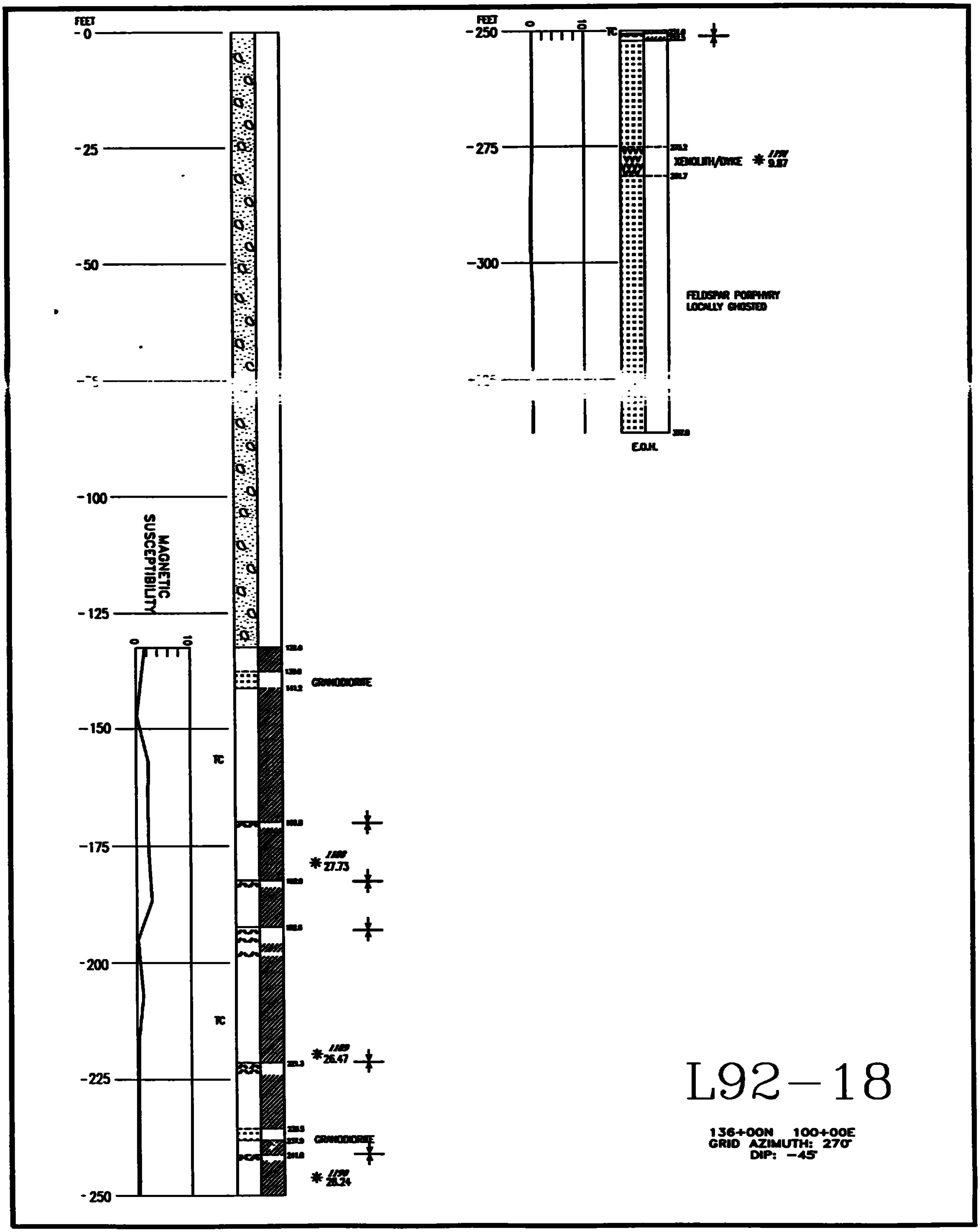


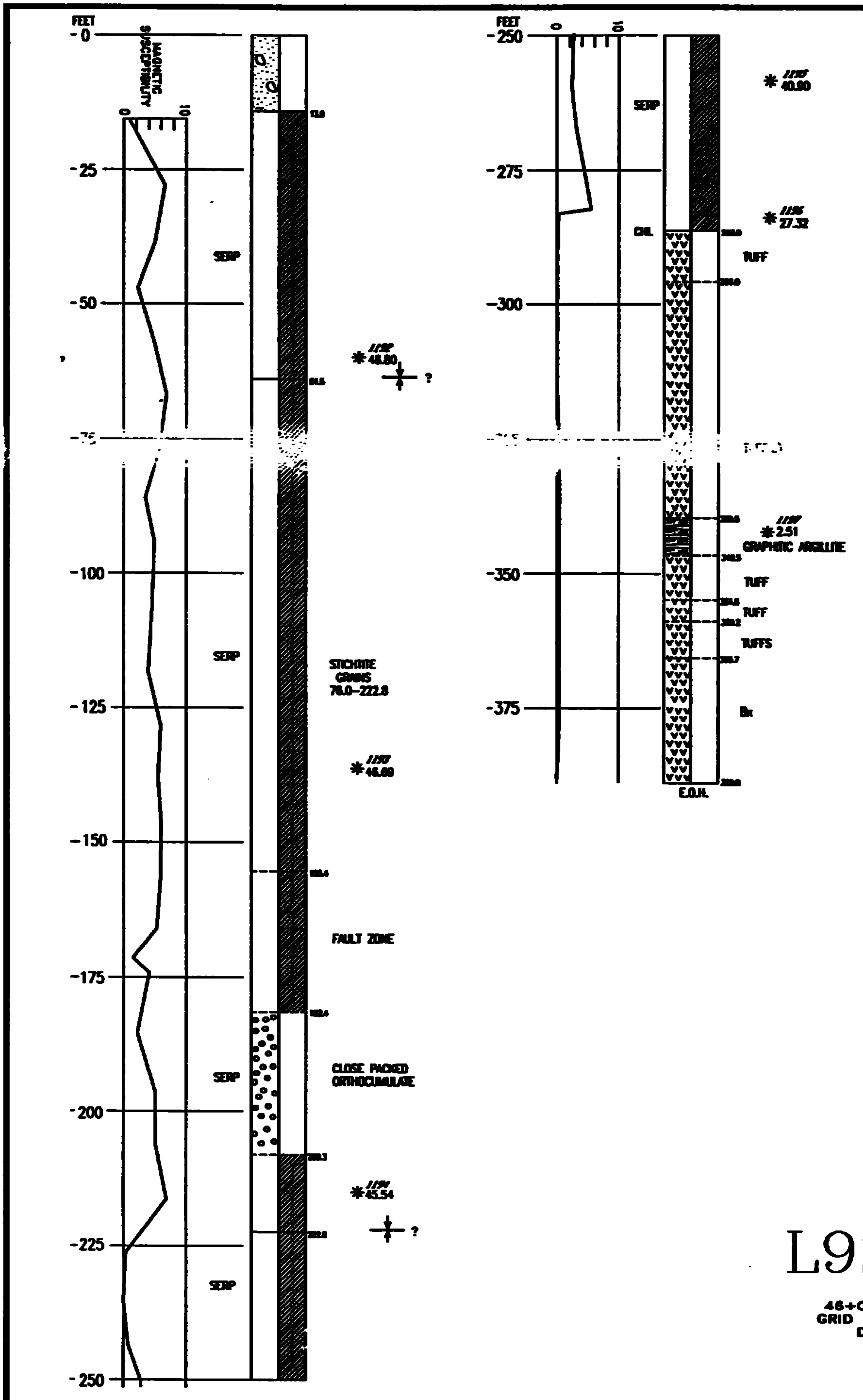
MAGNETIC SUSCEPTIBILITY
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
Fault Gouge
Interflow Sed.
CHL
TC
Interflow Sed.
Interflow Sed.
Interflow Sed.
CHL
TC
CHL
TC
Diorite
Feldspar Porphyry
Diorite
UM
Feldspar Porphyry
Diorite
-250
-275
-300
-325
-350
-375
-400
-425
-450
-475
-500
Feldspar Porphyry
Siliceous Sediments
/Chloritic Tuff
Feldspar Porphyry
Diorite
Feldspar Porphyry
Chloritic Tuff
Diorite
SERP
Tuff
-500
Tuff
E.O.H.
L92-13
36+50N 89+00E
GRID AZIMUTH: 290°
DIP: -45°



L92-17

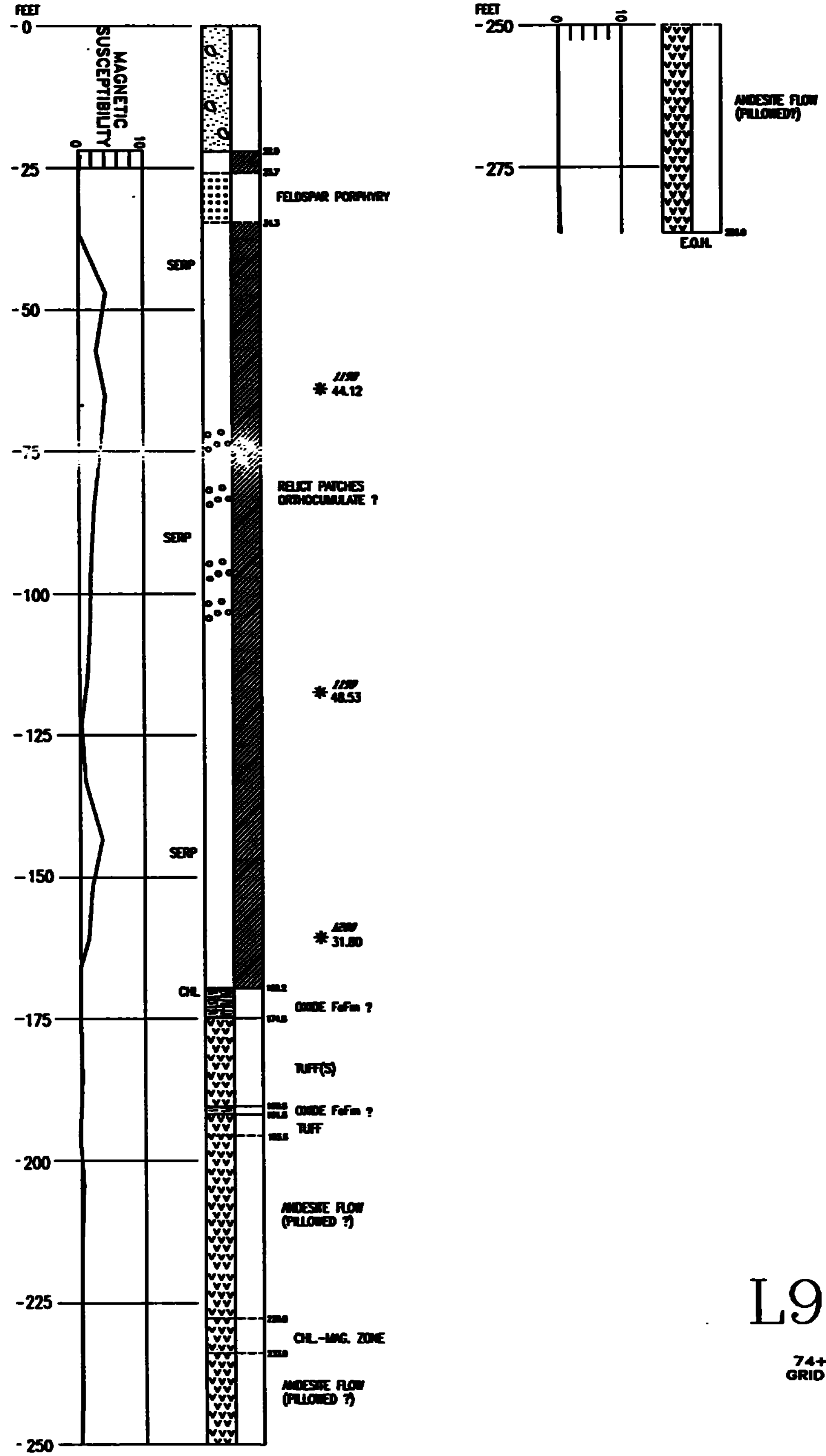
133+00N 101+00E
GRID AZIMUTH: 270°
DIP: -45°


FEET
-0
-25
-50
-100
-125
-150
-175
-200
-225
-250
MAGNETIC SUSCEPTIBILITY
0
10
TC
GRANODIORITE
GRANODIORITE
27.73
26.47
28.24
FEET
-250
-275
-300
XENOLITH/DYKE
9.87
FELDSPAR PORPHYRY
LOCALLY GHOSTED
E.O.H.
L92-18
136+00N 100+00E
GRID AZIMUTH: 270°
DIP: -45°



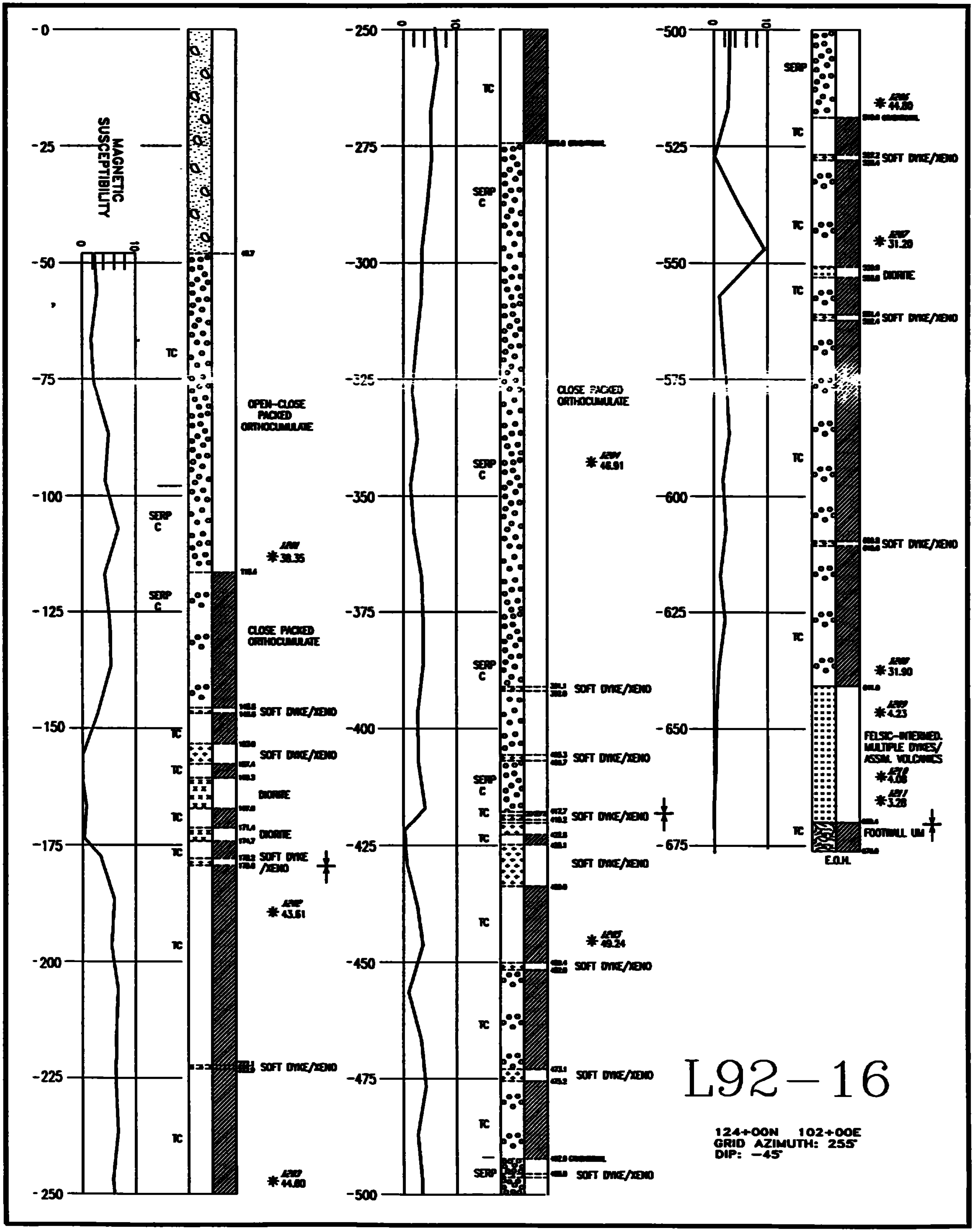
L92-20

46+00N 40+00E
GRID AZIMUTH: 315°
DIP: -45°

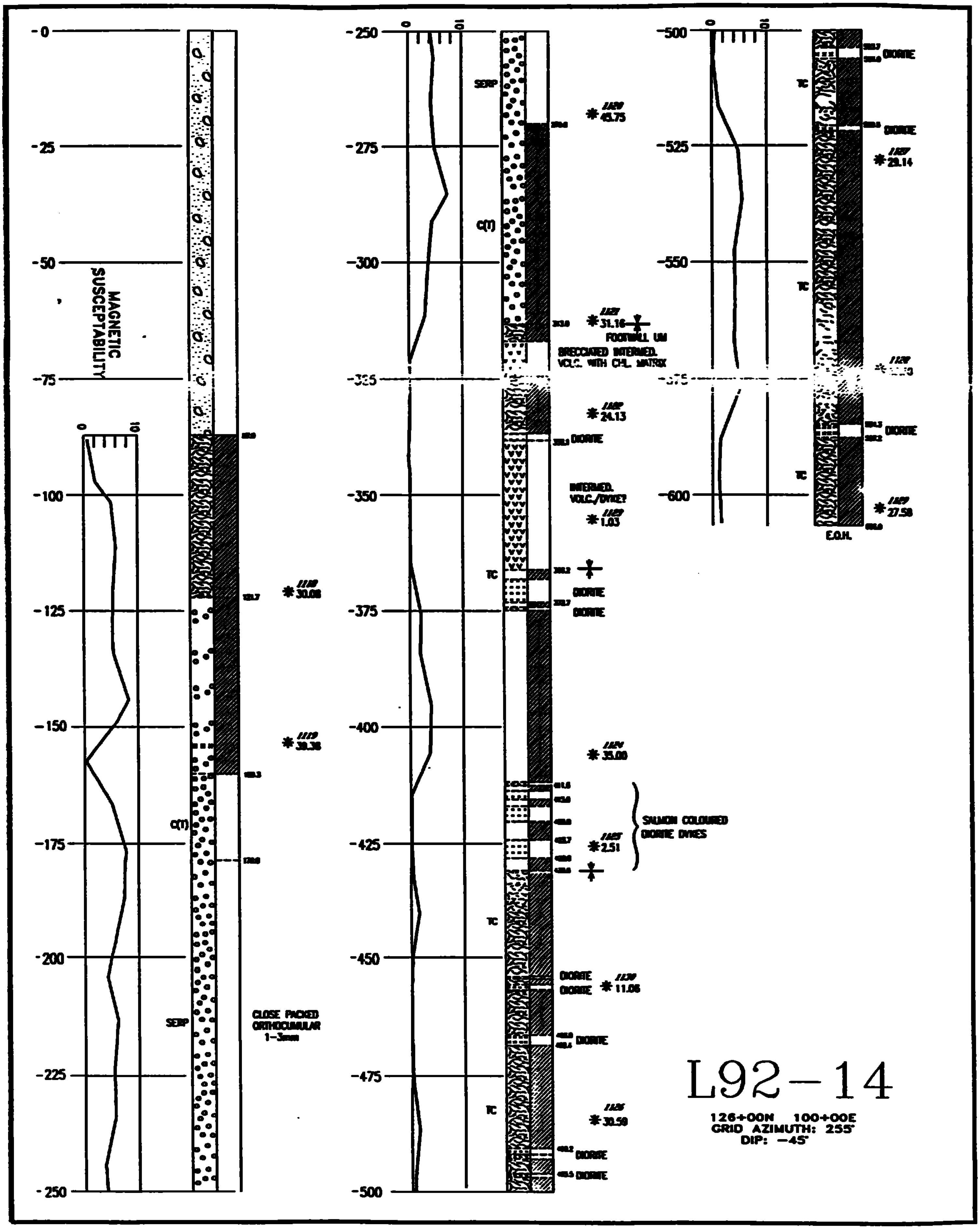


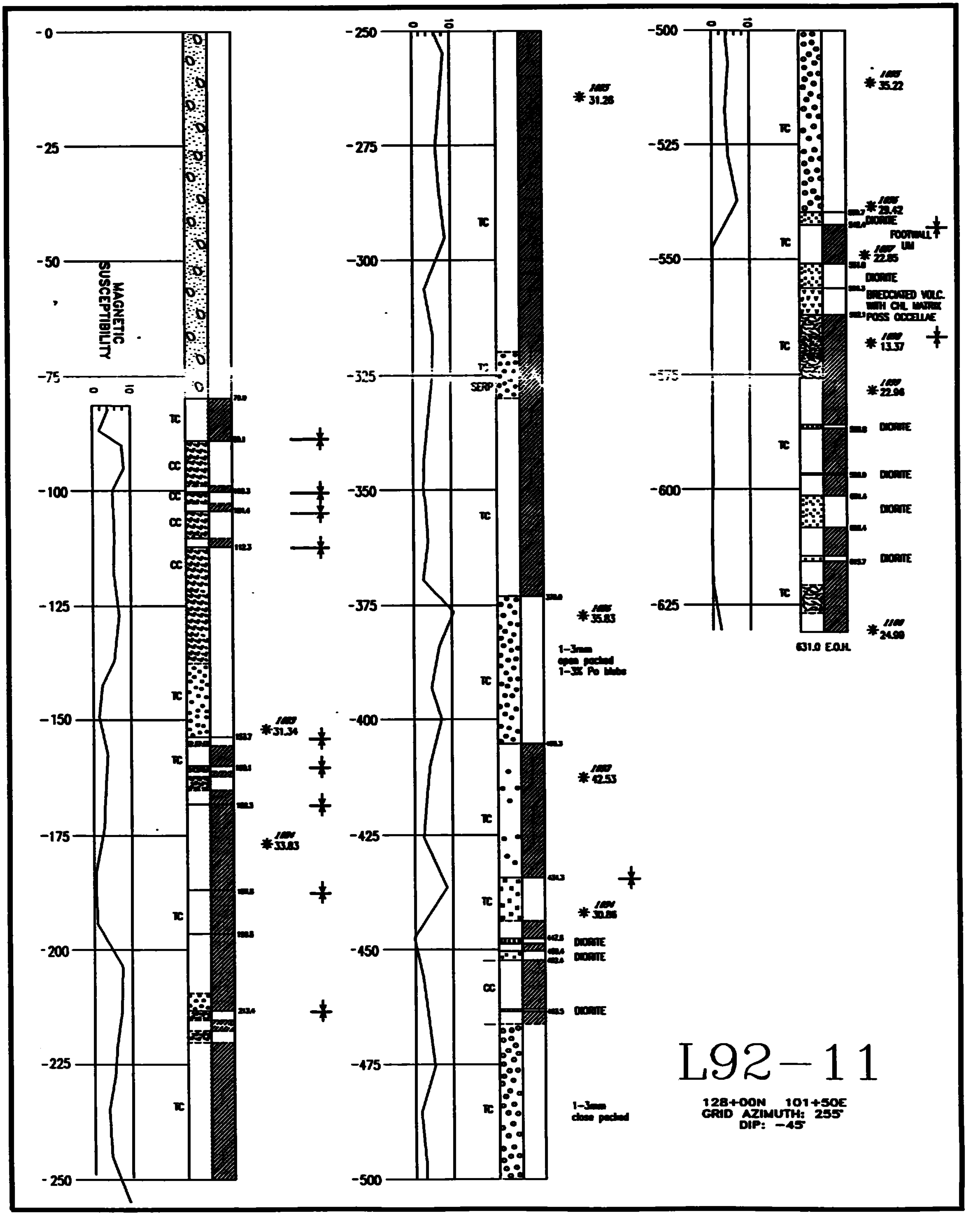
L92-21

74+00N 26+00E
GRID AZIMUTH: 270°
DIP: -45°



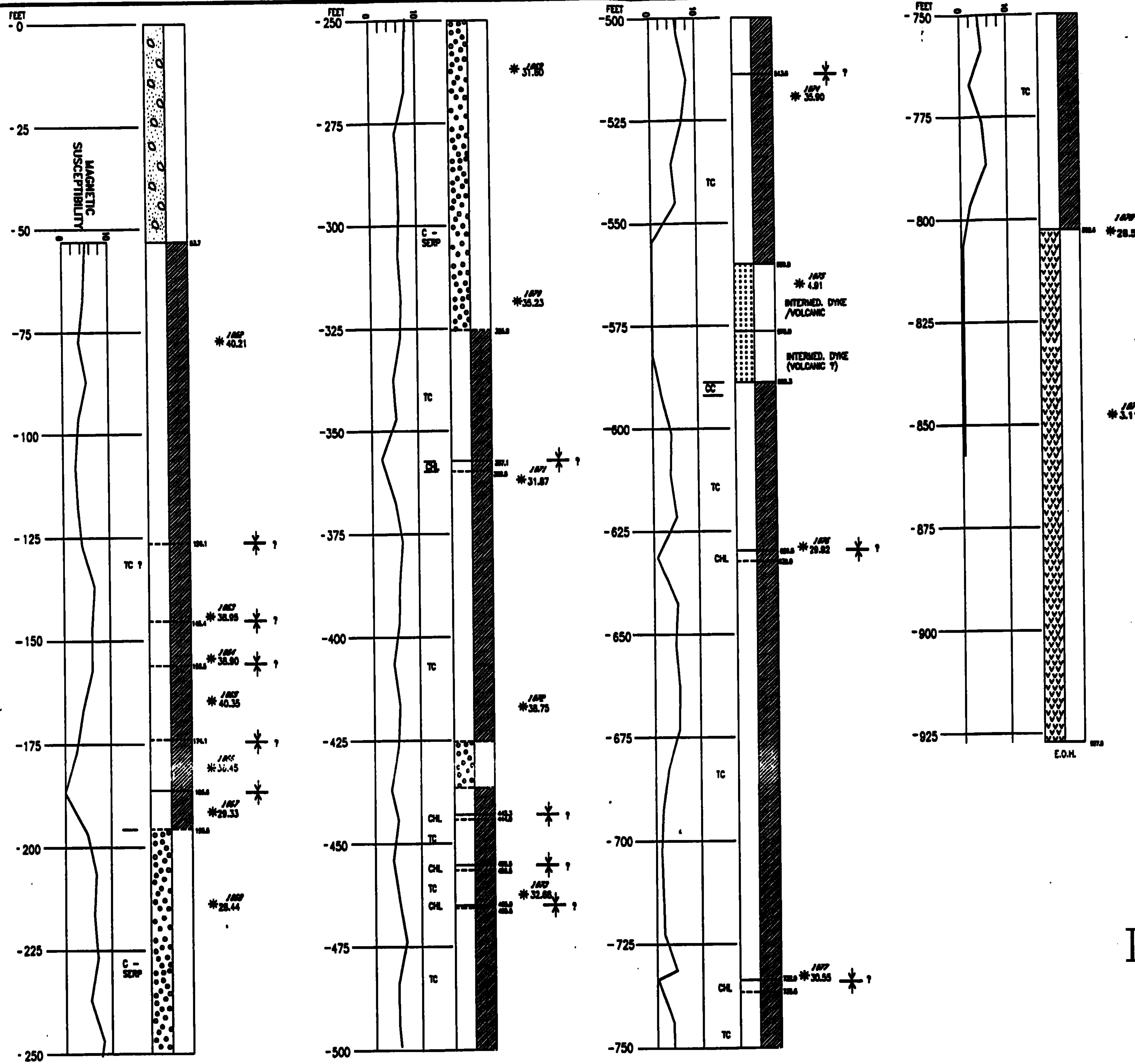
MAGNETIC SUSCEPTIBILITY
0
10
-0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
TC
SERP C
OPEN-CLOSE PACKED ORTHOCUMULATE
✱ 38.35
CLOSE PACKED ORTHOCUMULATE
SOFT DYKE/XENO
DIORITE
SOFT DYKE /XENO
✱ 43.61
✱ 44.80
-275
-300
-325
-350
-375
-400
-425
-450
-475
-500
CLOSE PACKED ORTHOCUMULATE
✱ 46.91
✱ 49.24
SERP
-525
-550
-575
-600
-625
-650
-675
✱ 44.80
✱ 31.20
✱ 31.90
✱ 4.23
✱ 4.08
✱ 3.28
FELSIC-INTERMED. MULTIPLE DYKES/ ASSIM. VOLCANICS
FOOTWALL UM
E.O.H.
L92-16
124+00N 102+00E
GRID AZIMUTH: 255°
DIP: -45°


MAGNETIC SUSCEPTABILITY
SERP
C(T)
CLOSE PACKED ORTHOCUMULAR 1-3mm
FOOTWALL UM
BRECCIATED INTERMED. VOLC. WITH CHL. MATRIX
DIORITE
INTERMED. VOLC./DYKE?
TC
SALMON COLOURED DIORITE DYKES
E.O.H.
L92-14
126+00N 100+00E
GRID AZIMUTH: 255°
DIP: -45°



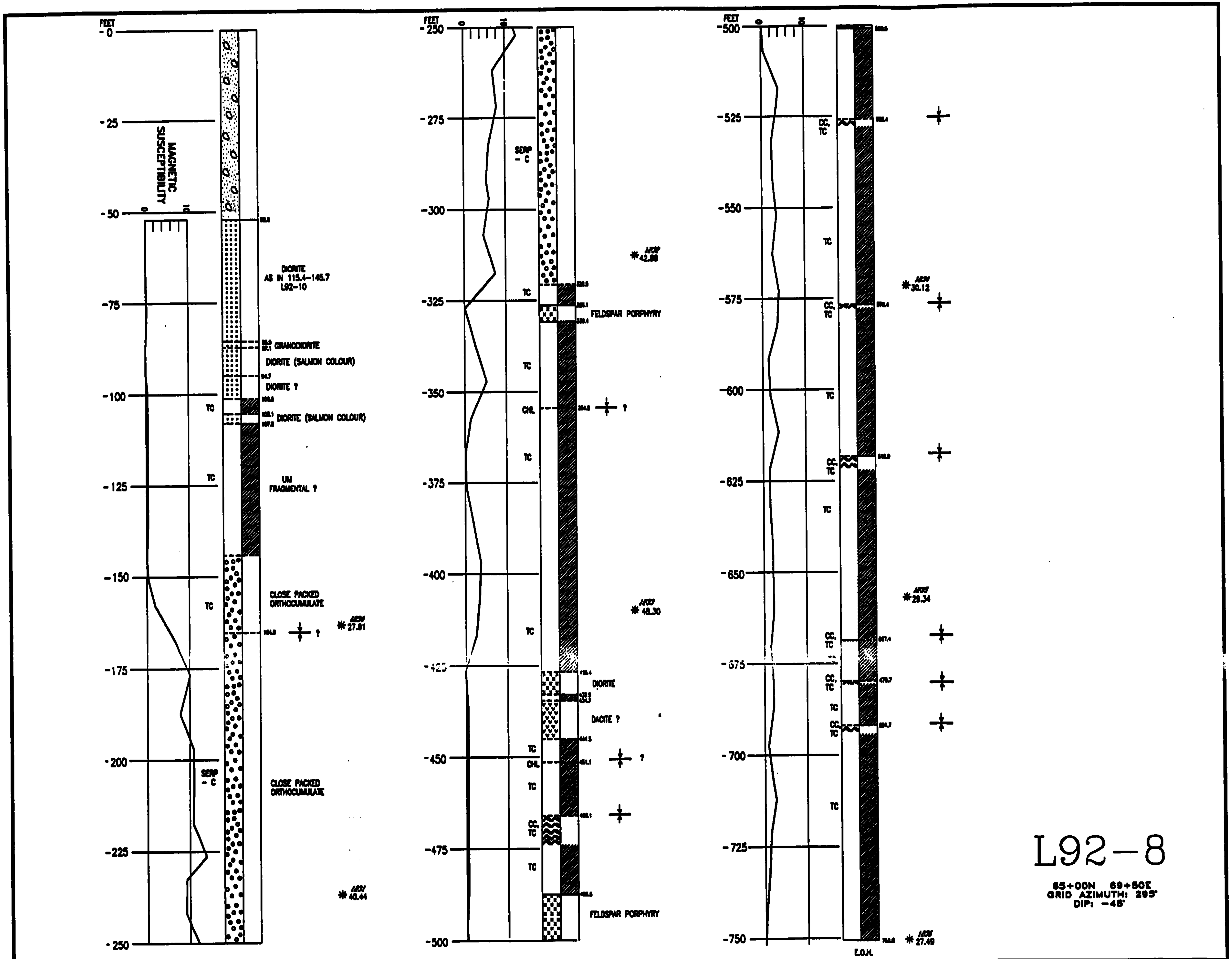
L92-11

128+00N 101+50E
GRID AZIMUTH: 255°
DIP: -45°

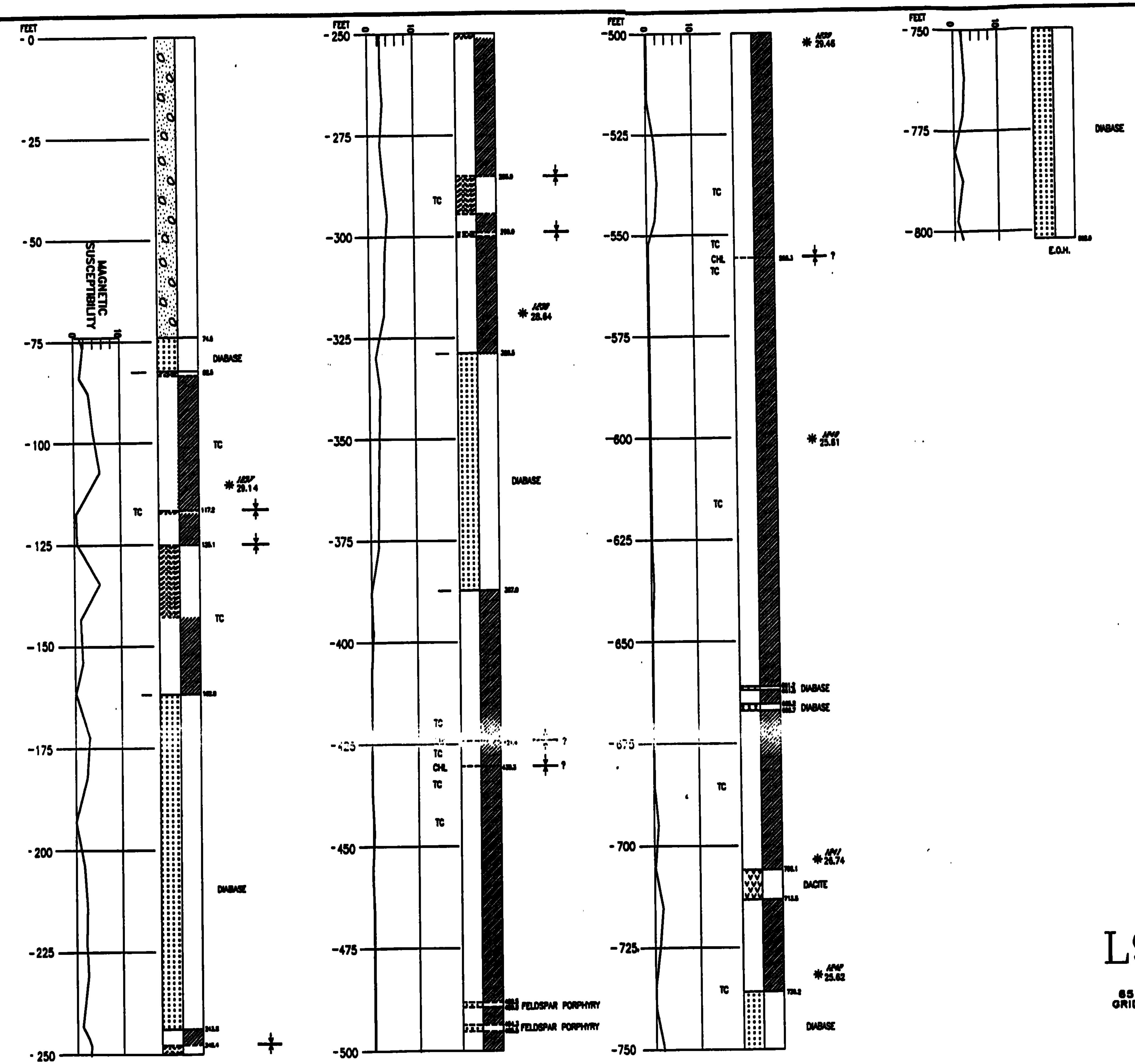


L92-1

72+00N 93+00E
GRID AZIMUTH: 310°
DIP: -45°

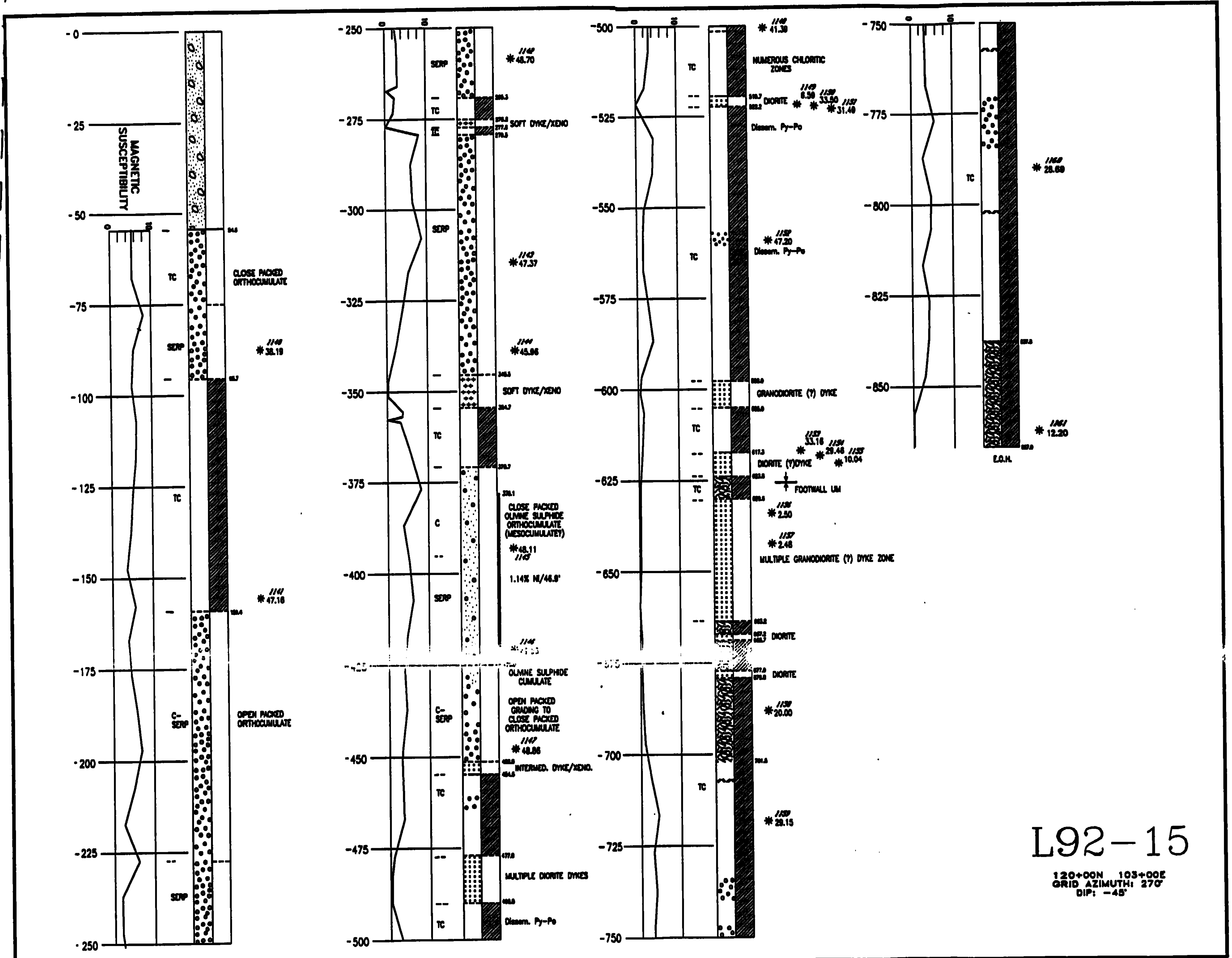


L92-8
65+00N 69+50E
GRID AZIMUTH: 295°
DIP: -45°
MAGNETIC SUSCEPTIBILITY
FEET
DIORITE AS IN 115.4-145.7 L92-10
GRANODIORITE
DIORITE (SALMON COLOUR)
DIORITE ?
DIORITE (SALMON COLOUR)
UM FRAGMENTAL ?
CLOSE PACKED ORTHOCUMULATE
CLOSE PACKED ORTHOCUMULATE
SERP - C
FELDSPAR PORPHYRY
DIORITE
DACITE ?
FELDSPAR PORPHYRY
TC
CHL
CC, TC
E.O.H.

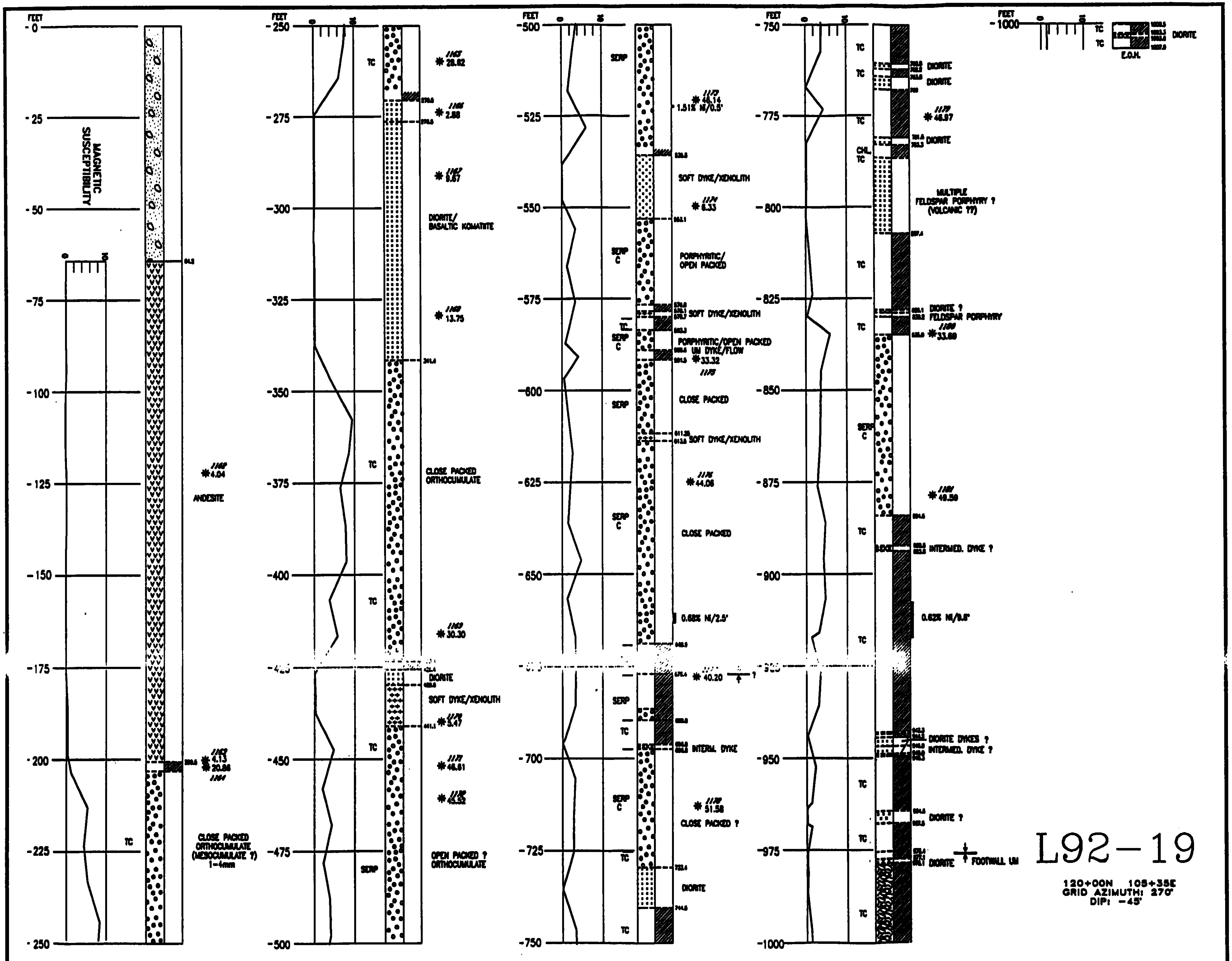


L92-9

65+00N 64+00E
GRID AZIMUTH: 325°
DIP: -45°



L92-15
120+00N 103+00E
GRID AZIMUTH: 270°
DIP: -45°
MAGNETIC SUSCEPTIBILITY
CLOSE PACKED ORTHOCUMULATE
OPEN PACKED ORTHOCUMULATE
SOFT DYKE/XENO
CLOSE PACKED OLIVINE SULPHIDE ORTHOCUMULATE (MESOCUMULATE?)
1.14% Ni/46.8'
OLIVINE SULPHIDE CUMULATE
OPEN PACKED GRADING TO CLOSE PACKED ORTHOCUMULATE
INTERMED. DYKE/XENO.
MULTIPLE DIORITE DYKES
Dissem. Py-Po
NUMEROUS CHLORITIC ZONES
DIORITE
GRANODIORITE (?) DYKE
DIORITE (?)DYKE
FOOTWALL UM
MULTIPLE GRANODIORITE (?) DYKE ZONE
E.O.H.
TC
SERP
C
C-SERP


L92-19
120+00N 105+35E
GRID AZIMUTH: 270°
DIP: -45°
MAGNETIC SUSCEPTIBILITY
FEET
ANDESITE
CLOSE PACKED ORTHOCUMULATE (MESOCUMULATE ?) 1-4mm
DIORITE/ BASALTIC KOMATIITE
CLOSE PACKED ORTHOCUMULATE
DIORITE
SOFT DYKE/XENOLITH
OPEN PACKED ? ORTHOCUMULATE
1.51% Ni/0.5'
PORPHYRITIC/ OPEN PACKED
PORPHYRITIC/OPEN PACKED
UM DYKE/FLOW
CLOSE PACKED
0.68% Ni/2.5'
INTERM. DYKE
CLOSE PACKED ?
MULTIPLE FELDSPAR PORPHYRY ? (VOLCANIC ??)
DIORITE ?
FELDSPAR PORPHYRY
INTERMED. DYKE ?
0.62% Ni/9.6'
DIORITE DYKES ?
INTERMED. DYKE ?
FOOTWALL UM
E.O.H.
TC
SERP
CHL

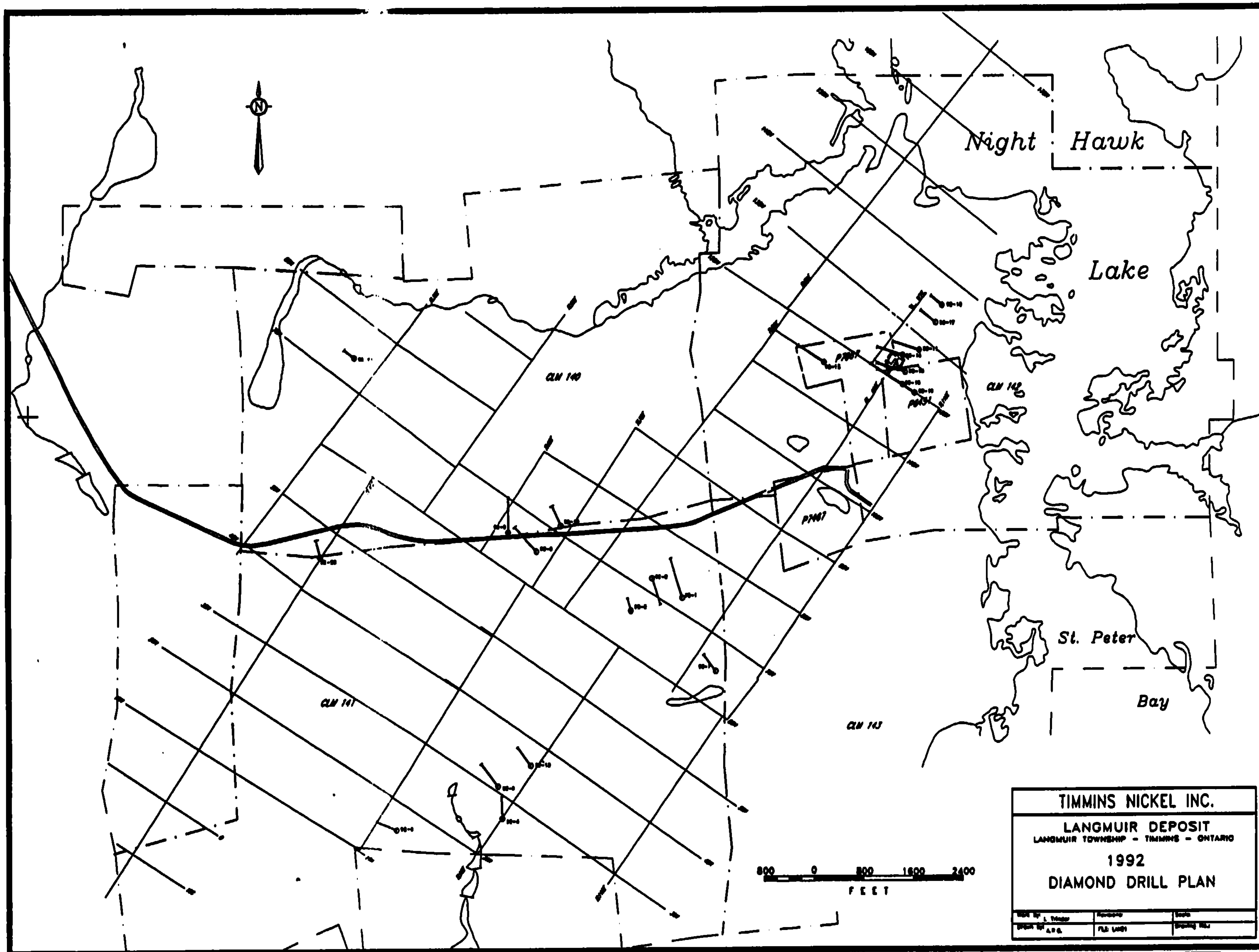

Night Hawk
Lake
St. Peter
Bay
CLM 140
CLM 141
CLM 142
CLM 143
P7467
800 0 800 1600 2400
FEET
TIMMINS NICKEL INC.
LANGMUIR DEPOSIT
LANGMUIR TOWNSHIP - TIMMINS - ONTARIO
1992
DIAMOND DRILL PLAN

Figure 3

SUMMARY 1992 LANGMUIR BLOCK DRILLING

HOLE #	LENGTH (feet)	NORTHING	EASTING	GRID AZIMUTH	DIP
92-1	927	7200	9300	310	45
92-2	627	7200	8715	130	45
92-3	287	6560	8730	310	45
92-4	506	2700	9000	325	45
92-5	637	3100	8650	290	45
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
92-7	[illegible]	[illegible]	10400	295	45
92-8	752	6500	6950	295	45
92-9	802	6500	6400	325	45
92-10	495	7100	7050	300	45
92-11	631	12800	10150	255	45
92-12	703	11600	9050	270	45
92-13	517	3650	8900	290	45
92-14	606	12600	10000	255	45
92-15	867	12000	10300	270	45
92-16	686	12400	10200	255	45
92-17	441	13300	10100	270	45
92-18	337	13600	10000	270	45
92-19	1007	12000	10535	270	45
92-20	389	4600	4000	315	45
92-21	286	7400	2600	270	45
TOTAL	12473				

4.6 Lithogeochemistry

4.6.1 Whole Rock Geochemistry

A total of 534 samples were collected for whole rock lithogeochemical analysis in two separate programs (1990 and 1991-92).

During the 1992 program, 210 Langmuir drill core samples (including 18 follow-up samples from 1989 holes) were collected. Drill core was sampled by selecting a 0.25ft section of whole diamond drill core for analysis. At the beginning of the 1992 drill hole sampling program, several samples were obtained from a half split of a 0.5ft section of core but this procedure was abandoned in order to simplify and speed up the sampling procedure. In sampling the ultramafic rocks, an attempt was made to systematically sample near the base of interpreted flow units, however defining flow contacts was often difficult if not impossible given the alteration overprint particularly in areas of extensive talc-magnesite alteration. In these areas samples were generally collected to be representative of the major texturally and mineralogically distinct sections. In addition to the ultramafic rocks, minor check sampling was conducted on the footwall calc-alkalic volcanics and on rocks of questionable origin, particularly the variety of interpreted dikes which were lumped into field classifications of "soft dyke/xenolith", "diorite", "granodiorite" and "feldspar porphyry". When sampling outcrops and trenches, rock chips were collected from a 1-2 sq. ft area.

1992 samples were analyzed at Barringer Laboratories in Mississauga, Ontario, appendix 2. Samples were dried, jaw/cone crushed to 10 mesh and approximately 250 gm then riffle split to obtain a representative cut. The 100 to 150 gm subsample was then pulverized to 95% at -180 mesh using an standard ring mill pulverizer. It is recognized that use of a standard ring pulverizer could result in the contamination of Ni, Cu, Cr, Mo and other trace elements however this contamination would likely be negligible for exploration purposes given the high background Ni, Cr, and Co values in the ultramafics and the fact that the volatile-free MgO value was the major objective of the analysis. The prepared samples were analyzed using Barringer's Modified Lithoprint Whole Rock Geochemistry package. Analysis of the 9 major oxides and Ba and Zr employed lithium metaborate acid fusion, aqua regia digestion and determination by ICAP (Inductively Coupled Argon Plasma Emission Spectroscopy). The 13 remaining trace elements were determined using HF-$HClO_4$-HNO_3 digestion and ICAP.

The objective of the 1991-92 whole rock sampling program was to assist in the interpretation of the internal stratigraphy of the major ultramafic units encountered during drilling.

With respect to exploration for komatiite hosted nickel deposits, the most useful geochemical guide is the ultramafic's volatile-free MgO content; komatiite-hosted nickel deposits are hosted by ultramafic units with high MgO contents. Also of use in the interpretation of stratigraphy and the depositional environment of komatiite flows is the mg parameter (atomic % Mg/(Mg+Fe+Mn+Ni)) which approximates the former forsterite content of the ultramafic rock. This parameter is essentially a refinement of the volatile-free MgO content. In addition, the M/Si parameter (atomic ratio (Mg+Fe+Mn+Ni)/Si) is an approximation of the former olivine content of the rock where 100% pyroxene has a value of 1.00 and 100% olivine has a value of 2.00.

7.5.2 Geochemical Analyses

A total of 104 samples from the 1992 drill program were submitted to Accurassay at Kirkland Lake, Ontario for geochemical analysis (Appendix 2). A total of 99 samples were analyzed for nickel, of these, 33 were also analyzed for copper and 13 for gold. Five samples were analyzed strictly for gold. Nickel and copper geochemical analysis was completed using an aqua regia digest and determination by AA (atomic adsorption). Samples which returned greater than 10,000 ppm nickel were assayed and the results reported in percent nickel. Gold analysis was completed using the standard geochemical procedure of fire assay preconcentration and determination by AA using a 20gm sample.

4.7 Underground Exploration

Langmuir Number 1 Mine

Four diamond drill holes, collared from the main access ramp at the 250 level, were sited to test the down-dip continuation of the East Zone mineralization - figure 4. A total of 2040 feet were drilled, 1550 feet in 1992, as tabulated below:

1992 Exploration Diamond Drilling - Langmuir #1 Deposit

Hole #	Length	Azimuth	Dip	East Zone Intersection
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
91-12	500	076	-45	Nil
91-13	500	090	-45	Nil
91-14	500	058	-35	1.9 @3.51% Ni

* 490 feet drilled in 1991

Drill logs and assay certificates are attached. See Appendix 3.

Two holes, 91-11 and 91-14, intersected narrow zones of massive sulphide at the East Zone contact. In 91-12 and 91-13 the East Zone was unmineralized.

Borehole PEM survey results on holes 91-11 and 91-14 suggest that these holes have intersected below the main concentration of sulphides in the East Zone - appendix 8.

Redstone Mine

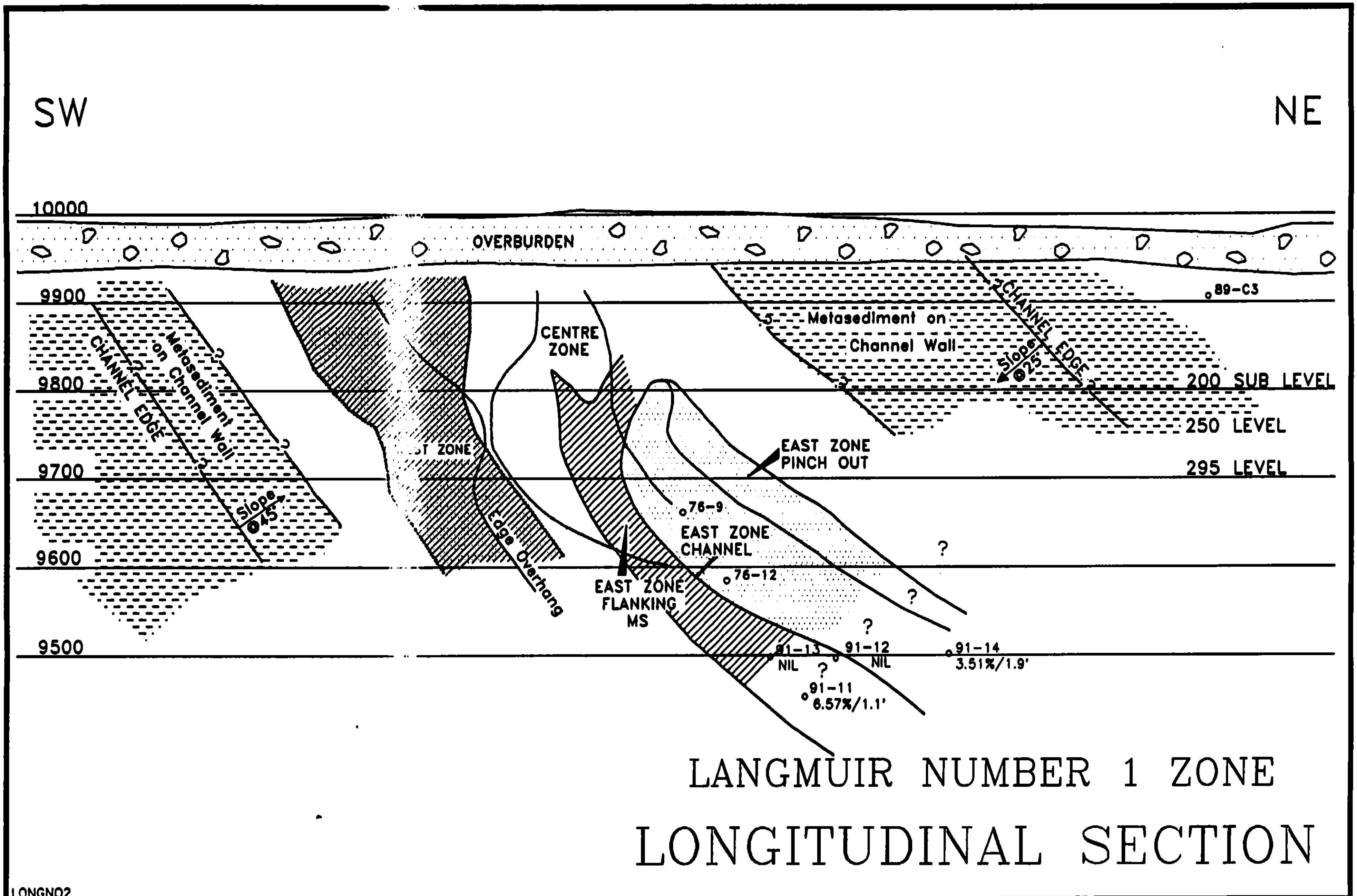
Only three diamond drill holes intersect the ore horizon below the current 700 mining level. These are:

	T10	-	5.68% Ni over 1.6 feet
	T12	-	0.61% Ni over 4.0 feet
and	TB-3	-	No mineralization

This is insufficient for the estimation of mining reserves.

A program of exploration drilling has been initiated to provide the data required for future capital expenditure decisions.

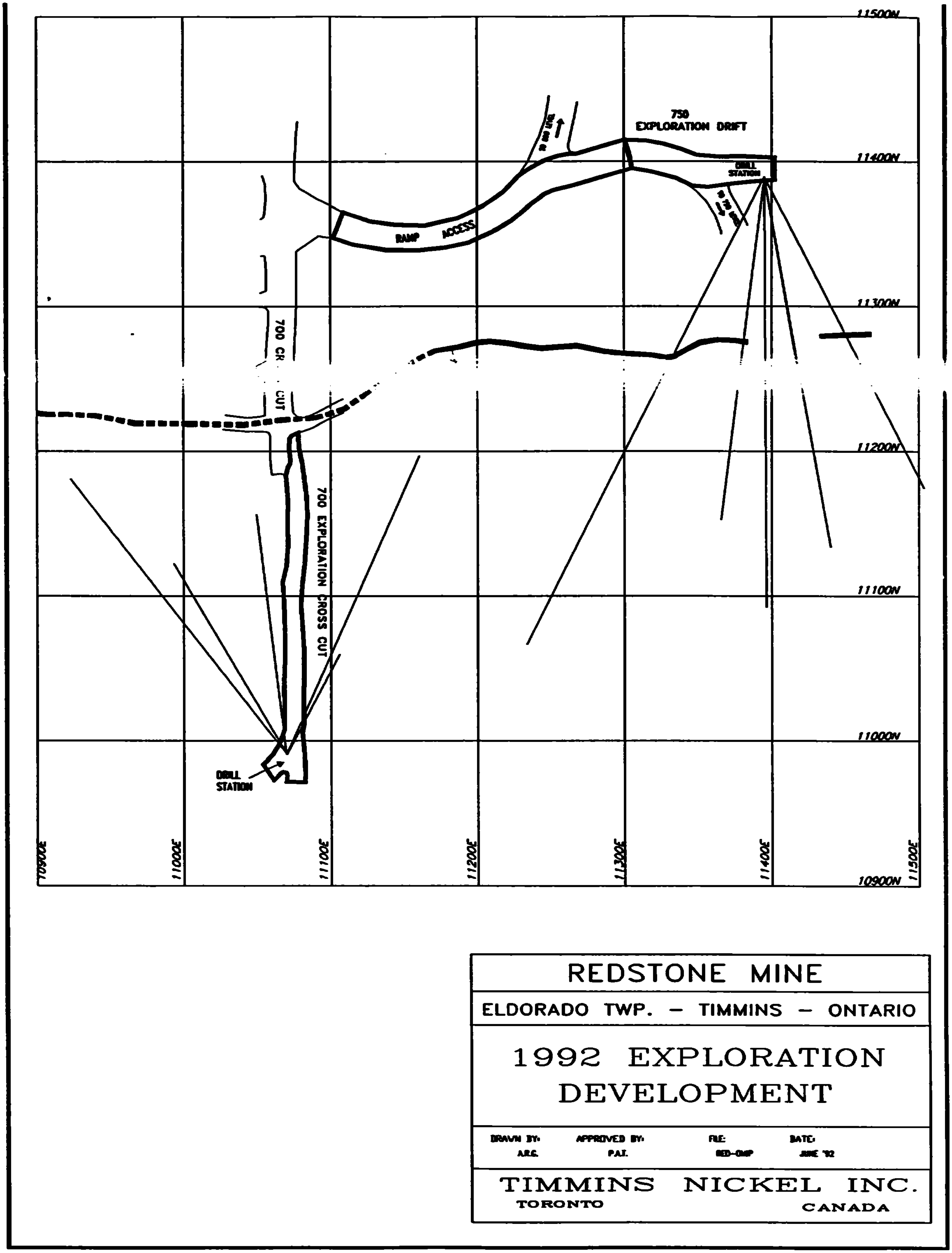
Diamond drill holes, as tabulated below, are being drilled from exploration cross-cuts driven into the hanging wall at the 700 and 750 levels - figures 5 and 6.



LANGMUIR NUMBER 1 ZONE

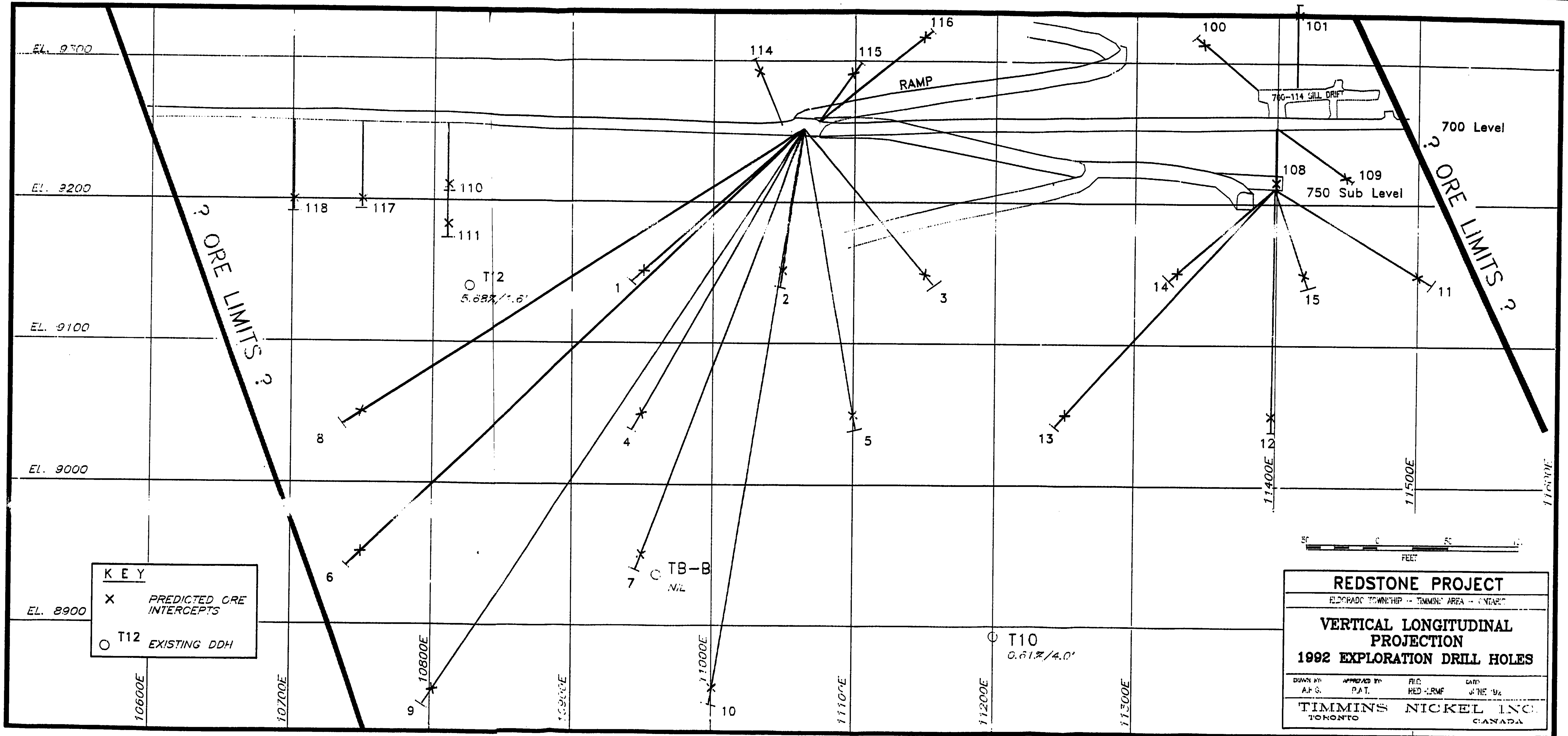
LONGITUDINAL SECTION

Figure 4



750
EXPLORATION DRIFT
DRILL STATION
RAMP ACCESS
700 CR CUT
700 EXPLORATION CROSS CUT
DRILL STATION
11500N
11400N
11300N
11200N
11100N
11000N
10900N
10900E
11000E
11100E
11200E
11300E
11400E
11500E
REDSTONE MINE
ELDORADO TWP. – TIMMINS – ONTARIO
1992 EXPLORATION
DEVELOPMENT
DRAWN BY: A.R.C.
APPROVED BY: P.A.T.
FILE: RED-CMP
DATE: JUNE '92
TIMMINS NICKEL INC.
TORONTO
CANADA

Figure 5



REDSTONE PROJECT
ELDORADO TOWNSHIP - TIMMINS AREA - ONTARIO
VERTICAL LONGITUDINAL PROJECTION
1992 EXPLORATION DRILL HOLES
DRAWN BY A.F.G.
APPROVED BY P.A.T.
FILE RED-LRMF
DATE JUNE '92
TIMMINS NICKEL INC.
TORONTO
CANADA
KEY
X PREDICTED ORE INTERCEPTS
O T12 EXISTING DDH
FEET
? ORE LIMITS ?
? ORE LIMITS ?
700 Level
750 Sub Level
700-114 SILL DRIFT
RAMP
EL. 9300
EL. 9200
EL. 9100
EL. 9000
EL. 8900
10600E
10700E
10800E
11000E
11100E
11200E
11300E
11400E
11500E
T12
5.68%/1.6'
T10
0.61%/4.0'
TB-B
NIL
1
2
3
4
5
6
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13
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15
100
101
108
109
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111
114
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116
117
118

Proposed Redstone Exploration Drill Holes - In Progress

Location	Hole #	Easting	Northing	Azimuth	Dip	Length
700 level hanging wall cross cut	1	11070	10980	322°	-27°	250'
	2	11070	10980	353°	-33.5°	200'
	3	11070	10980	023°	-26°	250'
	4	11070	10980	3.30°	-55°	270'
	5	11070	10980	026.5°	-71.5°	250'
	6	11065	10748	296°	-40.5°	500'
	7	11065	10748	323°	-57.5°	400'
	8	11065	10748	309°	-26°	500'
	9	11065	10748	281°	-56°	550'
	10	11065	10748	308.5°	-72°	450'
750 level hanging wall cross cut	11	11400	11378	153°	-15°	250'
	12	11400	11378	180°	-29°	350'
	13	11400	11378	207°	-26°	400'
	14	11400	11378	159.5°	-16.5°	230'
	15	11400	11378	186°	-17°	230'
700-114 sub	92-100	11388	11269	316.5°	31.5°	80'
	92-101	11415	11271	360°	51°	80'
700 E Dr	92-108	11400	11268	180°	-35°	60'
	92-109	11400	11268	119°	-27.5°	75'
700-108	92-110	10810	11167	180°	-60°	60'
	92-111	10810	11160	180°	-90°	80'
700 x/c	92-114	11049	11255	331°	+51°	70'
	92-115	11075	11255	040°	+2.5°	70'
	92-116	11075	11255	059°	+35°	120'
700 W Dr	92-117	10750	11162	180°	-62.5°	100'
	92-118	10750	11171	180°	-80.5°	75'
					Total	5950

The following development was required to establish the drill stations on the 700 and 750 levels:

	Advance feet	Cost per foot - $	Total Cost - $
700 level cross cut	240		
700 level drill station	15		
Ramp access to 750 level cross cut	220		
750 level cross cut and drill station	100		
Total	575	360.00	207,000.00

The total cost of $207,000.00 is exclusive of indirect development costs.

5.0 Column Flotation Test

Minnovex Technologies Inc. of Toronto, Ontario, were retained by Timmins Nickel Inc. to bring on-site to the Carshaw Mill a fully independent column flotation pilot plant, consisting of three 6" diameter x 20 feet tall columns and one 4' diameter x 20 feet tall column, in order to:

1. clearly identify the potential for replacing the Maxwell and Denver mechanical cells with a three column rougher scavenger circuit and recleaning the column concentrates in a fourth cleaner column,

2. examine the feasibility of a talc prefloat using the column, as a means of obtaining a higher concentrate grade with reduced reagent costs,

3. define the ability of this column circuit to recover liberated pentlandite from the existing tailings pond,

4. produce reliable process data for subsequent column scale-up and circuit selection,

5. produce accurate material balance data for subsequent process engineering,

6. demonstrate the "COLUMNEX" column control system.

In summary, the aim of this test program and scale-up was to provide Timmins Nickel with a basis for an economic evaluation of column circuit implementation, and the data required for process engineering.

6.0 Summary 1992 Exploration Expenditures

1) Surface Exploration

1.1 Line Cutting					
	Forpro Resources	- Adams Twp.		18,198.10	
		- Langmuir Twp.		1,181.00	
	Goulet & Lamarche	- Eldorado Twp.		2,432.00	
					21,881.10
1.2 Geophysics					
Magnetics and EM					
	Exsics Exploration Ltd.				
	- Langmuir		4,407.00		
	- Langmuir		11,042.55		
	- Adams E.		6,488.30		
	- Adams W.		8,670.55		
	Goulet & Lamarche				
	- Tontine		8,960.00	39,568.40	
Borehole PEM					
	Exsics Exploration Ltd.		19,900.00		
	Val d'Or Geophysics		5,870.00	25,770.00	65,338.40
1.3 Diamond Drilling					
	MacKenzie Diamond Drilling				
	92-1 to 92-4			28,722.66	
	92-5 to 92-9			36,147.00	
	92-10 to 92-16			54,635.25	
	92-17 to 92-21			30,677.85	150,182.76
1.4 Analyses					
	Accurassay		295.00		
			339.25		
			161.00		
			142.25		
			95.00		
			2202.75		
			2549.25		5,784.50
1.5 Fees and Expenses (Jan. - June 1992)					
	I.D. Trinder		29,750.00		
	Baywest Resources		23,552.00		
	R.W. Woolham		4,523.65		
	A. Gunther		13,400.00		83,827.78
	Expenses				
1.6 Overburden Drilling					
	814 feet @ $6.11/foot (exclusive of assays)				4,973.54
					331,988.08

2.0 Underground Exploration (Exclusive of indirect costs)

2.1 Development - Redstone Mine

700 level -	exploration cross-cut	240 ft @ $360.00	86,400.00	
	drill station	15 ft @ $360.00	5,400.00	
750 level -	ramp access	220 ft @ $360.00	79,200.00	
	exploration cross-cut	100 ft @ $360.00	36,000.00	207,000.00
	Geology / surveying			2,000.00

2.2 Underground Diamond Drilling

Langmuir (Morrissette)	91-11 to 91-14 ([illegible])	[illegible]
Geology / Surveying		800.00
Assaying (Langmuir)	69 @ 14.75	1,017.00

3.0 Column Flotation Test

Minnovex Technologies Inc.	16,000.00
Underground exploration estimate	243,737.30
Total	575,725.38
5% overhead allowance	28,786.27
Total	604,511.65

MARCH 2

FORPRO RESOURCES LTD.

Mining Exploration & Forestry

909 Government Road
P.O. Box 1513
South Porcupine, Ontario
P0N 1H0
PHONE: (705) 235-2474

Date FEB. 23 /92

TIMMINS NICKEL INC.
205-155 UNIVERSITY AVE.
TORONTO M5H 3B7

Invoice 500

DESCRIPTION	AMOUNT	
ADAMS TWP. LINECUTTING.		
61.06 KM NEW CUTTING		
@ $245 /KM	$ 14,959	70
17.60 KM RE-CUTTING		
@ $184 /KM	$ 3,238	40
ADVANCE (INVOICE # 359)	$ [illegible]	00
SUB-TOTAL	" 8398	10
GST #R101849669 GST	587	87
TOTAL	8985	97

18,198.10

18,198.10

Thank You

NO. 359

FORPRO
Mining Exploration & Forestry
RESOURCES LTD.

Box 1510
South Porcupine, Ont. P0N 1H0
705-235-2474

DATE [illegible]

TIMMINS NICKEL INC.
FAX (416) 367-8965

DESCRIPTION	CREDIT	DEBIT	BALANCE
ADAMS TWP.			
LINECUTTING			
50% ADVANCE			
ON 80KM ESTIMATED			
[illegible]			
= 40 KM @ 245/KM		9800	
G.S.T @ 7%		686.00	
(R101849669)			
	TOTAL		$ 10486.00
OK [illegible]			
[illegible]			

NO. 357

FORPRO RESOURCES LTD.

Mining Exploration & Forestry

Box 1513
South Porcupine, Ont. P0N 1H0
705-235-2474

DATE JAN 5/9~~1~~ 2

TIMMINS NICKEL INC.

FAX (416) 367-8965

DESCRIPTION	CREDIT	DEBIT	BALANCE
LANGMUIR TWP.			
LINE CUTTING:			
NORTH PENNINSULA			
LINE EXTENSIONS			
1.39 MILES CUT		$581.02	
@ $418 /MILE			
PICKETING "ICE LINES"			
3 MAN-DAYS			
@ $200/MAN-DAY		$600.00	
			$1181.00
G.S.T @ 7%			$82.67
(R101 849 669)			
	TOTAL	OWING	$1263.67

de PAT - copy to Janet Jan 06 '92

EXSICS EXPLORATION LIMITED

CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1053
PROJECT #:E-532

ON ACCOUNT WITH: Timmins Nickel Inc.
155 University Ave. Suite 205
Toronto, Ontario
M5J-3B7

G.S.T. REGISTRATION # 113433791

POSTED
24/13

RE: Geophysical surveys, Adams West Grid

In consideration for: 43.03 km of MaxMin surveys
43.03 km of magnetic surveys

AT A RATE OF: MaxMin, 43.03km @ $130.00/km.....$5593.90
Magnetics, 43.03km @ $71.50/km...$3076.65

sub-total.............$8670.55
7% GST.............$ 606.94
$9277.49

TOTAL OF THIS INVOICE: $9277.49

DATE: April 3, 1992

SIGNED: [signature]

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1062
PROJECT #:E-533

ON ACCOUNT WITH: Timmins Nickel
155 University Ave. Suite 205
Toronto, Ontario
M5H 3B7

G.S.T. REGISTRATION # 113433791

RE: Borehole Surveys Langmuir Holes 92-20, 21, 17

AT A RATE OF:

February 15, 1992	Loops out, Dummy all holes	$1,000.00
February 16, 1992	Borehole 92-20, pick up wire lay loops for 92-1	1,600.00
February 19, 1992	Borehole 92-17, pick up wire to road	1,600.00
February 20, 1992	Dummy hole 92-21 to attempt to break through blockage, picked up wire, layed out collar. Part of north loop	1,000.00
February 21, 1992	Read 92-21 picked up all wire crew out	1,600.00
		6,800.00
	GST	476.00

TOTAL OF THIS INVOICE: $7,276.00

DATE: February 21, 1992

SIGNED

PAYMENT DUE UPON RECEIPT OF INVOICE.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1063
PROJECT #:E-532

ON ACCOUNT WITH: Timmins Nickel
155 University Ave. Suite 205
Toronto, Ontario
M5J 3B7

ATTENTION: Peter Tyler

G.S.T. REGISTRATION # 113433791

RE: Geophysical Surveys Adams East Grid

IN CONSIDERATION FOR: 32.20 km of Max Min
32.20 km of Magnetics

AT A RATE OF:	Mag 32.20 km @$71.50/km	$ 2,302.30
	Max Min 32.20 Km @$130.00/km	4,186.00
		6,488.30
	GST	454.18
TOTAL OF THIS INVOICE:		$ 6,942.48

DATE: February 5, 1992

SIGNED

PAYMENT DUE UPON RECEIPT OF INVOICE.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1053
PROJECT #:E-517

ON ACCOUNT WITH: Timmins Nickel Inc.
155 University Ave. Suite 205
Toronto, Ontario
M5H 3B7

ATTENTION: Mr. Peter Tyler

G.S.T. REGISTRATION # 113433791

RE: Borehole Project Langmuir Mine Site

AT A RATE OF:

February 3, 1992	Picked up 92-13 Complete ramp Loops	$ 900.00
February 4, 1992	Layed out wire for 92-14	900.00
February 6, 1992	Picked up 92-14 and part of ramp	900.00
February 8, 1992	All wire picked up project included	900.00
		[illegible]
	[illegible]	[illegible]

TOTAL OF THIS INVOICE: $3,852.00

DATE: February 11, 1992

SIGNED [illegible]

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1044
PROJECT #:E-517

ON ACCOUNT WITH: Timmins Nickel Inc.
155 University Ave Suite 205
Toronto, Ontario
M5H 3B7

G.S.T. REGISTRATION # 113433791

RE: Backhole Program Langmuir Site

In Consideration for:

Jan 23/92	layout three loops DH-92-8	$900.00
January 25/92	Hole 92-8 blocked, wire picked up layout wire for Ramp holes	900.00
January 26/92	Crew dummied several other holes All wire blocked layed out loops 92-7	900.00
January 27/92	Read loops for DH 92-7	1,600.00
January 28/92	Picked up loops for 92-7 layed out 92-11 (8 hours)	900.00
Jan 28-29/92	Crew called out at 8 pm to read [illegible]	[illegible]
January 31/92	Crew out, picked up [illegible] out 92-12 (not read)	900.00
February 1/92	Crew out picked up 92-12 moved to 92-13	900.00
February 2/92	Crew layed out 92-13 wire	900.00
		9,500.00
	GST	665.00

TOTAL OF THIS INVOICE: $10,165.00

DATE: February 3, 1992

SIGNED

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.

EXSICS EXPLORATION LIMITED

CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1052
PROJECT #:E-521

ON ACCOUNT WITH: Timmins Nickel Inc.
155 University Ave. Suite 205
Toronto, Ontario
M5H 3B7

ATTENTION: Mr. Peter Tyler

G.S.T. REGISTRATION # 113433791

RE: Grid extensions Langmuir Project

IN CONSIDERATION OF: lines, chaining, Max Min and Magnetics

AT A RATE OF:	Linecutting 13.87Km @ $130/Km	$1,803.10
	Max Min 12.44Km @$130/km	1,617.20
	Magnetics 13.8 km @ $71.50/km	986.70
		$4,407.00
	GST	308.49
TOTAL OF THIS INVOICE:		$4,715.49

DATE: February 11, 1992

SIGNED

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

ok PAT Feb. 17.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

96

INVOICE #:1042
PROJECT #:E-502 B57 ✓

Total Invoices = 29,352.44
[illegible] = [illegible]
Balance - 1992 Explor = 11042.55

ON ACCOUNT WITH: Mr. Steve McIntyre
Timmins Nickel
155 University Ave Suite 205
Toronto, Ontario
M5H 3B7

ATTENTION: Rod Woolham

G.S.T. REGISTRATION # 113433791

RE: Final billing for Geophysical Program in Langmuir Twp.

AT A RATE OF:

Block 1:	Magnetic Total 42.5 km @ $71.50/km	$ 3,038.75
	Max Min Total 42.5 km @ $130.00/km	5,525.00
	1.5 days @ $650.00 / day	975.00
		$ 9,538.75
Block 2:	Magnetic Total 29.72 km @ $71.50/km	$ [illegible],125.00
	Max Min Total 29.20 km @ $130.00/km	3,796.00
		$ 5,921.00
Block 3:	Magnetic Total 33.54 km @ $71.50/km	$ 2,398.11
	Max Min Total 29.18 km @ $130.00/km	3,793.40
		$ 6,191.51
Block E:	Magnetic Total 21.25 km @ $71.50/km	$ 1,519.38
	Max Min Total 19.40 km @ $130.00/km	2,522.00
		$ 4,041.38
Block F:	Magnetic Total 13.20 km @ $71.50/km	$ 943.80
	Max Min Total 13.20 km @ $130.00/km	1,716.00
		$ 2,659.80

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

Block 1 Total:	$ 9,538.75
Block 2 Total:	5,921.00
Block 3 Total:	
Block E Total:	4,041.38
Block F Total:	2,659.80
	$28,352.44
GST	1,984.67
TOTAL OF THIS INVOICE:	$30,337.11

Less Advances: (not received)

Block 1	$9,538.75
Block 2	$3,472.69
Block 3	$3,469.05
Block E	$ 829.40
GST	$1,211.70

$18,521.59

$11,815.53

DATED: January 22, 1992

SIGNED

INV ... 11042.56
GST ... 772.97
11815.53

111 ... GST 11042.56
772.97

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

EXSICS EXPLORATION LIMITED
CONTRACTING & CONSULTING GEOPHYSICS

Tel. (705) 267-4151
Fax (705) 264-5790

P.O. Box 1880
Timmins, Ontario P4N 7X1

INVOICE #:1026
PROJECT #:E-502

ON ACCOUNT WITH:

Steve McIntyre
Timmins Nickel Inc.
Toronto, Ontario

POSTED

Attention: Mr. R. Woolham

G.S.T. REGISTRATION # 113433791

RE: Geophysical Program Langmuir Township
AT A RATE OF:

Block #1
Maxmin, 42.5km @ $130.00/km..... $5525.00
Magnetic, 42.5km @$71.50/km..... $3038.75
Day rate, 1.5days@$650.00/day... $ 975.00
Total $9538.75

Block #2
Maxmin, 10.4km @ $130.00/km $1352.00
Magnetic,29.66km @ $71.50/km.... [illegible]
Total $3472.69

Block #3
Maxmin, 17.61km @ $130.00/km ... $2289.30
Magnetic,16.50km @$71.50/km $1179.75
Total......... $3469.05

Block #E
Magnetic, 11.60km @$71.50/km.... $ 829.40
Total......... $ 829.40

Grid total to date: $17,309.89
7% GST........................ $ 1,211.70
Total......... $18,521.59

TOTAL OF THIS INVOICE: $18,521.59
Dated: Dec,18,1991
Signed: ______________

ok ... Jan 2 '92

PAYMENT DUE UPON RECEIPT OF INVOICE. NO STATEMENTS ISSUED.
TERMS: NET 30, 2% INTEREST PER MONTH ON OVERDUE ACCOUNTS.

Goulet & Lamarche Explorations Inc.

GESTION MINIÈRE - MINING MANAGEMENT

Invoice # 0103

February 21, 1992

In account with : TIMMINS NICKEL, INC.
205, 155 University Avenue
Toronto (Ontario); M5H 3B7

RE: REDSTONE PROJECT; TIMMINS (ONTARIO)
FEBRUARY 1992

- Line cutting; 12.8 km @ $ 190/km	$ 2 432
- Mag survey; 12.8 km @ $ 75/km	$ 960
- Pulse survey;	$ 7 000
- Additional cost on Pulse Survey for extra line and readings every 100' instead of 50 m.	$ 1 000
	$ 11 392
G.S.T.	$ 797
TOTAL:	$ 12 189

Guy Goulet,
geol. eng.

71, Parent
~~212, 15e Rue~~, Val d'Or (Qué) J9P 5P1 ~~3B8~~ • (819) 824-8121
852, chemin-de-la-Paix, St-Sauveur-des-Monts (Qué) J0R 1R2 • (514) 227-~~4026~~ 8353

P. Tylor

VAL D'OR
GÉOPHYSIQUE

002787

FACTURÉ À:

DATE: February 10, 1992

TIMMINS NICKEL INC.
P.O. BOX 1979
South Porcupine, Ontario
POM 1HO

DESCRIPTION	PRIX UNITAIRE	TOTAL
Re: LANGMIUR Project Timmins area, Ont.		
-Borehole Pulse EM survey.		
Hole probed: L-92-13 Loop W-C-E 488' L-91-11 Loop W-C-E 538' L-91-14 Loop W-C-E 496' L-92-14 Loop W-C-S 602'		
Period of February 2 to 5, 1992		
Mobilisation		500.00
3 Operating days	1 650.00	4 950.00
Use of ski doo 3 days	40.00	120.00
Demobilisation		300.00
		5 870.00
# G.S.T. R 105471031 7%		410.90
	TOTAL	6 280.90

LF-4300

SERVICES EN LEVES GEOPHYSIQUES • GEOPHYSICAL SERVICES
50 boul. Lamaque VAL D'OR (Quebec) J9P 2H4 Tel.: (819) 825-6529 Fax (819) 825-1342

INVOICE

MacKenzie Drilling Ltd.

№ 0057

Box 1054
Westbank, B.C. V0H 2A0
Telephone (604) 768-2166
Fax: (604)768-4042

[illegible] INC
205 - 155 University Ave
Toronto, Ontario
M5H 3B7
Fax: (416)367-9965

Date: January 14, 1992

Drilling Program - [illegible] Eldorado townships
Dec 17-22/91, Jan 6-13/92

Hole HL-91-1 √ok			
BW Casing	0 - 50ft at $9.75/ft		487.5[illegible]
BQ Core	50 - 517ft at 9.75/ft		4553.[illegible]
Hole HL-91-2 √ok			
BW Casing	0 - 30ft at $9.75/ft		292.[illegible]
BQ Core	30 - 195ft at 9.75/ft		1608.[illegible]
Hole stabilizing	13 hrs at $85.00/hr		1105.
Quik Gel	8 bags($14.80 each plus 10%)		130.
Matix	1 pail($124.00 plus 10%)		136.[illegible]
Hole HL-91-3 √ok			
Move to hole	12 man hours at $25.00/hr		300.[illegible]
	4 tractor hrs at $60.00/hr		240.
BW Casing	[illegible] at $9.75/ft		214.[illegible]
BQ Core	22 - [illegible] at [illegible]		[illegible]
		√	[illegible]
Hole I-92-1			
Move -	10.5 tractor hrs at $60.00/hr		630.
	38 man hrs at $25.00/hr		950.
BW Casing	0 - 50ft at $9.75/ft		48[illegible]
BQ Core	50 - 750ft at 9.75/ft		6825.
	750 - 927ft at $10.50/ft		185[illegible].
Acid Test [illegible] at $40.00/test			[illegible]
5 - 10ft BW Casing(117.25 each)			5[illegible].
1 - BW Casing Shoe(105.00 each)			105

Continued on Invoice #58

INVOICE

MacKenzie Drilling Ltd.

№ 059

x 1054
estbank, B.C. V0H 2A0
lephone (604) 768-2166
Fax: (604)768-4042

Timmins Nickel Inc
205 - 155 University Ave
Toronto, Ontario
M5H 3B7
Fax: (416)367-8965

Date: January 27, 1992

Drilling Program - Langmuir & Eldorado townships

Hole L-92-5

BW Casing	0 - 54ft at 9.75/ft	525.50
BQ Core	54 - 576ft at 9.75/ft	5089.50
Acid Test X 1 @ 40.00/test		40.00
5 - 10ft BW Casing(117.25 each)		586.25
2 - 2ft BW Casing(44.35 each)		88.70
1 - BW shoe(105.00 each)		105.00

Hole L-92-6

BW Casing	0 - 80ft at 9.75/ft	780.00
BQ Core	80 - 493ft at 9.75/ft	4026.75
2 - 10ft BW Casing		238.00
1 - BW Shoe		105.00

Hole L-92-7

Move to site:	16 man hours @ 25.00/hr	400.00
	7 tractor hrs @ 60.00/hr	420.00
BW Casing	0 - 60ft at 9.75/ft	585.00
BQ Core	60 - 477ft at 9.75/ft	4065.75
Acid test X 1 @ 40.00/test		40.00
6 - 10ft BW Casing		703.50
1 - BW Shoe		105.00

Continued on invoice 060

2-10-?

INVOICE

№ 062-

MacKenzie Drilling Ltd.

[illegible] 54
[illegible]bank, B.C. V0H 2A0
[illegible]hone (604) 768-2166

TIMMINS NICKEL INC
205-155 University Ave
Toronto, Ontario
[illegible]
[illegible]

Date: February 11, 1992

Drilling Program - Langmuir & Eldorado Townships

Hole [illegible]-92-10				
BW Casing	0	-	50ft at 9.75/ft	487.50
BQ Core	50	-	435ft at 9.75/ft	4338.75
1 Acid Test			4866.25	40.00
Hole [illegible]-92-11				
BW Casing	0	-	80ft at 9.75/ft	780.00
	80	-	82ft at 10.75/ft	21.50
NW Casing	0	-	66ft at 11.75/ft	775.50
BQ Core	82	-	631ft at 9.75/ft	5352.75
1 Acid Test				40.00
10 - BQ - 10ft rods(98.90 each plus 10 [illegible] 108.80			1088	1088.30
Stand-by: Non-Operating, 4 hours at 75.00/hr				300.00
moving	7 man hrs at 25.00/hr			175.00
	5 tractor hrs at 60.00/hr			300.00
Hole [illegible]-92-12				
NW Casing	0	-	80ft at 11.75/ft	940.00
	80	-	106ft at 13.75/ft	357.50
BW Casing	0	-	80ft at 9.75/ft	780.00
	80	-	212ft at 10.75/ft	1419.00
BQ Core	212	-	703ft at 9.75/ft	4787.25
4 - 10ft - BW Casing(117.25 each)				469.00
4 - 10ft - NW Casing(138.30 each)				553.20
Operating field Cost: 9 hrs at [illegible]/hr			pulling casing	766.00
	2 tractor hrs at 60.00/hr			120.00

Continued on [illegible]

INVOICE

MacKenzie Drilling Ltd.

№ 064

1054
estbank, B.C. V0H 2A0
elephone (604) 768-2166

Timmins Nickel Inc.
205-155 University Ave.
Toronto, Ontario
[illegible]
Fax: (416)367-[illegible]

Date: February 11, 1992

Continued from Inv # 63

Hole [illegible]-92-16

NW Casing	0	-	46ft at $11.75/ft		$540.50
BW Casing	46	-	52ft at $9.75/ft	6820.50	58.50
BQ Core	52	-	686ft at $9.75/ft		6181.50
1 Acid Test					40.00
			Total		$54,635.25
			7% GST		3,767.10
			Total amount due		58,402.35

GST (R103437158)

[illegible] before February 21, 1992 please pay $57,552.82 (includes 1.5% discount).

53,815 63/064
36,147 060
40,000
130,000

54635.25
35610.25
19025.00
17170.10
1854.30

INVOICE

№ 065

MacKenzie Drilling Ltd.

x 054
bank, B.C. V0H 2A0
ephone (604) 768-2166

TIMMINS NICKEL INC
205 - 155 University Ave
Toronto, Ontario
M5H 3B7
Fax: (416)367-8965

Date: February 2 , 1992

Drilling Program - Langmuir		
Move to mine site and back - due to shutdown.		
	25 man hrs at $25.00/hr	$625.00
	10 tractor hrs at $60.00/hr	600.00
Move to drill site	19 man hrs at $25.00/hr	475.00
Hole L-92-17		
NW Casing	0 - 72ft at $11.75/ft	846.00
BW Casing	72 - 78ft at $9.75/ft	58.50
BQ Core	78 - 441ft at $9.75/ft	3539.25
1 Acid test		40.00
7 - BW - 10ft Casing($117.25 each)		820.75
4 - BW - 2ft Casing($44.35 each)		177.40
1 - BW Casing Shoe		[illegible]
Operating Field Cost of 1 hr rig time at $85.00/hr.		85.00
Hole L-92-18		
NW Casing	0 - 80ft at $11.75/ft	940.00
	80 - 128ft at $13.75/ft	660.00
BW Casing	128 - 132ft at $10.75/ft	43.00
BQ Core	132 - 337ft at $9.75/ft	1998.75
Hole L-92-19		
NW Casing	0 - 46ft at $11.75/ft	540.50
BW Casing	46 - 66ft at $9.75/ft	195.00
BQ Core	66 - 750ft at $9.75/ft	6669.00
	750 - 1007ft at $10.50/ft	2698.50
2 - BW - 10ft Casing		234.50
1 - BW Casing Shoe		105.00
Operating field cost of 1 hr rig time at $85.00/hr		85.00

Continued on Invoice #...

INVOICE

MacKenzie Drilling Ltd.

№ 066

x 1054
tbank, B.C. V0H 2A0
phone (604) 768-2166

Timmins Nickel Inc
205 - 155 University Ave
Toronto, Ontario
[illegible]
[illegible]

Date: February 29, 1992

Continued from Invoice #65

Hole L-92-20

Move to site:		17 man hrs at $25.00/hr	$425.00
		7 tractor hrs at $60.00/hr	420.00
BW Casing	0	- 12ft at $9.75/ft	117.00
BQ Core	12	- 389ft at $9.75/ft	3675.75
1 - BW - 10 ft Casing			117.25
1 - BW 2ft Casing			44.35
1 - BW Casing Shoe			105.00

Hole L-92-21

Move to site:		16 man hrs at $25.00/hr	400.00
		11 tractor hrs at $60.00/hr	660.00
BW Casing	0	- 22ft at $9.75/ft	214.50
BQ Core	22	- 286ft at $9.75/ft	2574.00
2 - BW 10ft Casing			234.50
1 - BW 2ft Casing			44.35
1 - BW Casing Shoe			105.00

Total	$30,677.85
Plus 7% GST	2,115.23
Total amount due	$32,793.08

GST (R103437158)

DISCOUNT...if your cheque arrives in our office on/or before March 19, 1992 please pay $32,332.92(includes 1.5% discount).

ACCURASSAY LABORATORIES
DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
Box 426, 3 Industrial Dr., Kirkland Lake
Ontario, Canada P2N 3J1

TEL.: (705) 567-3361 - FAX: (705) 568-8368

\# 920002

DATE	January 7, 1992
CUSTOMER ORDER Nº	
WORK ORDER Nº	Various
DATE SUBMITTED	

Timmins Nickel Inc.,
Box 1979
South Porcupine, Ontario
P0N 1H0

TERMS
net 30 days, 2.0% per month on overdue accounts.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
[illegible]	[illegible]	[illegible]	[illegible]
	Sub-total......................		295 00
	7 % GST # R121844088		20 65
	Amount due before February 6, 1992.........		315 65
	Please note: Accounts more than 45 days past due will lose any price discounts		

LANGMUIR EXPLORATION
2H 100

:397

Thank You!

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
Box 426, 3 Industrial Dr., Kirkland Lake
Ontario, Canada P2N 3J1

TEL.: (705) 567-3361 - FAX: (705) 568-8368

RECEIVED JAN 22 1992

920030

DATE: January 20, 1992
CUSTOMER ORDER Nº:
WORK ORDER Nº: Various
DATE SUBMITTED:

Timmins Nickel Inc.
P.O. Box 1979
SOUTH PORCUPINE, Ontario
P0N 1H0

TERMS
net 30 days, 2.0% per month on overdue accounts.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		
	Sub-total......................		339 25
	7 % GST # R121844088		23 75
	Amount due before February 19, 1992.........		363 00
	Please note: Accounts more than 45 days past due will lose any price discounts		

LANGMUIR EXPLORATION
214 100

:397

Thank You!

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

Box 426, 3 Industrial Dr., Kirkland Lake
Ontario, Canada P2N 3J1

920060

TEL.: (705) 567-3361 - FAX: (705) 568-8368

DATE	January 31, 1992
CUSTOMER ORDER No	
WORK ORDER No	Various
DATE SUBMITTED	

Mr. Ian Trinder
Timmins Nickel Inc.
P.O. Box 1969
SOUTH PORCUPINE, Ontario
PON 1HO

TERMS

net 30 days, 2.0% per month on overdue accounts.

UANTITY	DESCRIPTION	PRICE	AMOUNT	
7	Gold Assays W.O. #920023	7.75	54	25
7	Sample Pre[illegible]	[illegible]	[illegible]	[illegible]
7	Gold Assays W.O. #920020A	7.75	54	25
7	Sample Prep. cert.#43863	3.75	26	25
	Sub-total.....................		161	00
	7 % GST # R121844088		11	27
	Amount due before March 1, 1992............		172	27
	Please note: Accounts more than 45 days past due will lose any price discounts			

LANGMUIR EXPLORATION

Thank You!

ACCURASSAY LABORATORIES
DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
Box 426, 3 Industrial Dr., Kirkland Lake
Ontario, Canada P2N 3J1

TEL.: (705) 567-3361 - FAX: (705) 568-8368

920065

DATE	January 31, 1992
CUSTOMER ORDER Nº	Langmuir Exp.
WORK ORDER Nº	Various
DATE SUBMITTED	

Mr. Ian Trinder
Timmins Nickel Inc.
P.O. Box 1969
SOUTH PORCUPINE, Ontario
PON 1HO

TERMS net 30 days, 2.0% per month on overdue accounts.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
20	Aqua Regia Digest W.O. #920020	1.75	35.00
20	[illegible]	[illegible]	[illegible]
13	Copper Assays	1.25	16.25
10	Aqua Regia Digest W.O. #920027	1.75	17.50
10	Nickel Assays Cert. #44804	1.75	17.50
6	Aqua Regia Digest W.O. #920023	1.75	10.50
6	Nickel Assays Cert. #43865	1.75	10.50
	Sub-total.....................		142.25
	7 % GST # R121844088		9.96
	Amount due before March 1, 1992............		152.21

Please note: Accounts more than 45 days past due will lose any price discounts

LANGMUIR EXPLORA

F 97

Thank You!

ACCURASSAY LABORATORIES
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
Box 426, 3 Industrial Dr., Kirkland Lake
Ontario, Canada P2N 3J1

TEL.: (705) 567-3361 - FAX: (705) 568-8368

NOT FOR MILL

920116

DATE February 13, 1992

CUSTOMER ORDER No Langmuir

WORK ORDER No Various

DATE SUBMITTED

Timmins Nickel Inc.
P.O. Box 1969
SOUTH PORCUPINE, Ontario
PON 1HO

TERMS net 30 days, 2.0% per month on overdue accounts.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
20	Aqua Regia Digest W.O. #920051	1.75	35.00
[illegible]	[illegible]	[illegible]	[illegible]
20	Nickel Assays	[illegible]	[illegible]
	Sub-total......................		95.00
	7 % GST # R121844088		6.65
	Amount due before March 14, 1992............		101.65

Please note: Accounts more than 45 days past due will lose any price discounts

214 100
LANGMUIR EXPLORATION
MARCH 9, 1992

297

Thank You!

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

INVOICE

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7
Authority: Ian Trinder
Project:

Date : 28-Feb-92
Job : 921023
Invoice: 30623
PO #:
Terms: Net 30 days

Analyses:		
89 Lithoprint ICAP	21.00	$1869.00
Sub Total:		$2202.75
Taxes:	7.00	$ 154.19
TOTAL DUE:		$2356.94

Remit to: Barringer Laboratories Limited
304 Carlingview Drive
Rexdale, Ontario
M9W 5G2

G.S.T. No. R121844088

--- Original ---

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

INVOICE

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7
Authority: P.Tyler
Project: Langmuir Exploration   Terms: Net 30 days

Date : 27-Mar-92
Job : 921032
Invoice: 30629
PO #:

Analyses:

103 Lithoprint ICAP	21.00	$2163.00
Sub Total:		$2549.25
Taxes:	7.00	$ 178.45
TOTAL DUE:		$2727.70

SUBMITTED TO ACCOUNTING
10/4/92

Remit to: Barringer Laboratories Limited
304 Carlingview Drive
Rexdale, Ontario
M9W 5G2

G.S.T. No. R121844088

--- Remittance Copy ---

Peter Taylor

INVOICE

RECEIVED FEB 12 1992

N. MORISSETTE CANADA INC.

BOX 789 HAILEYBURY, ONTARIO P0J 1K0
TEL. (705) 672-3311 TELECOPIER (705) 672-2371

INVOICE NO.	7898
CUSTOMER NO.	1134 CD
JOB NO.	1628
DEST.	069
INVOICE DATE	Feb. 4/92
	Jan. 16-31/92

P.O. #T-631

IN ACCOUNT WITH

Timmins Nickel Inc.
P. O. Box 1979
SOUTH PORCUPINE, Ontario
P0N 1H0

P.O. #T-631

- DR -

N. Morissette Canada Inc. - GST Registration No. R103892816

To Invoice for Underground Diamond Drilling performed at the Langmuir Property, Timmins, Ontario during the period of January 16-31, 1992 as per agreement dated September 20th, 1991.

500 ft.	Underground Diamond Drilling	@ $ 10.50 per ft.	$5,250.00
2	(0 - 500 ft.) Acid Tests	@ $ 31.50 each	63.00
Delays:			
6	(Normal) Man hours	@ $ 28.50 per man hr.	171.00
		Plus 15% ($171.00)	25.65
	G.S.T. Applicable	7% ($5,509.65)	385.68
		TOTAL	$5,895.33

Jan. 16-31/92: (LM30) AQ

INVOICE

RECEIVED JAN 29 1992

N. MORISSETTE CANADA INC.

BOX 789 HAILEYBURY, ONTARIO P0J 1K0
TEL. (705) 672-3311 TELECOPIER (705) 672-2371

INVOICE NO.	7871
CUSTOMER NO.	1134 CD
JOB NO.	1628
DEST.	069
INVOICE DATE	Jan. 24/92

POSTED

IN ACCOUNT WITH

Timmins Nickel Inc.
P. O. Box 1979
SOUTH PORCUPINE, Ontario
PON 1H0

- DR -

N. Morissette Canada Inc. - GST Registration No. R103892816

To Invoice for Underground Diamond Drilling performed at the Langmuir Property, Timmins, Ontario during the period of January 1-15, 1992 as per agreement dated September 20th, 1991.

1,050 ft.	Underground Diamond Drilling	@ $ 10.50 per ft.	$11,025.00
6	(0 - 500 ft.) Acid Tests	@ $ 31.50 each	189.00
Delays:			
6	(Normal) Man hours	@ $ 28.50 per man hr.	171.00
		Plus 15% ($171.00)	25.65
	G.S.T. Applicble	7% ($11,410.65)	798.75
		TOTAL	$12,209.40

INVOICE FOR PAYMENT

Extensions	Checked	Checked	Approved
		AD	

	I-631
DATE	VOUCHER
ACCOUNT NUMBER	AMOUNT
G.S.T.	798.75
252340	11410.65

Andre Lobelle

Jan. 1-15/92: (LM30) AG

Ian Trinder

Geologist

4185 Taffey Crescent
Mississauga, Ontario
L5L 2A6
ph. (416) 569-7309

GST #: R128985876

June 30, 1992

To: Timmins Nickel Inc.
205 - 155 University Ave.
Toronto, Ontario
M5H 3B7

Re: Contract Exploration Services - Fees and Expenses
Invoice Period: June 1 - 30, 1992

Fees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	0 days	$250	$0.00	$0.00	$0.00
L	169 hours	$30	$5,070.00	$354.90	$5,424.90
			$5,070.00	$354.90	$5,424.90

Expenses: (see detailed form)

	Subtotal	GST	Total
L	$0.00	$0.00	$0.00
	$0.00	$0.00	$0.00

NET TOTALS	$5,070.00	$354.90	
GRAND TOTAL			$5,424.90

CODES:

L = LANGMUIR (214 100)
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

Ian Trinder

Geologist

4185 Taffey Crescent
Mississauga, Ontario
L5L 2A5
ph. (416) 569-7309

GST #: R128985876

June 1, 1992

To: Timmins Nickel Inc.
205 - 155 University Ave.
Toronto, Ontario
M5H 3B7

[illegible] Fees and Expenses
Invoice Period: May 1 - 31, 1992

Fees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	0 days	$250	$0.00	$0.00	$0.00
L	143 hours	$30	$4,290.00	$300.30	$4,590.30
			$4,290.00	$300.30	$4,590.30

Expenses: (see detailed form)

CODE			Subtotal	GST	Total
L			$0.00	$0.00	$0.00
			$0.00	$0.00	$0.00

	Subtotal	GST	Total
NET TOTALS	$4,290.00	$300.30	
GRAND TOTAL			$4,590.30

CODES:
L = LANGMUIR ([illegible])
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

POSTED June 7/92

Investment Langmuir 111417
GST 120105

4290.00
300.30
4590.30

Ian Trinder

Geologist

4185 Taffey Crescent
Mississaug.., Ontario
L5L 2A6
ph. (416) 569-7309

GST #: R128985876

May 1, 1992

To: Timmins Nickel Inc.
205 - 155 University Ave.
Toronto, Ontario
M5H 3B7

Re: Contract Exploration Services - Fees and Expenses
Invoice Period: Apr 1 - 30, 1992

Fees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	days	$250			
L	66.5 hours	$30	$1,995.00	$139.65	$2,134.65
			$1,995.00	$139.65	$2,134.65

Expenses: (see detailed form)

L

NET TOTALS	$1,995.00	$139.65	
GRAND TOTAL			$2,134.65

CODES: L = LANGMUIR (214 100)
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

Ian Trinder

Geologist

4185 Taffey Crescent
Mississauga, Ontario
L5L 2A6
ph. (416) 569-7309

GST #: R128985876

Apr 15, 1992

To: Timmins Nickel Inc.
205 - 155 University Ave.
Toronto, Ontario
M5H 3B7

Re: Contract Exploration Services - Fees and Expenses
Invoice Period: Mar 1 - 31, 1992

Fees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	16 days	$250	$4,000.00	$280.00	$4,280.00
L	61.5 hours	$30	$1,845.00	$129.15	$1,974.15
			$5,845.00	$409.15	$6,254.15

Expenses: (see detailed form)

CODE	Subtotal	GST	Total
L	$84.35	$0.19	$84.54
	$84.35	$0.19	$84.54

	Subtotal	GST	Total
NET TOTALS	$5,929.35	$409.34	
GRAND TOTAL			$6,338.69

CODES: L = LANGMUIR ([illegible])
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

Ian Trinder

Geologist

4185 Taffey Crescent
Mississauga, Ontario
L5L 2A6
ph. (416) 569-7309

GST #: R128985876 Mar 02, 1992

To: Timmins Nickel Inc.
205 - 155 University Ave.
Toronto, Ontario
[illegible]

Re: Contract Exploration Services - Fees and Expenses
Invoice Period: Feb 1 - 29, 1992

Fees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	20 days	$250	$5,000.00	$350.00	$5,350.00
L	21 hours	$30	$630.00	$44.10	$674.10
			$5,630.00	$394.10	$6,024.10

Expenses: (see detailed form)

CODE			Subtotal	GST	Total
L			$259.35	$4.61	$263.96
			$259.35	$4.61	$263.96

GRAND TOTAL $6,288.06

CODES:
L = LANGMUIR (214 100)
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

Ian Trinder

Geologist

4185 Taffey Crescent
Mississauga, Ontario
L5L 2A6
ph. (416) 569-7309

GST #: R128985876

Feb 03, 1992

'o: [illegible]
[illegible]
Toronto, Ontario
M5H 3B7

Re: Contract Exploration Services - Fees and Expenses
Invoice Period: Jan 1 - 31, 1992

'ees:

CODE	Hours/Days	Rate	Subtotal	GST	Total
L	26 days	$250	$6,500.00	$455.00	$6,955.00
L	14 hours	$30	$420.00	$29.40	$449.40
			$6,920.00	$484.40	$7,404.40

Expenses: (see detailed form)

	Subtotal	GST	Total
L	$511.49	$7.75	$519.24
GEN	$202.36	$13.11	$215.47
	$713.85	$20.86	$734.71

	Subtotal	GST	Total
NET TOTALS	$7,633.85	$505.26	
GRAND TOTAL			$8,139.11

CODES:
L = LANGMUIR (214 100)
C = CARMAN
E = ELDORADO
S = SHAW
A = ADAMS
M = MONTCALM EXTENSION
BG = BARTLETT-GEIKIE
GEN = GENERAL

RODERICK W. WOOLHAM, P.Eng.
MINERAL EXPLORATION GEOPHYSICIST

INVOICE AND STATEMENT

February 4, 1992 — Reference 91.024

Mr. Steven McIntyre
President
Timmins Nickel Inc.
Suite 205,
155 University Ave.,
Toronto, Ontario
M5H 3B7

Re: Langmuir and Dumont Nickel projects: consultations with Peter Tyler, data processing and interpretation of geophysical data on Langmuir and Dumont properties.

INVOICE

For the period January 1 to January 31, 1992.

Fees:

6.75 days at $400.00 per day	$2,700.00	
GST (Account No. 117080382)	189.00	
Sub total	$2,889.00	$2,889.00

Expenses:

Long distance telephone to [illegible]	[illegible]	
Fax, receipt nos. 1,2,3,	32.49	
Courier Services: recpt. nos. 4 to 8	58.80	
Sub total	$109.30	$109.30
Total Fees and Expenses		$2,998.30

[illegible] Ontario Canada [illegible]
Phone [illegible]

RODERICK W. WOOLHAM, P.Eng.
MINERAL EXPLORATION GEOPHYSICIST

INVOICE

February 28, 1992 Reference 91.027

To:

Timmins Nickel Inc.
Suite 205,
155 University Ave.,
Toronto, Ontario
M5H 3B7

Re: Langmuir, Tontine and Dumont Nickel projects: consulting, data processing, interpretation of geophysical data and final reports on the Langmuir, Tontine and Dumont properties.

For the period February 1 to February 28, 1992.

Fees:

11.5 days at $400.00 per day	$4,600.00	
GST (Account No. 117080382)	322.00	
Sub total	$4,922.00	$4,922.00

Expenses:

Long distance telephone to 01/92	19.35	
Fax, receipt no. 1	9.20	
Courier Services: receipt no. 2	11.76	
Reproduction Services: receipt no. 3	27.60	
Sub total	$67.91	67.91
Total Fees and Expenses		$4,989.91

R. W. Woolham, P.Eng.

Andrew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 – 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 111

Date : July 2, 1992

Drafting Services From June 1, 1992 to June 30, 1992 @ $25.00/hour			
SHAW DOME	– Graphic Drill Logs	24 hours	600.00
	– Stratigraphic Sections	24 hours	600.00
	– Report Maps	88 hours	2200.00
DOME MTN.	– Long. Sect., Schedules	32 hours	800.00
G.S.T. # 132577248		7%	294.00
		TOTAL	$4494.00

Weekly Timesheet

Name: *Andrew R. Gunther*. From *June 1* to *June 30*.

Date	Job#	Work Description	Reim	Non-Reim	Total
June 1		DOME MTN. – SCHEDULES			8
2		"			8
3		SHAW DOME – GRAPHIC LOGS			8
4		" "			8
5		KINGSWOOD – NW TERITORIES			6½
8		SHAW DOME – STRATIGRAPHIC			8
10		DOME MTN. – LONG. SECT.			8
11		SHAW DOME – STRATIGRAPH.			8
12		DOME MTN. – LONG SECT.			8
15		SHAW DOME – STRAT. & INCO DDH			8
16		SHAW DOME – GEOLOGY			8
17		"			8
18		SHAW DOME – Report DWGS.			8
19		"			8
22		SHAW DOME – Redstone Level Plans			8
23		" " Sections			8
24		" " "			8
25		" – Langmuir Geochem			8
26		" "			8
[illegible]		[illegible]			[illegible]
30		"			8

Approved: ____________. Totals: | | | 174½

Date: ____________. Entered: ____________.

Andrew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 – 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 110

Date : June 1, 1992

Drafting Services from May 1, 1992 to May 29, 1992
@ $25.00/hour

111417	SHAW DOME	– Graphic Drill Logs	72 hours	1,800.00
		–OMIP Claim Map	8 hours	200.00
111500	DOME MTN.	– Plot XSections	40 hours	1,000.00
		– Longitudinal Section	20 hours	500.00
		– Schedules, Boundary	16 hours	400.00
111530	ERITREA	– Miscellaneous	4 hours	100.00

111417 Investments Longmuir 2000.00
111500 Investments Dome Mtn 1900.00
111530 Investments Eritrea 100.00
[illegible] GST [illegible]

POSTED June 9/92

G.S.T. # 132577248	7%	280.00
	TOTAL	4,280.00

[illegible signature] June 4, 92.

Invoice : #110

Weekly Timesheet

Name: Andrew R. Gunther. From May 1 to May 29.

Date	Job#	Work Description	Reim	Non-Reim	Total
May 1		Shaw Dome - Graphic Logs			8
4		"			8
5		"			8
6		Shaw Dome - CMIP Claim Map			8
7		Shaw Dome - Graphic Logs			8
8		"			8
12		Shaw Dome - Graphic Logs			8
13		Dome Mtn - Long Sect.			8
14		"			8
15		Dome Mtn 4hrs / Shaw Dome 4hrs			8
19		Dome Mtn - Long Sect, Boundary			8
20		" - Schedules			8
21		" - Plot + Sections			8
22		" - Plot + Sections			8
25		" - Plot + Sections			8
26		Eritrea			8
27		Shaw Dome - Graphic Logs			8
28		"			8
29		"			8
		Totals:	20 days		160 hrs.

Approved: ________________.

Date: June 1 /92.

Entered: ________________.

.drew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 – 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 108

Date : May 4,1992

Drafting Services from April 1, 1992 to April 30, 1992
@ $25.00/hour

SHAW DOME 11525	– Langmuir Geophysics	40 hours	1,000.00
	– Graphic Drill Logs	40 hours	1,000.00
DOME MTN. 11500	– Yankee Girl Mine	24 hours	600.00
	– Plotting DDH Sections	16 hours	400.00
ERITREA	– Plans and Sections	48 hours	1,200.00

POSTED

G.S.T. (Not applicable)	0.00
TOTAL	$4,200.00

Weekly Timesheet

Name: ____________ From ______ to ______.

Date	Job#	Work Description	Reim	Non-Reim	Total
April 1		DOME MTN. - YANKEE GIRL			8
2		"			8
3		SHAW-DOME - Langmuir Geophy.			8
6		"			8
7		"			8
		"			8
9		"			8
10		SHAW DOME - DDH .LOGS			8
13		"			8
14		ERETREA - PLAN & SECTIONS			8
15		DOME MTN. - Exploration DDH			8
16		ERITREA - Plans & Sections			8
17		-0-			
20		SHAW DOME - GRAPHIC LOGS			8
21		ERITREA - Plans & SECTIONS			8
22		"			8
23		DOME MTN. - Plot DDH Sections			8
24		"			8
27		SHAW DOME - GRAPHIC LOGS			8
28		"			8
29					8
30		"			8
		Totals:			168 hrs

Approved: ____________.

Date: __________. Entered: __________

Andrew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 - 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 107

Date : April 2,1992

Drafting Services from March 2, 1992 to March 31, 1992 @ $25.00/hour	
SHAW DOME - Tontine - 32 hours	800.00
- Langmuir Display - 32 hours	800.00
DUMONT - Report - 24 hours	600.00
REDSTONE MINE - U/G Mill - 72 hours	1,800.00
DOME MTN. - 8 Hours	200.00
POSTED	
G.S.T. (Not applicable)	0.00
TOTAL	$4,200.00

3/4
AH

Weekly Timesheet

Name: Andrew R. Guather. From Mar. 2 to Mar 30.

Date	Job#	Work Description	Reim	Non-Reim	Total
March 2		Tontine - Plan & Sections			8
3		" - Long Section			8
4		" - Sections			8
5		" - "			8
6		Redstone - Mine			8
9		"			8
[illegible]		"			8
11		[illegible]			8
12		"			8
13		"			8
16		Redstone - Mine			8
17		"			8
18		"			8
19		"			8
20		"			8
23		Redstone - Mine			8
24		Snow Dome - Display Posters			8
25		"			8
26		"			8
27		"			8
30		Dome Mountain - Sched. & Long S.			8

Approved: ______________. Totals: [illegible] [illegible]

Date: ______________. Entered: ______________.

Andrew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 – 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 106

Date : Mar. 12,1992

Drafting Services from Feb. 3, 1992 to Feb. 28, 1992	
SHAW DOME – LANGMUIR 8 hours @ $25.00/hr.	200.00
– REDSTONE 16 hours @ $25.00/hr.	400.00
– CARMAN 16 hours @ $25.00/hr.	400.00
– OMIP 8 hours @ $ 25.00/hr.	200.00
– TONTINE 56 hours @ $25.00/hr.	1,400.00
– HART 8 hours @ $25.00/hr.	200.00
DOME MTN. – 36 hours @ $25.00/hr.	900.00
KINGSWOOD – DEVON PROJECT 12 hours @ $25.00/hr.	~~300.00~~
POSTED	
G.S.T. (Not applicable)	0.00
TOTAL	~~$4,000.00~~ $3700.00

Weekly Timesheet

Name: Andrew R. Gunther. From Feb. 3 to Feb. 28.

Date	Job#	Work Description	Reim	Non-Reim	Total
Feb. 3		Dome Mtn. - Long Section			8
4		" - Schedules			8
5		" - "			8
6		" - Long Sections			8
7		Kingswood - Devon 2 dwgs.			8
10		Dome Mtn. ½ / Kingswood ½			4/4
12		Redstone - Trenches			8
13		OMIP - Carman, Redstone			8
14		"			8
17		Carman - Geology			8
18		"			8
19		Tontine - Sections			8
20		"			8
21		"			8
24		"			8
25		Hart - Drill Plan			8
26		Tontine - Sections			8
27		"			8
28		Tontine - Plan			8

Approved: [signature]. Totals: 160

Date: March 13 '92. Entered: ______.

Andrew R. Gunther

473 Rouge Hills Drive
West Hill, Ontario
M1C2Z6
(416)283-6337

INVOICE

In Account with :

TIMMINS NICKEL INC.
205 – 155 University Ave.
Toronto, Ontario
M5H 3B7

Invoice No. : 105

Date : Feb. 5, 1992

Drafting Services from Jan. 2, 1992 to Jan. 31, 1992

LANGMUIR 24 hours @ $25.00/hr. 111417	$600.00
SHAW–DOME 8 hours @ $25.00/hr. 111525	$200.00
ADAMS TWP. 32 hours @ $25.00/hr. 111440	$800.00
DUMONT 64 hours @ $25.00/hr. 111515	$1,600.00
DOME MOUNTAIN 40 hours @ $25.00/hr. 111500	$1,000.00
KINGSWOOD 8 hours @ $25.00/hr.	$200.00
G.S.T. (Not applicable)	0.00
TOTAL	~~$4,400.00~~

4200.00

Feb 6 '92

Weekly Timesheet

Name: Andrew R. Gunther. From Jan 2 to Jan 31.

Date	Job#	Work Description	Reim	Non-Reim	Total
Jan 2		Dumont - Open Pit			8
3		Languir - Hart Area			8
6		Dumont - Open Pit			8
7		Dumont - " "			8
8		Dumont - " "			8
9		Shaw - Dome - Claim Map			8
[illegible]		Dumont - Open Pit			[illegible]
13		Dumont - " "			8
14		Adams - Compilation			8
15		" "			8
16		" "			8
17		Dome - Mountain - Equity Silver			8
20		" " " "			8
21		Dome Mtn - Equ Silver Long Sect			8
22		" " "			8
23		Adams - New Grid			8
24		Dome Mtn - Long Sect			8
27		Dumont - Spreadsheet			8
28		Dumont - "			8
29		Kingswood - Devon			8
30		Languir - Carman Detail			8
31					

Approved: ______________. Totals: | | | 176

Date: ______________. Entered: 176 hours.

TIMMINS NICKEL INC.
205 - 155 UNIVERSITY AVE.,
TORONTO, ONT. M5H 3B7

001938

May 26 19 9

PAY THE SUM 266 DOLS 33 CTS $ 266.33
TO

Andrew Gunther

TIMMINS NICKEL INC.

ROYAL BANK OF CANADA
MAIN BRANCH
ROYAL BANK PLAZA
TORONTO, ONTARIO M5J 2J5

⑈001938⑈ ⑆00002⑉003⑆ 291⑉106⑉3⑈

DETACH & RETAIN THIS STATEMENT

TIMMINS NICKEL INC.

DATE	DESCRIPTION	AMOUNT
May 26/92	drafting supplies	$266.33

GST 12.85
3.36
16.21

TIMMINS NICKEL INC.
205 - 155 UNIVERSITY AVE.,
TORONTO, ONT. M5H 3B7

001800

March 9 1992

PAY THE SUM 329 DOLS 30 CTS $ 329.30

TO

ROYAL BANK OF CANADA
MAIN BRANCH
ROYAL BANK PLAZA
TORONTO, ONTARIO M5J 2J5

⑈001800⑈ ⑆00002⑉003⑆ 291⑉106⑉3⑈

TIMMINS NICKEL INC

DETACH & RETAIN THIS STATEMENT

001800

DATE	DESCRIPTION	AMOUNT
March 9/92	February expenses	$329.30

TIMMINS NICKEL INC.
205 - 155 UNIVERSITY AVE.,
TORONTO, ONT. M5H 3B7

001950

May 29 19 92

PAY THE SUM 110 DOLS 40 CTS $ 110.40

TO Andrew Gunther

TIMMINS NICKEL INC.

ROYAL BANK OF CANADA
MAIN BRANCH
ROYAL BANK PLAZA
TORONTO, ONTARIO M5J 2J5

⑈001950⑈ ⑆00002⑉003⑆ 291⑉106⑉3⑈

TIMMINS NICKEL INC.

DATE	DESCRIPTION	AMOUNT
May 29/92	drafting supplies	$110.40

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

June 30, 1992

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

June Retainer and Quarterly Balance April to June 1992

Total hours - as per attatched time sheets - 398

@ $45.00 per hour	$ 17,910.00
Paid - as per retainers Apr - Jun, 1992	11,550.00
Balance	6,360.00
Retainer - June 1992	3,850.00
[illegible]	[illegible]
GST @ 7%	714.70
Invoiced	$ 10,924.70

P. A. Tyler
June 30, 1992

Weekly Timesheet

Name: P. A. Tyler. From June to ______.

Date	Job#	Work Description	Reim	Non-Reim	Total
2		Show Dome			7
3		" "			7
4		" "			7
5		" "			7
8		" "			7
9		Day off			-
					-
11		" "			7
12		" "			4
15		" "			4
16		" "			7
17		" "			7
18		" "			7
19		" "			7
22		" "			7
23		" "			7
24		" "			4
25		" "			6
26		" "			2
29		" "			7
30		" "			5

Approved: ______________. Totals: | | | 123

Date: ______________. Entered: ______________.

Weekly Timesheet

Name: P.A. TYLOR. From MAY to ______.

Date	Job#	Work Description	Reim	Non-Reim	Total	
1		Eitrean Report			7	
4		" " – Proposed			6	
5		Shaw Dane – report			7	7
6		" " "			6	6
7		" " "			3	3
8		" " " – Eitrean proposal			7	4
		[illegible]			7	—
12		" " " – " "			7	4
13		" " " – " "			5	[illegible]
14		Shaw Dane Report			7	7
15		Day off.			—	
19		Shaw Dane Report			7	7
20		" " "			7	7
21		" " "			7	—
22		" " "			7	7
25		" " "			7	7
26		" " "			7	7
27		" " "			7	7
28		" " "			7	7

Approved: ______. Totals: 118 9

Date: ______. Entered: ______.

Weekly Timesheet

Name: P.A. TYLER . From April to ______.

Date	Job#	Work Description	Reim	Non-Reim	Total
1		In Asmara Eritrea			8
2		Asmara - Debarwa - Adi Nefas			8
3		Asmara			8
4		Asmara			8
5		Asmara → Masawa			8
6		Asmara			8
7		[illegible]			8
8		Adis Ababa			8
9		Adis Ababa			8
10		Adis → London			8
11		London → Toronto			8
13		Eritrean Report			~~8~~ 7
14		Day Off			—
15		Eritrean Report			7
16		Eritrean Report			5
20		Eritrean Report			6
22		Eritrean Report			7
23		Eritrean Report			4
24		Eritrean Report			5
27		Eritrean Report			7
28		Eritrean Report			7
30		Eritrean Report			7

Approved: ______________. Totals: | | | 157

Date: ____________.

Entered: ______________.

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

P.A. Tyler retainer May, 1992	$ 3850.00
GST @ 7%	269.50
TOTAL	$4119.50

June 4, 1992.

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

P.A. Tyler retainer April, 1992	$ 3850.00
GST @ 7%	269.50
TOTAL	$4119.50

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

April.24, 1992

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

Quarterly Balance January to March 1992

Total hours - as per attatched time sheets - 505

@ $40.00 per hour	$ 20,200.00
Paid - as per retainers Jan - Mar, 1992	11,550.00
Balance	8,650.00
GST @ 7%	605.50

P. A. Tyler
April 24, 1992

Weekly Timesheet

Name: R. A. Tyler. From Mar 1 to Mar 31.

Date	Job#	Work Description	Reim	Non-Reim	Total	sho
Mar 1		Training - [illegible]			8	8
2		" - " "			8	7
3		" - " " To Toronto			8	8
4		Toronto - [illegible]			7	7
5		" - " "			7	7
6		" - " "			7	7
10		Day off			—	
11		Toronto - [illegible] + Discount			7	4
12		" - " " + Discount			7	3
13		" - " " + "			7	4
16		" - " " + "			7	3
17		" - " "			7	7
18		" - Discount			7	
19		" - [illegible]			7	7
20		" - " "			2	2
23		" - " "			4	4
24		" - " "			7	7
25		" - " "			4	4
26		" - " "			6	6
27		" - " "			7	7
28		To [illegible] -			8	
29		[illegible] project			7	
30		" "			7	
31		" "			7	

Approved: ______. Totals: 163

Date: ______. Entered: ______.

Weekly Timesheet

Name: P.A. TYLOR . From FEB 1 to FEB 29 .

Date	Job#	Work Description	Reim	Non-Reim	Total	Sh-Den
FEB 1		Ames – Dixie? Ad			8	
2		Ames to Timmins – Show Down			8	4
3		Timmins – Show Down			8	8
4		Timmins – " "			8	8
5		Timmins – " "			8	8
6		Toronto – Show Down – Testing			7	7
[illegible]		[illegible]			7	[illegible]
[illegible]		[illegible]			3.5	[illegible]
10		" – " " "				
11		" – [illegible] + Show Down			7	7
12		" – " – " "			7	7
13		" – " " "			7	7
14		" – " " "			7	7
17		Toronto – Testing			7	7
18		" – Testing + Show Down			7	7
19		" – " " " "			7	7
20		" – " – Document			7	[illegible]
21		" – "			7	7
24		Toronto – Show Down Document			7	7
25		" – " "			5	5
26		Day Off			–	
27		Toronto – Show Down			7	
[illegible]		" – [illegible]			8	[illegible]
29		Timmins – Show [illegible]			8	[illegible]

Approved: ______________ . Totals: 157

Date: ______________ . Entered: ______________ .

Weekly Timesheet

Name: P. A. Tyler. From Jan' 2 to Jan' 31.

Shaw Dome

Date	Job#	Work Description	Reim	Non-Reim	Total	
Jan 2		Document - geophysics + historic DD			7	
3		Shaw Dome - correct [illegible] dd/geophysics			7	7
6		" " " " " "			7	7
7		" " " " " " "			7	7
8		Shaw Dome, Sequence #1 dd, Document			7	4
9		" " , Document current progress			7	
13		~~[illegible]~~, Shaw Dome + Document			7	3
14		Bond Liberty - Shaw Dome			7	7
15		Shaw Dome - Budgets			7	7
16		Shaw Dome - Document			7	
17		Shaw Dome Document - Budget			7	3
19		To Timmins - Shaw Dome [illegible]			8	7
20		Shaw Dome - to Amos			8	
21		Amos - Document dd			8	
22		Amos " " to Timmins			8	8
23		Timmins - Shaw Dome dd.			8	8
24		Timmins - Shaw Dome - to Amos			8	4
25		Amos - Document DD			8	
26		" " " "			8	
27		" " "			8	
28		" " " To Timmins			8	8
29		Timmins - Shaw Dome dd.			8	8
30		" " " " "			8	8
31		Timmins to Amos - Document dd			8	

Approved: ________. Totals: 165 96

Date: ________. Entered: ________. 52

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

April 13, 1992

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

P.A. Tyler retainer March, 1992	$ 3850.00
GST @ 7%	269.50
TOTAL	$4119.50

BAYWEST RESOURCES LTD.
914 Vistula Drive
Pickering, Ontario
L1W 2L5

GST # 128261872

[illegible]

TO: Timmins Nickel Inc.
205-155 University Avenue
Toronto, Ontario
M5H 3B7

P.A. Tyler retainer February, 1992	$ 3850.00
GST @ 7%	269.50
TOTAL	$4119.50

BAYWEST RESOURCES LTD.
914 VISTULA DRIVE
PICKERING, ONTARIO
L1N 2L5

INVOICE

GST #128261872

To: Timmins Nickel Inc.
155 University Avenue
Suite 205
Toronto, Ontario
M5H 3B7

P.A. Tyler retainer Janaury 1992	$3850.00
GST @ 7%	269.50.
TOTAL	$4119.50

CLAIMS		STATUS	MINING LOCATION	MNR LEASE #	PARCEL #	TOWNSHIP	# OF CLAIMS
SHAW DOME PROPERTY - REDSTONE BLOCK					1002.16 h	2476.38 acres	
479020 -	479025	lease	CLM 243	103591	1302 LC	Eldorado	6
479034		lease	CLM 243	103591	1302 LC	Eldorado	1
479037 -	479038	lease	CLM 243	103591	1302 LC	Eldorado	2
479048 -	479050	lease	CLM 243	103591	1302 LC	Eldorado	3
504270		lease	CLM 243	103591	1302 LC	Eldorado	1
504280		lease	CLM 243	103591	1302 LC	Eldorado	1
504282		lease	CLM 243	103591	1302 LC	Eldorado	1
453327 -	453342	lease	CLM 244	103592	1300 LC	Eldorado	16
479030 -	479033	lease	CLM 244	103592	1300 LC	Eldorado	4
479039 -	479041	lease	CLM 244	103592	1300 LC	Eldorado	3
479026 -	479029	lease	CLM 245	103593	1301 LC	Eldorado	4
479042 -	479047	lease	CLM 245	103593	1301 LC	Eldorado	6
479154 -	479159	lease	CLM 245	103593	1301 LC	Eldorado	6
504271 -	504279	lease	CLM 245	103593	1301 LC	Eldorado	9

							63
SHAW DOME PROPERTY - LANGMUIR BLOCK					1503.98 h	3716.42 acres	
6451		patented			4251	Langmuir	1
7467		patented			632	Langmuir	1
7867		patented			1180	Langmuir	1
70572 -	70583	lease	CLM 140	102752	5073 LT	Langmuir	12
70812 -	70820	lease	CLM 140	102752	5073 LT	Langmuir	9
70586		lease	CLM 141	102753	5074 LT	Langmuir	1
70595 -	70600	lease	CLM 141	102753	5074 LT	Langmuir	6
70801 -	70803	lease	CLM 141	102753	5074 LT	Langmuir	3
70829 -	70839	lease	CLM 141	102753	5074 LT	Langmuir	11
74154 -	74156	lease	CLM 141	102753	5074 LT	Langmuir	3
74162 -	74163	lease	CLM 141	102753	5074 LT	Langmuir	2
70568 -	70571	lease	CLM 142	102754	5072 LT	Langmuir	4
70584 -	70585	lease	CLM 142	102754	5072 LT	Langmuir	2
70804 -	70811	lease	CLM 142	102754	5072 LT	Langmuir	8
70821 -	70824	lease	CLM 142	102754	5072 LT	Langmuir	4
96248 -	96249	lease	CLM 142	102754	5072 LT	Langmuir	2
96262 -	96267	lease	CLM 142	102754	5072 LT	Langmuir	6
70587 -	70594	lease	CLM 143	102755	5071 LT	Langmuir	8
70825 -	70828	lease	CLM 143	102755	5071 LT	Langmuir	4
74157 -	74161	lease	CLM 143	102755	5071 LT	Langmuir	5
96244 -	96247	lease	CLM 143	102755	5071 LT	Langmuir	4

							97

CLAIMS	STATUS	MINING LOCATION	MNR LEASE #	PARCEL #	TOWNSHIP	# OF CLAIMS
SHAW DOME PROPERTY - TONTINE BLOCK				888.69 h	2195.99 acres	
50838 - 50861	lease	CLM 144	102545	4908 LT	Langmuir	24
50862 - 50891	lease	CLM 145	102544	4909 LT	Langmuir	30

						54
SHAW DOME PROPERTY - HART BLOCK				181.98 h	449.69 acres	
24100	lease		105995	1619 LC	Eldorado	1
24107	lease		105992	1619 LC	Eldorado	1
24108	lease		105993	1619 LC	Eldorado	1
24109	lease		105994	1619 LC	Eldorado	1
24218	lease		105986	1619 LC	Eldorado	1
24219	lease		105987	1619 LC	Eldorado	1
24220	lease		105988	1619 LC	Eldorado	1
24221	lease		105989	1619 LC	Eldorado	1
24222	lease		105990	1619 LC	Eldorado	1
24223	lease		105991	1619 LC	Eldorado	1

						10
SHAW DOME PROPERTY - CARMAN TOWNSHIP BLOCK				1136.00 h	2807.12 acres	
1113392 - 1113401	unpatented				Carman	10
1113402 - 1113420	unpatented				Carman	19
1113421 - 1113423	unpatented				Langmuir	3
1113424 - 1113425	unpatented				Carman	2
1175932 - 1175933	unpatented				Langmuir	2
1175934 - 1175944	unpatented				Carman	11
1175946	unpatented				Carman	1
1177077 - 1177088	unpatented				Carman	12
1177788 - 1177790	unpatented				Langmuir	3

						63
SHAW DOME PROPERTY - ELDORADO TOWNSHIP BLOCK				1200.00 h	2965.26 acres	
1113457 - 1113475	unpatented				Eldorado	19
1113497 - 1113512	unpatented				Eldorado	16
1113517 - 1113535	unpatented				Eldorado	19
1177791	unpatented				Eldorado	1
1181223	unpatented				Eldorado	1
1181225 - 1181227	unpatented				Eldorado	3

						59
SHAW DOME PROPERTY - ADAMS TOWNSHIP BLOCK				1680.00 h	4151.37 acres	
1176690 - 1176699	unpatented				Adams	10
1177554 - 1177601	unpatented				Adams	48
1177764 - 1177787	unpatented				Adams	24
1181224	unpatented				Adams	1
1181201 - 1181222	unpatented				Eldorado	22

						105

CLAIMS	STATUS	MINING LOCATION	MNR LEASE #	PARCEL #	TOWNSHIP	# OF CLAIMS
SHAW DOME PROPERTY - SHAW TOWNSHIP BLOCKS				608.00 h	1502.40 acres	
1177089 - 1177091	unpatented				Shaw	3
1177108 - 1177114	unpatented				Shaw	7
						10
SHAW DOME PROPERTY - LANGMUIR WEST EXTENSION BLOCKS				304.00 h	751.20 acres	
1182260 - 1182269	unpatented				Langmuir	10
1189086 - 1189087	unpatented				Langmuir	2
						12
SHAW DOME PROPERTY - FILO-KEAN BLOCK				320.00 h	790.74 acres	
947052 - 947053	unpatented				Carman	2
947060	unpatented				Carman	1
947114 - 947121	unpatented				Langmuir	8
987237	unpatented				Carman	1
987239 - 987245	unpatented				Carman	7
1175033	unpatented				Langmuir	1
						20
SHAW DOME PROPERTY - ROUSSEAU BLOCK				1360.00 h	3360.63 acres	
1035249 - 1035250	unpatented				Eldorado	2
1073270 - 1073274	unpatented				Eldorado	5
1073276	unpatented				Eldorado	1
1073278 - 1073279	unpatented				Eldorado	2
1074004 - 1074009	unpatented				Eldorado	6
1074013 - 1074016	unpatented				Eldorado	4
1074019 - 1074020	unpatented				Eldorado	2
1074023 - 1074024	unpatented				Eldorado	2
1074027 - 1074029	unpatented				Eldorado	3
1088386 - 1088387	unpatented				Eldorado	2
1088390 - 1088391	unpatented				Eldorado	2
1088393 - 1088394	unpatented				Eldorado	2
1089988	unpatented				Eldorado	1
1089992	unpatented				Eldorado	1
1090158 - 1090159	unpatented				Eldorado	2
1090162 - 1090163	unpatented				Eldorado	2
1090544 - 1090545	unpatented				Eldorado	2
1090548 - 1090549	unpatented				Eldorado	2
1090551 - 1090552	unpatented				Eldorado	2
1115316 - 1115320	unpatented				Eldorado	5
1115993 - 1116002	unpatented				Eldorado	10
1116006 - 1116012	unpatented				Eldorado	7
1116327 - 1116333	unpatented				Eldorado	7
1116335 - 1116336	unpatented				Eldorado	2
1126585	unpatented				Eldorado	1
1170992 - 1170994	unpatented				Langmuir	3
1170996 - 1171000	unpatented				Langmuir	5
						85

ADAMS BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1176690	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176691	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176692	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176693	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176694	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176695	1	Adams	30-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176696	1	Adams	31-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176697	1	Adams	31-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176698	1	Adams	31-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1176699	1	Adams	31-Mar-91	29-Apr-91	18-Sep-91	29-Apr-93	0	Guiho, Marc G.	M23829
1177554	1	Adams	09-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177555	1	Adams	09-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177556	1	Adams	09-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177557	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177558	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177559	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177560	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177561	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177562	1	Adams	10-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177563	1	Adams	11-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177564	1	Adams	11-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177565	1	Adams	11-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177566	1	Adams	11-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177567	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177568	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177569	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177570	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177571	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177572	1	Adams	12-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177573	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177574	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177575	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177576	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177577	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177578	1	Adams	13-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177579	1	Adams	14-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177580	1	Adams	14-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177581	1	Adams	14-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177582	1	Adams	14-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177583	1	Adams	14-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177584	1	Adams	15-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177585	1	Adams	15-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177586	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177587	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177588	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177589	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177590	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177591	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177592	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177593	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177594	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177595	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190

ADAMS BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1177596	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177597	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177598	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177599	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177600	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1177601	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93			
1177764	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177765	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177766	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177767	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177768	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177769	1	Adams	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177770	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177771	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177772	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177773	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177774	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177775	1	Adams	18-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177776	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177777	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177778	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177779	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177780	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177781	1	Adams	17-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177782	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177783	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177784	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177785	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177786	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1177787	1	Adams	16-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Perello, Michael V.	M24887
1181201	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181202	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181203	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181204	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181205	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181206	1	Eldorado	21-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181207	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181208	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181209	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181210	1	Eldorado	22-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181211	1	Eldorado	22-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181212	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181213	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181214	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181215	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181216	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181217	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181218	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181219	1	Eldorado	20-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181220	1	Eldorado	19-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181221	1	Eldorado	22-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190

ADAMS BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1181222	1	Eldorado	22-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190
1181224	1	Adams	22-Apr-91	02-May-91	18-Sep-91	02-May-93	0	Jones, David V.	M21190

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105 Claim units 1680 hectares

CARMAN BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1113392	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113393	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113394	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113395	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113396	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113397	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113398	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113399	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113400	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113401	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	St. Jean, Gerry	M23868
1113402	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113403	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113404	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113405	1	Carman	08-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113406	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113407	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113408	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113409	1	Carman	09-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113410	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113411	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113412	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113413	1	Carman	10-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113414	1	Carman	11-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113415	1	Carman	11-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113416	1	Carman	11-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113417	1	Carman	11-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113418	1	Carman	12-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113419	1	Carman	12-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113420	1	Carman	12-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113421	1	Langmuir	13-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113422	1	Langmuir	13-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113423	1	Langmuir	13-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113424	1	Carman	14-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1113425	1	Carman	14-Apr-89	17-Apr-89	12-Jun-89	17-Apr-94	1760	Fournier, Georges	M20705
1175932	1	Langmuir	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175933	1	Langmuir	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175934	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175935	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175936	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175937	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175938	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175939	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175940	1	Carman	19-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175941	1	Carman	20-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175942	1	Carman	20-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175943	1	Carman	20-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175944	1	Carman	20-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1175946	1	Carman	22-Mar-91	25-Mar-91	18-Sep-91	25-Mar-93	0	Jones, David V.	M21190
1177077	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177078	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190

CARMAN BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1177079	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177080	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177081	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177082	1	Carman	25-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177083	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177084	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177085	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177086	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177087	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177088	1	Carman	26-May-91	31-May-91	18-Sep-91	31-May-93	0	Jones, David V.	M21190
1177788	1	Langmuir	03-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1177789	8	Langmuir	03-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1177790	2	Langmuir	03-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190

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71 Claim units 1136 hectares

ELDORADO BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1113457	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113458	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113459	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113460	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113461	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113462	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113463	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113464	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113465	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113466	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113467	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113468	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113469	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113470	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113471	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113472	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113473	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113474	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113475	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Arnold P.	M24683
1113497	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113498	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113499	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113500	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113501	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113502	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113503	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113504	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113505	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113506	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113507	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113508	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113509	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113510	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113511	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113512	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Collin, Raymond	M20943
1113517	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113518	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113519	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113520	1	Eldorado	08-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113521	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113522	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113523	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113524	1	Eldorado	09-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113525	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113526	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113527	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113528	1	Eldorado	10-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113529	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113530	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113531	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113532	1	Eldorado	11-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977

ELDORADO BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1113533	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113534	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1113535	1	Eldorado	12-Apr-89	14-Apr-89	12-Jun-89	14-Apr-94	1760	Garceau, Roger	M23977
1177791	2	Eldorado	07-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1181223	6	Eldorado	04-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1181225	3	Eldorado	05-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1181226	8	Eldorado	06-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190
1181227	2	Eldorado	05-Aug-91	03-Sep-91	03-Sep-91	03-Sep-93	0	Jones, David V.	M21190

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75 Claim units   1200 hectares

FILO-KEAN BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Banked	Staker	Licence
947052	1	Carman	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Jones, David J.	M21190
947053	1	Carman	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Jones, David J.	
947060	1	Carman	10-Sep-86	16-Sep-86		16-Sep-97	4000	400	Jones, David J.	
947114	1	Langmuir	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947115	1	Langmuir	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947116	1	Langmuir	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947117	1	Langmuir	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947118	1	Langmuir	09-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947119	1	Langmuir	10-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947120	1	Langmuir	10-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
947121	1	Langmuir	10-Sep-86	16-Sep-86		16-Sep-97	4000	400	Passi, Earl C.	C35383
987237	1	Carman	21-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987239	1	Carman	21-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987240	1	Carman	21-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987241	1	Carman	21-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987242	1	Carman	22-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987243	1	Carman	22-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987244	1	Carman	22-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
987245	1	Carman	22-May-87	26-May-87		26-May-98	4000	400	Jones, David J.	M21190
1175033	1	Langmuir	31-Dec-90	23-Jan-91		23-Jan-93	0		Filo, John Kevin	M25052

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20 Claim units   320 hectares

LANGMUIR WEST EXTENSION BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1182260	1	Langmuir	22-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182261	1	Langmuir	22-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182262	1	Langmuir	22-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182263	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182264	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182265	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182266	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182267	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182268	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1182269	1	Langmuir	23-Oct-91	23-Oct-91	23-Oct-91	23-Oct-93	0	Jones, David V.	M21190
1189086	8	Langmuir	15-Dec-91	20-Dec-91	20-Dec-91	20-Dec-93	0	Jones, David V.	M21190
1189087	1	Langmuir	16-Dec-91	20-Dec-91	20-Dec-91	20-Dec-93	0	Jones, David V.	M21190

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19 Claim units 304 hectares

ROUSSEAU BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1035249	1	Eldorado	13-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1035250	1	Eldorado	16-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073270	1	Eldorado	17-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073271	1	Eldorado	18-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073272	1	Eldorado	18-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073273	1	Eldorado	18-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073274	1	Eldorado	18-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073276	1	Eldorado	19-Jan-89	24-Jan-89		24-Jan-93	1529	Pilon, Mario L	M23970
1073278	1	Eldorado	19-Jan-89	24-Jan-89		24-Jan-94	1969	Pilon, Mario L	M23970
1073279	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Pilon, Mario L	M23970
1074004	1	Eldorado	30-Jan-89	07-Feb-89		07-Feb-93	1529	Nelson, Howard T	M21910
1074005	1	Eldorado	30-Jan-89	07-Feb-89		07-Feb-93	1320	Nelson, Howard T	M21910
1074006	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074007	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074008	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074009	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074013	1	Eldorado	21-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074014	1	Eldorado	22-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074015	1	Eldorado	22-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074016	1	Eldorado	22-Jan-89	24-Jan-89		24-Jan-93	1320	Nelson, Howard T	M21910
1074019	1	Eldorado	27-Jan-89	07-Feb-89		07-Feb-93	1320	Nelson, Howard T	M21910
1074020	1	Eldorado	27-Jan-89	07-Feb-89		07-Feb-93	1320	Nelson, Howard T	M21910
1074023	1	Eldorado	28-Jan-89	07-Feb-89		07-Feb-93	1837	Nelson, Howard T	M21910
1074024	1	Eldorado	28-Jan-89	07-Feb-89		07-Feb-93	1529	Nelson, Howard T	M21910
1074027	1	Eldorado	29-Jan-89	07-Feb-89		07-Feb-93	1320	Nelson, Howard T	M21910
1074028	1	Eldorado	29-Jan-89	07-Feb-89		07-Feb-93	1529	Nelson, Howard T	M21910
1074029	1	Eldorado	29-Jan-89	07-Feb-89		07-Feb-93	1529	Nelson, Howard T	M21910
1088386	1	Eldorado	22-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1088387	1	Eldorado	22-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1088390	1	Eldorado	23-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1088391	1	Eldorado	23-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1088393	1	Eldorado	24-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1088394	1	Eldorado	24-Jan-89	25-Jan-89		25-Jan-93	1529	Fournier, Georges	M20705
1089988	1	Eldorado	19-Jan-89	24-Jan-89		24-Jan-93	1529	Covey, Richard A	M23898
1089992	1	Eldorado	20-Jan-89	24-Jan-89		24-Jan-93	1320	Covey, Richard A	M23898
1090158	1	Eldorado	27-Jan-89	07-Feb-89		07-Feb-93	1529	Boa, Nolan	H8687
1090159	1	Eldorado	27-Jan-89	07-Feb-89		07-Feb-93	1320	Boa, Nolan	H8687
1090162	1	Eldorado	28-Jan-89	07-Feb-89		07-Feb-93	1320	Boa, Nolan	H8687

ROUSSEAU BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1090163	1	Eldorado	28-Jan-89	07-Feb-89		07-Feb-93	1529	Boa, Nolan	H8687
1090544	1	Eldorado	07-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1090545	1	Eldorado	07-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1090548	1	Eldorado	08-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1090549	1	Eldorado	08-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1090551	1	Eldorado	08-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1090552	1	Eldorado	08-Feb-89	20-Feb-89		20-Feb-93	1320	Boa, Nolan	H8687
1115316	1	Eldorado							
1115317	1	Eldorado							
1115318	1	Eldorado							
1115319	1	Eldorado							
1115320	1	Eldorado							
1115993	1	Eldorado							
1115994	1	Eldorado							
1115995	1	Eldorado							
1115996	1	Eldorado							
1115997	1	Eldorado							
1115998	1	Eldorado							
1115999	1	Eldorado							
1116000	1	Eldorado							
1116001	1	Eldorado							
1116002	1	Eldorado							
1116006	1	Eldorado							
1116007	1	Eldorado							
1116008	1	Eldorado							
1116009	1	Eldorado							
1116010	1	Eldorado							
1116011	1	Eldorado							
1116012	1	Eldorado							
1116327	1	Eldorado							
1116328	1	Eldorado							
1116329	1	Eldorado							
1116330	1	Eldorado							
1116331	1	Eldorado							
1116332	1	Eldorado							
1116333	1	Eldorado							
1116335	1	Eldorado							
1116336	1	Eldorado							
1126585	1	Eldorado							
1170992	1	Langmuir	08-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1170993	1	Langmuir	08-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1170994	1	Langmuir	08-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562

ROUSSEAU BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1170996	1	Langmuir	08-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1170997	1	Langmuir	09-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1170998	1	Langmuir	09-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1170999	1	Langmuir	09-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562
1171000	1	Langmuir	09-Dec-90	10-Dec-90		10-Dec-92	0	Rousseau, Robert	M18562

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85 Claim units 1360 hectares

SHAW BLOCK

Claim #	Units	Twp	Staked	Recorded	Transfer	Due	Credits	Staker	Licence
1177089	8	Shaw	10-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177090	4	Shaw	22-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177091	1	Shaw	22-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177108	8	Shaw	08-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177109	8	Shaw	09-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177110	2	Shaw	08-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177111	1	Shaw	09-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177112	3	Shaw	08-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177113	2	Shaw	22-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190
1177114	1	Shaw	09-Jun-91	08-Jul-91	08-Jul-91	08-Jul-93	0	Jones, David V.	M21190

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38 Claim units   608 hectares

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 7200 9300
Grid: 72+00N 93+00E

Azimuth: 345.0
Grid Az: 310
Dip: -45.0

Elevation: 1000

Length: 927.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 50ft BQ cassing & shoe

*** Dip Tests ***

Depth	Azi.	Dip
300.0		-46.0
600.0		-46.0
927.0		-45.0

Hole No.: L92-1

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 7, 1992
Date Completed: Jan. 9, 1992
Logged by: Ian Trinder
Date Logged: Jan. 20, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	53.70	OVERBURDEN									
53.70	186.60	ULTRAMAFIC Possible multiple flow sequence if grainsize variations reflect individual flows. Alternately the variation in grainsize may be due to internal layering within a single flow or superimposed alteration. The volatile-free MgO content of 5 samples within this section varies by only 3.9% which suggests that this may be a single flow unit but can not rule out the possibility of multiple flows. Fine grained (<1mm), massive, medium grey groundmass. Not extremely soft. No cumulate or flow textures observed. Groundmass pervasively talc-magnesite altered? Rock crosscut by abundant magnesite +/- serpentine veinlets. Veinlets commonly have a carbonate core with a dark green antigorite selvage. Occassional and lesser asbestiform chrysotile occurs as meandering veinlets within the carbonate-antigorite veinlet structure. Veinlets are <1-20mm wide. Veinlets may also be monomineralic. Veinlets are subparallel to 80 degrees to long core axis. Rare pyrite associated with veinlets. 53.70 126.60 Komatiite Flow ??. Slight increase in grainsize from 125.3-126.6. Talc veinlet from 124.9-125.3. Sharp lower contact at 20	1062 1063 1064 1065 1066	77.50 144.30 153.50 164.40 181.10	77.80 144.60 153.90 164.80 181.30	.30 .30 .40 .40 .20	2230 2370 2400 2460 1910				40.21 38.95 38.90 40.35 36.45

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		degrees to long core axis based on change to finer grainsize. 126.60 145.40 Komatiite Flow ??. Slight increase in grainsize downhole with a gradational change to a darker greenish grey color at ~138.4. Talc- carbonate vein from 137.2-137.8 at 55 degrees to long core axis. Sharp lower contact at 5 degrees to long core axis based on change to finer grainsize and color. 145.40 155.50 Komatiite Flow ??. Fine grained, medium grey groundmass. 155.50 174.10 Komatiite Flow ??. Fine grained dark greenish grey groundmass as in 138.4 to 145.4. Rubbly carbonate veined zone from 170.7-174.1 174.10 186.60 Komatiite Flow ??. Fine grained medium grey groundmass as in 145.4 to 155.5. Carbonate vein 175.5-176.5. 1-2% disseminated pyrite from 183.4-186.1.									
186.60	357.10	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 186.60 195.50 Possible flow top?. Aphanitic, dark green chloritic and talcose section with soft waxy touch. Non-magnetic. Grades into underlying section. 195.50 357.10 Orthocumulate Komatiite/Komatiitic Peridotite. Coarse grained, massive, pale grey open-packed orthocumulate? groundmass. Grainsize increases downhole from 1-2mm to 3mm. Iterstices to carbonate pseudomorphed cumulate grains consists of dark greenish grey serpentine? Groundmass is moderately magnetic. Rare pyrite smears on fractures. Locally the groundmass has a porphyritic texture created by 10% light grey irregular shaped 'starburst' carbonate patches up to 3mm diameter hosted by a darker grey fine grained groundmass. This is likely an alteration sumperimposition of porphyroblasts, not relict primary texture. Below ~280 the rock appears somewhat finer grained but this may be more apparent than real. A closer packing of the cumulate and a reduction in the intercumulus space combined with pervasive carbonatization of the groundmass obscurs the cumulate grain boundaries and gives a finer grained appearance.	1067 1068 1069 1070	191.50 214.00 260.80 317.90	191.80 214.20 261.10 318.30	.30 .20 .30 .40	120 1710 1980 2010				29.23 28.44 31.60 35.23

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Groundmass is pervasively carbonatized with some remnant serpentine. Carbonate is also abundant in veinlets subparallel to 80 degrees to long core axis. Veinlets most abundant from 199.3-207.0; 241.0-274.8 and 297.5-321.7. Minor talc in veinlets. Below ~325.0 the groundmass is pervasively carbonatized and talc altered which results in a fine grainsize and obliteration of primary textures. Several bands containing 2-3% disseminated pyrite euhedra up to 1.5mm diameter ie. 262.5-262.8; 287.7-287.9; 288.2-288.7; 292.9-293.4 and 297.2-297.4.									
357.10	443.30	ULTRAMAFIC 357.10 359.80 Possible flow top?. Aphanitic, chloritic groundmass with 'porphyritic' bands of <1mm carbonate 'pseudomorphs'? grades downhole into more carbonate-chlorite pervasive fine grained groundmass. 2-3% disseminated magnetite in more chlorite rich portions. 2-3% disseminated pyrite euhedra from 358.7-359.0. Upper and lower contacts sharp at 30 degrees to long core axis. 359.80 443.30 Ultramafic. Fine grained, pale to medium grey groundmass. Primary texture generally obliterated by magnesite-(talc?) alteration. Local porphyritic patches ie. 425.0-436.5 may be pseudomorphed remnants of cumulate texture but may also be an alteration carbonate porphyroblastic overprint. In addition to the pervasive groundmass magnesite, magnesite is also present in veinlets subparallel to 80 degrees to long core axis. Possible dolomite veinlets from 428.6-430.1.	1071 1072	361.60 416.50	361.90 416.80	.30 .30	2120 2150				31.87 38.75
443.30	455.50	ULTRAMAFIC 443.30 444.00 Possible flow top?. Aphanitic dark green chloritic zone. Upper contact rubbly, lower contact at 30 degrees to long core axis. 444.00 455.50 Ultramafic. Fine grained, pale to medium grey ultramafic as in 359.8 to 443.3. Pervasive magnesite-talc in groundmass.									
455.50	465.00	ULTRAMAFIC 455.50 456.50 Possible flow top?. Aphanitic medium green chloritic zone with magnesite/dolomite? vein. Upper and lower contacts at	1073	462.00	462.30	.30	2220				32.68

Hole: L92-1 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		15 degrees to long core axis. 456.50 465.00 Ultramafic. Fine grained, pale to medium grey ultramafic as in 359.8 to 443.3. Pervasive magnesite-talc in groundmass.									
465.00	513.60	ULTRAMAFIC 465.00 465.50 Possible flow top?. Aphanitic medium green chloritic zone. Upper and lower contacts at 15 and 25 degrees to long core axis respectively. 465.50 513.60 Ultramafic. Fine grained, pale to medium grey ultramafic as in 359.8 to 443.3. Pervasive magnesite-talc in groundmass. Below 471.5 there are local patches with porphyritic texture, up to 30-40% 1-2mm carbonate pseudomorphs, which may be remnants of orthocumulate/mesocumulate texture. Alternatively the texture may be a porphyroblastic alteration overprint. Abundant 2-10mm wide magnesite veinlets subparallel to 75 degrees to long core axis.									
513.60	559.80	ULTRAMAFIC 513.60 525.00 Ultramafic. Fine grained, massive, medium grey homogeneous ultramafic. Slightly harder than underlying section. Groundmass pervasively carbonate-(talc?) altered. Core is crosscut by moderately abundant (5-10 per ft) magnesite veinlets with lesser dark green serpentine generally along vein margins. Veinlets are subparallel to 80 degrees to long core axis. 525.00 542.00 Cumulate Komatiite/Komatiitic Peridotite ??. Gradational from above. Groundmass lighter grey and softer. There are local patches with porphyritic texture, 1-2mm carbonate pseudomorphs, which may be remnants of orthocumulate/mesocumulate texture. Pseudomorphs are locally abundant enough to indicate a cumulate texture. Alternatively the texture may be a porphyroblastic alteration overprint. Moderately abundant magnesite-(talc) veinlets dominant over magnesite-serpentine veinlets. 542.00 557.60 Ultramafic. Gradational from above. Fine grained, massive, pale to medium grey, homogeneous pervasively carbonate-(talc) altered groundmass. Moderate (5-10 per ft), 1-5mm wide	1074	518.00	518.40	.40	2160				35.90

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		carbonate-(talc) stringers. Intense veining (20%) 555.0-557.6 parallels foliation at 40 degrees to long core axis. 549.70 549.90 Aphanitic chloritic zone at 40 degrees to long core axis. Possible flow top?. 557.60 559.80 Cumulate Komatiite/Komatiitic Peridotite. Fine grained (1mm), salt and pepper textured groundmass of light grey-white (calcite) and med grey grains. Groundmass and veinlet carbonate is calcite rather than magnesite in this section. Moderate to weak foliation at 20 degrees to long core axis. Rare disseminated pyrite grain from 513.6-559.8.									
559.80	576.00	ANDESITE-DACITE VOLCANIC Intermediate volcanic or an alteration margin to underlying dike??. Very fine grained, chloritic groundmass hosts wispy lenses and bands of intense chlorite subparallel to 50 degrees to long core axis. Minor (<5 per ft), 1-3mm calcite and quartz veinlets at 20-50 degrees to long core axis. 575.6 to 576.0 - quartz-rhodochrosite? (flesh pink) vein at 30 degrees to long core axis. Upper contact at 20 degrees to long core axis.	1075	564.30	564.50	.20	110				4.91
576.00	588.30	INTERMEDIATE DIKE ANDESITE-DACITE VOLCANIC Intermediate dike or possibly an intermediate volcanic. The top of the underlying ultramafic is aphanitic and chloritic as is ultramafic elsewhere where it is in contact with interpreted dikes. Fine grained, medium greenish grey, equigranular groundmass with locally more chloritic wisps and irregular bands. Foliated from 576.0-578.8 at 30 degrees to long core axis. Minor (<5 per ft), 1-5mm wide quartz veinlets. Below a 2cm wide chloritic band at 584.2 to 584.3 the rock appears to become more felsic, ie less chloritic and lighter grey with ~5% 1-2mm disseminated pyrite. Sharp lower contact at 25 degrees to long core axis.									
588.30	629.50	ULTRAMAFIC 588.30 591.00 Chloritic zone. Aphanitic, dark green chloritic zone typical of ultramafic-dike contacts elsewhere. Non-magnetic. 591.00 592.00 Fault gouge. Talc. Approximately 0.7 ft core loss. 592.00 629.50 Ultramafic.	1076	627.90	628.15	.25	1890				29.92

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Fine grained, massive, pale to medium greenish grey, homogeneous talc-magnesite altered groundmass. Crosscut by moderate (5-10 per ft), 1-5mm wide magnesite-talc stringers subparallel to 80 degrees to long core axis. Magnetite common as hairline fracture fills, dark grey selvages to carbonate-talc veinlets and pervasive disseminations in groundmass. Magnetite veinlets/selvages most common from 592.0-615.0. Rock is talc-rich in the lower 1ft. Rare euhedral pyrite grains; 2-3% from 228.5-229.5.									
629.50	732.90	ULTRAMAFIC 629.50 632.00 Possible flow top?. Aphanitic medium green chloritic zone. Non-magnetic. Upper and lower contacts broken and rubbly, probably at 60 degrees to long core axis. 632.00 732.90 Ultramafic. Fine grained, massive, medium grey homogeneous talc-magnesite altered groundmass cut by moderate (5-10 per ft) magnesite-(talc) veinlets. From ~635.0-~673.0 and below ~683.0 there are local patches with porphyritic texture, 1-2mm carbonate pseudomorphs, which may be remnants of orthocumulate/mesocumulate texture. Alternatively the texture may be a porphyroblastic alteration overprint particularly since these patches correspond to the areas of most intense carbonate veining. Lower 0.6ft is pervasively talc-rich. Rare disseminated pyrite euhedra.	1077	731.40	731.65	.25	2070				30.55
732.90	802.60	ULTRAMAFIC 732.90 735.60 Possible flow top?. Aphanitic medium green chloritic zone. 735.60 802.60 Ultramafic. Fine grained, massive, pale to medium grey pervasively talc-magnesite altered groundmass. From 766.5-775.5 there are local patches with porphyritic texture, up to 30% 1-2mm equant to irregular carbonate pseudomorphs, which may be remnants of orthocumulate/mesocumulate texture. Alternatively the texture may be a porphyroblastic alteration overprint. Rock is crosscut by moderate (5-10 per ft) magnesite +/- talc veinlets. The groundmass becomes more magnesite rich downhole of ~776.0 which also corresponds to the development of a folitaion at 40-45 degrees to long core axis. The rock locally appears to be fragmental but may be 2-3mm relict cumulate grains.	1078	801.85	802.10	.25	1490				28.51

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Trace to 1% disseminated pyrite euhedra. Basal zone, ~800.0-802.6, grades from fine grained groundmass to foliated 'porphyritic' with up to 50% 1mm stretched carbonate pseudomorphs/porphyroblasts at the base. Foliation at 35-40 degrees to long core axis. Lower contact at 35 degrees to long core axis.									
802.60	927.00	ANDESITE-DACITE VOLCANIC Fine grained, pale greenish grey, massive to locally bedded. Minor (up to 5 per ft) calcite veinlets subparallel to 70 degrees to long core axis averaging 45 degrees to long core axis. Trace to 1% disseminated pyrite euhedra up to 2mm diameter, often associated with carbonate veinlets. 802.60 807.20 Andesite Tuff. Massive bed. Upper and lower contacts at 35 degrees to long core axis. 807.20 809.10 Andesite Tuff. Massive bed. Lower contact at 50 degrees to long core axis. 809.10 814.60 Andesite Tuff. Graded bed. Very fine grained groundmass hosts 5% 1mm feldspar phenocrysts. Fines downhole; aphyric from 813.7-814.6. 814.60 865.00 Andesite Tuff. Graded bed. Very fine grained groundmass hosts 5-10% 1mm feldspar phenocrysts. Fines downhole; massive and aphyric from 816.3-865.0. No obvious bedding planes in this interval. 865.00 867.00 Andesite Tuff. Chloritic, very fine grained, aphyric bed. Upper contact at 35 degrees to long core axis with associated calcite veinlets. Lower contact broken. 867.00 907.90 Andesite Tuff. Very fine grained, massive, aphyric bed or possibly flow. 907.90 927.00 Andesite Flow. Upper contact based on color chang and the presence of 2-3% 1-3mm equant to stretched calcite ovoids (amygdules?) in a very fine grained, massive, aphyric groundmass. Local faint light grey laminations several mm apart from 907.9-912.0; 913.8-915.0; 918.9-919.2 and; 922.5-923.5 may represent flow banding.	1079	847.50	847.75	.25	70				3.11

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Alternatively, this section may be an aphyric tuff?.									
		927.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 7200 8715
Grid: 72+00N 87+15E

Azimuth: 165.0
Grid Az: 130
Dip: -45.0

Elevation: 1000

Length: 627.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 20ft BW casing and shoe

*** Dip Tests ***		
Depth	Azi.	Dip
297.0		-45.0
627.0		-45.0

Hole No.: L92-2

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 9, 1992
Date Completed: Jan. 11, 1992
Logged by: I. Trinder & D. Penna
Date Logged: Feb. 1, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	17.30	OVERBURDEN									
17.30	19.30	DIABASE Fine grained, massive, dark grey groundmass. 1% crosscutting quartz stringers. Trace pyrite.									
19.30	108.90	QUARTZ DIORITE Medium grained, locally coarse grained, pale grey porphyritic textured groundmass with approximately 50% light colored minerals and 50% dark minerals. Groundmass hard - not scratched by nail. 2-3mm quartz eyes present in coarser grained sections. Massive to weakly foliated. Up to 5% 1mm wide quartz-lined slips. 1% quartz stringers up to 5mm wide. Slip filled with fine calcite crystals at 32.6. 5% acicular black actinolite/hornblende? from 86.0-86.2. Sericitic alteration locally results in loss of porphyritic texture. Trace pyrite. Sharp contact with diabase at 65 degrees to long core axis.									
108.90	110.20	DIABASE Fine grained, massive, dark grey groundmass. 109.30 109.40 Xenolith of quartz diorite - irregular contacts. Lower contact sharp at 35 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
110.20	495.00	QUARTZ DIORITE 110.20 348.30 Quartz Diorite. As in 19.3 to 108.9. Locally moderately sericitic. 147.50 Possible hematite staining. 149.00 149.50 Slightly oxidized, possible groundwater seams. Lower contact sharp at 50 degrees to long core axis. 348.30 353.30 Mafic/ultramafic? xenolith?. Fine grained, pale grey, chloritic moderately carbonatized groundmass. Locally silicified ie. 351.2-352.3 has >50% quartz. Groundmass moderately foliated at 60 degrees to long core axis. 1% quartz-carbonate stringers parallel and crosscut foliation. Trace sulphides. Lower contact sharp at 30 degrees to long core axis. 353.30 413.20 Quartz Diorite. As in 19.3-108.9. Locally moderately sericitic. Lower contact sharp at 50 degrees to long core axis. 413.20 413.90 Mafic/ultramafic xenolith. As in 348.3-353.3. Lower contact sharp at 40 degrees to long core axis. 413.90 415.00 Quartz Diorite. As in 19.3-108.9. Lower contact sharp at 40 degrees to long core axis. 415.00 418.10 Mafic/ultramafic xenolith. As in 348.3-353.3. Lower contact sharp at 35 degrees to long core axis. 418.10 495.00 Quartz Diorite. As in 19.3-108.9. 421.40 421.60 Quartz veinlet at 35 degrees to long core axis. 428.30 428.70 Carbonate-quartz veinlet at 35 degrees to long core axis. 10% chlorite in bands. 451.40 451.90 Quartz-carbonate veinlet at 30 degrees to long core axis. Lower contact sharp at 25 degrees to long core axis defined by a 5mm wide calcite veinlet. Lower 5ft of the diorite is soft and light to medium grey in color.									
495.00	627.00	ULTRAMAFIC 495.00 504.60 Ultramafic. Originally some question as to whether this is	1101 1102	497.50 519.50	497.75 519.75	.25 .25	1080 1710				21.66 32.21

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		ultramafic or a chilled altered margin of the quartz diorite. The rock has similar grainsize and texture to the underlying but it has the same light to medium grey color of the overlying diorite. Subsequent whole rock analysis returned a volatile free MgO content of 21.66 indicating it is an ultramafic rock. Contact with the underlying ultramafic defined by a 2cm thick talc veinlet and a sharp color change. 504.60 627.00 Ultramafic. May be a flow distinct from 495.0-506.4. Fine grained, massive, dark grey groundmass. No flow textures observed. Moderate (~5 per ft), random <1mm-5mm thick calcite-magnesite veinlets. Veinlets often have dark green serpentine selvages. Occassional thicker vein up to 2cm thick has internal serpentine laminations. Trace pyrite on fractures. 627.00 END OF HOLE.	1103	614.75	615.00	.25	1320				36.93

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 6560 8730
Grid: 65+60N 87+30E

Azimuth: 345.0
Grid Az: 310
Dip: -45.0

Elevation: 1000

Length: 287.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
287.0		-43.0

Hole No.: L92-3

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 11, 1992
Date Completed: Jan. 11, 1992
Logged by: I. Trinder & D. Penna
Date Logged: Feb. 2, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	37.90	OVERBURDEN									
37.90	232.60	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Fine grained (<1mm), massive, dark grey homogeneous groundmass with local slightly coarser sections of equigranular 1mm closepacked grains suggestive of cumulate texture. 130.20 132.00 Fine grained, pale greenish grey zone may represent the top of a flow. Downhole of ~80.0 the rock is crosscut by moderate to abundant (+5 per ft) <1-10mm wide magnesite veinlets subparallel to 90 degrees to long core axis. The veinlets frequently contain discontinuous parallel dark green serpentine bands which appear to be incorporated sections of wallrock. Talc is present in veinlet from 169.5 to ~177.0 and is probably pervasive in the groundmass from ~169.5 to ~172.0. Trace pyrite occurs as smears on fracture planes. The contact with the underlying quartz diorite is somewhat indistinct because the chill margin of the quartz diorite is similar in grainsize and color to the ultramafic and is relatively soft. There is however, a distinct color break at 232.6.	1080 1081 1082	47.00 177.00 227.30	47.25 177.25 227.55	.25 .25 .25	1110 2200 1840				33.89 38.89 32.96
232.60	287.00	QUARTZ DIORITE 232.60 233.90 Quartz Diorite.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Probably a fine grained chilled margin? Relatively soft 233.90 287.00 Quartz Diorite. Medium grained, locally coarse grained, massive, pale grey porphyritic textured groundmass with approximately 50% light colored minerals and 50% dark minerals. Groundmass hard - not scratched by nail. 1% quartz stringers up to 1cm wide. Sericitic alteration locally results in loss of porphyritic texture. Trace pyrite. 241.40 241.60 Carbonate veinlet at 20 degrees to long core axis. Minor fine disseminated pyrite 262.80 262.90 0.5cm wide mafic dikelet at 50 degrees to long core axis. 267.70 268.50 Oxidized slip at 20 degrees to long core axis. 272.40 272.90 Quartz-carbonate veinlet at 20 degrees to long core axis. 275.00 287.00 Medium grained to coarse grained, porphyritic groundmass. 287.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 2700 9000
Grid: 27+00N 90+00E

Azimuth: 360.0
Grid Az: 325
Dip: -45.0

Elevation: 1000

Length: 506.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 60ft BW casing & shoe

*** Depth	Dip Tests Azi.	*** Dip
250.0		-43.0
497.0		-43.0

Hole No.: L92-4

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 12, 1992
Date Completed: Jan. 13, 1992
Logged by: Ian Trinder
Date Logged: Jan. 28, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	59.80	OVERBURDEN									
59.80	83.80	ULTRAMAFIC Fine grained, massive, dark grey homogeneous groundmass Pervasive talc-magnesite altered groundmass. Hairthin to 2mm magnesite veinlets at 20-80 degrees to long core axis. Trace disseminated pyrite euhedra generally associated with carbonate veinlets.									
83.80	97.80	DIORITE Fine grained, massive, equigranular groundmass now almost completely hematized to pinkish brown color except for a few fracture bound medium grey relict patches. Hematization appears to have progressed from fractures into the groundmass. Numerous 1-10mm mafic to ultramafic xenoliths, some partially replaced by pyrite. 1-2% disseminated pyrite in groundmass. 0.2ft chill margin at lower contact at 55 degrees to long core axis. Upper contact rubbly.									
97.80	506.00	THIN KOMATIITE FLOW SEQUENCE									
		Basaltic komatiite composition?.	1087	116.70	117.00	.30	1510				28.24
		Overall dark to medium grey talc-magnesite altered	1088	158.20	158.45	.25	1500				30.58
		ultramafic. Fine grained where massive. Hairthin to	1328	160.00	162.00	2.00	500			<5	
		10mm thick calcite +/- talc veinlets at 20-80 degrees	1089	201.00	201.25	.25	1650				32.36
		to long core axis. Trace disseminated pyrite.	1329	232.50	234.00	1.50				<5	
		Numerous flow textures. Spinifex zones are	1090	325.50	325.75	.25	1570				30.83

Hole: L92-4 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		characteristically greenish grey in color suggesting a strong chlorite component (and lower MgO #). Several breccia zones are present and are either flow top breccias or a late tectonic fabric. The breccias are characterized by angular to rounded fragments of immediately adjacent ultramafic in a talc-calcite rich matrix. Often the most angular breccia is jig-saw-like in appearance.	1091	382.50	382.75	.25	1480				28.31
			1092	497.15	497.40	.25	1370				23.16
		97.80 105.70 Ultramafic.									
		105.70 117.60 Komatiite Flow. 105.70 107.80 A3 Zone Sheaf spinifex. 107.80 117.60 B Zone Local patches of 1-2mm cumulate groundmass highlighted by magnesite alteration from 107.8-112.5.									
		111.00 131.00 Abundant blocky and rubbly zones particularly around talc matrix breccia zones. 117.60 120.70 Komatiite Flow. 117.60 118.00 A1 Zone flow top breccia?. 118.00 118.70 A1 Zone fine grained, massive, slightly chloritic. 118.70 119.30 A1 Zone ?? fine grained massive. 119.30 119.40 A2 Zone small patch of relict spinifex. 119.40 120.70 B Zone ?? fine grained, massive.									
		120.70 124.10 Komatiite Flow. 120.70 121.40 A1 Zone flow top breccia?. 121.40 122.00 Fine grained chloritic margin to dike. Intense chlorite 121.4 121.5. 122.00 122.30 Very fine grained diorite dikelet. 122.30 122.80 Fine grained chloritic margin to dike. 122.80 124.10 B Zone very fine grained, massive, medium grey.									
		124.10 178.00 Komatiite Flow. Possibly several flows. Patches of possible spinifex at 127.1-127.3 and 130.8-130.9. 124.10 125.00 A1 Zone flow top breccia ?? of rounded to subrounded fine grained massive ultramafic up to 5cm diameter in a talc rich matrix or fracture filling; may be tectonic. 125.00 178.00 B Zone fine grained, massive, medium grey groundmass. 144.40 145.50 Relict fine grained (1mm) cumulate texture. 160.00 162.00 Pale grey groundmass. Intense pervasive carbonate alteration about low angle (									

Hole: L92-4 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		15 degrees to long core axis) carbonate veinlets. 1% disseminated pyrite.									
		165.70 166.10 Aphanitic, chloritic zone. (baked margin?).									
		166.10 167.00 Diorite. Fine grained dike as in 83.8 to 97.8. Upper and lower contacts at 45 and 90 degrees to long core axis respectively									
		167.00 167.40 Aphanitic, chloritic zone. (baked margin?).									
		167.40 175.50 Fine grained, medium grey rubbly broken core. Abundant talc filled fractures. Minor calcite veins up to 2cm thick. Trace to locally 1-2% disseminated and fracture controlled pyrite.									
		175.50 176.50 Aphanitic, chloritic zone. (baked margin?).									
		176.50 177.60 Diorite. Fine grained, no xenoliths or mafic phenocrysts.									
		177.60 178.00 Aphanitic, chloritic zone. (baked margin?).									
		178.00 205.00 Komatiite Flow.									
		178.00 183.70 A2 Zone fine random spinifex (1-5mm x 1mm) grading down into coarse random spinifex (1-2cm x 1-2mm).									
		183.70 185.60 A3 Zone coarse sheaf spinifex.									
		185.60 185.80 A3 Zone disrupted fine spinifex gradational into underlying unit.									
		185.80 186.10 B1 Zone ?? 50% dark grey 1.0 x 0.5mm tabular pseudomorphs hosted by light grey interstitial groundmass.									
		186.10 205.00 B2 Zone fine grained, massive. Texture obliterated except for rare patch with 1mm grainsize. Spinifex patches or fragments at 189.0-189.1; 189.8-189.85 and 190.65-190.7. Moderate carbonate veinlets and light green talc veinlets up to 2-3cm thick at 20-80 degrees to long core axis.									
		190.70 191.70 Cumulate texture with 80% 1-2mm x 0.5mm light grey tabular pseudomorphs in dark grey interstitial groundmass. Upper contact a 4cm thick calcite vein. Lower contact gradational.									
		205.00 255.90 Komatiite Flow.									
		205.00 206.00 A2 Zone fine random? spinifex.									
		206.00 213.60 B Zone massive, fine grained medium grey ultramafic.									
		213.60 214.00 Aphanitic, chloritic zone. Gradational contacts.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		214.00 214.50 Possible fine diorite dike with abundant chlorite. 214.50 215.10 Aphanitic, chloritic zone. Gradational contacts. 215.10 217.90 B Zone massive, fine grained medium to dark grey ultramafic. 217.90 218.90 Aphanitic, chloritic zone. Proximal to a dike?. 218.90 223.00 B Zone fine grained, massive medium grey ultramafic. 223.00 224.50 Very fine grained, chloritic zone. Lower 0.1 ft black-brown due to biotite? content. 224.50 227.90 Diorite fine grained pinkish brown groundmass similar to above dikes except no mafic xenoliths/phenocrysts. Up to 1% disseminated and fracture controlled pyrite euhedra/subhedra. Upper and lower contacts at 50 and 55 degrees to long core axis respectively. 227.90 232.30 B Zone fine grained weakly chloritic greenish grey massive ultramafic. Upper 0.1 ft and lower 0.2 ft are biotitic. 232.30 250.90 Diorite fine grained pinkish brown dike as in 224.5-227.9. Several small 2-5cm diameter um xenoliths. One large chloritic and carbonatized xenolith from 241.3-243.7. 1-2% disseminated and fracture controlled pyrite euhedra/subhedra. Upper and lower contacts at 45 degrees to long core axis. 250.60 255.90 B Zone fine grained, massive, pale to medium grey ultramafic. Biotitic from 250.6-251.0; chloritic from 251.0-251.5. 255.90 271.40 Komatiite Flow. Crosscutting veinlets consist of calcite and talc. 255.90 256.50 A1 Zone ?? fractured and brecciated flow top?. Very fine grained to fine grained ultramafic with talcose fracture fills. Upper contact not distinct. 256.50 257.20 A1 Zone ?? massive fine grained ultramafic. 257.20 257.70 A2 Zone fine random spinifex. 257.70 271.40 B Zone fine grained massive medium grey ultramafic. 271.40 290.10 Komatiite Flow. Crosscutting veinlets consist of calcite and only minor talc. 271.40 272.00 A2 Zone fine random spinifex.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		272.00 275.40 A2 Zone ?? very fine grained (<0.5mm), massive, medium grey to greenish grey ultramafic.									
		275.40 275.80 A2 Zone random spinifex.									
		275.80 276.50 A3 Zone coarse sheaf spinifex.									
		276.50 276.60 B1 Zone 60% 1-2mm x 0.5mm tabular cumulate pseudomorphs in a dark grey interstitial groundmass.									
		276.60 290.10 B2 Zone fine grained, massive, dark to medium grey ultramafic.									
		290.10 326.50 Komatiite Flow.									
		290.10 292.50 A1 Zone ?? brecciated and fractured fine grained, chloritic, medium greenish grey flow top? Abundant calcite veins and veinlets and talc-carbonate fracture fillings.									
		292.50 293.30 A2 Zone several patches of fine random spinifex.									
		293.30 326.50 B Zone fine grained, massive dark grey ultramafic. Broken rubbly zone from 309.5-320.0. Gouge from 314.5-315.0. Slightly chloritic greenish grey zone from 315.8-317.0. Calcite and dark green serpentine and calcite-talc veinlets and fracture fills from 318.0-326.5.									
		326.50 383.60 Komatiite Flow.									
		Possibly two separate flows.									
		326.50 328.10 A1 Zone possible flow top breccia with calcite-talc matrix.									
		328.10 329.30 A1 Zone ?? fine grained, massive, medium greenish grey ultramafic.									
		329.30 330.10 A2 Zone medium to coarse (5-20mm x 0.5-1.0mm) random spinifex.									
		330.10 330.90 A3 Zone Sheaf spinifex.									
		330.90 333.90 B Zone ?? fine grained, massive, medium greenish grey groundmass. May be alteration of spinfex zone.									
		333.90 334.40 A2 Zone medium random spinifex. No distinct upper contact. May be the start of a new flow.									
		334.40 335.60 A3 Zone Sheaf spinifex. Medium greenish grey color. No distinct lower contact.									
		335.60 355.50 B Zone fine grained, massive, dark to medium grey ultramafic. Minor-moderate (5 per ft) calcite veinlets. Core becomes more chloritic and a lighter greenish grey downhole of 352.2 with an associated increase in veinlets and pervasive groundmass calcite. Very fine									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		grained and chloritic from 354.8-355.5. Contact with underlying dike indistinct. 355.50 356.30 Diorite fine grained, brownish grey groundmass hosts 2-5mm angular xenoliths/mafic phenocrysts. 356.30 357.40 B Zone fine grained, chloritic ultramafic. 2-4 cm of dark brown biotitic? baked? margin at dike contacts. 357.40 368.80 Feldspar Porphyry pale greenish grey aphanitic to very fine grained groundmass hosts 10% 2-3mm white feldspar phenocrysts. 368.80 383.60 B Zone fine grained, massive, medium grey ultramafic. Chloritic groundmass except 368.8-370.5 where it is talcose. Moderate (5-10 per ft) calcite veinlets except intense calcite veins and veinlets, locally stockwork, from 370.5-373.5. Foliation at 30 degrees to long core axis. 383.60 395.00 Komatiite Flow. Unit is intensely and pervasively carbonated (calcite) in veinlets and groundmass disseminations. Medium greenish grey groundmass is chloritic with locally 1-2% pyrite. 383.60 384.10 A1 Zone fractured and brecciated flow top?. 384.10 386.70 A1 Zone ?? massive, fine grained zone. 386.70 389.90 A2 Zone medium random spinifex. 389.90 395.00 B Zone massive fine grained ultramafic. 395.00 416.00 Diorite. Fine grained, massive, pinkish brown groundmass with up to 5%, 2mm to 2cm x 1cm mafic-um xenoliths/mafic phenocrysts. Carbonatized chloritic um xenolith 408.9-409.8. 416.00 419.30 B Zone. Continuation of 389.9-395.0?. Fine grained, massive, medium greenish grey chloritic groundmass. Carbonate pervasive in groundmass and in veinlets. 419.30 498.60 Komatiite Flow. Possibly multiple flows. Rock is intensely carbonatized with calcite pervasive in groundmass and abundant in veinlets so as to form a stockwork and locally a pseudobreccia. The groundmass is light greenish grey because of the carbonate-chlorite content. Rare quartz veinlet.										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Veinlets impart a fabric of 30 degrees to long core axis. Trace disseminated pyrite. 419.30 419.90 A1 Zone fractured and brecciated flow top? with calcite matrix. 419.90 420.30 A1 Zone ?? massive fine grained ultramafic. 420.30 420.90 A2 Zone medium 1-2cm x 1mm random spinifex. 420.90 440.50 B Zone fine grained, massive, medium greenish grey chloritic and carbonated groundmass. Abundant calcite veinlets. 422.30 423.20 Diorite. 440.50 457.00 B Zone fine grained, massive, medium grey groundmass. More talcose? and no pervasive calcite in groundmass. Less calcite veining. 450.30 451.20 Diorite foliated at 30 degrees to long core axis. 457.00 458.30 Diorite fine grained. 458.30 498.60 B Zone fine grained, massive. 498.60 501.80 Komatiite Flow. Rock is intensely carbonatized with calcite pervasive in groundmass and abundant in veinlets so as to form a stockwork and locally a pseudobreccia. The groundmass is light greenish grey because of the carbonate-chlorite content. Rare quartz veinlet. Veinlets impart a fabric of 30 degrees to long core axis. Trace disseminated pyrite. 498.60 499.00 A3 Zone coarse sheaf spinifex. 499.00 501.80 B Zone fine grained, massive ultramafic. 501.80 506.00 Komatiite Flow. Rock is intensely carbonatized with calcite pervasive in groundmass and abundant in veinlets so as to form a stockwork and locally a pseudobreccia. The groundmass is light greenish grey because of the carbonate-chlorite content. Rare quartz veinlet. Veinlets impart a fabric of 30 degrees to long core axis. Trace disseminated pyrite. 501.80 502.40 A2 Zone fine random spinifex. 502.40 503.60 A3 Zone brecciated. Subrounded to rounded spinifex fragments up to 1-2cm diameter. 503.60 506.00 B Zone fine grained, massive ultramafic. 506.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-5

Co-ords: 3100 8650
Grid: 31+00N 86+50E

Azimuth: 325.0
Grid Az: 290
Dip: -45.0

Elevation: 1000

Length: 576.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 54ft BW casing & shoe

*** Dip Tests ***		
Depth	Azi.	Dip
250.0		-43.0
547.0		-40.0

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 13, 1992
Date Completed: Jan. 15, 1992
Logged by: Ian Trinder
Date Logged: Feb. 4, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	57.00	OVERBURDEN									
57.00	89.50	THIN KOMATIITE FLOW SEQUENCE 57.00 73.50 Ultramafic. Fine grained, locally coarser (1-2mm) medium greenish grey relatively soft cumulate groundmass. Moderate pervasive magnesite-(calcite) in groundmass. Moderate random calcite veinlets. Coarser grained area ~65.0-~68.3 somewhat darker grey and more talcose?. 73.50 89.50 Komatiite Flow. 73.50 74.10 A2 Zone greenish grey medium (5-10mm x 0.5mm) random spinifex. 74.10 75.80 A3 Zone medium grey coarse sheaf spinifex. 75.80 83.10 B Zone fine grained, massive medium grey ultramafic. Talc-magnesite? altered groundmass with Fe stained dolomite? veining from 76.8-78.8. 83.10 89.50 B Zone medium to pale grey intensely carbonatized (calcite in veinlets and disseminated in groundmass) resulting in a salt and pepper textured groundmass. Upper contact sharp but undulating at 75 degrees to long core axis. Weak foliation/banding at 85-90 degrees to long core axis. 87.60 89.50 Rock contains 1-2%, </=1mm, disseminated pyrite. Locally 3-5%. Minor very fine disseminated pyrrhotite. 1% pyrrhotite from 88.5-89.5. Weak reaction to Ni test solution.	1104	81.75	82.00	.25	1530				29.38
			1330	83.10	85.00	1.90	970				
			1331	85.00	87.60	2.60	800				
			1332	87.60	89.50	1.90	1200				

Hole: L92-5 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
89.50	93.40	ARGILLITE ULTRAMAFIC Interbedded black graphitic argillite and massive pyrite. Pyrite makes up ~50% of the rock volume. Beds approximately 0.2-0.5 ft thick. 89.50 91.00 Pyrite band. Upper contact at 65 degrees to long core axis. 91.00 91.60 Finely laminated graphitic argillite-chert-pyrite. 91.60 92.20 Ultramafic intensely foliated zone of carbonate altered fine grained ultramafic with fragments and lenses of graphitic sediment? ~5% very fine </=0.5mm pyrite. Also ~1% minute disseminated pyrrhotite grains. Weak to moderate reaction to Ni test solution. 92.20 93.20 Argillite laminated graphitic sediment with lenses of ultramafic ? up to 1cm thick. Similar mineralization to 91.6-92.2. 93.20 93.40 Ultramafic intensely carbonatized ultramafic ? 3-5% disseminated pyrite and 1-2% minute disseminated nickeliferous pyrrhotite grains.	1339	89.50	91.00	1.50	170				
			1333	91.00	91.60	.60	460				
			1334	91.60	92.20	.60	1200				
			1335	92.20	93.20	1.00	1000				
			1336	93.20	93.40	.20	1000				
93.40	98.70	SILICEOUS METASEDIMENT Intensely fractured grey to white chert with cream white albitic? stringers. Abundant pyrrhotite in dendritic anastomosing fracture fills (10% rock volume). One 0.6ft pyrite-pyrrhotite band from 94.4-95.0. 1cm graphitic argillite band from 93.4-93.45	1337	93.40	94.40	1.00	130				
			1338	94.40	95.00	.60	370				
98.70	102.70	METASEDIMENT ULTRAMAFIC Chloritic sediment?. Very fine grained wispy chloritic matrix hosts rounded (some subrounded- subangular) 1-3mm siliceous ovoids. The ovoids have a patchy uneven distribution and are most abundant near the base of the unit where they appear to rip-ups of the underlying sediment. Groundmass has moderate magnesite-dolomite veining and is foliated/laminated at 65 degrees to long core axis. 100.40 100.60 ~10% pyrrhotite and minor silver grey sulphosalt? in carbonate veinlets. If this unit is an ultramafic flow the ovoids may be ocellae.									
102.70	105.90	SILICEOUS METASEDIMENT									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Very fine grained, massively bedded to weakly laminated. Bedding planes at 70 degrees to long core axis. 103.40 103.60 ~10% fine (1-4mm) rounded fragments. 103.50 104.90 Slightly chloritic.									
105.90	140.70	ULTRAMAFIC Fine grained, massive, pale to medium grey groundmass with indistinct upper contact. Upper 0.9ft and lower 2.6ft are extremely talcose and foliated/disked at 80 and 50 degrees to long core axis respectively. Upper and lower talc rich zones grade into main talc-magnesite altered ultramafic body which is cut by 1-5mm magnesite +/- serpentine veinlets at 0-70 degrees to long core axis. Locally the carbonate alteration imparts a porphyritic appearance on the rock The ultramafic is in sharp contact with a massive 1.3ft pyrite band at the top of the underlying siliceous metasediment (sulphide Fe Fm). 106.60 106.80 Talc gouge. 106.80 107.00 Talc-carbonate vein.	1105	137.50	137.75	.25	1570				30.39
140.70	238.50	SILICEOUS METASEDIMENT Sulphide facies iron formation. Interval comprises massive to laminated, intensely fractured and brecciated, white to light grey chert. Massive to semi-massive pyrite and/or pyrrhotite occurs in bedding parallel laminations and band up to 2ft thick and as crosscutting fracture fills. Fracture filling sulphide is locally so intense as to form a matrix to chert fragments. Overall the interval contains 20% pyrite-pyrrhotite of which 70% is pyrrhotite. Pyrite generally appears to be later than pyrrhotite with euhedral grains overgrowing vein boundaries etc. Bedding/lamination is at 50-60 degrees to long core axis. Minor <0.05-0.3ft thick beds of chloritic sediment and graphitic argillite are present. Graphitic argillite beds most abundant near top of unit. 217.90 219.20 Diabase fine grained dark greenish grey groundmass hosts 15-20% very fine 1mm x 0.2mm plagioclase? microlites. 1cm wide chloritic chill margins. Upper and lower contacts at 60 degrees to long core axis. 223.80 231.20 Andesite Tuff very fine grained, aphyric, chloritic groundmass gradational into light grey dacitic bed from 229.0-230.9. Foliation/lamination	1302	140.70	142.00	1.30		.020			

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		at 60 degrees to long core axis. 232.40 233.70 Felsic Dike dark grey, siliceous aphanitic felsic groundmass hosts 20-25% round-subequant 1-3mm ghosted pseudomorphs? 1cm wide black chill margins?.									
238.50	246.00	METASEDIMENT Fine grained dark brownish grey biotitic sediment bedded on scale of 2-10cm. Earthy clay alteration. Pervasive chlorite in groundmass. Core generally rubbly and broken. 239.70 243.00 Felsic Dike. Very fine grained, pale to medium grey aphyric groundmass hosts rare 1cm diameter xenolith. Core generally rubbly and broken. 1% fine (</= 0.5mm) disseminated pyrite.									
246.00	258.00	ULTRAMAFIC Fine grained, massive, medium grey talc-magnesite altered groundmass. Local patches and veinlets which oxidize light orange-brown indicating presence of dolomite? in the veinlets and groundmass. Core generally rubbly and broken. 247.00 248.00 Aphanitic chloritic zone. 248.00 250.70 Diorite fine grained, reddish brown groundmass hosts rare ultramafic xenolith. Minor to moderate finely disseminated groundmass calcite. 250.70 251.70 Aphanitic chloritic zone. 255.00 255.60 Chlorite-biotite zone. Biotite grains up to 2mm diameter.	1106	253.60	253.85	.25	2300				30.98
258.00	263.00	DIORITE Fine grained (</=0.5mm), massive, equigranular light brownish grey groundmass with ~20% mafic mineral content. Core generally rubbly and broken.									
263.00	274.00	DIORITE Fine grained (0.5mm), massive to brecciated, medium greenish grey equigranular groundmass with ~15% mafic mineral content. Minor calcite veinlets. Talc veinlets at 264.0-264.1 and 265.5-265.6 at 70 degrees to long core axis. Core generally rubbly and broken. A 2.2ft core loss between 271.0-277.0. 263.00 266.80 Massive.	1107	265.75	266.00	.25	260				13.53

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		266.80 274.00 Brecciated. Breccia matrix lighter grey color but has a similar texture and grainsize as fragments. Fragments are generally angular-subangular. Might this unit be an adesitic lapilli tuff? Most likely a dike because the underlying ultramafic has the typical aphanitic chloritic 'baked' margin.									
274.00	372.30	ULTRAMAFIC Fine grained (</=0.5mm), massive, medium greenish grey equigranular salt and pepper textured groundmass. Textures generally obliterated. Groundmass serpentinized changing to talc-magnesite alterd with medium grey color below ~346.0. Moderate (5-10 per ft) hairthin to 2cm thick magnesite veinlets subparallel to 80 degrees to long core axis. Rare serpentine in veinlets. 274.00 276.00 Aphanitic chloritic zone. 276.00 278.00 Very fine grained, talcose groundmass. Pervasive magnesite in veinlets and a groundmass disseminations. Upper contact sharp and broken. Lower contact gradational. 362.50 371.60 Medium grained (2mm) orthocumulate texture preserved. 366.10 366.40 Aphanitic chloritic zone at 85 degrees to long core axis. Bounded by magnesite veinlets. 371.60 371.90 Aphanitic chloritic zone. 371.90 372.00 Rose colored rhodochrosite? vein with hexagonal molds created by the dissolution of an unknown mineral. 372.00 372.20 Chlorite-magnesite rich fine grained ultramafic. 372.20 372.30 Rubbly broken core.	1108 1109	327.00 369.00	327.25 369.25	.25 .25	2720 1230				40.99 25.67
372.30	382.60	FELDSPAR PORPHYRY Very fine grained to aphanitic, pale grey groundmass hosts ~20 <1-2mm, equant, subhedral-euhedral, white to grey feldspar phenocrysts. Minor pyrite associated with several 1-5mm wide quartz-chlorite veinlets at 5-20 degrees to long core axis. Upper contact broken and rubbly. Lower contact not sharp at 90 degrees to long core axis.									
382.60	386.50	ULTRAMAFIC Fine grained to medium grained (1mm) with similar	1110	383.50	383.75	.25	960				22.44

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		texture to the base of the overlying ultramafic. Magnesite pervasive in groundmass. Greenish grey color of groundmas likely due to presence of chlorite. Groundmass is not talcose. Minor hairthin random calcite veinlets. Lower contact sharp and steplike at 50 degrees to long core axis.									
386.50	576.00	ANDESITE-DACITE VOLCANIC 386.50 398.40 Andesite Tuff. Very fine grained to aphanitic, dark green aphyric chlorite-calcite rioch groundmass. Locally brecciated ie. 388.0-389.0. Gradational into underlying unit.	1111 1340 1341 1342 1343	394.25 426.10 427.70 429.10 431.10	394.50 427.70 429.10 431.10 433.20	.25 1.60 1.40 2.00 2.10	140			 30 7 12 64	4.33
		398.40 417.70 Andesite Breccia. Pale greenish grey clast supported monolithic agglomerate. Subrounded to subangular siliceous clasts vary from several mm to ~10cm diameter. Clasts frequently have light grey rims and darker greenish grey cores. Matrix is calcite-chlorite rich. Could this be an alteration pseudobreccia? - unlikely. Gradational into underlying unit.									
		417.70 421.50 Andesite Tuff. Fine grained medium green groundmass contains 5% calcite ovoids 1-3mm diameter. Gradational into underlying unit.									
		421.50 424.70 Andesite Tuff Breccia. Clast-supported. Clasts vary from several mm to 2cm x 5cm and are less chloritic than the carbonate-chlorite matrix. Clasts are stretched/lineated with fabric at 45 degrees to long core axis. Lower 1.2ft is more massive and siliceous similar to the fragment composition. Gradational into underlying unit.									
		424.70 426.10 Andesite Tuff. Similar to 417.7-421.5. 5% calcite ovoids. Lower 0.6ft a clast supported agglomerate. Gradational into underlying unit.									
		426.10 433.20 Dacite Tuff. Siliceous fine grained groundmass with calcite in fractures and pervasive through the groundmass. Mottled grey to straw yellow color. Yellow color suggests some sericite content. Brecciated appearance with rounded <5mm to 2cm x 1cm diameter fragments. Could be an alteration zone with a pseudobreccia fabric 1-2% Disseminated <0.25-1.0mm pyrite. Two 1-2mm pyrite stringers at 5 and 25 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Gradational into underlying unit. 427.70 429.10 Medium greenish grey. Chlorite component instead of sericite. Calcite more abundant in groundmass. 1% disseminated pyrite. Upper and lower contacts sharp at 15 and 45 degrees to long core axis respectively. 433.20 499.00 Andesite Tuff. Fine grained, dark green chloritic groundmass with pervasive calcite. Locally up to 5% 1-3mm calcite ovoids and patches of up to 10% 0.25mm x 1.0mm calcite pseudomorphs. Weakly laminated/foliated at 40 degrees to long core axis. Bedding planes generally not distinct. Contacts gradational. Sharp bedding planes at 478.2 and 492.7 are at 50 and 55 degrees to long core axis respectively. Minor (2-3 per ft) calcite veinlets. Trace disseminated pyrite. Locally 1-2% pyrite associated with calcite veinlets. 455.00 473.90 Diorite fine grained (0.5mm), medium grey, massive, homogeneous, equigranular groundmass with 10-15% mafic mineral content. Thin (<1cm) chill margins. Several xenoliths of andesite ie. 456-457; 459.4-460.5; 466.1-467.3 and 469.5-471.2. Pervasive calcite in groundmass. Minor (<2 per ft) calcite veinlets. No visible pyrite. Upper contact undulose at 15 degrees to long core axis. Lower contact at 20 degrees to long core axis marked by a 1cm calcite veinlet. 499.00 576.00 Andesite Tuff. As in 433.2-499.0 however generally more intense lamination/foliation at 55-60 degrees to long core axis. Occassional gradational bed of both matrix and clast supported lapilli tuff. Lapilli tuff fragments are similar in composition to the matrix, angular and <5mm to 1cm x 4cm. Up to 5% calcite ovoids are common in the massive fine grained beds. Calcite veinlets are more common in this zone (5-10 per ft) and generally </=1mm thick. Rare quartz vein ie. 514-514.4 and 515.3-515.5. 542.80 544.80 Medium to pale grey silicified zone or possibly a more primary dacite bed. 576.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 1600 7700
Grid: 16+00N 77+00E

Azimuth: 295.0
Grid Az: 260
Dip: -45.0

Elevation: 1000

Length: 493.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 80ft BW casing & shoe

*** Dip Tests ***		
Depth	Azi.	Dip
250.0		-44.0
493.0		-43.0

Hole No.: L92-6

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Jan. 15, 1992
Date Completed: Jan. 17, 1992
Logged by: Ian Trinder
Date Logged: Feb. 13, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	79.00	OVERBURDEN									
79.00	108.20	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Fine grained, massive, medium to dark grey groundmass with local wisps and patches of fine grained, pale grey groundmass hosting up to 50% 2-3mm greenish grey cumulate grains. The porphyritic texture is likely created by pervasive carbonatization (calcite?) and textural destruction of the interstitial groundmass and some orthocumulate? grains. Rubbly broken core 79.0-80.8; 96.0-100.5 and; 104.5-105.0. Groundmass pervasively carbonatized. Moderate to abundant (5->10 per ft), 1-10mm wide calcite veinlets. Where the veinlets are abundant ie. 100.0-108.2, the rock has a weak fabric/foliation at 45 degrees to long core axis. 91.00 92.70 Fine grained, massive, pale grey groundmass does not react with HCL; pervasive talc?. No visible sulphides.	1131	83.75	84.00	.25	2690				34.88
108.20	128.50	DIABASE Fine grained (0.5-1.0mm), massive, medium greenish grey, equigranular, chloritic groundmass with minor calcite. Moderate (5-10 per ft) 1-4mm wide random and discontinuous calcite veinlets. Where calcite veinlets	1132	117.85	118.10	.25	130				9.99

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		are abundant and continuous they have a preferred orientation of 45-50 degrees to long core axis. 1-3mm wide dark greenish black anastomosing chloritic? fracture fills are also common. The core is generally strongly fractured (3->10 per ft) to rubbly. Yellowish grey to orange-brown clay/oxide coating common on the fractures. Upper and lower contacts at 47 and 55 degrees to long core axis respectively.									
128.50	151.00	ULTRAMAFIC Fine grained to medium grained (0.5-1.0mm), medium grey groundmass. Groundmass is extensively carbonatized (20-30% of rock volume); carbonate predominantly in oriented veinlets which gives the rock a laminated/foliated fabric of 35 degrees to long core axis. Some pervasive carbonate in groundmass also. Carbonate mineralogy changes from calcite to magnesite at 130.2. Minor talc in groundmass?. No visible sulphide. Lower contact is rubble.	1133	143.30	143.55	.25	2330				31.38
151.00	312.60	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 151.00 165.70 Ultramafic. Fine grained (0.5-1.0mm), massive, pale greenish grey groundmass with darker grey magnetite-rich wisps. Groundmass is carbonatized and weakly to moderately talcose and cut by moderate 1-40mm wide magnesite veinlets/veins subparallel to 50 degrees to long core axis. 2-3% 1-2mm Disseminated magnetite euhedra. Trace disseminated pyrite anhedra associated with veinlets. Lower contact may be an alteration front which is both gradational and locally sharply fracture controlled. 165.70 188.00 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained (0.5-1.0mm), massive, medium greenish grey, equigranular relatively hard groundmass. Groundmass appears to be serpentinized with no pervasive carbonate or talc. Minor to moderate (2-5 per ft) 1-5mm wide magnesite veinlets. 2-3% 1-2mm Disseminated magnetite euhedra. 180.00 188.00 Rubbly broken core. 188.00 197.20 Ultramafic. Very fine grained, massive, medium greenish grey talcose groundmass.	1134 1135 1136	175.25 232.75 297.75	175.50 233.00 298.00	.25 .25 .25	2990 3100 2810				41.53 42.57 40.91

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Trace disseminated pyrite. 1-2% disseminated magnetite euhedra. 188.00 193.00 Broken rubbly core. Upper contact broken and rubbly. Lower contact gradational. 197.20 208.90 Orthocumulate Komatiite/Komatiitic Peridotite. Similar to 165.7-188.0. 201.80 204.30 Rock changes in color and texture; grades from coarse lime green spots and ovoids in a dark green fine matrix to massive fine to med grained lime green groundmass with ghosted spots/ovoids and 2-3% disseminated magnetite euhedra. The coarser spotted appearance may be due to alteration or may be relict cumulate grains highlighted by alteration?? Lime green color may reflect a change in the serentine mineralogy. Minor magnesite veinlets. Upper contact is fracture controlled. Lower contact is a sharp but undulose color change; no change texturally. 206.00 208.90 Lime green massive rock as in 201.8-204.3 with undulose upper and lower contacts. The contacts are not sharp and probably represent alteration fronts. 208.90 312.60 Orthocumulate Komatiite/Komatiitic Peridotite. Probably same flow as above. Contact is likely an alteration front. Fine grained (<1-2mm), medium to dark greenish grey close-packed orthocumulate?. Groundmass is serpentinized; relatively hard and rings when struck with hammer. Crosscut by minor to moderate (2-10 per ft) 1-10mm wide magnesite and/or fibrous (asbestiform) serpentine veinlets (occassional medium green platy serpentine veinlet). Veinlets subparallel to 80 degrees to long core axis. Trace pyrite associated with veinlets. Local pervasive magnesite and possibly some talc causes a change to light greenish grey and slightly softer groundmass ie. 302.8-305.2; 309.2-309.6; 311.3-311.8; 312.1-312.6. These zones resemble 201.8-204.3 except not a lime green color. The upper contact of 302.8-305.2 appears to be gradational, the									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		rest are bound by magnesite veinlets. 306.50 312.60 Rubbly broken core.									
312.60	324.90	ULTRAMAFIC Uncertain if it is the same flow as above. Significant drop in MgO content. Carbonate-talc? altered zone. Pervasive dolomite in groundmass and weathers light brown-buff. Rubbly broken core from 312.6-323.7. Very fine grained, medium grey, non-dolomitized moderately talcose zone with 2-3% disseminated magnetite euhedra from 317.8-320. Sharp veinlet defined upper and lower contacts at 85 degrees to long core axis.	1137	316.00	316.25	.25	2240				31.05
324.90	362.70	ULTRAMAFIC Possibly same flow as 312.6-324.9. Fine grained (0.5-1.0mm), massive, pale greenish grey to dark greenish grey groundmass. Color variation may be due to variable carbonatization of groundmass. Groundmass serpentinized and variably carbonatized. Groundmass cut by moderate (5 per ft) magnesite-(platey serpentine)-(magnetite) veinlets subparallel to 80 degrees to long core axis and minor 1-2mm wide fibrous asbestiform serpentine veinlets at 60 degrees to long core axis from 332.0 to 335.0. 358.70 362.70 Medium grey talcose groundmass. Upper contact gradational. Lower contact sharp at 35 degrees to long core axis.	1138	361.60	361.85	.25	1990				32.19
362.70	380.90	ULTRAMAFIC 362.70 371.70 A Zone. Possibly a flow top? or distinct flow?. Fine grained, massive, medium green chloritic groundmass. Lower contact sharp and defined by a 1cm wide band of 20% disseminated magnetite euhedra. 1-2% disseminated magnetite euhedra up to 4mm diameter throughout groundmass. 371.70 380.90 B Zone ??. Fine grained, (<0.5-1.0mm), massive, pale to medium grey equigranular groundmass. 371.7 374.2 very fine grained, talcose groundmass. Gradational lower contact. 374.20 380.90 Groundmass less talcose and slightly coarser grained. Minor magnesite-magnetite veinlets. Lower contact sharp at 60 degrees to long core axis									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		and defined by 5mm magnesite veinlet and a change in color and texture.									
380.90	429.50	ULTRAMAFIC Fine grained, massive, medium grey equigranular relatively hard serpentinized? groundmass. Groundmass becomes lighter grey and softer below ~405.0 possibly because of weak pervasive carbonatization. Below 426.2 the rock becomes slightly chloritic with the lowermost 0.5ft having a brownish tint and lower hardness. Lower contact is ground. Groundmass cut by moderate 1-20mm wide magnesite-(magnetite)-(platey serpentine) veinlets subparallel to 70 degrees to long core axis. One 6cm wide vein at 45 degrees to long core axis from 418.5 to 418.7. Magnetic susceptibility drops to 0.1 at 423.7.	1139	423.00	423.25	.25	1630				28.72
429.50	431.60	ANDESITE-DACITE VOLCANIC Baked/altered intermediate volcanic??. 429.50 430.50 Mottled green and medium pinkish brown siliceous groundmass. Pinkish brown areas contain 10% 1-2mm dark black phenocrysts? Zone is non-magnetic and gradational into underlying section. 430.50 430.75 Dark green chloritic zone with 10% 1-2mm disseminated magnetite euhedra. Trace disseminated pyrite. Lower contact sharp. 430.75 431.00 Magnetite band with rare disseminated pyrite euhedra up to 5mm diameter. Magnetic susceptibility reading of 86. Lower contact sharp. 431.00 431.20 Dark green chloritic zone as in 430.5 to 430.75 except up to 20% disseminated magnetite and 1-2% disseminated pyrite euhedra. Lower contact gradational. 431.20 431.60 As in 429.5 to 430.5. Dominantly pinkish brown porphyritic groundmass with minor chloritic wisps. Lower contact sharp at 35 degrees to long core axis.									
431.60	435.30	DIORITE Fine grained, massive, brownish to pinkish grey equigranular groundmass. Possibly weakly hematized. Groundmass hosts 10-15% mafic minerals as ghosted blebs up to 3mm diameter. ~1-2% fine (0.5-1.0mm) disseminated pyrite euhedra. Rare 1-3mm wide									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		quartz-feldspar veinlets. Lower contact sharp at 35 degrees to long core axis.									
435.30	493.00	ANDESITE-DACITE VOLCANIC Calcite occurs in veinlets and minor groundmass disseminations. 435.30 450.70 Andesite Tuff Breccia. Mottled pale greenish grey and medium greenish grey groundmass. Pale greenish grey mottles locally resemble fragments. Unit is probably a coarse clast-supported tuff-breccia. 'Fragments' are subround to subangular and up to 4 x 6cm. Hosts 5-10% </=1mm biege phenocrysts with extremely irregular outlines - possibly leucoxene?. The mottling may also be an alteration effect. 450.70 454.30 Diorite. Similar to 431.6-435.3 except it is light grey in color. Upper and lower contacts at 25 degrees to long core axis. 454.30 464.80 Andesite Tuff Breccia. As in 435.3-450.7. Rock becomes somewhat finer and mottling less obvious below 461.7. Mottling ~0.5 x 1.0cm. Lower contact gradational. 464.80 485.00 Andesite Tuff. Very fine grained, massive and contains only patches? of extremely fine <0.5mm biege phenocrysts as above. No coarse fragments except a wispy/patchy zone at 470.5-472.3 which probably is a primary coarse fragmental. 482.9 to 485.0 - Patchy light grey alteration? bands and wisps with greenish grey ovoids similar to groundmass. 485.00 487.20 Andesite Tuff. Andesite tuff with chloritic laminations and wisps. Gradational from overlying section over 0.6ft. Trace disseminated pyrite euhedra. Lamination/foliation at 40 degrees to long core axis. Lower contact sharp at 45 degrees to long core axis. 487.20 491.80 Andesite Tuff. Fine grained, massive to weakly laminated pale greenish grey groundmass. Local chlorite wisps and laminae.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		491.80 493.00 Felsic Dike. Possibly a dacite flow but doubt it. Fine grained, massive, pale grey groundmass. ~1% very fine (<0.5mm) disseminated pyrite. Minor 1-3mm wide quartz veinlets at 35 degrees to long core axis. Upper contact sharp at 60 degrees to long core axis. Overlying volcanic slightly darker color at the contact 493.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-7

Co-ords:	6550	10400
Grid:	65+50N	104+00E
Azimuth:	330.0	
Grid Az:	295	
Dip:	-45.0	
Elevation:	1000	
Length:	477.0	

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 60ft BW casing & shoe

*** Dip Tests ***

Depth	Azi.	Dip
250.0		-43.0
467.0		-45.0

Property:	Langmuir Block
Claim:	CLM 141
Township:	Langmuir
Province:	Ontario
Date Started:	Jan. 17, 1992
Date Completed:	Jan. 18, 1992
Logged by:	Ian Trinder
Date Logged:	Mar. 11, 1992
Contractor:	McKenzie Drilling Ltd.
Drill Type:	Longyear 38
Core Size:	BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	60.50	OVERBURDEN									
60.50	420.80	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Massive serpentinized cumulate exhibits a color change from medium greyish green to dark greenish grey to medium to dark grey with a corresponding decrease in grainsize downhole (0.5-1mm to <0.5mm). This section may consist of more than one flow; contacts may have been obliterated by serpentinization. 60.50 261.00 Cumulate Komatiite/Komatiitic Peridotite. Massive, fine grained (0.5 to 1mm), equigranular, serpentinized, light to medium lime green to greyish green magnetite-rich cumulate. Exhibits a gradational color change to grey uphole from 72.0. The core is crosscut by minor magnesite veinlets (rare calcite). Lime green to dark green platey serpentine is common in the magnesite veinlets. Minor asbestiform serpentine veinlets are present downhole of 217.5. Magnetite occurs as disseminated, diffuse grey wispy concentrations in the groundmass, selvages to the carbonate veinlets and locally as distinct veinlets/fracture filling with or without carbonate. All veinlets at 10 to 70 degrees to LCA. Core is moderately fractured (2-3/ft). Blocky rubbly zones 121.0-126.5; 150-155.5; 230.0-236.5; 242.8-246.2. Lower section an arbitrarily chosen artificial break	1219	77.00	77.25	.25	1420				42.95
			1220	168.50	168.75	.25	690				45.99
			1221	249.50	249.75	.25	1760				43.79
			1222	317.75	318.00	.25	2190				44.56
			1223	365.10	365.35	.25	2230				40.87
			1224	397.25	397.50	.25	2210				39.27
			1225	419.00	419.25	.25	1180				27.89

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		which correlates to a point in a gradational color change where the rock becomes more a dark greenish grey than greyish green. The break also corresponds to a drop in magnetic susceptibility. 261.00 330.00 Cumulate Komatiite/Komatiitic Peridotite. Massive, fine grained (0.5 to 1mm), equigranular, serpentinized cumulate Dark greyish green grading to dark greenish tiinted grey downhole. The color change appears to correspond to a decrease in grainsize from 0.5-1mm to <0.5mm. The core is quite hard and rings when hit with hammer. The core is crosscut by rare magnesite veinlets. Lime green to dark green-black platey serpentine is common in veinlets. Minor asbestiform serpentine veinlets except 282.5 to 328.0 where they are the dominant veinlet/fracture fill (5/ft), often in hairthin fracture sets at 65 to 75 degrees to LCA or associated with the platey serpentine veinlets. Magnetite occurs as disseminated grains and locally as distinct veinlets/fracture filling. All veinlets at 10 to 70 degrees to LCA. Core is generally fractured and blocky (>5/ft). Lower section an arbitrarily chosen artificial break which correlates to a point in a gradational color change where the rock becomes more a medium grey than dark greenish grey. The break also corresponds to an end in asbestiform serpentine fractures. 330.00 420.80 Cumulate Komatiite/Komatiitic Peridotite. Massive, very fine grained (0.5mm), equigranular, serpentinized groundmass Medium to dark grey color. Slight variations in color and grainsize may be an alteration effect or possibly indicates multiple flows. No distinct contacts observed. The core is quite hard and rings when hit with hammer. This section may be basaltic komatiite in composition. The core is crosscut by moderate (<2 to 5/ft) 1mm to 6cm calcite veinlets. Dark green-black platey serpentine is common in the calcite veinlets or in an earlier set of monomineralic serpentine veinlets (1-5mm). Magnetite occurs as disseminated grains. And locally as distinct veinlets/fracture filling. All veinlets at 10 to 80 degrees to LCA.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Core is generally fractured and blocky (>5/ft). At approximately 413.0 the core grades into a softer, lighter grey pervasively carbonatized (calcite) groundmass with minor calcite veinlets. Weakly talcose? Lower contact sharp at 20 degrees to LCA.									
420.80	477.00	ANDESITE-DACITE VOLCANIC 420.80 457.00 Andesite Tuff. Massive, very fine grained, light grey to greenish grey groundmass hosts 2-3% 1mm to 3mm calcite and rare quartz ovoids. Slight grainsize variations suggests that this section may be tuffaceous. Minor 1 to 5mm calcite veinlets subparallel to 75 degrees to LCA. 447.00 450.00 Brecciated zone similar to 457.0 to 477.0. 1% disseminated pyrite euhedra up to 1cm. 457.00 477.00 Andesite Tuff. Similar to above except groundmass is a darker greenish grey color with pervasive chloritization particularily from 458.0 to 468.5. The rock has been fractured and infilled to locally resemble a primary autobreccia or possibly a tectonic breccia. The breccia matrix is aphanitic, dark grey and of similar hardness to the andesite groundmass Trace disseminated pyrite. 477.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 6500 6950
Grid: 65+00N 69+50E

Azimuth: 330.0
Grid Az: 295
Dip: -45.0

Elevation: 1000

Length: 752.0

Purpose: Test magnetic gradient & ovb geochem
Comments:
Materials left in Hole: 54ft BW casing & shoe

*** Depth	Dip Tests Azi.	*** Dip
250.0		-42.0
517.0		-41.0
717.0		-41.0

Hole No.: L92-8

Property: Langmuir Block
Claim: CLM 141, CLM 140
Township: Langmuir
Province: Ontario

Date Started: Jan. 18, 1992
Date Completed: Jan. 20, 1992
Logged by: Ian Trinder
Date Logged: Mar. 14, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	52.00	OVERBURDEN									
52.00	85.50	DIORITE As in 115.0-145.7 in L92-10. Massive, medium grained (2-3mm), equigranular, light green grey color. Salt and pepper textured groundmass of tabular feldspar and chlorite. Downhole from approximately 59.5, the rock becomes increasingly patchy and ghosted. Below approximately 63.0 the medium equigranular texture is totally lost. The rock comprises a fine grained massive light grey weakly chloritic? moderately hard groundmass. The gradational change in texture is due to alterartion overprint or is a fine grained dike margin. Core is blocky with extreme fracturing from 52 to 59.5 and 64.5 to 69.0. Lower contact broken.									
85.50	87.10	GRANODIORITE Medium grained, equigranular, medium grey groundmass of pinkish feldspar, and chlorite. Core is extremely fractured and broken.									
87.10	94.40	DIORITE Very fine grained, massive, light brown to salmon, equigranular diorite? Core is extremely fractured and broken. Moderately chloritic in upper 0.2 ft. Upper and lower contacts broken.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		144.20 164.80 B Zone. Light-medium greenish grey, fine to medium grained (1.5 to 2mm), equigranular, talc-magnesite altered groundmass. Cumulate texture with 10% dark grey intercumulus material locally observed. Elsewhere the coarser grainsize may be pseudomorphed close-packed cumulate or a coarse alteration overprint. Locally foliated with texture and grainsize identical to 140.0 to 144.2. Rare magnesite veinlet. Sharp lower contact at 38 degrees to LCA.									
164.80	326.10	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Medium to dark grey serpentinized cumulate with green tint. Fine to medium grained (0.5 to 2mm) grey serpentine? (olivine??) grains are generally in grain to grain contact with moderately close-packed texture (75% of the groundmass). Interstitial material varies from dark green serpentine to light grey carbonate rich matrix with serpentine dominant in the upper part of the section and carbonate in the lower. If this compositional change in matrix reflects two different flows the contact may be at 268.1. This point also corresponds approximatley to the change in cumulate grains from grey serpentine/olivine to dark green serpentine; however local patches of dark green serpentine cumulate grains are present uphole and vice versa. Local patches where essentially no intercumulus material to outline cumulate grains results in an apparent aphanitic texture. Grades into light grey intensively carbonatized groundmass from 320.5 to 322.7. Aphanitic talcose ultramafic 322.7 to 326.1. Mottled dark grey and biege from 323.0 to 326.1 probably an alteration effect of the underlying dike.	1231 1232	237.25 312.50	237.50 312.75	.25 .25	1390 1980				40.44 42.88
326.10	330.40	FELDSPAR PORPHYRY Light beige to grey color. Extensive ghosting (silicification?) of the porphyritic texture. Intense microbrecciation with chloritic infill. Blocky fracturing. Upper and lower contacts at 45 and 60 degrees to LCA.									
330.40	354.20	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE									

Hole: L92-8 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Massive, fine grained (0.5-1mm), equigranular, talc-magnesite altered groundmass. Medium grey color. Alteration obliterates primary textures except local patches where dark grey intersitial matrix outlines medium grained cumulate texture (1-3mm). The core is crosscut by moderate (5 to 7/ft) 0.1 to 2cm magnesite-talc veinlets at 30 to 90 (ave 70-80) degrees to LCA. Aphanitic to very fine grained and very talcose from 330.4 to 332.9 with foliation at 45 degrees to LCA. Green chloritic zone from 344.9 to 346.0 with very fine grained margins and a 0.7 ft fine grained salt and pepper textured core of chlorite and magnesite pseudomorphs. Similar textured cumulate on either side of the zone. Gradational into remnant dark green-grey serpentinized cumulate from 346.2 to 354.2.									
354.20	426.40	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 354.20 354.50 Chloritic zone. Very fine green chlorite zone. Possible flow-top or interflow material?. 354.50 426.40 Cumulate Komatiite/Komatiitic Peridotite. Massive, fine grained (0.5-1mm), equigranular, talc-magnesite altered groundmass. Light to medium grey color with darker grey irregular mottling which are more magnetic than the surrounding grounmass. Alteration obliterates primary textures. The core is crosscut by minor (<2 to 3/ft) 0.1 to 2cm magnesite-talc veinlets subparallel to 80 degrees to LCA, except for 354.5 to 360.1 and 412.5 to 426.4 where magnesite veining is abundant (5 to >10/ft) and accompanied by foliation at 35 to 50 degrees to LCA. Aphanitic to very fine grained and very talcose from 362.0 to 371.3 with extremely rubbly broken core from 368.5 to 367.0. Trace disseminated pyrite euhedra. Fault gouge 425.6 to 425.8. Lower contact broken.	1233	409.00	409.25	.25	2370				48.30

Hole: L92-8 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
426.40	432.90	DIORITE Core is blocky and rubbly 426.4 to 429.6. 426.40 427.10 Very fine grained, medium grey, brecciated diorite? dike. Contacts broken 427.10 427.70 Ultramafic as in 354.2 to 426.4. 1-2% disseminated pyrite. Calcite veinlets. Contacts broken. 427.80 428.10 Chloritic zone. Lower contact at 65 degrees to LCA. 428.10 429.60 Very fine, microbrecciated grey diorite? dike as in 432.5 to 434.7. 429.60 430.70 Chloritic zone. Upper contact broken lower contact at 52 degrees to LCA. 429.60 432.90 Fine grained equigranular, light beige-grey diorite? dike? Faint 2-4mm ghosted ovoid texture from 432.3 to 432.9. 10-15% chlorite in groundmass. 1-2% fine disseminated pyrite. Lower contact at 63 degrees to LCA.									
432.90	434.70	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE As in 354.2 to 426.4. Calcite instead of magnesite. Upper 2cm chloritic and very fine grained. Lower contact broken.									
434.70	444.50	DACITIC FLOW Aphanitic to very fine, massive, light grey to greenish grey groundmass. Minor chloritic fracture fills with trace associated disseminated pyrite euhedra. Does not appear to be a dike.									30.12
			1234	570.80	571.05	.25	1350				29.34
			1235	656.20	656.45	.25	1500				27.49
444.50	752.00	THIN KOMATIITE FLOW SEQUENCE	1236	751.25	751.50	.25	1340				
		Core generally moderately to strongly blocky due to breakage along talc- carbonate fractures. 444.50 451.10 Komatiite Flow. Flow comprising texturally variable very fine to fine (1mm) medium greenish-grey talc magnesite? altered groundmass. Textural variation appears to be the result of foliation destroying fine equigranular texture. Foliation at 55 to 60 degrees to LCA. Moderate calcite veinlets and fracture fills. 451.10 466.10 Komatiite Flow. Flow comprising texturally variable very fine to fine									

Hole: L92-8 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		(1mm) medium grey talc magnesite? altered groundmass. Textural variation appears to be the result of alteration. Massive groundmass locally brecciated due to abundant dark green to grey talc fracture fills and veinlets. Brecciation is likely structural but may be primary. Calcite veinlets. Upper contact based on sharp change to very fine massive slightly chloritic zone from 451.1 to 453.5 grading into rock described above. 466.10 486.60 Komatiite Flow. Sharp upper contact at 60 degrees to LCA. 466.10 466.60 Very fine, massive to brecciated, talc-magnesite altered groundmass. Local relict random spinifex?. 466.60 473.20 Spinifex zone consists of sheaf spinifex 466.6-470.5, random acicular spinifex 470.5-472.1 and sheaf spinifex 472.1-473.2. Color grades from medium grey to medium olive green downhole. 473.20 486.60 Texturally variable very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation appears to be the result of alteration. Massive groundmass with minor to moderate talc-calcite veinlets/fracture fills generally with a light grey carbonatized selvage of 5mm. Locally has brecciated appearance due to abundant anastomosing, dark green to grey talc and white calcite fracture fills and veinlets. Brecciation is likely structural but may be primary as it occurs intermitantly. If it is a primary breccia the angular jigsaw-like nature of the fragments suggests that it may be a cooling feature. Grades from olive green color to medium grey color at approximately 475.0. Moderate calcite veinlets subparallel to 80 degrees to LCA. Possible flow contact at 485.0. 486.60 500.50 Feldspar Porphyry. Light beige to grey color. Extensive ghosting (silicification?) of the porphyritic texture. Approximately 5% 1-2mm feldspar phenocryst evident. Intense microbrecciation with grey silicification along fractures. Blocky. UM xenoliths 495.2-495.5 and 496.1-498.8. Upper and lower contacts ground.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		500.50 525.40 Komatiite Flow. As in 473.2 to 486.6. Possibly same flow? Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation appears to be the result of alteration. Intense breccia from 514.6 to 516.4. Core rubbly and broken from 107 to 523.5. 525.40 576.40 Komatiite Flow. 525.40 527.40 Spinifex zone consists of fine random? spinifex 525.4-525.8 and sheaf spinifex 525.8-527.4. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite? altered groundmass. Broken upper contact; indistinct lower contact. 527.40 576.40 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation may be the result of alteration or possibly multiple flow units. Intense breccia from 543.9 to 547.0. 576.40 618.00 Komatiite Flow. 576.40 577.00 Medium random spinifex zone. Grey talc-magnesite altered. Indistict upper and lower contacts, ie. Not razor sharp. 577.00 618.00 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation may be the result of alteration or possibly multiple flow units. Intense breccia from 580.8 to 581.6. Core rubbly and broken from 588.5 to 592.0. 618.00 667.40 Komatiite Flow. 618.00 621.60 Coarse sheaf spinifex zone. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass? Sharp upper contact at 33 degrees to LCA; lower contacts broken. 621.60 667.40 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation may be the result of alteration or possibly multiple flow units. Intense breccia from 621.6 to 623.6; 625.3 to 627.1; 629.3 to 633.1; 642.0 649.3. Core locally rubbly and									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		broken over 0.1 to 0.3 ft.									
		667.40 679.70 Komatiite Flow.									
		667.40 667.60 Medium random spinifex zone. Grey talc-magnesite altered. Sharp upper and lower contacts at 55 degrees to LCA.									
		667.60 679.70 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation may be the result of alteration or possibly multiple flow units. In particular, a coarser flow may be present from 668.4 to 672.4.									
		679.70 691.70 Komatiite Flow.									
		679.70 680.10 Medium random spinifex zone. Grey talc-magnesite altered. Indistict upper and lower contacts, ie. Not razor sharp.									
		680.10 691.70 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation, the result of alteration.									
		691.70 752.00 Komatiite Flow.									
		691.70 694.30 Several fine to medium random spinifex zones 0.1 to 0.3 ft wide with diffuse contacts at 55 to 85 degrees to LCA, separated by very fine, massive talc-magnesite groundmass. Alteration probably has obliterated this spinifex zone. Alternatively the narrow spinifex zones may represent fluid escape channels through a cumulate zone?.									
		694.30 752.00 As in 473.2 to 486.6. Texturally variable, very fine to fine (1mm) medium grey talc magnesite? altered groundmass. Textural variation may be the result of alteration or possibly multiple flow units. Several minor zones of moderately intense breccia.									
		752.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-9

Co-ords: 6500 6400
Grid: 65+00N 64+00E

Azimuth: 360.0
Grid Az: 325
Dip: -45.0

Elevation: 1000

Length: 802.0

*** Dip Tests	***	
Depth	Azi.	Dip
250.0		-44.0
667.0		-43.0

Property: Langmuir Block
Claim: CLM 140
Township: Langmuir
Province: Ontario

Date Started: Jan. 21, 1992
Date Completed: Jan. 22, 1992
Logged by: Ian Trinder
Date Logged: Mar. 15, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

Purpose: Test magnetic gradient & ovb geochem
Comments:
Materials left in Hole: 72ft BW casing & shoe

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	74.50	OVERBURDEN									
74.50	82.50	DIABASE Massive, fine grained (<1mm), equigranular, light grey color. Hard, rings when struck with hammer. Diabasic groundmass of feldspar laths and chlorite? 1 % disseminated pyrrhotite blebs up to 1.5mm. Core is very blocky with extreme fracturing. Lower contact has an aphanitic chill margin at 35 degrees to LCA.									
82.50	162.00	THIN KOMATIITE FLOW SEQUENCE Core is extremely blocky and rubbly due to breakage along talc- carbonate fractures. Core is light to medium grey color, moderately soft and magnesite-talc? altered. 82.50 117.20 Komatiite Flow. 82.50 83.50 Coarse sheaf spinifex zone. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass? Sharp upper contact at 35 degrees to LCA; lower contact broken. 83.50 117.20 Variable grainsize; very fine to fine (1mm) light to medium grey magnesite-talc? altered groundmass. Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration; ie. Selvages to talc-calcite veinlets are	1237	111.25	111.50	.25	1650				29.14

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		lighter grey than the main groundmass. Moderate to abundant calcite-(dark green talc) veinlets are generally at a low angle to LCA (subparallel to 30 degrees; some up to 65 degrees). 117.20 125.10 Komatiite Flow. 117.20 117.60 Coarse sheaf spinifex zone. Textures poorly preserved. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass? Broken upper and lower contacts. 117.60 125.10 Variable grainsize; very fine to fine (1mm) light to medium grey magnesite-talc? altered groundmass. Groundmass locally chloritic with 10-15% 1mm calcite pseudomorphs Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration groundmass. Minor calcite-talc (dark green) veinlets are generally at a low angle to LCA (subparallel to 30 degrees; some up to 65 degrees). Core is extremely rubbly and broken. 125.10 162.00 Komatiite Flow. 125.10 143.00 Coarse sheaf spinifex zone. Textures poorly preserved from 125.1 to 134.0. Light grey talc-magnesite groundmass? Broken upper and lower contacts. 143.00 162.00 Very fine (<0.5mm) light grey magnesite-talc? altered groundmass. Locally grainsize up to 1mm. Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration. Moderate to abundant calcite-talc (dark green) veinlets are subparallel to 75 degrees to LCA. Core is rubbly and broken.									
162.00	243.80	DIABASE Massive, fine grained (1mm), equigranular, light grey color. Hard, rings when struck with hammer. Diabasic groundmass of feldspar laths and chlorite? 1-2% disseminated pyrrhotite blebs up to 1.5mm. Groundmass also hosts minor light greenish grey, equant to irreular shaped feldspar megacrysts up to 1 cm diameter. Core is moderately fractured (2-3/ft) except near the contacts where the core is broken and rubbly;									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		ie. 162.0 162.4 and 239.3 to 243.8. Grainsize decreases towrds dike margins. Upper and lower contacts are broken.									
243.80	328.50	THIN KOMATIITE FLOW SEQUENCE	1238	319.25	319.50	.25	1400				28.64
		Core is blocky and rubbly due to breakage along talc-carbonate fractures. Core is light to medium grey color, moderately soft and magnesite-talc? altered.									
		243.80 248.40 Komatiite Flow. Very fine <0.5mm) light to medium grey magnesite-talc? altered groundmass. Primary textures obliterated by alteration? Moderate calcite-talc (dark green) veinlets. Core is extremely rubbly and fractured.									
		248.40 285.00 Komatiite Flow. 248.40 250.70 Coarse sheaf spinifex zone. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass? Broken upper contact; sharp lower contact with dike at 15 degrees to LCA. 250.70 254.40 Diabase dike as in 162.0-243.8 except very fine grained and brownish grey color. Upper and lower contacts are chilled. Moving into the dike the chill margin consists of hard aphanitic dark green groundmass (2mm) gradational into light greenish grey groundmass (4mm) which is in sharp contact with aphanitic to very fine slightly darkened dike groundmass. 254.40 285.00 Variable grainsize; very fine to fine (1mm) light to medium grey magnesite-talc? altered groundmass. Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration. Moderate to abundant calcite-talc (dark green veinlets are subparallel to 60 degrees to LCA. Posible flow contact at 281.0 based on sharp grainsize change from fine to very fine grained.									
		285.00 299.00 Komatiite Flow. 285.00 294.50 Coarse sheaf spinifex zone. Textures poorly preserved. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass?									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Broken indistinct upper contact; lower contact sharp at 30 degrees to LCA. 294.50 299.00 Massive. Variable grainsize; very fine to fine (1mm) light to medium grey magnesite-talc? altered groundmass. Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration. Moderate calcite-talc (dark green) veinlets. Core is moderately broken. 299.00 328.50 Komatiite Flow. 299.00 299.70 Coarse random spinifex zone. Textures poorly preserved. Possibly very minor chlorite content gives slight green tint to med grey talc-magnesite groundmass? Veined upper and lower contacts. 299.70 328.50 Massive. Variable grainsize; very fine to fine (1mm) light to medium grey magnesite-talc? altered groundmass. Groundmass becomes dark grey below 301.2 and resembles the more massive sections of the dark grey komatiites in the bottom of hole L92-8. The dark grey dark grey section may be a separate flow. Primary textures obliterated by alteration? Textural and color variation is likely the result of alteration. Moderate calcite-talc (dark green) veinlets. Core is moderately broken except 312-319 where it is extremely rubbly and broken.									
328.50	387.00	DIABASE As in 162.0-243.8. Massive, fine grained (1mm), equigranular, light grey color. Hard, rings when struck with hammer. Diabasic groundmass of feldspar laths and chlorite? 1-2% disseminated pyrrhotite blebs up to 1.5mm. Groundmass also hosts minor light greenish grey, equant to irreular shaped feldspar megacrysts up to 1 cm diameter. Upper and lower contacts are chilled. Moving into the dike the upper chill margin consists of hard aphanitic medium green groundmass (5mm) gradational into dark grey groundmass (2.5cm) which is in sharp contact with aphanitic to very fine slightly darkened dike groundmass (5.5 cm). The lower chill margin consists of hard aphanitic dark grey groundmass (4mm) gradational into medium greenish grey slightly softer groundmass (1cm) which is in sharp contact with									

Hole: L92-9 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		aphanitic to very fine slightly darkened dike groundmass (2.5 cm). Core is moderately fractured (2-3/ft). Grainsize decreases towards dike margins. Upper and lower contacts at 47 and 62 degrees to LCA respectively.									
387.00	706.10	THIN KOMATIITE FLOW SEQUENCE Massive to foliated medium grey very fine to fine grained, moderately soft talc-magnesite/calcite altered groundmass. The groundmass is greenish-grey colored between 448 and 482 which suggests the presence of minor pervasive chlorite. Primary textures obliterated by alteration resulting in a massive salt and pepper to locally porphyritic texture depending on size of carbonate grains. Textural and color variation is likely the result of alteration but may also reflect primary compositional changes ie. Flow units, particularly the chloritic zones. Chloritic zones: 424.4-426.3, 430.3-431.4; 432.7-435.1;555.3-555.8. Abundant white calcite and/or grey-greenish grey talc veinlets both parallel to foliation and crosscutting. Veins are subparallel to 75 degrees to LCA. Core is moderately fractured and broken. Foliation varies from 30 to 40 degrees to LCA from 387.0-482.0. Rock is more massive with minor weak foliated zone from 482 to 564.5. Foliation subparallel to 35 degrees to LCA from 564.5 to 665.2. Rock is more massive to weakly foliated (45-50 degrees to LCA) from 665.2 to 736.2. Trace disseminated pyrite euhedra. 489.50 489.90 Feldspar Porphyry. Ghosted stongly fractured/brecciated (chlorite filling) grey to pink feldspar porphyry. 1-2% disseminated pyrite. Ultramafic host has a 2-3cm chloritic selvage to the dike. Upper and lower contact at 45 degrees to LCA. 494.30 495.50 Feldspar Porphyry. Ghosted stongly fractured/brecciated (chlorite filling) grey to pink feldspar porphyry. 1-2% disseminated pyrite. Ultramafic host has a 2-3cm chloritic selvage to the dike. Upper and lower contact at 45 degrees to LCA. 661.20 661.50 Diabase. Aphanitic brownish grey dike resembles chilled margin of overlying diabase dikes. 1-2% very fine disseminated pyrite. Upper and lower contacts at 57	1239 1240 1241	502.25 600.20 704.00	502.50 600.45 704.25	.25 .25 .25	1420 1700 1320				29.46 25.61 26.74

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		and 48 degrees to LCA. 705.90 707.30 Foliated zone of ultramafic matrix hosting stretched fragments of the underlying dacite. Foliation at 52 degrees to LCA. 665.20 666.70 Diabase. Aphanitic brownish grey dike resembles chilled margin of overlying diabase dikes. 1-2% very fine disseminated pyrite. Upper and lower contacts at 55 and 40 degrees to LCA. 1cm chloritic margin on lower contact.									
706.10	713.50	DACITE TUFF 707.30 710.20 Massive, relatively siliceous light grey dacite with approximately 5-10% 1mm mafic phenocrysts. Gradational upper and lower contacts. 710.20 713.50 Irregular shaped breccia fragments (1mm to 3 x 5cm) of the overlying massive dacite in a medium grey relatively soft talcose? matrix. Grades into a fine grained section from 712.2 to 713.5, foliated at 37 degrees to LCA.									
713.50	736.20	KOMATIITE FLOW Core is medium grey, massive, fine grained but slightly harder than the overlying ultramafics.	1242	732.15	732.40	.25	1000				25.62
736.20	802.00	DIABASE As in 162.0-243.8. Massive, fine to medium grained, equigranular, light grey color. Hard, rings when struck with hammer. Diabasic groundmass of feldspar laths and chlorite? 1-2% disseminated pyrrhotite blebs up to 1.5mm. Groundmass also hosts minor light greenish grey, equant to irreular shaped feldspar megacrysts up to 1 cm diameter. Core is moderately fractured 2-3/ft). Grainsize increases gradationally from the dike margin to medium grained (1-1.5mm) below approximately 780.0. Minor lime green epidote veining between 755 and 788.5. Upper contact broken. 802.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-10

Co-ords: 7100 7050
Grid: 71+00N 70+50E

Azimuth: 335.0
Grid Az: 300
Dip: -45.0

Elevation: 1000

Length: 495.0

Purpose: Test magnetic gradient & ovb geochem
Comments:
Materials left in Hole: 50ft BQ casing & shoe

*** Dip Tests ***		
Depth	Azi.	Dip
250.0		-44.0
487.0		-44.0

Property: Langmuir Block
Claim: CLM 140
Township: Langmuir
Province: Ontario

Date Started: Jan. 22, 1992
Date Completed: Jan. 23, 1992
Logged by: Ian Trinder
Date Logged: Mar 10, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	43.50	OVERBURDEN									
43.50	91.50	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 43.50 84.00 Cumulate Komatiite/Komatiitic Peridotite. Massive, fine grained (0.5-1mm), salt and pepper textured equigranular, light to medium grey color. Core is moderately soft and dominated by pervasive magnesite-talc alteration which obliterates primary textures. Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. The core becomes moderately too strongly foliated (35-38 degrees to LCA) from 75.1 to 84.0. This zone correspond to an increase in talc content and magnesite veinlets from 75.1 to 81.0 and a extremely broken, rubbly quartz veined chloritic rock from 81.0 to 84.0. 84.00 91.50 Ultramafic. Massive, fine grained (0.5-1mm), medium greenish-grey color. Core is moderately soft with increasing chlorite content downhole. The rock not look like a good ultramafic but may be altered. Moderate (3-5/ft) quartz veinlets 0.2 to 3 cm wide crosscut the core at <5 to 70 degrees to LCA. Quartz veins are often rubbly and broken. Broken lower contact.	1212	66.25	66.50	.25	1750				32.12

Hole: L92-10 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
91.50	115.40	FELDSPAR PORPHYRY Massive very fine grained light grey to salmon siliceous groundmass hosts 10-15% 1 to 3mm white subhedral to euhedral, equant to tabular feldspar phenocrysts. Core is blocky and rubbly from 91.5 to 93.0. Moderate quartz veining (3-5/ft; 1 to 5mm) at 35 to 50 degrees to LCA from 91.5 to 106.5. Minor veining downhole from 106.5. 95.50 101.70 Ultramafic. Xenolith? Massive, fine grained (0.5-1mm), medium greenish-grey color. Core is moderately soft. The rock does not look like a good ultramafic but may be chlorite-talc-carbonate altered. Moderate discontinous magnesite-(quartz) veinlets at 10 to 80 degrees to LCA. Weak foliation at 42 degrees to LCA. Sharp upper and lower contacts at 65 and 60 degrees to LCA respectively.									
115.40	145.70	DIORITE Massive, fine grained (1mm), equigranular, light green grey color. Salt and pepper textured groundmass of feldspar and chlorite. Moderate 0.1 to 2cm hematized quartz veinlets at 5 to 75 degrees to LCA. Downhole from 138.7 the rock becomes increasingly chloritic and the texture becomes ghosted. Texture is lost in lower 1.5 feet; fine grained and chloritic. Upper contact sharp but jagged at 45 degrees to LCA; lower contact sharp but extremely irregular and jagged at 15 degrees to LCA.									
145.70	152.40	FELDSPAR PORPHYRY Massive very fine grained light grey to salmon siliceous groundmass hosts 10-15% 1 to 3mm white subhedral to euhedral, equant to tabular feldspar phenocrysts and 5% 1mm chloritic mafic phenocrysts. One chloritic xenolith (3mm) observed. Minor quartz veining (3-5/ft; 1 to 5mm) at 35 to 50 degrees to LCA 0.3 foot quartz vein at base of unit.									
152.40	213.80	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Gradational downhole as follows:.	1213	208.75	209.00	.25	1470				34.78

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		152.40 165.50 Ultramafic. Fine grained, massive light greenish grey, moderately soft chloritized ultramafic. Uppermost 0.5 feet extremely chloritic and foliated at 60 degrees to LCA. Minor magnesite veinlets 15 to 80 degrees to LCA. 165.50 213.80 Orthocumulate Komatiite/Komatiitic Peridotite. Gradational from above such that downhole from 168.5 the groundmass comprises soft talc magnesite. The talc-magnesite alteration generally masks original texture such that the rock has a very fine to aphanitic appearance, however local patches with dark grey angular interstial talc outline a coarse cumulate texture of close packed 2-3mm cumulate grains 10 to 15% interstial matrix. Areas where interstial matrix is not visible may be a alteration overprint or it may represent areas where there was very little primary interstitial matrix and talc-carbonate alteration now prevents recognition of the grain outlines recognized macroscopically. Blocky and rubbly core from 177 to 185. Moderate (3-5/ft) magnesite-(talc) veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. Sharp lower contact at 65 degrees to LCA. Two 2 to 5mm magnetite bands at base of unit. 191.50 198.10 Aphanitic to fine grained chloritic-talcose zone Blocky and broken core. Groundmass and veinlet magnesite make up 30% of rock from 196.6 to 198.1. Weak foliation at 25 degrees to LCA. 198.10 204.00 Diorite Probable dike. Fine grained, massive, light grey to biege, equigranular diorite? Approximately 2-5%, angular to subrounded 2 to 10mm black UM? xenoliths. Sharp upper and lower contacts at 35 and 45 degrees to LCA respectively. 204.00 206.50 Aphanitic to fine grained chloritized talcose zone. Talc gouge 205.3 to 205.7 with approx 0.2 ft lost core.									
213.80	294.50	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Massive, fine grained, equigranular, dark greyish	1214	251.75	252.00	.25	2640				41.23

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		green color. Core is serpentinized, moderately hard with a fine salt and pepper texture (0.5 to 1mm dependant on grainsize of pervasive magnesite).									
		Moderate to abundant (5 to >10/ft) 0.1 to 2cm wide magnesite veinlets frequently have a dark green platey serpentine selvage. There appears to be a later set of magnesite-talc veinlets which crosscut the former. Rare asbestiform serpentine veinlets. Veinlets at 15 to 75 degrees to LCA.									
		Increased pervasive carbonate below 279.5 gives the rock a medium grey color. Abundant serpentine veinlets below 285.0. Pervasive talc carbonate alteration with abundant magnesite veinlets from 291.1 to 293.5. Talc gouge 293.3 to 293.5. Dark greenish grey aphanitic moderately soft altered UM? margin to dike? from 293.5 to 294.5. Broken, rubbly core 290.5 to 294.5.									
294.50	297.00	DIORITE Probable dike. Fine grained, massive, light brownish grey, equigranular diorite? Core is broken and rubbly. Upper and lower contacts broken.									
297.00	342.00	THIN KOMATIITE FLOW SEQUENCE A sequence of flow units or possibly repetitive alteration based on composition and texture If flows the alternating greenish grey talcose zones and olive green porhyritic zones may be separate flows or upper and lower sections of one flow. Uncertain at this time which would be the base part of the flow. Zones are generally in sharp contact parallel to foliation or have been ground.	1215 1216	302.20 305.75	302.50 306.00	.30 .25	1160 450				25.04 11.95
		297.00 299.70 Dark greenish grey aphanitic moderately soft talc-chlorite? altered UM? margin to dike? Broken, rubbly core.									
		299.70 303.90 Komatiite Flow. Medium blue green, very fine grained brecciated soft talcose groundmass locally contains 5% 1mm grey ghosted pseudomorphs. Breccia is clast supported. Fragments are angular. May be locally a pseudobreccia created by veining. Breccia may be primary or structural. Matrix comprised of grey to white talc and calcite. Fragments up to 3 cm diameter. Weak foliation at 65 degrees to LCA.									
		303.90 306.00 Komatiite Flow.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Medium olive green-grey, very fine grained massive? soft talcose? groundmass contains 5-7% 1mm darker olive green ghosted pseudomorphs. Rock is less talcose than the greenish grey zones. Abundant calcite veinlets give the rock a pseudobreccia appearance. Weak to moderate foliation at 60 degrees to LCA. 306.00 306.20 Komatiite Flow. Medium blue green, very fine grained brecciated soft talcose groundmass locally contains 5% 1mm grey ghosted pseudomorphs. Breccia is clast supported. Fragments are angular. May be a pseudobreccia created by veining. Breccia may be primary or structural. Matrix comprised of dark grey talc. Fragments up to 1 cm diameter. Moderate foliation at 55 degrees to LCA. 306.20 308.60 Komatiite Flow. As in 303.9 to 306.0. Weak to moderate foliation at 30 to 40 degrees to LCA. 308.60 312.00 Komatiite Flow. Medium blue green, very fine grained brecciated soft talcose groundmass. Breccia is clast supported. Fragments are angular. May be locally a pseudobreccia created by veining. Breccia may be primary or structural. Matrix comprised of grey to white talc and calcite. Fragments up to 3 cm diameter. Moderate foliation at 45 degrees to LCA. 312.00 322.30 Komatiite Flow. As in 303.9 to 306.0. Moderate foliation at 30 to 45 degrees to LCA. 322.30 324.60 Komatiite Flow. As in 299.7 to 303.9. Weak to moderate foliation at 25 to 35 degrees to LCA. 324.60 341.80 Komatiite Flow. As in 303.9 to 306.0. Pseudomorphs locally stretched into wisps. Weak to moderate foliation at 30 to 45 degrees to LCA.									
342.00	396.50	THIN KOMATIITE FLOW SEQUENCE Several flow units comprising brecciated tops and massive bases. Alternatively this section may be one unit with alternating sections of structurally deformed and more massive ultramafic. The section generally consists of very fine to locally fine, dark grey, massive talc-magnesite altered groundmass. Trace diseminated pyrite euhedra.	1217	389.35	389.60	.25	1380				22.39

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		342.00 345.90 Komatiite Flow.									
		342.00 344.00 Brecciated very fine grained talc-magnesite altered groundmass. Breccia is fragment supported, likely flow top autobreccia. Breccia matrix is dark greenish-grey talc and/or magnesite. Weak foliation at 55 degrees to LCA. Gradational into:.									
		344.00 345.90 Massive very fine grained talc-magnesite altered groundmass. Crosscut by moderate to abundant 1 to 5mm random magnesite-(talc) veinlets which locally gives a pseudobreccia fabric.									
		345.90 352.10 Komatiite Flow.									
		345.90 347.00 As in 342.0 to 344.0. Ground upper contact. Gradational lower contact.									
		347.00 352.10 As in 344.0 to 345.9.									
		352.10 364.40 Komatiite Flow.									
		352.10 352.90 As in 342.0 to 344.0. Weak foliation at 50 degrees to LCA. Upper contact at 30 degrees to LCA. Gradational into:.									
		352.90 364.40 As in 344.0 to 345.9.									
		364.40 367.40 Komatiite Flow.									
		364.40 364.90 As in 342.0 to 344.0. Weak foliation at 65 degrees to LCA. Upper contact at 55 degrees to LCA. Gradational into:.									
		364.90 367.40 As in 344.0 to 345.9.									
		367.40 371.70 Komatiite Flow.									
		367.40 369.80 As in 342.0 to 344.0. Weak foliation at 50 degrees to LCA. Upper contact at 40 degrees to LCA. Gradational into:.									
		369.80 371.70 As in 344.0 to 345.9.									
		371.70 374.60 Komatiite Flow.									
		371.70 372.70 As in 342.0 to 344.0. Weak foliation at 30 degrees to LCA. Upper contact at 55 degrees to LCA. Gradational into:.									
		372.70 374.60 As in 344.0 to 345.9.									
		374.60 382.70 Komatiite Flow.									
		374.60 378.60 As in 342.0 to 344.0. Weak foliation at 40 degrees to LCA. Upper contact at 55 degrees to LCA. Gradational into:.									
		378.60 382.30 As in 344.0 to 345.9. Grades into fine grained 1mm equigranular salt and pepper textured cumulate? 381.2 to 382.3. Weak									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		foliation at 65 degrees to LCA. 382.70 384.10 Komatiite Flow. Massive very fine grained talc-magnesite altered groundmass. Crosscut by moderate to abundant 1 to 5mm random magnesite veinlets grades fine grained 1mm equigranular salt and pepper textured cumulate? 383.6 to 384.1. Upper contact at 60 degrees to LCA. 384.10 390.30 Komatiite Flow. Massive very fine grained talc-magnesite altered groundmass. Crosscut by moderate to abundant 1 to 5mm random magnesite veinlets grades fine grained 1-2mm equigranular salt and pepper textured cumulate? 388.4 to 390.3. Upper contact at 70 degrees to LCA. 390.30 396.50 Komatiite Flow. 390.30 391.60 As in 342.0 to 344.0. Weak foliation at 45 degrees to LCA. Upper contact at 65 degrees to LCA. Gradational into:. 391.60 396.50 As in 344.0 to 345.9.									
396.50	464.20	THIN KOMATIITE FLOW SEQUENCE Several flow units comprising spinifex textured (and locally brecciated) flow tops and massive bases. The section generally consists of very fine to locally fine, dark grey, massive talc-magnesite altered groundmass. Trace diseminated pyrite euhedra. 396.50 404.10 Komatiite Flow. 396.50 400.10 Brecciated very fine grained talc-magnesite altered groundmass. Breccia is fragment supported, likely flow top autobreccia. Breccia matrix is dark greenish-grey talc and/or magnesite. Weak foliation at 55 degrees to LCA. 400.10 404.10 Massive very fine grained dark grey talc-magnesite altered groundmass crosscut by minor 1 to 5mm random magnesite-(talc) veinlets. Random spinifex 400.4 to 400.7. 404.10 416.40 Komatiite Flow. 404.10 404.30 Random spinifex. 404.30 416.40 Massive very fine grained, dark grey, talc-magnesite altered groundmass crosscut by minor 1 to 5mm random magnesite-(talc) veinlets.	1218	453.60	453.95	.35	2410				28.64

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		416.40 430.90 Komatiite Flow. 416.40 418.40 Massive very fine grained light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random magnesite veinlets. 418.40 419.20 Coarse sheaf spinifex; light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random magnesite veinlets. 419.20 430.90 Massive very fine grained light green-grey chlorite altered groundmass grading downhole into medium grey magnesite-(talc) altered groundmass crosscut by moderate 1 to 5mm random magnesite veinlets. 430.90 450.10 Komatiite Flow. 430.90 433.00 Coarse sheaf spinifex; light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random magnesite veinlets. 433.00 455.10 Massive very fine grained light to medium grey magnesite-(talc) altered groundmass crosscut by moderate 1 to 5mm random magnesite veinlets. Possible B1 horizon 433.0 to 433.5. 455.10 464.20 Komatiite Flow. 455.10 455.20 Fine random spinifex. 455.20 457.40 Coarse sheaf spinifex; light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random magnesite veinlets Brecciated from 456.6 to 457.4. 457.40 464.20 Massive very fine grained light to medium grey magnesite-(talc) altered groundmass crosscut by moderate 1 to 5mm random magnesite veinlets. Weakly chloritized groundmass from 460.7 to 464.2 an alteration effect of the adjacent dike?.									
464.20	495.00	FELDSPAR PORPHYRY Massive very fine grained to aphanitic light grey siliceous groundmass hosts 15-20% 1 to 3mm white subhedral to euhedral, equant to tabular feldspar phenocrysts. Extensive ghosting (silicification?) of the porphyritic texture downhole from 471.5. Minor quartz and calcite. Veining/fracture filling. Upper contact at 50 degrees to LCA. 495.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 12800 10150
Grid: 126+00N 100+00E

Azimuth: 300.0
Grid Az: 255
Dip: -45.0

Elevation: 1000

Length: 631.0

Purpose: Test North Zone & magnetic gradient
Comments:
Materials left in Hole:

*** Dip Tests ***

Depth	Azi.	Dip
250.0		-42.0
631.0		-41.0

Hole No.: L92-11

Property: Langmuir Block
Claim: CLM 142
Township: Langmuir
Province: Ontario

Date Started: Jan. 23, 1992
Date Completed: Jan. 29, 1992
Logged by: Ian Trinder
Date Logged: Jan. 30, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description
.00	79.90	OVERBURDEN Cored boulders of ultramafic, diabase and granite.
79.90	213.40	THIN KOMATIITE FLOW SEQUENCE Fine grained, medium to dark grey groundmass. Minor <1mm to 1cm wide (talc)-calcite veinlets subparallel to 85 degrees to long core axis. 79.90 89.10 Ultramafic. Fine grained, massive groundmass with green tint. 89.10 100.30 Komatiite Flow. 89.10 89.20 A Zone flow top breccia. Very fine grained green tinted fragments in dark grey matrix. 89.20 89.70 A Zone. Very fine grained, massive, green tinted groundmass. 89.70 89.80 A2 Zone fine (<5mm) random spinifex. Lower contact gradational. 89.80 99.20 A3 Zone coarse sheaf spinifex. Note: massive zone from 93.6-94.3 may be a cumulate zone or may be alteration around veinlets. 99.20 99.70 B1 Zone cumulate zone comprising 60% randomly oriented tabular grains (0.5 x 2.0mm) hosted by dark grey aphanitic interstitial material. Diabasic texture. 99.70 100.30 B2 Zone fine grained massive groundmass. No textures evident.

Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
1083	151.90	152.15	.25	1780				31.34
1303	152.80	153.70	.90	1000			7	
1304	153.70	155.60	1.90	740			<5	
1084	176.90	177.25	.35	1880				33.83
1305	180.00	182.00	2.00	810			<5	
1306	182.00	184.00	2.00	820			6	
1307	184.00	186.00	2.00	860			<5	
1308	186.00	188.00	2.00	740			<5	
1309	188.00	190.00	2.00	550			6	
1310	190.00	192.00	2.00	680			<5	
1311	192.00	194.00	2.00	660			<5	
1312	194.00	196.00	2.00	640			<5	
1313	196.00	198.00	2.00	600			<5	
1314	198.00	200.00	2.00	610			<5	

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		100.30 104.40 Komatiite Flow.									
		100.30 100.60 A1 Zone very fine grained weakly fractured/brecciated flow top?.									
		100.60 100.80 A1 Zone very fine grained massive groundmass.									
		100.80 101.00 A2 Zone fine random spinifex.									
		101.00 101.80 A3 Zone coarse sheaf spinifex.									
		101.80 102.20 A3 Zone very fine grained brecciated fragment or may be a flow top?.									
		102.20 102.80 A3 Zone coarse sheaf spinifex.									
		102.80 104.40 B Zone fine grained massive groundmass with pervasive talc-magnesite?.									
		104.40 112.30 Komatiite Flow.									
		104.40 104.80 A1 Zone very fine grained weakly fractured/brecciated flow top? with dark grey serpentine? matrix.									
		104.80 105.00 A1 Zone very fine grained massive groundmass.									
		105.00 105.40 A2 Zone fine random spinifex with gradational lower contact.									
		105.40 106.00 A3 Zone coarse sheaf spinifex.									
		106.00 107.70 A3 Zone coarse random spinifex.									
		107.70 109.20 A3 Zone coarse sheaf spinifex.									
		109.20 109.30 B1 Zone very fine grained massive groundmass with sharp upper and lower contacts at 35 degrees to long core axis.									
		109.30 109.70 B1 Zone coarse tabular cumulate or disrupted/brecciated coarse random spinifex. Gradational lower contact.									
		109.70 110.10 B1 Zone fine grained massive groundmass with broken lower contact.									
		110.10 110.50 B1 Zone coarse tabular cumulate or disrupted/brecciated coarse random spinifex. Gradational lower contact.									
		110.50 112.30 B2 Zone fine grained massive groundmass with sharp lower contact at 20 degrees to long core axis.									
		112.30 153.70 Komatiite Flow.									
		112.30 112.50 A1 Zone very fine grained flow top breccia ?.									
		112.50 112.90 A1 Zone very fine grained massive groundmass with gradational lower contact									
		112.90 113.80 A2 Zone fine random spinifex (1-2mm laths) gradational into coarse random spinifex (1-2mm x 1-2cm). Gradational lower contact.									
		113.80 119.40 A3 Zone coarse sheaf spinifex.									
		119.40 120.60 A3 Zone coarse random spinifex, possibly sheaf?.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		120.60 125.90 A3 Zone coarse sheaf spinifex.									
		125.90 129.70 A3 Zone coarse random spinifex.									
		129.70 137.00 A3 Zone coarse sheaf spinifex.									
		137.00 139.00 B1 Zone coarse tabular cumulate 1mm x 2-3mm carbonate pseudomorphs after olivine? in dark grey interstitial material. Diabasic (ophitic) texture. Gradational upper and lower contacts.									
		139.00 153.70 B2 Zone fine grained massive groundmass. Locally 1-2mm equant cumulate texture highlighted but not obliterated by alteration. 1-2% blebby fracture controlled and euhedral disseminated pyrite from 152.9-156.0.									
		153.70 160.10 Komatiite Flow.									
		153.70 155.10 A1 Zone flow top breccia. May be a pseudobreccia caused by carbonate alteration.									
		155.10 155.60 A1 Zone massive fine grained groundmass.									
		155.60 156.00 A2 Zone medium to coarse random spinifex. Sharp upper and lower contacts at 40 degrees to long core axis.									
		156.00 160.10 B Zone massive fine grained pale greenish grey groundmass. Chlorite-calcite alteration instead of talc-calcite/magnesite?.									
		160.10 168.30 Komatiite Flow.									
		160.10 161.40 A2 Zone medium random spinifex grading into coarse random spinifex downhole of 160.5. Pale greenish grey chlorite-calcite alteration. Sharp upper contact a carbonate veinlet at 75 degrees to long core axis. Lower contact gradational.									
		161.40 162.60 A Zone massive fine grained groundmass. Pale greenish grey chlorite-calcite alteration. Spinifex zone obliterated by alteration or may be a B zone cumulate.									
		162.60 165.60 A2 Zone fine to medium random spinifex with alteration as in 161.4 to 162.6.									
		165.60 166.40 B Zone fine grained massive groundmass. A cumulate zone or altered spinifex?.									
		166.40 168.30 B Zone fine grained massive groundmass as in 165.6 to 166.4 except darker grey color ie. Less chloritic?.									
		168.30 186.80 Komatiite Flow.									
		168.30 169.90 A Zone fine grained dark grey zone with several patches of fine to medium									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		spinifex. Upper contact defined by presence of spinifex. 169.90 186.80 B Zone fine grained massive groundmass. Medium to dark grey from 169.9 to 178.5. Pale grey from 178.5 to 182.5. Pale greenish grey from 182.5 to 186.8. 180.00 186.80 2-3% blebby fracture controlled and disseminated pyrite continues into underlying subunit. 186.80 196.50 Komatiite Flow. Very fine grained pale greenish grey groundmass with 1-3% pyrite as fracture controlled blebs, disseminated blebs and grains. Upper contact defined by the presence of chloritic wisps. 186.80 189.40 Abundant chloritic wisps and fracture fills. Looks somewhat breccia-like. Core is broken and discoidal. 189.40 196.50 Groundmass more massive without the chloritic wisps. Becomes slightly coarser grained last 1.5 feet. Core is broken. Lower contact sharp at 60 degrees to long core axis. Lower contact may be an alteration front. 196.50 213.40 Komatiite Flow. 196.50 209.90 Fine grained, massive, dark to medium grey with 1-3% fracture controlled and fine disseminated pyrite from 196.5-200.2 209.90 213.40 Fine grained, massive, dark to medium grey groundmass hosts 15-20% irregular shaped 1mm to 1cm dark green-black aphanitic serpentine? patches often with concentric internal zoning. May represent non-talc-carbonate altered relict serpentinite?. Upper contact gradational. Lower contact indistict.									
213.40	378.00	KOMATIITE FLOW 213.40 215.30 A Zone medium grey poorly preserved coarse random spinifex. 215.30 217.70 Ultramafic pale greenish grey groundmass with texture obliterated by alteration. 217.70 220.30 A3 Zone pale grey groundmass with faint parallel planar fabric resembling poorly preserved sheaf spinifex. Greater talc content accounts for color. 220.30 320.30 B Zone ? fine grained to very fine grained massive dark grey groundmass. Talc-calcite veinlets now frequently	1085 1086	265.00 377.00	265.25 377.25	.25 .25	1570 2810				31.26 35.83

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		contain dark green serpentine starting in this unit. Some monomineralic serpentine and calcite (locally magnesite?). 250.30 251.90 Pale greenish grey unit with salt and pepper texture. May be alteration upper contact fracture bound. Lower contact gradational. 307.50 398.50 Serpentine-magnesite veinlets common (5-10 per foot). Veins are banded with alternating bands of serpentine and magnesite. Veins are up to 1-2cm wide and vary from subparallel to 75 degrees to long core axis. 320.30 330.40 B Zone ? zone containing 2mm-10mm diameter ovoids of dark green aphanitic serpentine like that in the serpentine-magnesite veinlets. Some ovoids have concentric zoning. 330.40 378.00 B Zone ? as in 220.3 to 320.3.									
378.00	434.30	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 378.00 405.30 Cumulate Komatiite/Komatiitic Peridotite. Sharp contact with overlying unit may be an alteration front. Coarse cumulate textured serpentinite? groundmass. 379.50 394.00 Rock becomes finer grained and has a porphyritic texture created by carbonate altered pseudomorphs. 380.00 405.30 1-3% blebby Po-(Pn) <1mm-1cm diameter blebs. Generally ovoid shape with nickeliferous Pn? core. 394.00 405.30 Fine grained groundmass changes color from medium grey to pale greenish grey downhole. 403.90 404.10 Laminated grey and white quartz vein with minor magnesite. Unlikely to be FeFm 404.35 404.55 Laminated grey and white quartz vein with minor magnesite. Unlikely to be FeFm 405.30 434.30 Cumulate Komatiite/Komatiitic Peridotite. Trace disseminated and fracture filling pyrite. 405.30 421.90 Cumulate Komatiite/Komatiitic Peridotite pale greenish grey groundmass. Medium to coarse (1-3mm) cumulate texture generally obliterated by alteration resulting in a finer grained groundmass. Lighter color due to more abundant talc-magnesite in the serpentinite	1315 1316 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1093	382.00 384.00 386.00 388.00 390.00 392.00 394.00 396.00 398.00 400.00 402.00 403.90 405.30 413.50	384.00 386.00 388.00 390.00 392.00 394.00 396.00 398.00 400.00 402.00 403.90 405.30 407.00 413.75	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 1.90 1.40 1.70 .25	2300 2400 1300 1300 1600 1700 1900 2900 1700 3100 5700 2000 1600 2500		140 79 58 44 30 43 51 88 70 150 230 45 26		42.53

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		groundmass. Magnesite and asbestiform serpentine veinlets common. Fine </=1mm disseminated Po blebs from 405.3-406.8.									
		421.90 422.90 Fine grained, dark black talc-serpentinite bounded by magnesite-serpentine laminated veinlets. Contacts at 15 to 20 degrees to long core axis.									
		422.90 434.30 Fine grained, massive ultramafic. Groundmass is medium lime green-grey with intense magnesite-serpentine veinlets and veins at 45 to 60 degrees to long core axis to 426.5. Gradational into locally talcose medium grey groundmass with green tints.									
434.30	539.70	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE									
		434.30 463.00 Cumulate Komatiite/Komatiitic Peridotite ?.	1094	441.50	441.75	.25	1450				30.86
			1095	511.50	511.75	.25	2150				35.22
			1096	538.50	538.75	.25	1820				29.42
		Possible flow(s)?.									
		434.30 436.50 Harrisitic zone?. Dark grey groundmass with textures varying from tabular cumulate with pseudomorphs up to 1mm x 2mm and 1cm diameter patches with both sheet-like and herringbone textured laminations (3mm x 1cm). Groundmass cut by moderate (5-10 per foot) magnesite veinlets at 30 to 80 degrees to long core axis.									
		436.50 443.90 Fine grained, massive dark grey groundmass. Locally a faint hint of textures similar to 434.3 to 436.5. Trace disseminate pyrite.									
		443.90 447.20 Groundmass comprised dominantly of talc with some magnesite. Magnesite veinlets cut zone. Trace to 1% </=0.5mm disseminated pyrite euhedra. Approx. 1% 0.5mm disseminated magnetite euhedra. Talc gouge from 446.9-447.2.									
		447.20 447.60 Very fine grained dark greenish black (chlorite-biotite?) baked/chill? margin to underlying dike. Upper and lower contacts at 45 and 50 degrees to long core axis respectively.									
		447.60 448.80 Intermediate Dike fine grained aphyric medium grey groundmass locally hematized to salmon color along fracture selvages. No visible sulphides. Lower contact at 20 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		448.80 450.40 Dark blackish green chlorite-biotite? baked zone as in 447.2-447.6. Foliation at 40 degrees to long core axis. Lower contact at 75 degrees to long core axis. 450.40 452.40 Diorite fine grained pale grey groundmass locally hematized to salmon-pink color along fractures. 1-2% disseminated pyrite euhedra. Chlorite-magnesite veinlet at 45 degrees to long core axis from 452.0 to 452.4. 452.40 463.00 Very fine grained massive, chloritic ultramafic with abundant magnesite veining from 452.4-455.2. Groundmass becomes darker grey and more talcose below 452.2. Pale green talc veinlets up to 2-3cm cut groundmass from 457.9-462.6 at 50 to 80 degrees to long core axis. Talcose groundmass hosts 1-2% </=0.5mm magnetite euhedra. Patches up to 3-5cm wide contain up to 10% </=1mm disseminated pyrite euhedra from 456.0-462.6 with an average of 2-3% overall. Very fine grained baked zone from 462.6-463.0. 463.00 463.50 Intermediate Dike. Fine grained, medium grey strongly fractured and hematized intermediate? groundmass. Upper contact sharp at 75 degrees to long core axis. Lower contact somewhat indistinct at 25 degrees to long core axis. 463.50 539.70 Cumulate Komatiite/Komatiitic Peridotite ?. 463.50 464.50 Fine grained chloritic baked margin?. 464.50 466.00 Very fine grained dark grey talcose - magnesite altered ultramafic. Gradational upper and lower contacts. 466.00 539.70 Cumulate Komatiite/Komatiitic Peridotite medium to coarse grained groundmass. <1-2mm close packed cumulate pseudomorphs generally well preserved in pervasive magnesite-(talc) alteration. Minor to moderate (<5 to 10 per foot) magnesite-talc veinlets subparallel to 60 degrees to long core axis. Serpentine - magnesite veinlets present from 480.0 to 534.8. Magnesite-serpentine?-talc vein subparallel to LCA from 534.3-534.8. Local porphyritic texture created by magnesite alteration. Trace disseminated pyrite. Ultramafic is finer										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		grained and more talcose from 534.8-539.7. Local patch contains up to 5% disseminated pyrite.									
539.70	542.40	**DIORITE** Fine grained, massive, equigranular intermediate groundmass contains 10-15% <1mm phlogopite/biotite grains. Trace <1mm disseminated pyrite. Upper and lower contacts at 70 degrees to long core axis.									
542.40	551.00	**ULTRAMAFIC** 542.40 545.70 Aphanitic, brecciated medium greenish grey groundmass with trace-1% disseminated pyrite. 545.70 551.00 Massive core with spotted texture created by presence of 25% </=1mm dark grey ovoids in a medium greenish grey aphanitic groundmass. Possibly an alteration texture?. Carbonate veinlets now comprise calcite to end of hole. Change in carbonate mineralogy also corresponds to a drop in magnetic susceptibility. ~1% disseminated pyrite euhedra up to 2mm diameter.	1097	548.75	549.00	.25	910				22.85
551.00	556.30	**DIORITE** Fine grained medium brownish grey groundmass with 5-7% disseminated pyrite euhedra up to 2mm. 552.60 552.90 Chloritic ultramafic xenolith. 553.80 554.50 Chloritic ultramafic xenolith foliated at 60 degrees to long core axis.									
556.30	562.10	**ANDESITE-DACITE VOLCANIC SILICEOUS METASEDIMENT BRECCIA** Aphanitic siliceous light grey dacite/sediment? Intensely fractured and brecciated with soft chloritic material filling fractures. Dark greenish grey chloritic groundmass locally becomes dominant. These zones contain rounded ovoids of siliceous material and may be OCCELLAE within a downcutting ultramafic ie. 557.0-557.1 and 557.9-558.5. The ovoids have white reaction rims.									
562.10	631.00	**THIN KOMATIITE FLOW SEQUENCE** 562.10 575.80 Komatiite Flow ?. Aphanitic medium greenish grey intensely brecciated	1098 1099	568.50 578.75	568.75 579.00	.25 .25	460 580				13.37 22.96

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		groundmass with darker green-black chloritic matrix/fracture fill. Fragments are angular. Rock has a shattered appearance. 567.00 567.80 A2 Zone Possible random spinifex or angular interlocking fracture fills?. 569.60 570.60 A2 Zone Possible random spinifex or angular interlocking fracture fills?. 571.20 571.40 A3 Zone Brecciated sheaf spinifex or tabular cumulate?. 571.50 575.80 Rock is less brecciated and accompanied by increase in calcite veinlets from approximately 5 per foot to >10 per foot. 575.00 575.80 Foliated zone at 75 degrees to long core axis. 575.80 631.00 Komatiite Flow ?. Separate flow or same as above. Massive, fine grained medium grey talcose groundmass becoming greenish grey and chloritic below 578.3. Approximately 10 calcite veinlets per foot. 585.90 586.80 Diorite very fine grained brownish grey groundmass with trace-1% very fine disseminated pyrite. Contacts at 50 degrees to long core axis. 595.70 631.00 Core med gry color ie more talc, less chlorite. Abundant discontinuous wisps and veinlets of calcite impart fabric to rock at 70 to 75 degrees to long core axis. Crosscutting calcite veinlets locally intense enough to create stockwork ie. 626.7-631.0. The groundmass hosting the stockwork is more massive, without the planar fabric. 596.50 596.90 Diorite very fine grained brownish grey groundmass with trace-1% very fine disseminated pyrite. Contacts at 60 degrees to long core axis. 601.40 608.40 Diorite aphanitic pinkish salmon colored groundmass hosts 5-10% </=1mm mafic (chlorite) phenocrysts and 5-7% </=1mm disseminated pyrite euhedra. 614.50 615.70 Diorite fine grained brownish grey hematized groundmass. Contacts not sharp. 620.80 626.70 Ultramafic breccia. Chloritic groundmass/matrix hosts round ghosted salt and pepper textured fragments up to 2cm x 4cm from 620.8-624.0. Uncertain whether the fragments are a flow breccia or remnants of consumed footwall rocks. A foliated monolithic breccia from 624.0 626.7.	1100	630.50	630.80	.30	1440				24.99

Hole: L92-11 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		631.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-12

Co-ords: 11600 9050
Grid: 116+00N 90+50E

Azimuth: 305.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 703.0

Purpose: Test magnetic gradient
Comments: 4 10' NW & 4 10' BW casing cut apart
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
307.0		-44.0
685.0		-45.0

Property: Langmuir Block
Claim: CLM 142 & P7867
Township: Langmuir
Province: Ontario

Date Started: Jan. 30, 1992
Date Completed: Jan. 31, 1992
Logged by: Ian Trinder
Date Logged: Feb. 4, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	207.20	OVERBURDEN NW casing to 106ft; BW casing to 212ft. Abundant boulders below 106ft. Cored overburden from 106-205.3. Recovered a dense clay-rich cobble till from 137.0-149.0. Boulders and cobbles recovered below 149.0. 205.30 207.20 Probable andesite boulder. Very fine grained, massive, pale greenish grey homogeneous groundmass crosscut by minor calcite-quartz veinlets. Trace disseminated pyrite.									
207.20	220.70	ULTRAMAFIC 8.5ft Core loss between 207.2 and 217.0. Based on casing depth approximately 5ft of this may have been till underlying the possible andesite boulder. Only 0.1ft of talc gouge recovered from approximately 207.2-216.0. Very fine grained, massive, medium grey homogeneous pervasively talc-magnesite altered groundmass. Crosscut by moderate (5-10 per ft) random calcite veinlets up to 5mm wide. Trace fine disseminated pyrite. Core is broken and rubbly. 220.50 220.70 Dark black biotitic? alteration margin adjacent underlying dike.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Lower contact at 45 degrees to long core axis.									
220.70	247.10	DIORITE 220.70 234.50 Diorite. Possibly granodiorite?. Fine grained (<0.5mm), massive, pale grey homogeneous groundmass containing 5-10% mafic minerals and 2-3% fine (<0.5-1mm) disseminated pyrite. Extremely fractured and blocky core. Rock is crosscut by calcite and/or chlorite veinlets at 5-70 degrees to long core axis. Lower contact sharp at 5 degrees to long core axis. 234.50 247.10 Diorite. Fine grained (0.5mm), massive, pale to medium grey homogeneous porphyritic/xenolithic groundmass. Approximately 15% mafic minerals in groundmass. Approximately 5-10% mafic phenocrysts/xenoliths; small equant 1-2mm mafic grains are likely biotitic pseudomorphs of mafic phenocrysts. Larger (up to 2cm x 4cm) subround to angular ones are likely xenoliths and are of two compositions: biotitic and chlorite/talc. ~1% very fine (<0.5mm) disseminated pyrite. 0.2ft Biotitic chill margin at lower contact, 15 degrees to long core axis.									
247.10	703.00	THIN KOMATIITE FLOW SEQUENCE Brown earthy grey groundmass, where present, is soft and appears to be caused by presence of very fine biotite?? and talc? in groundmass. These brownish grey colored intervals generally have a strong K2O content. 247.10 278.60 Ultramafic. Very fine grained, massive, medium grey homogeneous groundmass. Pervasive talc-magnesite in groundmass. Greenish grey color from 247.1-254.5 indicates some chlorite content. Core is crosscut by moderate (5-10 per ft), random, anastomosing calcite-talc veinlets which sometimes have slightly chloritic selvages. Trace disseminated pyrite euhedra. 261.00 276.50 Core is extremely blocky and rubbly with gouge. </=1% disseminated pyrite euhedra. 278.60 287.00 Ultramafic Interflow Sediment. Sediment/tuff??. Aphanitic to fine grained (2mm max), brown earthy grey groundmass. Strong biotite? component. Bedded on scale of 0.1 to 4.0ft. Bedding at 25-70 degrees to long core	1112 1113 1114 1115 1116 1117	256.50 317.00 383.20 488.95 531.00 628.40	256.75 317.25 383.45 489.20 531.25 628.65	.25 .25 .25 .25 .25 .25	1360 1650 1790 1780 1920 1580				26.31 22.46 31.30 29.77 36.30 28.64

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		axis. Moderate (5-10 per ft) calcite veinlets at 0-50 degrees to long core axis. 287.00 303.40 Komatiite Flow. Very fine grained, massive medium greenish grey to brownish earthy grey groundmass. The brownish grey colored mineralogy is dominant and appears to be an alteration overprint of the med gry talc-magnesite mineralogy which occurs as remnant patches and is dominant from 298.8-303.4. 291.40 291.70 Possible spinifex or may be an irregular fracture pattern. Brownish grey color. 292.60 292.80 Possible spinifex or may be an irregular fracture pattern. Brownish grey color. 295.50 298.80 Possible spinifex or may be an irregular fracture pattern. Brownish grey color. Minor calcite veinlets. Lower contact at 45 degrees to long core axis and defined by calcite veinlet. 303.40 308.90 Komatiite Flow. 303.40 305.80 A Zone ? Possible spinifex or may be an irregular fracture pattern. Brownish grey color. 305.80 308.90 B Zone very fine grained, massive, brownish grey groundmass. Brecciated with abundant stockwork calcite veinlets. 308.90 350.60 Komatiite Flow. Very fine grained, massive, brownish grey groundmass. Moderate to extensive calcite veining at 15-40 degrees to long core axis. Brownish color most intense in selvages to calcite veins. Light grey aphanitic talc veining also associated with the calcite veining. 329.50 350.60 Deformation zone characterized by intense contorted to laminar calcite veining (up to 80% of rock volume). 350.60 358.40 Komatiite Flow. Brownish grey colored groundmass grading to medium grey at ~356.0. 350.60 350.80 A2 Zone fine random spinifex. 350.80 352.10 A3 Zone coarse sheaf spinifex. 352.10 354.70 A3 Zone fine to coarse hairthin random spinifex. 354.70 358.40 B Zone massive, talc magnesite altered groundmass. Moderate calcite veinlets at 0-80 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Lower contact indistinct. 358.40 367.50 Komatiite Flow. Medium grey talc-magnesite altered groundmass. 358.40 359.00 A2 Zone fine random spinifex. 359.00 367.50 B Zone fine grained, massive groundmass with patches of fine random spinifex from 359.3-360.7. Moderate calcite veinlets, locally intense ie. 360.9-362.0. 367.50 387.50 Komatiite Flow. Medium grey talc-magnesite altered groundmass. 367.50 368.60 A2 Zone fine random spinifex. 368.60 369.00 A2 Zone coarse random spinifex. 369.00 369.60 A2 Zone fine grained, massive. 369.60 370.10 A2 Zone coarse random spinifex. 370.10 371.00 A3 Zone coarse sheaf spinifex. 371.00 371.50 A3 Zone random disrupted spinifex. 371.50 387.50 B Zone fine grained, massive. Broken and rubbly talcose zone from 379.0-382.6. Minor (<5 per ft) magnesite-talc veining. Lower contact defined by a 2cm magnesite veinlet at 10 degrees to long core axis with a corresponding change in magnetism and color. 387.50 419.70 Komatiite Flow. Very fine grained, massive, medium grey groundmass. Slight green tint suggests chlorite content which accounts for the harder groundmass and lack of talcose feel. Less magnetic than overlying and underlying units. May be part of the overlying or underlying unit. Minor magnesite veinlets. Several unusual 5mm talc veinlets at 388.5 to 392.0 contain irregular blebs of white magnesite. Lower contact based on change to magnetic and talcose rock. 419.70 447.30 Komatiite Flow. Very fine grained, massive, medium grey groundmass. Talcose from 419.7 to 430.0 becoming less so downhole of 430.0. Minor 1-3mm magnesite and 1-5mm pale greenish grey talc veinlets at 0-70 degrees to long core axis. Groundmass selvages around talc and magnesite veinlets are lighter grey color. 447.30 497.60 Komatiite Flow. Very fine grained, massive, medium grey groundmass										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		similar to above unit. Not very talcose. 447.30 448.20 A1 Zone very fine grained, massive. 448.20 448.40 A2 Zone fine random spinifex. 448.40 448.60 A3 Zone fine sheaf? spinifex. 448.60 497.60 B Zone very fine grained, massive. 456.70 480.50 Zone of abundant calcite-extremely soft fibrous serpentine (possibly talc??). One 2-3cm wide carbonate-serpentine vein subparallels LCA from 460-465. Other veins are subparallel to 70 degrees to long core axis. 480.50 497.60 Moderately abundant thin anastomosing low angle serpentine (soft & talc-like?) veinlets/fracture fills. Lower contact defined by a 5mm wide magnesite veinlet. 497.60 506.10 Komatiite Flow. Medium grey talc?-magnesite? altered groundmass. 497.60 498.60 A2 Zone fine random spinifex (1mm x <10mm) grading into coarse random spinifex (1-2mm x 10-20mm). 498.60 506.10 B2 Zone fine grained, massive, talc magnesite alteration generally obliterates texture but fine orthocumulate (1.0-1.5mm) grains preserved from 500.6-503.7. Moderate (5-10 per ft), 1-10mm wide talc-calcite-(magnesite) veinlets are subparallel to 60 degrees to long core axis. 503.70 504.80 Foliated talc-magnesite veined zone subparallel to 20 degrees to long core axis. Lower contact sharp at 65 degrees to long core axis. 506.10 510.00 Komatiite Flow. Medium grey magnesite-talc altered groundmass. 506.10 506.80 A2 Zone fine random spinifex. 506.80 507.20 A3 Zone fine sheaf spinifex. 507.20 508.60 A3 Zone coarse sheaf spinifex. 508.60 510.00 B Zone very fine grained, massive, talc magnesite altered groundmass. Pervasive magnesite? in groundmass; moderate (5-10 per ft) 1-2mm wide calcite veinlets. Groundmass not very talcose. 510.00 513.10 Komatiite Flow. Medium grey magnesite-talc altered groundmass.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		510.00 510.60 A3 Zone coarse sheaf spinifex. Upper contact somewhat indistinct ie. Not razor sharp. 510.60 513.10 B Zone very fine grained, massive. Moderate (5-10 per ft) calcite-talc veinlets subparallel to 70 degrees to long core axis. Lower contact sharp at 60 degrees to long core axis. 513.10 543.00 Komatiite Flow. Fine grained, medium to pale grey groundmass. 513.10 514.10 A2 Zone medium random spinifex (1mm x 0.5-2cm). 514.10 515.40 A3 Zone coarse sheaf spinifex highlighted by pervasive calcite. Gradational upper and lower contacts. 515.40 516.30 B1 Zone very fine grained, massive. 516.30 518.30 B1 Zone fine grained, ~60% tabular 1mm x 2mm light greenish grey laths with very fine dark greenish black interstitial material. An ophitic texture. ~60% 1-2cm wide calcite-talc gouge filled veinlets from 517.6-518.3. 518.30 519.00 B2 Zone very fine grained, massive, medium grey groundmass gradational into lower unit - contact an alteration front? 519.00 536.00 B2 Zone fine grained cumulate zone. Unit identified on basis of change in color to light grey (pervasive magnesite) and an associated drop in magnetic susceptibility. The pervasive carbonate highlights the cumulate texture. Rock is massive and fine grained (1mm) from 519.0-520.6; a fine tabular orthocumulate from 520.6-521.6 and; fine grained (0.5-1.0mm) massive equigranular with moderate (5 per ft) 1-3mm calcite veinlets from 521.6-536.0. A patch/fragment of coarse random spinifex occurs at 522.2-522.5. 536.00 543.00 Zone of deformation/alteration. Intense calcite-(talc) veining subparallel to LCA. Fine tabular orthocumulate preserved from 541.8-542.5. 543.00 553.60 Komatiite Flow. May be same unit as 519.0-536.0. 543.00 544.60 Fine grained massive equigranular. 544.60 549.60 A2 Zone fine random spinifex or tabular orthocumulate? characterized by 0.5-1mm x 1-2mm laths with 30-40% interstitial									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		material.									
		549.60 550.00 A2 Zone coarse random spinifex with 2-3mm x 10-20mm laths.									
		550.00 553.60 B Zone fine grained massive equigranular. Similar to 521.6-536.0. Sharp lower contact defined by 2cm talc veinlet at 40 degrees to long core axis.									
		553.60 557.20 Komatiite Flow.									
		553.60 554.90 A3 Zone coarse sheaf spinifex.									
		554.90 557.20 B Zone fine grained, (</=0.5mm) massive, equigranular groundmass. Lower contact not sharp.									
		557.20 565.90 Komatiite Flow.									
		557.20 557.70 A Zone ? fine grained, 0.5-1mm x 5-10mm laths.									
		557.70 565.90 B Zone massive, fine grained (</=0.5mm), equigranular groundmass except 560.8-¯564.0 which comprises fine 0.5mm x 1mm tabular cumulate.									
		565.90 593.00 Komatiite Flow.									
		565.90 567.30 A3 Zone coarse random light grey laths? (0.5cm x 2-4cm) in a dark grey groundmass laminated similar to sheaf spinifex. The laminations parallel the laths suggesting the the laths are actually serpentine? altered margins of sheaf spinifex.									
		567.30 593.00 B Zone fine grained, massive, equigranular cumulate groundmass. Similar to 521.6-536.0 with coarser patches from 590.2-593.0 which is probably a calcite overprint. A 3cm wide calcite-(talc) vein runs from 592-593 at 15 degrees to long core axis. Calcite locally pervasive in groundmass from 585-593.									
		593.00 703.00 Komatiite Flow.									
		593.00 600.00 Very fine grained to fine grained (</=0.5mm), massive, equigranular groundmass. Pale greenish grey color suggests the presence of chlorite in groundmass. Calcite pervasive in groundmass and in moderate (5-10 per foot) veinlets.									
		600.00 701.00 Fine grained (</=0.5mm), massive, medium grey, equigranular (talc?-magnesite?) altered groundmass. Cut by moderate (3-7									

Hole: L92-12 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		per foot) talc-calcite fracture fills at 0-90 degrees to long core axis. The fracture fills are generally only 2-3mm wide but where thicker the filling is quite soft and gouge-like. Contact at 600.0 is based on a 2cm gouge zone and a change to medium grey color and an increase in magnetic susceptibility. The contact also corresponds to a decrease in calcite veining and groundmass carbonate. Soft talc-calcite gouge-like zone from 653.1-658.3. Abundant talc-calcite gouge-like fracture fills/veins up to 0.2ft wide.									
701.00	703.00	Coarser grained (1-2mm) light grey equigranular groundmass, probably a result of carbonate (magnesite) overprint. Calcite veinlets with minor dark green talc veinlets at 5-40 degrees to long core axis.									
703.00		END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 3650 8900
Grid: 36+50N 89+00E

Azimuth: 325.0
Grid Az: 290
Dip: -45.0

Elevation: 1000

Length: 517.0

Purpose: Test magnetic gradient & strike of L92-5
Comments:
Materials left in Hole:

*** Dip Tests ***

Depth	Azi.	Dip
217.0		-43.0
477.0		-43.0

Hole No.: L92-13

Property: Langmuir Block
Claim: CLM 141
Township: Langmuir
Province: Ontario

Date Started: Feb. 1, 1992
Date Completed: Feb. 2, 1992
Logged by: Ian Trinder
Date Logged: Mar. 12, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	31.50	OVERBURDEN									
31.50	140.50	THIN KOMATIITE FLOW SEQUENCE A sequence of flow units with interflow sediment or a single flow with depending on the origin of the fine brownish-olive green zones which generally have sharp contacts parallel to foliation. 31.50 38.00 Komatiite Flow. Massive, fine grained, light greenish grey, moderately soft groundmass. Pervasive chlorite-magnesite?-talc alteration obliterates primary textures. Grainsize appears to coarsen from 0.5 to 1mm downhole. Minor calcite veinlets (0.1-1cm) and moderate foliation at 52 degrees to LCA from 35.5 to 38.0. 38.00 38.40 Fault Gouge. 38.40 38.80 Ultramafic Interflow Sediment. Aphanitic, massive, medium brown moderately soft groundmass. Uncertain of could be talc or extremely fine biotite/chlorite? Groundmass cut by calcite and light grey talc? veinlets. Broken contacts. 38.80 63.40 Komatiite Flow. As in 31.5 to 38.0. Groundmass generally fine (0.5mm) but local patches up to 1.5mm. Local weak-moderate foliation at 45 degrees to LCA. Minor calcite veinlets. 63.40 63.90 Ultramafic Interflow Sediment.	1226	128.50	128.75	.25	1290				27.77

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		As in 38.4 to 38.8. Aphanitic, medium brown moderately soft groundmass envelopes med olive-green patches/fragments of similar hardness and texture. Calcite veinlets cut only the brown groundmass. Possibly the groundmass is an alteration of the green groundmass around the calcite veinlets. Weak to moderate foliation at 65 degrees to LCA. Trace to 1% pyrite blebs associated with the calcite. Upper and lower contacts at 50 degrees to LCA. 63.90 67.00 Komatiite Flow. As in 31.5 to 38.0. Groundmass appears to grade from 0.5mm to 1.5mm downhole. But local patches up to 1.5mm. Massive. Rare calcite veinlets. 67.00 67.90 Ultramafic Interflow Sediment. As in 38.4 to 38.8. Aphanitic, medium brown moderately soft groundmass hosts up to 5% soft 1mm pseudomorphs?. The groundmass envelopes a 0.4 ft, rounded fragment of komatiite. Minor calcite veinlets cut only the brown groundmass. Weak to moderate foliation at 65 degrees to LCA. Upper and lower contacts at 60 degrees to LCA. 67.90 87.00 Komatiite Flow. As in 31.5 to 38.0. Groundmass 0.5 to 1mm. Massive. Minor calcite veinlets. 87.00 91.30 Ultramafic Interflow Sediment. As in 38.4 to 38.8. Aphanitic to very fine, medium brown to olive green moderately soft groundmass. Locally 10% carbonate pseudomorphs? Minor calcite veinlets. Moderate foliation at 45 degrees to LCA. Upper contact broken; lower contacts at 30 degrees to LCA. Trace to 1% pyrite blebs associated with the calcite. 91.30 140.50 Komatiite Flow. As in 31.5 to 38.0. Groundmass 0.5 to 1mm. Massive. Gradational color change to medium-dark grey downhole from approximately 105.0 to 130.5. Back into light greenish grey to the base. The darker grey area appears to be less chloritic and carbonatized? Minor calcite veinlets. Possible flow contact at 100.8 (possible flow top breccia 100.8-101.5).									
140.50	211.70	THIN KOMATIITE FLOW SEQUENCE Several flow units comprising spinifex textured flow tops and massive bases. The section generally consists of very fine to locally fine, dark grey, massive talc-magnesite altered groundmass. Trace disseminated	1227	194.50	194.75	.25	1590				32.10

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		pyrite euhedra.									
		140.50 186.70 Komatiite Flow.									
		140.50 142.00 Massive very fine grained light green-grey chlorite-carbonate altered groundmass crosscut by rare 1 to 5mm random calcite veinlets as in the overlying flows.									
		142.00 143.20 Fine random spinifex of similar composition and alteration as 140.5 to 142.0 Gradational upper and lower contact									
		143.20 164.50 Coarse sheaf spinifex; light green-grey chlorite altered groundmass grading downhle into dark grey magnesite-(talc?) altered groundmass similar in composition to the underlying massive section. Groundmass crosscut by minor 1 to 5mm random calcite veinlets.									
		164.50 186.70 Massive, very fine, salt and pepper textured (<0.5mm), medium grey magnesite-(talc) altered groundmass crosscut by moderate 0.1 to 2cm random calcite veinlets. Dark green platey serpentine also present in veinlets alone or with calcite. Trace disseminated pyrite associated with calcite veining.									
		186.70 198.90 Komatiite Flow.									
		186.70 187.30 Massive very fine grained light green-grey chlorite-carbonate altered groundmass crosscut by rare 1 to 5mm random calcite veinlets. Upper 0.1 ft is a foliated calcite rich zone at 65 degrees to LCA.									
		187.30 187.70 Fine random spinifex. Gradational upper and lower contact.									
		187.70 188.50 Coarse sheaf spinifex; light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random calcite veinlets.									
		188.50 198.90 Massive, very fine, salt and pepper textured (<0.5mm), medium grey magnesite-(talc) altered groundmass crosscut by moderate 0.1 to 2cm random calcite veinlets.									
		198.90 211.00 Komatiite Flow.									
		198.90 199.30 Very fine grained light green-grey chlorite-carbonate altered groundmass crosscut by rare 1 to 5mm random calcite veinlets. Foliated calcite rich zone at									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		55 degrees to LCA. 199.30 199.70 Fine random spinifex. Gradational upper and lower contact. 199.70 202.80 Coarse sheaf spinifex; light green-grey chlorite altered groundmass crosscut by minor 1 to 5mm random calcite veinlets. 202.80 211.00 Massive, very fine, salt and pepper textured (<0.5mm), light grey magnesite-(talc) altered groundmass crosscut by minor 0.1 to 1cm random calcite veinlets. Becomes more chloritc downhole. Trace disseminated pyrite euhedra. 211.00 211.70 Komatiite Flow. Possible poorly preserved spinifex. May be base of the overlying flow. 0.1 ft of very fine chloritic groundmass forms margin to underlying dike.									
211.70	213.80	DIORITE Very fine grained, massive, light brown to salmon, equigranular diorite? Narrow chilled margins. Trace to 1% <1mm disseminated pyrite euhedra. Upper and lower contacts at 32 and 83 degrees to LCA respectively.									
213.80	231.20	FELDSPAR PORPHYRY Massive very fine grained to aphanitic light grey siliceous groundmass hosts 15-20% 1 to 3mm white subhedral to euhedral, equant to tabular feldspar phenocrysts. Local ghosting (silicification?) of the porphyritic texture. Minor quartz and calcite veining/fracture filling at 40-65 degrees to LCA.									
231.20	235.90	DIORITE As in 211.7-213.8. Very fine grained, massive, light brown to salmon, equigranular diorite? Possible narrow chilled margins. Several dark green chloritic ultramafic xenoliths up to 1cm. Trace to 1% <1mm disseminated pyrite euhedra. Upper and lower contacts at 45 degrees to LCA.									
235.90	236.40	ULTRAMAFIC Fine grained chlorite carbonate altered ultramafic xenolith with strong foliation at 50 degrees to LCA.									
236.40	248.10	FELDSPAR PORPHYRY									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		As in 213.8 to 231.2. Extensive ghosting (silicification?) of the porphyritic texture. Trace disseminated pyrite associated with veinlets Minor quartz and calcite veining/fracture filling at 40-65 degrees to LCA. Upper contact at 50 degrees to LCA.									
248.10	253.00	DIORITE As in 211.7-213.8. Very fine grained, massive, light brown to salmon, equigranular diorite? Possible narrow chilled margins. Abundant angular to rounded fragments of ultramafic and rare ghosted feldspar porphyry 1 cm to 6 cm diameter. Trace <1mm disseminated pyrite euhedra. Upper and lower contacts at 25 (undulose) and 72 degrees to LCA respectively.									
253.00	262.40	FELDSPAR PORPHYRY As in 213.8 to 231.2. Extensive ghosting (silicification?) of the porphyritic texture. Trace disseminated pyrite associated with veinlets Minor quartz and calcite veining/fracture filling at 40-65 degrees to LCA. 256.6 257.0 Diorite dikelet with chilled margins; chloritic wisps and fracture fillings in porphyry 1 foot above and below diorite dikelet.									
262.40	280.40	SILICEOUS METASEDIMENT 262.40 263.20 Tuffaceous Metasediment. Aphanitic chloritic tuff/sediment. Foliated at 75 degrees to LCA. 263.20 266.20 Siliceous Metasediment. Brecciated massive pyrite with minor quartz-calcite matrix and several white brecciated chert layers. Several chert fragments in sulphide matrix at base of unit. 266.20 267.30 Tuffaceous Metasediment. Aphanitic chloritic tuff/sediment. Intense pervasive carbonatization (calcite). Foliated at 70-75 degrees to LCA. 267.30 269.20 Diorite. As in 211.7-213.8. Very fine grained, massive, light brown to salmon, equigranular diorite? Trace <1mm disseminated pyrite									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		euhedra. Upper and lower contacts at 80 and 75 degrees to LCA respectively. 269.20 269.50 Tuffaceous Metasediment. Fine chloritic tuff/sediment. 269.50 270.70 Siliceous Metasediment. Light grey chert/quartz vein with 0.1 foot pyrite-rich band at top of section. 270.70 279.80 Tuffaceous Metasediment. Fine dark green chloritic tuff/flow. 5-7% 1mm biege leucoxene? phenocrysts. Massive to weakly foliated at 75 degrees to LCA. Moderate to abundant calcite-(quartz) veinlets 1mm to 20cm wide. Trace disseminated pyrite euhedra. 279.80 280.40 Tuffaceous Metasediment. Breccia. Several rounded buff colored felsic clasts softer grey matrix. Possibly a tectonized contact with the underlying dike.									
280.40	287.60	FELDSPAR PORPHYRY As in 213.8 to 231.2. Extensive ghosting (silicification?) of the porphyritic texture. Upper contact at 47 degrees to LCA.									
287.60	291.20	DIORITE As in 211.7-213.8. Very fine grained, massive, light brown to salmon, equigranular diorite? 10% groundmass chlorite. 1% <1mm disseminated pyrite euhedra. Upper and lower contacts at 79 degrees to LCA. Minor calcite veinlets.									
291.20	304.00	FELDSPAR PORPHYRY As in 213.8 to 231.2. Extensive ghosting (silicification?) of the porphyritic texture. Lower contact at approximately 45 degrees to LCA.									
304.00	305.70	TUFFACEOUS METASEDIMENT Fine chloritic tuff/sediment; bedded?. Calcite in veinlets and pseudomorphs. Foliation/bedding at 73 degres to LCA.									
305.70	316.40	DIORITE As in 211.7-213.8.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Very fine grained, massive, light brown to salmon, equigranular diorite? 10% groundmass chlorite. 1% <1mm disseminated pyrite euhedra. Contains several irregularly shaped ultramafic xenoliths up to 6cm diameter with light green-grey cores and darker olive green-brownish grey rims. Upper and lower contacts at 80 degrees to LCA. Minor calcite veinlets.									
316.40	387.40	KOMATIITE FLOW Possibly multiple flows?. Core is extremely rubbly with some gouge from 316.6 to 324.6 and 369.3 to 373.3.	1228 1229	378.25 386.50	378.50 386.75	.25 .25	1230 730				27.48 20.32
		316.40 316.90 Chloritic zone. Very fine grained, broken contacts.									
		316.90 320.20 Ultramafic. Rubbly talc-carbonate altered very fine medium grey ultramafic. Below 317.6 carbonate changes from calcite to dominantly magnesite.									
		320.20 321.10 Diorite. Possible diorite dike; extremely rubbly.									
		321.10 324.40 Ultramafic. Rubbly, talc-carbonate (magnesite) altered, very fine, medium grey groundmass with some gouge.									
		324.40 333.70 Komatiite Flow. Massive, fine grained (0.5-1mm), equigranular, talc-magnesite altered groundmass. Medium grey color. Alteration obliterates primary textures.									
		The core is crosscut by moderate (5 to 7/ft) 0.1 to 2.0cm magnesite-talc veinlets at 30 to 90 (ave 70-80) degrees to LCA.									
		333.70 387.40 Komatiite Flow. May be same unit as above, Contact selected at relatively sharp break in grainsize and hardness, but this may just reflect a change in alteration. Massive, very fine grained (0.5mm), equigranular, serpentinized?, variably carbonatized groundmass. Medium to grey color. Slight variations in color and grainsize may be an alteration effect or possibly indicates multiple flows. No distinct contacts observed. The core is quite hard and rings when hit with hammer Upper contact at approximately 50? degrees to LCA.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		This section may be basaltic komatiite in composition.									
		The core is crosscut by moderate (<2 to 5/ft) 1mm to 6cm magnesite veinlets from 333.7 to approximately 359.0. Dark green-black platey serpentine is common as bands in the magnesite veinlets or in an earlier set of monomineralic serpentine veinlets (1-5mm) Downhole of 359.0 only minor calcite-(talc) veinlets are present									
		354.60 363.20 Groundmass is light to medium grey color due to pervasive talc-carbonate (magnesite?) alteration. Weak chloritization of groundmass from 363.2 to 367.0. Intense calcite talc veining from 367.2 to 368.4. Moderate chloritization of the groundmass from 382 to 387.4.									
		Trace to 1% pyrite as disseminated and veinlet hosted blebs up to 3mm diameter from 368.4 to 377.2.									
		Lower contact at 35 degrees to LCA.									
387.40	517.00	ANDESITE TUFF									
		Massive, very fine grained, light grey to greenish grey groundmass hosts 2-3% 1mm to 3mm calcite and rare quartz ovoids. Slight grainsize variations and locally fragmental zones indicate that the section consists of tuffaceous volcanics. Fragments are monolithic and of similar composition to the groundmass. No distict contacts obvious. Local fine calcite-rich laminations at 55 degrees to LCA may reflect primary layering or foliation. Locally appears to be autobrecciated. Angular fragments of groundmass up to 1 to 2cm with siliceous fracture filling matrix. Fragmental bed from 513.3 to 517.0 (EOH).									
		Minor 1 to 5mm calcite veinlets subparallel to 75 degrees to LCA. Calcite locally pervasive in the groundmass.									
		Trace pyrite associated with calcite veinlets.									
		517.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-14

Co-ords: 12600 10000
Grid: 126+00N 100+00E

Azimuth: 300.0
Grid Az: 255
Dip: -45.0

Elevation: 1000

Length: 606.0

Purpose: Test North Zone & magnetic gradient
Comments:
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
300.0		-47.0
576.0		-47.0

Property: Langmuir Block
Claim: CLM 142 & P7867
Township: Langmuir
Province: Ontario

Date Started: Feb. 3, 1992
Date Completed: Feb. 5, 1992
Logged by: Ian Trinder
Date Logged: Feb. 10, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	87.00	OVERBURDEN									
87.00	121.70	ULTRAMAFIC Rock comprises very fine grained to aphanitic, medium grey, massive, equigranular, talc-magnesite altered (relatively soft) groundmass which has a brecciated fabric. The breccia is angular with some fragments having a jig-saw-like fit. Fragments are poorly sorted varying from <3mm to >5cm. Matrix is very fine grained to aphanitic pale greenish grey talc. Interpret it as a pseudobreccia created by talc alteration but may also be an autobreccia?. Unit is crosscut by minor (<5 per foot) <1mm to 5mm thick magnesite/talc/serpentine veinlets subparallel to 80 degrees to long core axis. 87.00 99.40 Rock has a greenish grey color and is very rubbly but still has the same brecciated fabric. Color appears to be a weathering affect (proximity to bedrock-till contact?) Lower contact gradational ? Not very sharp.	1118	120.50	120.75	.25	1340				30.08
121.70	159.30	KOMATIITE FLOW This unit may be part of the underlying serpentinized cumulate. Texture now obliterated by magnesite-(talc) alteration. Talc content is not excessive; the rock is	1119	152.50	152.75	.25	2350				39.38

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		moderately hard. The lower contact has been chosen at the point at which serpentinized cumulate first appears Fine grained to very fine grained (<0.5mm), massive equigranular medium grey groundmass. Talc-magnesite? alteration pervasive in the groundmass. Moderate (~5 per foot) 1-5mm magnesite-talc- platy hunter green serpentine veinlets at 10-80 degrees to long core axis. Carbonate alteration gives core a porphyritic appearance from 123-125.5 with 15-20% 1-2mm white carbonate pseudomorphs/porphyroblasts. Patches of remnant coarser cumulate texture (1-3mm) from 127.6-127.9; 138.3-138.5; 139.6-140.0; 144.0-144.5; 145.8-146.1; 150.1-150.3 and; 154.5-154.7. Local 1-2% </=0.5mm disseminated euhedral magnetite. 131.50 134.00 Serpentinized greenish grey groundmass bounded by magnesite veining. 141.80 142.20 Aphanitic soft chloritic zone. Sharp contacts at 45 degrees to long core axis. 153.60 154.20 Possible harrisitic texture. Unlikely to be spinifex. Could possibly be an alteration overprint. 155.00 158.50 Very fine grained (</=0.5mm) chloritic zone with salt and pepper texture. Upper contact gradational, lower contact is broken core. 158.50 159.30 Coarse grained (2-3mm) pervasively carbonatized groundmass. Sharp lower contact steplike and averages 40 degrees to long core axis.									
159.30	313.00	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 159.30 160.10 Ultramafic. Very fine grained to fine grained (</=0.5mm) medium greenish grey groundmass with gradational lower contact 160.10 179.00 Orthocumulate Komatiite/Komatiitic Peridotite. Medium greenish grey, fine grained to medium grained (1-2mm) cumulate texture. Appears to be similar to the underlying subunit except this has more pervasive carbonate? Moderate (~5 per foot) 1-2mm fibrous serpentine veinlets. Minor magnesite veinlets. A 0.15ft wide aphanitic greenish grey to reddish brown laminated zone at 178.85 is probably an alteration	1120 1121	267.50 311.60	267.75 311.85	.25 .25	2560 1790				45.75 31.16

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		effect; margins are texturally similar. 179.00 270.00 Orthocumulate Komatiite/Komatiitic Peridotite. Serpentinized close-packed orthocumulate. Massive, dark greenish grey groundmass generally 1- 3mm subhedral-anhedral, equant-subequant grains, but local tabular grains reach up to 3mm x 8mm (megacrystic). Megacrystic zones may actually be an alteration effect caused by carbonatization of the groundmass. Grainsize changes are gradational. Interstitial material and occassional cumulate grains are locally carbonatized to a light to medium grey color. Moderate (<5 per foot) 1-2mm magnesite and/or serpentine veinlets subparallel to 85 degrees to long core axis. Serpentine is both fibrous and platy when associated with carbonate veins. 245.00 265.00 Ocassional patch containing tabular cumulate grains 2mm x 4mm to 2mm x 12mm. 270.00 313.00 Cumulate Komatiite/Komatiitic Peridotite. Gradational from above, probably same unit. Pale to medium grey groundmass characterized by pervasive carbonatization and moderate (5 - >10 per foot) 1-5mm magnesite-serpentine (rare talc) veinlets at 15-80 degrees to long core axis. Carbonatization locally results in a fine grained massive texture with cumulate texture completely obliterated. Elsewhere relict patches of cumulate texture are well preserved (less carbonate; serpentine still present?). Locally 1-2% fine (</=0.5mm) disseminated magnetite. 295.00 309.30 Serpentine magnetite veinlets become intense enough to create a stockwork fabric. 309.30 313.00 Massive, very fine grained to aphanitic moderately talcose groundmass with 1% disseminated pyrite euhedra from 311.0-313.0.									
313.00	338.10	ULTRAMAFIC ANDESITE-DACITE VOLCANIC BRECCIA A breccia zone with fragments ranging from <5mm to >5cm and averaging 5mm to 2cm. Groundmass and veinlet	1122	331.75	332.00	.25	1870				24.13

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		carbonate is calcite. 313.00 317.20 Ultramafic breccia. Dark greenish grey breccia with grey aphanitic angular to subangular ultramafic fragments in a soft green chloritic ? talcose? matrix. 1% disseminated pyrite euhedra. The entire unit is crumbly and somewhat incompetent. The matrix may be some sort of clay. 315.70 317.20 Rock is 80% matrix material comprising very fine grained (</=0.25mm) soft green platy micaceous groundmass with ~5% disseminated pyrite. 317.20 324.30 Andesite-Dacite Volcanic breccia. Brecciated intermediate volcanic?. Very fine grained pale to medium grey angular to subangular intermediate fragments in dark green chloritic ? talcose? matrix. Many fragments are fractured and have chloritic infills. Fragments are locally lightly hematized/K-felspathized. ~1% disseminated pyrite euhedra up to 5mm. 324.30 336.30 Ultramafic breccia. Dark to medium grey, very fine grained ultramafic ? Relatively soft fragments in a dark green chloritic?-talcose and calcite-rich matrix. Similar to 317.2-324.3 except fragments are generally softer and vary from rounded to angular. May be heterolithic. 325.00 325.50 Angular brecciated spinifex. 333.50 336.30 Foliated strongly carbonated (calcite) and talcose groundmass. Foliation at 60 degrees to long core axis. 336.30 337.10 Diorite massive, fine grained (</=0.5mm) groundmass. Upper and lower contacts at 80 and 60 degrees to long core axis respectively. 337.10 338.10 Foliated strongly carbonated (calcite) and talcose groundmass. Foliation at 60 degrees to long core axis.									
338.10	366.20	ANDESITE-DACITE VOLCANIC Intermediate volcanic? possibly a dike?. Pale grey very fine grained to aphanitic, massive aphyric groundmass. 338.10 338.60 Fine grained groundmass with pervasive chlorite. Foliation at 60 degrees to long core axis. 338.60 340.40 Groundmass fractured with chlorite	1123	354.70	355.00	.30	40				1.03

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		infilling. 340.40 341.60 Weak chloritic wisps. 341.60 363.40 Massive, aphanitic groundmass. 363.40 366.20 Breccia. Weak pinkish grey alteration?/bleaching. Up to 5% </=0.5mm mafic phenocrysts from 364.5-366.2 with texture similar to underlying dike. Minor quartz and or calcite veinlets at 55-90 degrees to long core axis. Minor chlorite fracture filling. Trace disseminated pyrite euhedra. Upper contact sharp at 80 degrees to long core axis. Lower contact sharp but irregular or jagged.									
366.20	368.30	ULTRAMAFIC Aphanitic, massive, dark greenish grey, soft and crumbly, talcose groundmass foliated at 85 degrees to long core axis.									
368.30	372.70	DIORITE Fine grained, massive, pale grey to salmon colored groundmass with 10% mafic minerals. Patchy K-spar alteration results in obliteration of primary textures. Minor chloritic fracture filling. Upper and lower contacts at 40 and 30 degrees to long core axis respectively.									
372.70	606.00	THIN KOMATIITE FLOW SEQUENCE Carbonate generally magnesite except for calcite veinlets from 448.7-454.4; 486.7-503.8; 515.2-557.0; 587.0-606.0. 372.70 377.80 Ultramafic. Aphanitic, pale to medium grey talcose ultramafic. 374.40 374.80 Diorite dike with 0.1ft wide chloritic margins. The chloritic margins may be part of the dike or altered ultramafic. The contacts are somewhat gradational both into the dike and into the ultramafic. 377.80 408.00 Ultramafic. Fine grained to very fine grained, massive, medium grey groundmass. Moderately soft (talcose?). Carbonate is both pervasive in the groundmass and in veinlets. Moderate to abundant (>10 per foot) carbonate veinlets 377.8-399.5 and 405.0-408.0. Locally stockwork. Biege Fe-oxide weathering carbonate	1124	405.40	405.65	.25	1810				35.00
			1125	424.80	425.05	.25	80				2.51
			1130	455.70	455.95	.25	370				11.06
			1126	483.75	484.00	.25	1540				30.59
			1127	526.50	526.75	.25	1440				29.14
			1128	571.50	571.75	.25	1940				33.80
			1129	601.20	601.45	.25	1570				27.58

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		veinlets from 394-396. 408.00 430.60 Ultramafic. Possible flow contact at 408.0 characterized by a change from carbonate stockwork ultramafic to massive ultramafic with no carbonate veinlets. Greenish grey talcose groundmass likely due to dikes intruding the unit. Entire section including dikes is quite rubbly and broken. 411.20 411.60 Diorite salmon colored groundmass appears to be hematized or K-feldspathized and contains 1-2% disseminated pyrite. Dike contacts are not sharp; the hard salmon colored groundmass grades over several mm into a green chloritic chill margin (or altered um?) which in turn grades into talcose ultramafic. 413.00 415.00 Diorite salmon colored dike as in 411.2-411.6. 416.60 420.00 Diorite salmon colored dike as in 411.2-411.6. 423.70 428.00 Diorite salmon colored dike as in 411.2-411.6. 430.60 606.00 Komatiite Flow. Possibly another flow(s). Aphanitic to very fine grained ultramafic groundmass. Unit is characterized by abundant carbonate veining which becomes so intense as to create a stockwork fabric. Trace disseminated pyrite. 430.60 431.20 Possible spinifex zone but difficult to distinguish because of brecciation and veining. 441.00 509.30 Rock commonly has brecciated appearance but it is probably a pseudobreccia created by the carbonate veining. 453.60 453.90 Diorite grey, fine grained groundmass contains ultramafic xenoliths up to 1cm diameter. Sharp contacts at 65 degrees to long core axis. 455.40 456.50 Diorite grey, fine grained groundmass contains ultramafic xenoliths up to 2cm diameter. Sharp upper and lower contacts at 60 and 55 degrees to long core axis respectively. Lower contact has a 2cm chloritic chill/baked margin. 456.50 482.00 Intensely brecciated ultramafic. Possibly a primary tectonic breccia with subsequent carbonate stockwork									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		overprint. A weak foliation/fabric at 60 degrees to long core axis.									
		466.00 468.40 Diorite salmon colored groundmass appears to be hematized or K-feldspathized and contains 1-2% disseminated pyrite. Dike contacts are relatively sharp. Upper contact broken. Lower contact at 75 degrees to long core axis.									
		490.20 491.10 Diorite brownish-salmon colored fine grained groundmass. Upper contact at 55 degrees to long core axis with 4cm wide chloritic chill/baked margin which has a sharp contact with the main dike. Lower contact at 55 degrees to long core axis with 2cm wide dark black chloritic-biotitic chill/baked margin.									
		491.50 492.00 Diorite as in 490.2 to 491.1. Upper and lower contacts characterized by gradation into 1cm wide dark green-black biotitic zone gradational into 1cm wide chloritic zone. The biotite-chlorite zones may be chill/baked margins but have sharp contacts with ultramafic.									
		495.50 496.00 Diorite as in 490.2 to 491.1. Downhole the dike consists of 2cm chloritic zone, 1cm biotitic zone, 2cm diorite, 1cm biotitic zone, 2cm chloritic zone. Upper contact sharp at 80 degrees to long core axis. Lower contact gradational.									
		498.70 507.00 Intensely brecciated ultramafic. Possibly a primary tectonic breccia with subsequent carbonate stockwork overprint. A weak foliation/fabric at 60 degrees to long core axis.									
		503.70 506.00 Multiple dike zone consisting of fine grained diorite from 503.7 to 504.8; ultramafic from 504.8 to 504.9 and; salmon colored (hemaetized, K-feldspathized) dike from 504.9 to 506.0. Diorite dike has chlorite-biotite margins as above.									
		520.50 521.40 Diorite brownish grey fine grained groundmass with chloritic-biotitic margins. Upper and lower contacts at 80 degrees to long core axis.									
		521.40 557.00 Ultramafic very fine grained to aphanitic massive, medium grey talcose groundmass. Stockwork of calcite-dark grey talc veinlets gives a brecciated appearance.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
557.00	584.30	Ultramafic as in 521.4 to 557.0 except magnesite-talc veinlets far less abundant (~5 per foot) giving the rock a more massive appearance. Ultramafic is slightly coarser grained (1-2mm) from 569.0-570.8 which may be due to a carbonate overprint.									
584.30	587.20	Diorite brownish grey fine grained, massive groundmass with 1-2% disseminated pyrite. Minor quartz-calcite veining. Upper and lower contacts sharp at 42 and 37 degrees to long core axis respectively.									
587.20	606.00	Ultramafic as in 521.4 to 557.0. Abundant calcite-talc veinlets. Presence of calcite usually associated with increased veining/pseudobrecciation. Local weak foliation/fabric at 52 degrees to long core axis.									
606.00		END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 12000 10300
Grid: 120+00N 103+00E

Azimuth: 305.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 867.0

Purpose: Test North Zone & magnetic gradient
Comments:
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
270.0		-45.0
527.0		-47.0
807.0		-47.0

Hole No.: L92-15

Property: Langmuir Block
Claim: P6451, P7867
Township: Langmuir
Province: Ontario

Date Started: Feb. 5, 1992
Date Completed: Feb. 6, 1992
Logged by: Ian Trinder
Date Logged: Feb. 7, Mar. 1, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description
.00	54.60	OVERBURDEN Several granitic pebbles and cobbles cored; one diabase cobble with a core length of 0.4 feet.
54.60	477.30	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 54.60 75.40 Orthocumulate Komatiite/Komatiitic Peridotite. Medium grey colour. Medium grained, 2 to 3 mm, moderately close packed orthocumulate. Texture generally well preserved. 10 - 20% very fine interstitial groundmass. Pervasive magnesite - (talc) alteration based on coloration and soft nature of the core. Core is cut by magnesite and/or green platey serpentine veinlets 1 to 5 mm thick in zones with 5 to 7 probable foot separated by massive ultramafic. Veinlets subparallel to 70 degrees to long core axis. No visible sulphides. Lower contact gradational. 75.40 95.70 Orthocumulate Komatiite/Komatiitic Peridotite. Medium greyish green colour. Medium grained, 2 to 3 mm, moderately close packed orthocumulate. Texture generally well preserved. 20 - 30% very fine grained pale grey carbonatized groundmass interstitial to greyish green serpentinized cumulate grains. The

Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
1140	88.25	88.50	.25	2050				38.19
1141	156.75	157.00	.25	2370				47.16
1142	259.50	259.75	.25	2520				48.70
1143	315.00	315.25	.25	2380				47.37
1144	339.75	340.00	.25	2260				45.96
1364	354.70	359.00	4.30	4800				
1363	359.00	363.00	4.00	2500		180		
1344	363.00	366.50	3.50	5600		150		
1345	366.50	370.70	4.20	5100		150		
1346	370.70	375.00	4.30	7600		490		
1347	375.00	378.10	3.10	7700		670		
1348	378.10	380.70	2.60		2.138	700		
1349	380.70	385.00	4.30	8000		310		
1350	385.00	390.00	5.00	8400		160		
1351	390.00	395.40	5.40	8800		360		
1352	395.40	400.00	4.60	6100		150		
1353	400.00	405.00	5.00		1.118	210		
1354	405.00	410.00	5.00	7700		260		
1355	410.00	415.00	5.00		1.379	300		
1356	415.00	420.00	5.00		1.702	450		
1357	420.00	425.00	5.00		1.600	250		
1358	425.00	430.00	5.00	7500		120		
1359	430.00	435.00	5.00	2600		58		
1360	435.00	439.30	4.30	1700		22		
1361	439.30	443.00	3.70	2300		61		

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		grains often have a thin <0.5mm light white-grey (carbonate altered?) rim.	1362	443.00	450.00	7.00	670		46		
			1403	467.00	472.00	5.00	990				
			1404	472.00	477.00	5.00	2600				
		Pervasive serpentinization. Unit probably the same as 54.6 to 75.4 except carbonatization of serpentinite precursor less intense. Core is cut by magnesite and/or green platey serpentine veinlets as in 54.6 to 75.4.									
		No visible sulphides.									
		Lower contact gradational possibly an alteration front.									
		95.70 159.40 Ultramafic. Medium grey colour. Generally fine grained <0.5 mm and massive. Fine grained texture probably a result of magnesite - (talc) alteration. There is a slight grainsize increase to </= 1mm below ~128.5 with a corresponding change to greenish grey colour. 95.70 107.00 The core is 'porphyritic' containing 10 to 20% 1-2 mm carbonate pseudomorphs or alteration porphyroblasts. 112.30 112.70 Aphanitic soft greyish green laminated talcose zone with minor reddish-brown laminations. Sharp upper and lower contacts at 37 and 50 degrees to long core axis respectively.									
		Pervasive magnesite present as pervasive groundmass disseminations and veinlets. Overall the core is not very talcose and is moderately soft. Locally the carbonate oxidizes light brown indicating the presence of dolomite/ankerite ie 97.5-97.8; 104.7-107.0; 123.2-126.3. Core is cut by moderately abundant magnesite veinlets 1 to 5 mm thick subparallel to 90 degrees to long core axis and averaging ~5 per foot. No associated green platey serpentine veinlets.									
		No visible sulphides.									
		Lower contact gradational.									
		159.40 266.70 Orthocumulate Komatiite/Komatiitic Peridotite. Medium greyish green fine grained to medium grained serpentinized orthocumulate.									
		No visible sulphides.									
		Lower contact gradational possibly an alteration front.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		159.40 227.80 Massive fine grained (</= 1mm) groundmass comprising anhedral serpentine grains and carbonate grains/pseudomorphs. Carbonate grains give the core a salt and pepper texture. Interstial groundmass is light grey and probably carbonatized. Slight increase in grainsize downhole core is cut by moderately abundant magnesite and/or green platey serpentine veinlets 1 to 5 mm thick at 10 to 70 degrees to long core axis and averaging ~5 to 7 per foot. Minor fibrous serpentine veinlets. Veinlets commonly have grey magnetite-rich selvages.									
		227.80 266.70 As above with gradational contact. Coarser grained. Serpentinized 1-3 mm anhedral cumulate grains float in 50-70% light grey aphanitic carbonatized groundmass core is cut by moderately abundant magnesite and/or green platey serpentine veinlets 1 mm to 5 cm thick subparallel to 80 degrees to long core axis. Veinlets commonly have grey magnetite-rich selvages. Locally a late crosscutting magnetite veinlet. Larger magnesite - serpentine veins are laminated.									
		266.70 268.00 Soft Aphanitic Dike/Xenolith. Soft talcose-chloritic? groundmass grades from medium green (266.7-267.0) to medium green with reddish brown mottles and laminations (267.0-267.7) to medium green (267.7-268.0). Approximately 0.1 foot of overlying cumulate has an altered margin suggesting this is some sort of dike. Upper and lower contacts at 30 and 35 degrees to long core axis respectively.									
		268.00 269.30 Orthocumulate Komatiite/Komatiitic Peridotite. As in 227.8 to 266.7.									
		269.30 275.20 Orthocumulate Komatiite/Komatiitic Peridotite. Altered equivalent of overlying and underlying cumulate. Gradual grainsize reduction and color change to light grey, fine grained, massive (</= 1mm), moderately soft groundmass corresponds to increase in carbonate - (talc) content in groundmas. 274.6 to 275.2 - gradational to aphanitic light grey									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		color with increasing talc content downhole. 275.20 277.60 Soft Aphanitic Dike/Xenolith. Possibly a dike because of talcose ultramafic from 274.6 to 275.2 and 277.6 to 278.2. 275.20 276.20 Soft medium green chloritic? aphanitic zone. Sharp broken upper contact and gradational lower contact. 276.20 277.10 Soft medium greyish green very fine grained to aphanitic groundmass with ~10% </= 1mm biege dolomite phenocrysts/pseudomorphs. Lower contact gradational. 277.10 277.60 As in 275.2 to 276.2. Sharp lower contact at 65 degrees to long core axis. 277.60 345.50 Orthocumulate Komatiite/Komatiitic Peridotite. Medium greenish grey, fine grained (</= 1mm), massive equigranular cumulate. Primary. Texture not obvious possibly due to close packed nature. Salt and pepper texture created by carbonatization of serpentine groundmass. Two zones in which the groundmass coarsens downhole with well preserved equant, polyhedral, close-packed cumulate grains up to 2-3 mm diameter (309.5 to 317.4 and 339.0 345.5). This zonation may reflect the presence of two flows; an alteration overprint or; layering within a single flow. The change to fine grainsize at 317.4 is marked by a 2cm wide magnesite vein. 277.60 278.20 Aphanitic light to medium grey talcose zone gradational into 278.2 to 279.5. May be top of new flow as 279.5 to 345.5 is finer grained than 227.8 to 269.3. 278.20 279.50 Fine grained light to medium grey magnesite - (talc) altered massive ultramafic as in 269.3 to 274.6. Gradational into 279.5 to 345.5. 342.56 345.50 Grainsize reduction and obliteration of cumulate texture by pervasive magnesite-(talc) alteration of groundmass. Core becomes very talcose, aphanitic and light grey in color from 344.4 to 345.5. Minor to moderate (<5 to 7 per foot) magnesite and/or platey serpentine veinlets commonly with magnetite-rich selvages from 277.6 to 345.5. No visible sulphides.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		345.50 354.70 Soft Aphanitic Dike/Xenolith. Possible dike as in 275.2 to 277.6. 345.50 347.30 Aphanitic medium green, chloritic zone. Sharp upper contact at 35 degrees to long core axis. Lower contact gradational 347.30 353.70 Mottled very fine grained grey to medium greyish green core. Moderately chloritic. ~10% biege phenocrysts (</= 0.5mm). Light grey mottles are harder than the green chloritic mottles. This unit could be an alteration zone rather than a dike. Core cut by several pink-white carbonate veinlets which react with HCl only when powdered. Gradational into 353.7 to 354.7. 353.70 354.70 Aphanitic chloritic zone as in 345.5 to 347.3. Lower contact sharp at 40 degrees to long core axis. 354.70 366.50 Peridotitic olivine-sulphide cumulate. Very fine grained to aphanitic, massive, medium greenish grey extremely talcose ultramafic. Several light green talc veins. 354.70 359.10 Trace disseminated pyrrhotite grains except 1-2% from 354.7 to 355.2. 359.10 366.50 1-2% pyrite-pyrrhotite blebs and disseminated grains with local concentrations up to 5-7% ie. 366.0-366.5. Sulphide grains and blebs vary from <1mm to 1cm x 2cm. Sulphide comprises 60-70% pyrite, the remainder being nickeliferous pyrrhotite (reacts with nickel test solution). Pyrite also occurs as smears along slip/foliation planes at 45 degrees to long core axis. Lower contact is broken rubbly gouge. 366.50 370.70 Peridotitic olivine-sulphide cumulate. Very fine grained to aphanitic, medium grey extremely talcose groundmass hosts 10-15% 1-2 mm diameter, white magnesite pseudomorphs/alteration porphyroblasts, many of which have sulphide cores. Unit contains 1-2% pyrite-nickeliferous pyrrhotite as disseminated </= 0.5 to 1 mm grains with local concentrations up to 5%. Lower contact sharp at 45 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		370.70 395.40 Peridotitic olivine-sulphide cumulate. Massive close-packed orthocumulate. Light to medium grey. Equant, subhedral to anhedral cumulate grains vary from 1 to 4mm. Several megacrystic zones with tabular cumulate grains up to 5mm x 10mm. Fine interstitial groundmas makes up 5-10% of the volume. Core is pervasively carbonate-(talc) altered. Minor to moderate (3-5 per foot), 1mm to 5cm thick, light green to white talc and/or magnesite veinlets crosscut subparallel to 85 degrees to long core axis. Unit is mineralized with 2-3% very fine interstitial </= 0.5 to 1mm pyrrhotite-pyrite. Sulphide is not interlocking therefore should be termed disseminated not net-textured. 5-7% disseminated and blebby sulphide up to 5mm diameter present from 378.1 to 380.7. This interval also contains a 5cm thick magnesite vein at 20 degrees to long core axis. A 1-2mm wide chalcopyrite veinlet is present from 375.3 to 375.6 at degrees to long core axis 20. 393.50 393.75 48.11 %MgO. Lower contact at 50 degrees to long core axis. Contact based on abrupt reduction in grainsize and color change associated with a change from carbonated to serpentinized groundmass. 395.40 425.00 Peridotitic olivine-sulphide cumulate. Massive close-packed orthocumulate, possibly same unit as 370.7- 395.4. Groundmass comprises homogeneous equigranular 1mm cumulate grains with ~5% interstitial groundmass. 408.40 408.90 Aphanitic to very fine grained light greenish grey talcose zone bounded by magnesite veinlets at 45 degrees to long core axis. Possibly a flowtop?. 410.00 413.40 Rock becomes apple-green in color. Sharp lower contact at 20 degrees to long core axis. 413.40 413.80 Similar texture to 410.0-413.4 except is dark grey to black in color. 413.80 414.70 Medium greenish grey aphanitic, finely laminated, soft, talcose? zone with minor reddish brown laminations. Barren of sulphides except for minor pyrite smeared along foliation planes. May be an alteration zone or possibly a dike??									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Upper and lower contacts sharp at 20 degrees to long core axis. 414.70 414.80 As in 413.4-413.8, lower contact relatively sharp. Groundmass appears to be serpentinized and carbonatized giving the rock a salt and pepper texture except 411.8-423.2 where the rock appears to have less carbonate in groundmass ie. Lacks the salt and pepper texture. Minor magnesite and talc veinlets. Unit is mineralized with 1-2% very fine interstitial </= 0.5 pyrrhotite-pyrite. 421.70 421.95 49.56 %MgO. Lower contact a 0.1 foot thick magnesite - talc veinlet 425.00 439.30 Peridotitic olivine-sulphide cumulate. Possibly the altered equivalent of 395.4-425.0. Massive, medium grey rock characterized by 20-60% 1-2mm subequant, anhedral to subhedral dark green serpentine cumulate grains hosted by a finer grained carbonate rich groundmass. The cumulate grains have a white-grey rim and are locally totally white-grey indicative of progressive carbonatization of the serpentinite. Serpentinized groundmass has been subjected to variable carbonatization. Minor (3-5 per foot), 2mm to 2cm thick magnesite- talc veinlets. Unit is mineralized with 1-2% very fine (<0.5mm) disseminated pyrite-pyrrhotite from 425-430. The core is generally barren from 430.0-439.3 except for an occassional patch of 1-2% disseminated sulphide ie. 433.5-434.0. Lower contact is gradational. 439.30 450.90 Orthocumulate Komatiite/Komatiitic Peridotite. Probably same unit as 425.0-439.3. Light to medium grey, massive homogeneous 1-2mm close-packed orthocumulate with subequant, subhedral to anhedral 1-2mm, locally 3mm cumulate grains. Pervasive talc-carbonate alteration. 10-20% 1mm magnesite pseudomorphs/alteration porphyroblasts give rock a porphyritic appearance from 450.0-450.9.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Generally barren of sulphide except for 2-3% disseminated to blebby pyrite-pyrrhotite (nickeliferous) in rare patch ie. 440.8-442.8. 447.60 447.85 48.86 %MgO. Sharp lower contact at 15 degrees to long core axis. 450.90 454.60 Intermediate Dike. Possible dike or a xenolith?. 450.90 451.70 Aphanitic, medium green relatively soft chloritic-talcose? zone. Relatively sharp lower contact at 40 degrees to long core axis but poor color and textural contrast. 451.70 452.20 Aphanitic, laminated brown to greenish grey chill? zone grading into underlying subunit. Relatively hard. 452.20 453.60 Brownish grey, very fine (<1mm), massive, equigranular, relatively hard intermediate rock. Gradational into underlying subunit. 453.60 454.20 Massive aphanitic zone similar to 451.7-452.2. Non-laminated. Lower contact generally sharp but with poor contrast at 55 degrees to long core axis. 454.20 454.60 As in 450.9-451.7. Lower contact generally sharp but with poor contrast at 52 degrees to long core axis. 454.60 467.00 Orthocumulate Komatiite/Komatiitic Peridotite. Light to medium grey, fine grained (</= 1mm), massive equigranular groundmass. Primary texture largely destroyed except for locally faint relict 2-3mm equant close-packed? cumulate grains ie. 460.3- 461.0 and 463.9-467.0. 454.60 455.80 Aphanitic talcose zone gradational into fine grained groundmass. Pervasive magnesite-(talc) alteration. Minor (<2 per foot), magnesite-talc veinlets. Trace disseminated pyrite. 467.00 472.10 Ultramafic. Very fine grained to aphanitic light to medium grey talcose zone. Sharp upper and lower contacts at 85 and 45 degrees to long core axis respectively and bounded by light green talc veinlets. Weak foliation at 45 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		1-2% Very fine (</= 1mm) disseminated pyrite anhedra. Trace nickeliferous pyrrhotite? (reacts weakly with Ni test solution). 472.10 477.30 Ultramafic. Fine grained (<1mm), medium grey, massive and equigranular except 472.1-473.2 and 475.7-476.4 where 10-20% 1-1.5mm carbonate pseudomorphs/porphroblasts give rock a porphyritic appearance. 476.40 477.00 Aphanitic to very fine grained talcose zone. 477.00 477.30 Very fine grained to aphanitic medium green chloritic zone with broken upper contact. Moderately soft. Lower 0.1 foot is brown in color. Pervasive talc-magnesite alteration. Local patch of 1-2% disseminated (<1mm) pyrite-pyrrhotite (weak reaction to Ni test sol'n). Sharp lower contact at 45 degrees to long core axis.									
477.30	489.60	DIORITE Multiple diorite? dike zone. Clay altered - has an earthy look and feel. Occasional vug suggests it is an aquifer which accounts for the clay alteration. Core generally broken and rubbly (10-15 fractures per foot). 477.30 479.60 Diorite. Massive, fine grained (<0.5mm), equigranular. Medium brownish grey salt and pepper texture. Slightly finer grained in upper 0.4 foot? Lowermost 0.3 foot grades into a brownish biotitic chill? zone. Lower contact at 55 degrees to long core axis sharp approx 5mm wide. 479.60 481.30 Ultramafic. 479.60 479.90 As in 477.0 to 477.3. Lower contact sharp at 80 degrees to long core axis. 479.90 480.70 Aphanitic, medium grey talcose zone. ~2-3% very fine (<0.5mm) disseminated pyrite from 480.5-480.7. Extremely rubbly core. 480.70 481.30 Very fine grained to aphanitic chloritic zone. Strongly fractured and broken core. Upper contact sharp at 50 degrees to long core axis and lower contact sharp at 55 degrees to long core axis. Lower contact somewhat broken.									

From (ft)	To (ft)	Geological Description
		481.30 484.10 Diorite. Fine grained (1-2mm), pinkish brown-grey, clay altered, faintly equigranular textured groundmass. Biotite/chlorite grains (< 0.5mm) in groundmass. Lower contact sharp at 30 degrees to long core axis. 484.10 487.60 Ultramafic. 484.10 484.60 Medium green clay altered chloritic zone. Soft and earthy. Approx 10% < 0.5mm biotite flakes in groundmass. Sharp lower contact at 55 degrees to long core axis. 484.60 486.90 Fine grained, talcose ultramafic containing 1% very fine disseminated pyrite. Aphanitic from 484.6-484.8 and 486.2-486.9. Sharp lower contact at 50 degrees to long core axis. 486.90 487.60 Fine chloritic-biotitic zone as in 484.1-484.6. Earthy groundmass. Biotite content increases downhole based on color change from green to brownish green. Sharp lower contact at 20 degrees to long core axis. Poor color contrast across contact. 487.60 489.60 Diorite. As in 477.3 to 479.6. Brownish grey color. Biotite? in groundmass. Rubbly lower contact sharp to gradational over 1cm.
489.60	598.00	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Cumulate textures destroyed by alteration except for rare local patch as noted. 489.60 490.00 Chloritic zone. Fine grained relatively soft groundmass, likely an altered margin 'baked' adjacent the overlying dike. Lower contact broken and rubbly. 490.00 492.40 Talcose zone. Pale grey aphanitic to very fine grained groundmass. Trace disseminated pyrite. Gradational lower contact. 492.40 501.50 Cumulate Komatiite/Komatiitic Peridotite. Fine grained (</= 1mm), mottled light greenish grey and medium to dark grey equigranular groundmass. Mottling due to local concentrations of magnetite in the groundmass. Cumulate texture largely destroyed by pervasive magnesite-talc alteration. Minor magnesite veinlets subparallel to 70 degrees to long core axis.

Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
1365	490.00	492.40	2.40	2500				
1366	492.40	497.10	4.70	6100				
1367	497.10	501.50	4.40	300				
1368	517.00	519.40	2.40	2100				
1149	521.75	522.00	.25	190				6.59
1150	522.60	522.80	.20	610				33.50
1369	522.80	527.00	4.20	5700				
1370	527.00	528.00	1.00	8700				
1371	528.00	532.50	4.50	1900				
1372	532.50	536.00	3.50	3900				
1373	536.00	541.00	5.00	5800				
1374	541.00	545.50	4.50	4700				
1375	545.50	548.10	2.60	6000				
1376	557.00	559.00	2.00	5300				
1377	559.00	560.00	1.00	9600				
1378	560.00	566.00	6.00	7100				
1379	566.00	571.00	5.00	4200				
1380	571.00	576.00	5.00	4800				

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		2-3% Very fine (</= 0.5mm) patchy disseminated nickeliferous pyrrhotite? from 492.5 to 497.1. Locally 5-7% sulphide. Sulphide reacts with Ni test sol'n. 500.50 500.75 41.39 %MgO. Lower contact sharp at 30 degrees to long core axis. 501.50 502.50 Chloritic zone. Very fine grained groundmass. Lower contact broken and rubbly. 502.50 506.30 Cumulate Komatiite/Komatiitic Peridotite. As in 492.4 to 501.5. Uppermost 0.2 ft and lowermost 0.5 ft are very fine grained to aphanitic and talcose. Trace disseminated pyrite with local concentrations of 1-2% associated with contact margins and magnesite veinlets. 506.30 507.00 Chloritic zone. Very fine grained groundmass. Lower contact broken. 507.00 508.40 Cumulate Komatiite/Komatiitic Peridotite. As in 502.5 to 506.3. No aphanitic margins. 508.40 508.50 Chloritic zone. Very fine grained groundmass. Upper and lower contacts sharp at 65 and 70 degrees to long core axis respectively. 508.50 509.60 Cumulate Komatiite/Komatiitic Peridotite. As in 502.5 to 506.3. No aphanitic margins. 509.60 510.00 Chloritic zone. Very fine grained groundmass. Upper and lower contacts sharp at 65 and 70 degrees to long core axis respectively. 510.00 519.40 Cumulate Komatiite/Komatiitic Peridotite. As in 502.5 to 506.3. Very fine grained and talcose 518.6 to 519.4. Trace nickeliferous pyrrhotite in isolated patches up to 0.2 ft wide. Lower contact broken and ground. 519.40 519.70 Chloritic zone. Relatively light greenish grey soft chloritic-talcose zone. Becomes brown colored (biotitic?) in lower 1cm. Broken rubbly core. Sharp lower contact at 45 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		519.70 522.20 Diorite. As in 477.3 to 479.6. Fine grained and equigranular. Biotite? in groundmass. Core broken and fractured. Lower contact sharp at 30 degrees to long core axis. 522.20 522.80 Chloritic zone. Aphanitic to very fine grained chloritic zone. Weak banding paralleling upper contact. Lower contact sharp at 60 degrees to long core axis. 522.80 548.10 Cumulate Komatiite/Komatiitic Peridotite. As in 502.5 to 506.3. Fine grained and mottled dark grey patches in pale grey to pale greyish green groundmass. Patchy distribution of 1-2% disseminated pyrite-pyrrhotite. Reacts with Ni test sol'n when given an acid prewash. 522.80 523.30 Very fine grained talcose zone. 522.80 523.00 31.49 %MgO. 523.50 548.10 2-5% disseminated grains and irregular interstitial blebs of magnetite (1-2mm) present inside and outside the darker grey mottles. 547.40 548.10 Very fine grained to aphanitic talcose zone with magnetite blebs. Lower contact at 45 degrees to long core axis. 548.10 549.30 Chloritic zone. Very fine grained groundmass. Lower contact rubbly but sharp at 55 degrees to long core axis. 549.30 598.00 Cumulate Komatiite/Komatiitic Peridotite. As in 522.8 to 548.1. Patchy sulphide distribution as in 522.8 to 548.1. Sulphides may be present throughout section except of too minute size to be obvious. Overall 1-2% disseminated pyrite-pyrrhotite. 549.30 550.00 Aphanitic talcose zone with 1 to 2% pyrite. 553.00 556.20 Aphanitic to very fine grained talcose zone with magnetite blebs. Gradational upper and lower contacts. 556.20 559.00 Medium green relict serpentinized cumulate texture. Grainsize ~1mm. 559.20 559.45 47.20 %MgO. 574.30 575.40 Very fine grained dark grey serpentinite crosscuts ultramafic at 60 degrees to long core axis from 574.3;574.5 then										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		subparallels LCA to 575.4. 576.05 576.20 Chloritic zone. Sharp upper and lower contacts at 90 and 80 degrees to long core axis respectively. 582.20 582.60 Aphanitic talcose zone. 582.60 583.60 Aphanitic talcose and chloritic zone. Spotted biege colored section from 583.0 to 583.1. Upper contact broken but sharp. Lower contact sharp at 47 degrees to long core axis. 583.60 583.90 Aphanitic to very fine grained talcose zone. Lower contact gradational ?. 593.00 597.30 Very fine grained to aphanitic talcose zone. 593.30 594.90 Rubble and fault gouge. 597.30 597.60 Aphanitic talcose and chloritic zone based on color. Contacts sharp at 90 degrees to long core axis. 597.60 597.80 Fine grained to very fine grained talcose ultramafic. 597.80 598.00 Very fine grained to aphanitic chloritic zone. Upper and lower contacts sharp at 90 and 67 degrees to long core axis respectively.									
598.00	605.00	GRANODIORITE Field term. Light pinkish grey moderately ghosted equigranular 1-2mm groundmass contains 10% anhedral interstitial chlorite. 2-3% Fine (</=1mm), disseminated pyrite euhedra, some fracture controlled. Lower contact somewhat diffuse over 1-2mm at 50 degrees to long core axis.									
605.00	618.90	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE As in 549.3 to 598.0. Fine grained, mottled to massive pale lime green-grey to pale grey groundmass with <5% magnetite blebs. Trace disseminated pyrite. Minor to moderate magnesite veinlets. 605.00 605.40 Aphanitic chloritic zone. Lower contact ground. 617.10 617.30 Aphanitic talcose zone. 617.30 618.90 Very fine grained to aphanitic medium to dark green chloritic zone. Upper contact sharp at 45 degrees to long core axis. Lower contact gradational based on hardness and grainsize change.	1153 1154	616.75 618.00	617.00 618.30	.25 .30	2600 530				33.16 29.46

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
618.90	623.50	DIORITE Fine grained, medium green groundmass with salt and pepper texture. Occasional angular, dark green-grey, aphanitic fragments up to 5mm diameter, possibly ultramafic. Patchy groundmass texture due to alteration?. No visible sulphides.	1155	620.25	620.50	.25	240				10.04
623.50	629.80	ULTRAMAFIC BRECCIA Brecciated? Angular, dark grey, very fine grained ultramafic fragments (1mm - 3cm, 65% of rock volume) supported in a matrix of magnesite-(talc). Weak foliation at top of section varies from 25 degrees to long core axis at contact to 50 degrees to long core axis 1.5 ft below the contact. Elsewhere foliation not evident except at base of section where it is 55 degrees to long core axis. Fragments are magnesite-talc altered. Trace disseminated pyrite. Lower contact sharp at 30 degrees to long core axis. 629.20 629.60 Very fine grained talcose zone. 629.60 629.80 Chlorite-biotite zone with biotitic margins and a chloritic core. Undulose sharp to diffuse over several mm) lower contact at 35 degrees to long core axis.									
629.80	663.00	GRANODIORITE Zone of multiple diking? Two ages of dikes with granodiorite composition?.	1156 1157	634.00 642.25	634.25 642.50	.25 .25	30 30				2.50 2.48
		Dike A:. Fine grained (1-2mm), light brownish grey equigranular groundmass containing biotite?/chlorite?. 1-2% disseminated pyrite euhedra. Dike B:. Very fine grained (</= 0.5mm), light brownish grey, massive, equigranular groundmass containing biotite/chlorite?. 1-2% disseminated pyrite. Younger than Dike A. Minor calcite veinlets crosscut both dikes. Local pink K-spar alteration/bleaching selvages adjacent quartz-K-spar-chlorite veins. 629.80 638.30 Dike B. 638.30 638.90 Chloritic-biotitic? zone. Contacts are									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		gradational over 1-2mm and characterized by an outer 5mm biotitic band and an inner 1-1.5cm chloritic band. Upper and lower contacts at 15 and 35 degrees to long core axis respectively.									
		638.90 639.50 Mottled zone resembling both Dike B and diorite dike from 618.9-623.5. Questionable origin. Sharp lower contact at 35 degrees to long core axis.									
		639.50 640.30 Dike A. Sharp lower contact at 50 degrees to long core axis.									
		640.30 641.00 Dike B. Foliated chill margins (~0.1 ft) at both upper and lower contacts. Lower contact sharp at 60 degrees to long core axis.									
		641.00 644.40 Dike A. Sharp undulose lower contact at 60 degrees to long core axis.									
		644.40 649.00 Dike B. Sharp undulose lower contact at 80 degrees to long core axis.									
		649.00 652.90 Dike A. Dikelets of B at 650.4-650.6 and 652.0-652.1. Undulose lower contact at 35 degrees to long core axis.									
		652.90 663.00 Dike B. Xenoliths of Dike A at 659.95-660.0 (2) and 660.1-660.4.									
663.00	867.00	ULTRAMAFIC THIN KOMATIITE FLOW SEQUENCE									
		663.00 667.25 Ultramafic breccia.	1158	688.00	688.25	.25	940				20.00
		Brecciated ultramafic as in 623.8 to 629.6 except carbonate matrix now dominated by calcite. Weakly foliated at 35-45 degrees to long core axis.	1159	718.30	718.55	.25	1700				29.15
			1160	790.80	791.05	.25	1700				28.69
			1161	862.05	862.30	.25	3300				12.20
		663.00 663.20 Biotite-chlorite reaction margin consisting of downhole: 1-2mm biotite; 1cm chlorite-(biotite); 2-3mm biotite-(chlorite); 2cm chlorite. Upper and lower contacts at 20 degrees to long core axis.									
		667.20 667.25 Very fine grained to aphanitic biotite-chlorite reaction margin at 50 degrees to long core axis.									
		667.25 668.70 Granodiorite Dike B as in 629.8-663.0.									
		668.60 701.50 Ultramafic.									
		668.60 668.70 Very fine grained to aphanitic biotite?-chlorite margin at 50 degrees to long core axis. Margin consists of 1cm wide biotite?-chlorite (brown) band and 1cm medium green chlorite band.									
		668.70 701.50 Brecciated ultramafic with calcite matrix as in 663.2 to 667.2. Weak									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		foliation at 35-45 degrees to long core axis. Trace disseminated pyrite. 676.90 677.00 Biotite-chlorite reaction rim at 50 degrees to long core axis. 677.00 678.90 Diorite dike as in 618.9-623.5. Brown-grey groundmass with posible xenoliths (<5mm). 678.90 679.00 Biotite reaction rim at 45 degrees to long core axis. 701.50 837.80 Thin Komatiite Flow Sequence. Massive, very fine grained to fine grained dark grey ultramafic. Textures largely obliterated by alteration. Pervasive talc-magnesite altered groundmass crosscut by moderate to abundant random and anastomosing calcite and/or green fibrous asbestiform serpentine veinlets. Asbestos veinlets are soft and cause rock to break due to expansion of of the fibres. Possibly this is polysuturing? Locally the carbonate-serpentine veinlets are intense enough to create a jigsaw texture. Trace disseminated pyrite euhedra. 706.40 757.30 Komatiite Flow ??. 706.40 707.20 A Zone, fine to medium random spinifex 706.4-706.7 coarse sheaf spinifex 706.7-707.2. 707.20 757.30 B Zone ?? Patchy, possible cumulate texture (<1mm) from 733.5-740.0 and 747.0-749.0. Cumulate texture highlighted by interstitial magnetite grains. 757.30 837.80 Komatiite Flow ??. 757.30 757.50 A2 Zone, fine random spinifex. 802.40 802.60 A3 Zone, medium sheaf spinifex. 802.60 837.80 B Zone ?? Patchy, possible cumulate texture (<1mm) from 770.0-785.0. Cumulate texture highlighted by interstitial magnetite grains. 837.80 867.00 Ultramafic. Brecciated ultramafic with intense calcite-fibrous serpentine veinlets givinga foliated jigsaw breccia fabric at 50 degrees to long core axis. Probably an alteration- tectonic fabric. Trace disseminated pyrite euhedra. 844.10 847.00 Massive ultramafic. 850.80 853.60 Massive ultramafic. 856.00 857.00 Groundmass color changes from dark grey to medium brownish grey. Fabric same as rest of section. Contacts gradational.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		859.90 863.20 As in 856.0 to 857.0. Contacts sharp at 40 degrees to long core axis.									
		867.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 12400 10200
Grid: 124+00N 102+00E

Azimuth: 300.0
Grid Az: 255
Dip: -45.0

Elevation: 1000

Length: 676.0

Purpose: Test North Zone & magnetic gradient
Comments: 162ft marker was mislabelled 172ft
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
250.0		-45.0
517.0		-45.0

Hole No.: L92-16

Property: Langmuir Block
Claim: P7867, P6451
Township: Langmuir
Province: Ontario

Date Started: Feb. 7, 1992
Date Completed: Feb. 8, 1992
Logged by: Ian Trinder
Date Logged: Mar. 9, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	48.70	OVERBURDEN									
48.70	641.00	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE									
		Textural and color variations generally appears to be	1201	113.40	113.65	.25	2170				38.35
		the result of alteration overprinting. No obvious flow	1202	190.00	190.25	.25	2860				43.61
		contacts observed however, there may be more than one	1203	248.00	248.25	.25	2380				44.60
		flow. Contacts may have been obliterated by alteration	1204	343.00	343.25	.25	2290				46.91
		or there may not be a signifficant textural contrast	1205	446.00	446.25	.25	2360				49.24
		to the individual flows.	1206	516.25	516.50	.25	2530				44.80
			1400	532.00	537.00	5.00	1400				
		Overall the core has minor to moderate fracturing	1401	537.00	542.50	5.50	1100				
		(<2-5 fractures/ft).	1402	542.50	548.00	5.50	3000				
			1208	637.90	638.15	.25	1850				31.90
		48.70 96.50 Orthocumulate Komatiite/Komatiitic Peridotite.									
		Massive, fine grained, equigranular, light to medium grey color. Core is moderately soft and likely dominated by pervasive magnesite-talc alteration. Primary cumulate texture is moderately well preserved with 1 to 2mm equant talc-magnesite pseudomorphs in a groundmass of similar composition. The cumulate grains appear to be groundmass supported with approximately 20-30% of the rock comprised of supporting groundmass. The groundmass is pervasively talc and carbonate (magnesite) altered Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets also contain green platy serpentine.									
		Possible dike/xenolith 84.3-84.8. Medium green-grey									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		moderately soft aphanitic margins grade into a slightly harder fine grained 2 cm wide core Sharp upper and lower contacts at 45 degrees to LCA. Gradational into underlying section. 96.50 116.40 Orthocumulate Komatiite/Komatiitic Peridotite. Massive, fine grained, equigranular, medium greyish green color. Core is moderately hard. Primary cumulate texture is generally well preserved with 1 to 2mm equant serpentine pseudomorphs (with magnesite alteration) in a magnesite-rich groundmass. The cumulate grains appear to be groundmass supported. Approximately 10-20% of the rock comprised of supporting groundmass. Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets also contain green platy serpentine. Gradational into underlying section. 116.40 145.60 Orthocumulate Komatiite/Komatiitic Peridotite. Massive, fine grained, equigranular, dark greyish green color. Core is moderately hard with a fine salt and pepper texture (<0.5 to 1mm dependant on grainsize of pervasive magnesite). Local patches of primary cumulate texture is moderately well preserved with 1 mm equant serpentine pseudomorphs (with magnesite alteration) in a magnesite-rich groundmass. The cumulate grains appear to be groundmass supported. Approximately 10-20% of the rock comprised of supporting groundmass. Based on its finer grainsize this could be a separate flow from 96.5-116.4, however the finer grainsize may also be due to carbonate overprinting. Basal 1.6 feet gradationally becomes lighter grey due to increased carbonate overprinting. Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets also contain green platy serpentine. 145.60 146.60 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic margins grade into a fine grained 2 cm wide biege tinted core Sharp upper contact at 50 degrees to LCA, lower contact broken.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		146.60 153.00 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is moderately soft with a salt and pepper texture (<0.5 1mm). Pervasive talc-magnesite alteration obliterates primary texture. Similar in texture and composition to the basal 1.6 feet of 116.4-145.6. Below 151.7 the rock becomes increasingly finer grained and more talcose. Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 65 degrees to LCA. The magnesite veinlets also contain green platy serpentine. 153.00 157.40 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic margin (153.0-154.1) grades? into a fine grained harder, biege to brownish-grey core. This core is in sharp contact with a very fine chloritic zone with 2-3mm of soft chloritic? gouge at the contact; 50 degrees to LCA. Sharp upper contact at 50 degrees to LCA, lower contact broken & ground. The chloritic margins are probably altered UM groundmass. 157.40 160.70 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is moderately soft with a salt and pepper texture (<0.5 1mm). Pervasive talc-magnesite alteration obliterates primary texture. Similar in texture and composition to the basal 1.6 feet of 116.4-145.6 except greater talc content. Medium green-grey moderately soft aphanitic chloritic margin 160.3-160.7 with sharp lower contact at 45 degrees to long core axis. 160.70 167.00 Diorite. Probable dike. Fine grained, massive light brownish grey equigranular diorite? Chloritic xenolith 162.4-163.3. Upper and lower contacts broken. 167.00 171.40 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is soft, pervasive talc-magnesite alteration obliterates primary texture. Extremely talcose from 169.4 to 170.4. Aphanitic chlorite-talc zone from 170.4-171.4 (upper contact broken, lower contact with dike sharp at 65 degrees to LCA.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		171.40 174.70 Diorite. Probable dike. Fine grained, massive, light brownish grey, equigranular diorite? Core is broken and rubbly. Chloritic zone 173.0-174.0. Upper contact 65 degrees to LCA; lower contact broken. 174.70 178.20 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is soft, pervasive talc-magnesite alteration obliterates primary texture. Aphanitic chlorite-talc zone from 174.7-176.3 (upper and lower contacts broken). 178.20 179.60 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone with faint banding. Minor stringer pyrite Sharp upper contact at 48 degrees to LCA, lower contact broken & ground. 179.60 417.70 Mesocumulate Komatiite/Komatiitic Peridotite. Massive, fine to medium grained, non equigranular, dark greyish green color. Core is moderately hard with a fine salt and pepper texture (<0.5 to 1mm dependant on grainsize of pervasive magnesite) in the upper part of the section. Grainsize increases downhole with coarser primary cumulate well preserved below approximately 275.0 with 0.5 to 2 mm equant serpentine pseudomorphs (with magnesite alteration) in a serpentine-magnesite groundmass comprising 10% of the volume. Aproximately 10% serpentine equant to tabular megacysts are present from 282.0 to 385.8. Megacrysts very from 0.5 cm equant to 2 x 0.5 cm tabular. The finer grained upper section may also be reflecting primary texture not serpentine-magnesite overprint. The rock is light grey, very fine to aphanitic and talcose from 179.6 to 180.7 and grades into a fine grained light to medium greenish-grey colored zone from 180.7 to aproxximately 195.0; indicative of more pervasive carbonatization?. The cumulate becomes lighter grey downhole of approximately 390.0 because of increased pervasive carbonate? Also an apparent decrease in grainsize may be due to the alteration?. Moderate (3-5/ft) magnesite veinlets 0.1 to 1 cm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets also contain green platy serpentine									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		similar in color to the groundmass serpentine.									
		Very fine disseminated magnetite form black selvages to fractures and occassional thin magnetite veinlet/fracture fill.									
		222.10 222.90 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. The dike has 0.3 foot selvages which have been intensely and pervasively serpentinized with no carbonate Sharp upper and lower contacts at 40 and 35 degrees to LCA, respectively									
		391.10 392.00 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. Approximately 0.3 foot zone at centre containing light reddish-brown mottles up to 5mm Sharp upper and lower contacts at 65 degrees to LCA.									
		405.30 406.70 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. Approximately 0.5 foot zone at centre containing light reddish-brown banding flanking flesh colored mottles up to 2mm Sharp upper and lower contacts at 55 and 48 degrees to LCA respectively.									
		417.70 418.20 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is soft, pervasive talc-magnesite alteration obliterates primary texture. Upper and lower contacts broken.									
		418.20 419.20 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. Upper and lower contacts broken.									
		419.20 420.00 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is soft, pervasive talc-magnesite alteration obliterates primary texture. Upper and lower contacts broken.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		420.00 422.80 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. Upper and lower contacts broken. 422.80 425.10 Ultramafic. Massive, very fine grained, equigranular, light grey color. Core is soft, pervasive talc-magnesite alteration obliterates primary texture. Upper and lower contacts broken. 425.10 429.00 Soft Aphanitic Dike/Xenolith. Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone. Fine grained core 427.0-427.3. Upper and lower contacts broken. 429.00 492.00 Cumulate Komatiite/Komatiitic Peridotite. Massive, very fine grained, equigranular, light grey color. Core is moderately soft with a salt and pepper texture (<0.5to 1mm). Pervasive talc-magnesite alteration appears to obliterate primary texture, except locally ghosted outlines of megacrysts are visible. Moderate (3-5/ft) magnesite veinlets 0.1 to 2.5 cm wide crosscut the core at <5 to 80 degrees to LCA. 450.40 452.00 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose zone Upper contact broken; lower contact at 40 degrees to LCA. 473.10 475.20 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose margins grade into a fine grained slightly harder biege-grey center. The cumulate host is aphanitic and very talcose 0.5 ft above and approximately 1 foot below this zone Upper and lower contacts broken. 492.00 519.00 Orthocumulate Komatiite/Komatiitic Peridotite. Same unit; gradational from above. Moderate (3-5/ft) magnesite veinlets 0.1 to 2.5 cm wide crosscut the core at <5 to 75 degrees to LCA.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Massive, fine grained, equigranular, light greyish-green color. Core is moderately hard with grain supported to groundmass-supported serpentinized cumulate (<0.5 to 1.5mm equant grains). Minor megacrysts from 507 to 515. Cumulate groundmass/matrix consists of serpentine and magnesite (10-20%) Apparent decrease in grainsize downhole from 513.4 may be due to increased pervasive groundmass carbonate. The rock contains 3-5% 2mm to 6mm dark grey diffuse magnetite-rich patches; cumulate grains are visible within the patches. Locally the patches have a distinct tabular outline like the megacrysts (0.5 x 1.5cm). Moderate (3-5/ft) magnesite veinlets 0.1 to 2.5 cm wide crosscut the core at <5 to 75 degrees to LCA. 495.00 495.40 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose margins grade into a lighter colored fine grained center with reddish brown tints. The cumulate host is fine grained carbonated and talcose 0.5 ft above and below the zone. 0.2 foot foliated zone below the zone at 65 degrees to LCA. Upper and lower contacts ground slightly at 60 and 85 degrees to LCA respectively. Lower contact broken but appears to be sharp. 519.00 641.00 Orthocumulate Komatiite/Komatiitic Peridotite. Same unit; gradational from above. Massive, fine grained, equigranular, light grey color. Core is moderately soft with a salt and pepper texture (<0.5 to 1mm). Pervasive talc-magnesite alteration appears to obliterate primary texture, except locally ghosted outlines of megacrysts are visible Locally the groundmass has a pale greenish grey color suggesting this unit is the same unit as above. The rock contains 3-10% 2mm to 6mm dark grey diffuse magnetite-rich patches; cumulate grains are visible within the patches. Locally the patches have a distinct tabular outline like the megacrysts (up to 0.6 x 2cm). Moderate to strong (5->10/ft) magnesite veinlets 0.1 to 1.5 cm wide crosscut the core at <5 to 80 degrees to LCA. The rock contains 1-3% disseminated 1mm									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		magnetite eyuhedra. Approximately 1 foot of core loss in talc zones between 548 and 554.5 with much of the loss occuring in a rubbly talc zone from 548.1 to 550.3. Trace disseminated pyrite from approximately 535 to 542.5. 3% blebby pyrite and nickeliferous pyrhotite from 542.5 to 548.0; this section corresponds to a darker grey stongly magnetic zone. 527.20 528.40 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose margins grade into a fine grained center with faint reddish brown wisps and mottles The cumulate host is aphanitic and very talcose 0.3 ft above and below this zone Upper and lower contacts broken. 545.75 546.00 31.20 %MgO. 550.90 553.60 Diorite Probable dike. Fine grained, massive, light brownish grey, equigranular diorite? Faint grey 1-2mm ghosted phenocryst? locally visible. Less than 5% biotite in groundmass. The adjacent cumulate host is zoned with aphanitic and very talcose groundmass from 548.1 to 550.3 and 554.2 to 554.6 in sharp but broken contact with an inner zone of greenish-grey talc-chlorite from 550.3 to 550.9 and 553.6 to 554.2 Upper dike contact with the chloritc zone is sharp at 60 degrees to LCA; lower contact broken. 561.40 562.40 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic chloritic-talcose margins grade into a fine grained center with faint reddish brown wisps and mottles The cumulate host is aphanitic and very talcose 0.3 ft above and below this zone Upper and lower contacts at 75 degrees to LCA. 609.80 610.60 Soft Aphanitic Dike/Xenolith Possible dike/xenolith. Medium green-grey moderately soft aphanitic										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		chloritic-talcose zone. The cumulate host is very fine and talcose 0.2 ft above and below this zone Upper and lower contacts broken. 640.30 640.60 Aphanitic foliated talcose ultramafic at 50 degrees to LCA. 640.60 641.00 Chloritic zone foliated at 50 degrees to LCA.									
641.00	669.40	ANDESITE-DACITE VOLCANIC INTRUSIVE ROCK Texturally variable zone of assimilated/partially melted intermediate volcanics or multiple diking. 641.00 644.10 Granodiorite Dacitic Flow. Brown, very fine grained, massive, hard, aphryic groundmass. Intermediate to felsic composition. Selvages to crosscutting quartz veinlets bleached biege to flesh colored with disseminated pyrite. 2-3% disseminated pyrite euhedra. Upper contact at 30 degrees to LCA. 644.10 644.40 Quartz Vein. 5% Pyrite euhedra. Upper and lower contacts at 72 and 57 degrees to LCA respectively. 644.40 645.60 Chlorite Zone. Feldspar porphyritic chloritic groundmass grades downhole into massive very fine chlorite. Lower contact at 65 degrees to LCA. 645.60 659.00 Granodiorite Dacitic Flow. Dark brownish grey very fine grained hard aphyric groundmass. Intermediate to felsic composition. Locally up to 5% calcite and rare quartz ovoids up to 2mm diameter. Local Chloritic wisps. A brecciated weakly chloritized zone occurs from 648.0 to 650.3; this may be a separate unit if it is volcanic. The unit locally contains 2-3% disseminated pyrite euhedra. Lower contact at 50 degrees to LCA. 659.00 659.50 Ultramafic. Magnesite veined zone with pevasively carbonatized ultramafic? Sharp upper and lower contacts at 50 degrees to LCA. 659.50 666.50 Granodiorite. Medium to coarse grained (2-3mm) equigranular intrusive texture. Core is dark grey from 659.5 to	1209 1210 1211	647.35 660.50 665.50	647.60 660.75 665.75	.25 .25 .25	60 40 30				4.23 4.08 3.28

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		662.6 which masks its texture. From 662.6 to 666.5 the core is bleached to a lighter biege color due to abundant crosscutting quartz veinlets. Locally 2-3% disseminated pyrite euhedra. Lower contact at 43 degrees to LCA. 666.50 669.40 Granodiorite Dacitic Flow. As in 641.0-644.1. Brown, very fine grained, massive, hard, aphryic groundmass. Intermediate to felsic composition. Selvages to crosscutting quartz veinlets bleached biege to flesh colored with disseminated pyrite. Where bleached a coarser grained equigranular texture is highlighted or is this an alteration overprint? The rock contains 2-3% disseminated pyrite euhedra. Lower contact at 55 degrees to LCA with a 1cm chloritic selvage.									
669.40	676.00	ULTRAMAFIC Possibly basaltic komatiite?. Intensely brecciated very fine grained talc-magnesite altered ultramafic. Angular clast supported breccia with 15-20% magnesite matrix. Matrix locally appears to be interlocking veining. Weak to moderate planar fabric imparted by magnesite matrix/veining at 52 degrees to LCA. Probably a structural fabric. A lens of overlying granodiorite/dacite dike from 669.7 to 669.9 subparallels LCA. Foliation wraps around lens. Weakly chloritized from 669.4 to 670.5. 676.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 13300 10100
Grid: 133+00N 101+00E

Azimuth: 310.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 441.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 78ft BW casing and shoe

*** Depth	Dip Tests Azi.	*** Dip
277.0		-43.0
421.0		-43.0

Hole No.: L92-17

Property: Langmuir Block
Claim: CLM 142
Township: Langmuir
Province: Ontario

Date Started: Feb. 24, 1992
Date Completed: Feb. 25, 1992
Logged by: Ian Trinder
Date Logged: Mar. 6, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	78.00	OVERBURDEN Cored intermediate boulder 77.0-78.0.									
78.00	267.30	THIN KOMATIITE FLOW SEQUENCE Very fine grained to fine grained dark grey talc-magnesite altered ultramafic. Groundmass cut by moderate to. Abundant (5-10+ per ft) calcite and/or light green grey talc veinlets at 30-80 degrees to long core axis. Dark greenish grey talc? fracture filling common and often with calcite veining. Where calcite veining becomes intense it frequently imparts a foliation at 35-55 degrees to long core axis. Some of the dark grey talc fractures have lighter grey groundmass selvages. 78.00 78.30 Ultramafic. Very fine grained, massive dark grey moderately talcose ultramafic. Intense calcite filled fractures. 78.30 92.10 Komatiite Flow. 78.30 79.90 A3 Zone dark grey sheaf spinifex. Abundant calcite veining. Weak to moderately talcose groundmass. 79.90 80.15 Massive, weakly chloritized calcite veined zone. 80.15 82.75 Granodiorite very fine grained, siliceous, reddish brown groundmass containing ~5% chloritic wisps. Upper contact broken. Lower contact at 48 degrees to long core axis. 82.75 83.10 Fine grained chloritic zone gradational	1182 1183 1184	141.50 206.50 246.30	141.75 206.75 246.55	.25 .25 .25	1680 1540 1780				32.22 24.58 31.64

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		into underlying subunit. 83.10 92.10 B Zone massive, very fine grained, medium greenish grey groundmass. Primary texture obliterated but local patches of fine grained (1mm) equigranular ultramafic may be relict unaltered or less altered ultramafic. Moderately soft talc-magnesite? altered groundmass cut by minor dark grey talcose and white calcite fracture fills. 92.10 101.60 Komatiite Flow. A distinct B Zone dominated flow or possibly an altered base of the overlying flow. Massive, very fine grained (</=0.5mm), pale greenish grey ultramafic. Upper contact defined by several crosscutting calcite veinlets. Color suggests moderate chlorite content in groundmass. Abundant calcite veining from 92.1-95.0. 101.60 104.00 Komatiite Flow. 101.60 102.20 A2 Zone pale to medium green fine random (possibly minor fine sheaf) spinifex. 102.20 102.60 Foliated fine grained calcite veined zone. Foliation at 37 degrees to long core axis. 102.60 104.00 B Zone massive, fine grained to very fine grained, pale to medium greenish grey ultramafic. Groundmass appears to be chloritic based on color. Moderate calcite and dark grey talc fracture fills at 30-60 degrees to long core axis. Core broken and rubbly from 103.6-104.0. 104.00 147.60 Komatiite Flow. 104.00 104.90 A2 Zone. Medium green random spinifex. 104.90 107.50 A3 Zone. Medium green coarse sheaf spinifex. 107.50 109.00 A3 Zone brecciated. Becomes increasingly grey colored downhole suggesting increasing talc-magnesite? content. Calcite veinlets crosscut and parallel sheaf fabric. Lower contact sharp at 90 degrees to long core axis. 109.00 127.10 B Zone massive, very fine grained, medium grey, talc-magnesite? altered groundmass cut by moderate (3-5 per ft) calcite veinlets and local talc veinlet at 30-65 degrees to long core axis. Groundmass relatively soft.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		127.10 128.60 Chloritic zone with a xenolith? of talc-magnesite rock. The xenolith has a light grey carbonate reaction rim as does the the upper and lower contacts with the ultramafic. Upper and lower contacts at 45 and 37 degrees to long core axis respectively.									
		128.60 132.00 B Zone as in 109.0 to 127.1.									
		132.00 132.50 Chloritic zone. Carbonate rich. Upper contact gradational. Lower contact at 57 degrees to long core axis.									
		132.50 133.70 Granodiorite very fine grained, massive, pale biege grey, hard, siliceous groundmass. 1% disseminated pyrite. Lower contact broken.									
		133.70 To 135.1 B Zone as in 109.0 to 127.1.									
		135.10 To 135.5 chloritic zone. Upper contact broken. Lower contact gradational.									
		135.50 To 135.8 Diorite fine grained brownish grey groundmass with several dark grey angular xenoliths up to 1cm.									
		135.80 137.00 Chloritic zone. Extremely rubbly.									
		137.00 137.30 B Zone as in 109.0 to 127.1.									
		137.30 139.60 B Zone altered equivalent of 109.0-127.1. Medium greenish grey groundmass more chloritic except for relict fracture bound patches. Abundant calcite veinlets.									
		139.60 147.60 B Zone as in 109.0 to 127.1. Below 143.2 the rock takes on a weak green tint. Lower contact may actually be 148.5.									
		147.60 167.20 Komatiite Flow.									
		147.60 148.50 A1 Zone very fine grained pale greenish grey ultramafic. May be part of overlying flow rather than a flow top chill.									
		148.50 149.10 A3 Zone medium greenish grey medium sheaf spinifex.									
		149.10 167.20 B Zone massive, very fine grained, medium grey, talc-magnesite altered ultramafic. Moderately soft groundmass cut by moderate (3-5 per ft) calcite veinlets. Trace disseminated pyrite. Rock takes on a greenish tint below 163.6. Position of lower contact uncertain. Chosen at a calcite veinlet.									
		167.20 223.50 Komatiite Flow.									
		167.20 168.90 A1 Zone very fine grained, massive greenish grey ultramafic. May be part of									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		overlying flow rather than a chilled flow top.									
		168.90 170.70 A2 Zone chloritic, poorly preserved. Appears to be fine to medium random spinifex but some may be sheaf.									
		170.70 171.30 Granodiorite Brownish grey very fine grained dike as in 132.5-133.7. Broken contacts.									
		171.30 173.90 B Zone massive, very fine grained, medium green ultramafic. Minor calcite veining. Color of groundmass suggests presence of chlorite therefore rock is likely a basaltic komatiite.									
		173.90 175.30 Diorite Rock of uncertain composition and origin. Fine grained (1mm), salt and pepper textured groundmass of greenish brown chlorite (biotite?) and calcite. Weakly foliated at 50 degrees to long core axis. Gradational 0.1-0.2ft intense greenish brown chloritic (biotitic?) margins. Upper and lower contacts at 50 and 35 degrees to long core axis respectively.									
		175.30 194.50 B Zone as in 171.3 to 173.9. Moderate calcite veining subparallel to 50 degrees to long core axis. ~1-2% disseminated pyrite euhedra from 178.5-181.0.									
		194.50 195.40 Diorite as in 173.9 to 175.3. Upper and lower contacts at 33 and 25 degrees to long core axis respectively.									
		195.40 215.40 B Zone medium green ultramafic as in 171.3 to 173.9. Moderate randomly oriented calcite and greenish grey talc fracture fills. Veining locally imparts a planar fabric at 30 degrees to long core axis.									
		215.40 219.40 Another dike?? of uncertain composition and origin. Medium to dark brownish grey, very fine grained, moderately soft chlorite (biotite?) rich groundmass. Chlorite (biotite?) is brownish green in color. Abundant calcite-dark grey talc? fracture fills subparallel to 45 degrees to long core axis. Upper and lower contacts at 45 degrees to long core axis.									
		219.40 222.20 Very fine grained to fine grained chlorite-calcite rich ultramafic foliated at 35 degrees to long core axis.									
		222.20 223.50 B Zone massive ultramafic as in 195.4 to 215.4. Lower contact ground.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		223.50 267.30 Komatiite Flow. A new flow or possibly a talc-magnesite altered part of the overlying unit. Massive, very fine grained, medium grey moderately soft, talc-magnesite? altered ultramafic. Groundmass takes on a greenish grey tint below 260. Calcite veinlets abundant (5-10 per ft) but more massive non-veined sections locally. Veining subparallel to 80 degrees to long core axis. Minor talc fracture fills. Trace to 1% disseminated pyrite euhedra. 267.00 267.30 Aphanitic, chloritic zone. Upper contact broken. Lower contact at 85 degrees to long core axis.									
267.30	357.10	FELDSPAR PORPHYRY No uper chill margin. Pale grey to medium greenish grey aphanitic siliceous groundmass hosts <5% <0.5mm microlites and 15-20% 1-2mm white, equant, subhedral to euhedral feldspar phenocrysts which frequently have green cores. Rare 1-2mm quartz eye. Groundmass cut by minor calcite veins and chlorite fracture fills. Minor quartz veinlets. Local silicification causes ghosting of the phenocrysts Ghosting is common from 339.0-357.0 and is locally so intense that the feldspars are not visible and the rock resembles the underlying section.	1185	324.50	324.75	.25	50				1.68
357.10	420.40	FELDSPAR PORPHYRY Likely a silicified and ghosted feldspar porphyry however it may also be a dacite volcanic. 357.10 359.10 Feldspar Porphyry. Upper contact somewhat indistinct but appears to be a silicification front. Rock comprises medium grey silicified monolithic breccia. Angular breccia fragments up to 0.5cm x 1.0cm and oriented at 40 degrees to long core axis. This interval appears to be a pseudobreccia created by silicification. Lower contact sharp at 30 degrees to long core axis. 359.10 420.40 Feldspar Porphyry. Massive, very fine grained siliceous greenish grey groundmass with 5-10% </=0.5mm quartz eyes?? Groundmass cut by minor calcite and quartz-(feldspar) veinlets. 374.60 375.20 Foliated chlorite-calcite zone at 20 degrees to long core axis. Bounded by calcite veins.	1186	370.00	370.25	.25	30				1.35

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		375.20 376.60 Massive, weakly foliated chlorite-calcite zone at 30 degrees to long core axis. Lower contact at 20 degrees to long core axis. Chloritic groundmass cut by 1cm feldspar-phyric 'dike' 1cm above the contact. 376.60 376.70 Upper 1cm of section is feldspar-phyric, non-ghosted? dike. 411.40 414.90 Pale green to white to pink mottled silicified zone with minor black moderately hard mineral with white acicular intergrowths. Gradational contacts. 414.90 419.60 Moderate-abundant quartz veinlets at 45-90 degrees to long core axis. Quartz vein from 419.5-419.6. Groundmass bleached from 419.3-419.5. 419.60 420.00 Aphanitic groundmass hosts ~10% 1-2mm light biege-green feldspar phenocrysts. Upper contact broken. 420.00 420.40 Silicified light grey to biege-grey groundmass same as in 419.6-420.0 except no visible phenocrysts. Lower contact at 45 degrees to long core axis.									
420.40	441.00	THIN KOMATIITE FLOW SEQUENCE Only minor calcite veining in the sequence.	1187	439.90	440.15	.25	1900				24.16
		420.40 423.70 B Zone. Brecciated, massive, very fine grained ultramafic (basaltic komatiite?). Breccia matrix consists of dark greenish grey talc. Lower contact broken. 423.70 425.10 Diorite. Very fine grained, massive, brownish grey dike? Moderately hard. Lower contact broken. 425.10 441.00 Komatiite Flow. 425.10 438.90 A3 Zone brecciated spinifex zone, appears to have been sheaf type. Breccia is clast-supported with 10-15% dark grey talc matrix. More massive from 437.7-438.9 but faint textures suggest this may have been a zone of random spinifex?. 438.90 441.00 B Zone massive, very fine grained, greenish grey ultramafic. Locally brecciated. 441.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 13600 10000
Grid: 136+00N 100+00E

Azimuth: 309.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 337.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole:

*** Dip Tests ***		
Depth	Azi.	Dip
337.0		-44.0

Hole No.: L92-18

Property: Langmuir Block
Claim: CLM 142
Township: Langmuir
Province: Ontario

Date Started: Feb. 25, 1992
Date Completed: Feb. 26, 1992
Logged by: Ian Trinder
Date Logged: Mar. 7, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	132.60	OVERBURDEN									
132.60	252.50	THIN KOMATIITE FLOW SEQUENCE Very fine grained to fine grained dark grey talc-calcite altered ultramafic. Groundmass cut by moderate to. Abundant (5-10+ per ft) calcite and/or light green grey talc veinlets at 30-80 degrees to long core axis. Dark greenish grey talc? fracture filling common and often with calcite veining. Where calcite veining becomes intense it frequently imparts a foliation at 35-55 degrees to long core axis. Some of the dark grey talc fractures have lighter grey groundmass selvages. 132.60 138.00 Ultramafic. Very fine grained to fine grained massive ultramafic. 138.00 139.40 Granodiorite. Very fine grained, massive light brownish grey groundmass with 5-7% chlorite and 1-2% disseminated pyrite. Questionable composition. Dike has 0.5 cm brownish green chloritic margins. Upper contact ground. Lower contact at 56 degrees to long core axis. 139.40 139.90 Ultramafic. Very fine grained, massive ultramafic. 139.90 141.20 Granodiorite. As in 138.0 to 139.4. Upper and lower contacts at 53	1188 1189 1190	179.90 220.65 247.00	180.15 220.90 247.25	.25 .25 .25	1730 1740 2120				27.73 26.47 28.24

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		degrees to long core axis. 141.20 169.80 Ultramafic. Very fine grained (<0.5mm), massive ultramafic. 169.80 182.90 Komatiite Flow. Possible flow unit comprising:. 169.80 170.80 Possible A Zone brecciated. Abundant dark grey talc fractures parallel what may be brecciated laminar sheaf spinifex. Questionable. 170.80 182.90 B Zone. Massive very fine grained ultramafic. 182.90 192.60 Komatiite Flow. 182.90 184.30 A3 Zone medium greenish grey. Chlorite in groundmass. Upper contact sharp and bounded by a calcite veinlet at 45 degrees to long core axis. 184.30 184.40 Possible B1 Zone. Fine grained, foliated tabular 1mm grains at 35 degrees to long core axis. 184.40 192.60 B Zone massive ultramafic appears to coarsen from </=0.5mm to 1-1.5mm downhole 192.60 221.30 Komatiite Flow. Possibly 2 flows if the massive ultramafic from 196.2 to 197.5 is a B Zone. Alternatively this massive section could be a squeeze-up of B Zone material from 199.0-221.3 into a crack in the A Zone. 192.60 192.85 A2 Zone. Fine random spinifex. 192.85 196.20 A3 Zone. Medium green to brownish green coarse sheaf spinifex. 196.20 197.50 B Zone. Fine grained (1-2mm), massive zone. Upper 0.3ft and lower 0.2ft has a salt and pepper texture because of abundant calcite in the groundmass. The main part of the zone is brownish green with less carbonate. 197.50 199.00 A3 Zone. Green to brownish green coarse sheaf spinifex. 199.00 221.30 B Zone. Very fine grained to fine grained (<0.5-1.0mm) ultramafic coarsens to 1.5mm from 219.1-221.3. 221.30 241.00 Komatiite Flow. 221.30 221.70 Possible A3 Zone brecciated. Poor preservation. 221.70 224.10 A3 Zone. Coarse brownish green sheaf spinifex. Texture is poorly preserved from 223.0-224.1. Brecciated?.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		224.10 227.90 B Zone. Massive, fine grained (1-2mm), ultramafic. 227.90 235.50 B Zone. Massive, very fine grained ultramafic. Intense brecciation from 228.4-230.7 and 232.4-235.5 with abundant calcite veining. Breccia foliated at 52 degrees to long core axis. 229.50 241.00 Rubbly core with ~1ft core loss from 237.9-241.0. 235.50 237.90 Granodiorite ? very fine grained brownish grey groundmass with broken contacts. 237.90 241.00 B Zone. Very rubbly fine grained talcose ultramafic. 241.00 251.00 Komatiite Flow. 241.00 242.00 Possible A3 Zone brecciated. As in 169.8 to 170.8. 242.00 251.00 B Zone. Fine grained, massive ultramafic. Rare disseminated pyrite euhedra. Intense foliation at 50 degrees to long core axis from 242.0 to 244.4. Brecciated from 242.0 to 245.5. Intense brecciation and foliation at 60 degrees to long core axis from 249.0 to 251.0 with abundant calcite veining. 251.00 252.50 Komatiite Flow. 251.00 251.30 A3 Zone. Fine chloritic sheaf spinifex. 251.30 252.20 Possible B Zone. Very fine grained calcite veined zone with crude fabric at 65 degrees to long core axis. 252.20 252.50 Very fine grained chloritic zone. Lower contact at 60 degrees to long core axis and somewhat diffuse.									
252.50	337.00	FELDSPAR PORPHYRY As in hole L92-17.	1191	279.00	279.25	.25	260				9.87
		252.50 253.20 Feldspar Porphyry. Greenish grey ghosted groundmass. Lower contact at 65 degrees to long core axis broken?. 253.20 254.50 Ultramafic. Very fine grained, brecciated, chloritic, calcite veined xenolith. May be an altered basaltic komatiite or possibly a basalt/andesite volcanic. 254.50 275.20 Feldspar Porphyry. Aphanitic, pale grey to greenish grey groundmass hosts									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		15-20% 0.5-2.0mm, white, equant, subhedral to euhedral feldspar phenocrysts. Some phenocrysts have light green cores. Rare quartz eye. Several angular chloritic up to 3cm x 2cm in upper 0.5 ft. Upper 2.5ft is either chilled or ghosted. Rare phenocryst visible. 275.20 281.70 Ultramafic. Probably a xenolith but may be a dike. Very fine grained, massive, homogeneous brownish grey intermediate groundmass. Margins are either baked or chilled and comprise from outside to inside: 2mm dark green aphanitic groundmass; 4mm bleached grey aphanitic groundmass; 10mm dark maroon-brown aphanitic groundmass with minor microlites which then grades into the main body over 2-10cm. The bleached grey groundmass is also present as selvages to fractures near the contacts upper and lower contacts at 27 and 10 degrees to long core axis respectively. 281.70 317.80 Feldspar Porphyry. As in 254.5 to 275.2. 298.00 317.80 Abundant ghosted (silicified) patches with only faint outlines of feldspar phenocrysts locally visible. Many sections of this zone are texturally similar to the ghosted dike/dacite volcanic in L92-17. Lower contact gradational. 317.80 337.00 Feldspar Porphyry. Probably ghosted feldspar porphyry. Upper contact arbitrarily chosen at the base of the last major section containing recognizable feldspar phenocrysts. Very fine grained, massive, pale to medium greenish grey groundmass. Local patches where faint ghosts of phenocrysts are visible: 320.4-321.1, 321.7-322.0, 323.2-323.5, 324.0-324.3, 324.7-325.1 and 336.3-336.7. If this section is a dacite volcanic and not a dike then the contact may be ~325.2. Minor cacite and/or quartz veinlets and chlorite fracture fills. 337.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 12000 10535
Grid: 120+00N 105+35E

Azimuth: 305.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 1007.0

Purpose: Test North Zone & magnetic gradient
Comments:
Materials left in Hole: 20ft BW casing and shoe lost in hole

*** Dip Tests *** Depth	Azi.	Dip
597.0		-45.0
1007.0		-45.0

Hole No.: L92-19

Property: Langmuir Block
Claim: P6451 & 7867
Township: Langmuir
Province: Ontario

Date Started: Feb. 26, 1992
Date Completed: Feb. 29, 1992
Logged by: Ian Trinder
Date Logged: Mar. 4, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	64.20	OVERBURDEN 44.00 51.30 Andesite boulder. 51.30 60.00 Sand with some pebbles. 60.00 64.20 Dominantly andesite boulders/cobbles with several granitic. Bedrock may begin at 63.2.									
64.20	200.50	ANDESITE-DACITE VOLCANIC Section appears to be dominated by massive very fine flows and local monolithic breccias of the same composition. These breccias are gradational into the massive volcanics and are likely autobreccias/flow top-bottom breccias. The light grey to greenish grey groundmass commonly contains </= 5% 1-3mm calcite ovoids and a rare quartz eye. Fragments are angular and generally less than 1cm diameter. Minor laminated/foliated and/or fragmental chloritic interbeds ie. Foliated/laminated bed 73.8-75.4 upper and lower contacts at 40 degrees to long core axis, fragmental bed 89.2-89.7 upper contact gradational, lower contact at 60 degrees to long core axis, foliated fragmental bed 96.4-99.7 upper contact gradational, lower contact at 60 degrees to long core axis foliated/laminated bed 148.2-150.0 upper and lower contacts at 30 and 25 degrees to long core axis respectively. Breccia fragments visible from 75.4-76.3, 146.5-165.0,	1162 1163	126.25 199.95	126.50 200.20	.25 .25	80 80				4.04 4.13

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		171.5-179.9 (faint ghosts), and 184.5-189.0. No distinct contacts observed. 197.50 200.50 Light greenish grey, fine grained (</= 1mm), possible volcanic (or dike??) of intermediate composition. Upper contact sharp (possible alteration front); lower contact texturally indistinct from top of underlying ultramafic. Contact based on change in hardness which is somewhat gradational and a lower chlorite content than in the underlying ultramafic. Rock is crosscut by hairthin to 5mm thick calcite veinlets. Local Faint </= 0.5mm parallel sets of white siliceous? laminae generally at 45 degrees to long core axis. Possibly flow banding. Trace disseminated pyrite euhedra 2mm to 1cm. Chloritic beds often contain 2-3% pyrite euhedra.									
200.50	270.50	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 200.50 202.50 Ultramafic. Fine grained dark greenish grey chlorite-talc-magnesite altered groundmass. Chlorite content decreases and talc content increases downhole. Gradational into underlying section. 202.50 270.50 Orthocumulate Komatiite/Komatiitic Peridotite. Coarse grained (2-4mm) dark grey moderately packed?, orthocumulate?. Texture faintly to moderately preserved. Pseudomorphs generally have tabular to laminated skeletal outlines. Several instances of possible harrisitic (herringbone) texture. Pervasive talc-magnesite alteration in groundmass. Core crosscut by magnesite-(talc) veinlets (5 per foot) subparallel to 65 degrees to long core axis. Trace disseminated pyrite. 266.30 268.50 Coarse salt and pepper texture created by pervasive carbonate in groundmass. 268.50 270.50 Gradational increase in chlorite content downhole such that the lower 0.2 feet is dominantly med green aphanitic chlorite.	1164 1165	201.25 259.50	201.50 259.75	.25 .25	180 1480				20.86 28.62
270.50	276.50	GRANODIORITE									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Diorite/granodiorite? dike?. Fine grained (</= 0.5mm), massive light pinkish grey equigranular groundmass Approx 20% chlorite and minor calcite in groundmass. Chlorite and/or quartz in veinlets and fracture fills. Overlying chlorite zone intrudes upper contact along a fracture. 272.20 272.30 Chlorite xenolith/vein at 22 degrees to long core axis. Upper and lower contacts sharp at 35 and 60 degrees to long core axis respectively. Alternatively, if the underlying unit is a volcanic this dike may be a thermal metamorphic melt of the volcanic by the overlying komatiite.	1166	273.55	273.80	.25	30				2.88
276.50	341.40	DIORITE Diorite dike or intermediate volcanic?. Fine grained (</=1mm), massive, medium greenish grey, homogeneous, equigranular groundmass. Crosscut by minor 1-5mm calcite veinlets (2-5 per foot) at 20-70 degrees to long core axis. Rare quartz-chlorite veinlets. Minor to abundant calcite in chloritic groundmass. 284.10 291.80 Slightly coarser grained (1-1.5mm). 308.10 308.90 Fine grained reddish brown dike bounded by pinkish white quartz-K-spar veins (1-2cm). Weakly porphyritic with <50% 0.5-1mm calcite pseudomorphs. Lower contact at 70 degrees to long core axis bounded by a calcite veinlet.	1167 1168	290.75 328.50	291.00 328.75	.25 .25	120 160				9.67 13.75
341.40	425.60	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 341.40 341.90 Ultramafic. Very fine grained to aphanitic moderately talcose zone cut by calcite veinlets at 50 degrees to long core axis 341.90 346.30 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained (</= 1mm), massive, equant ultramafic. Margin to underlying unit. Cumulate texture relatively well preserved. Talc-magnesite altered groundmass gradational into underlying section. 346.30 423.30 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained to coarse grained well preserved close packed? orthocumulate. White to light grey equant pseudomorphs hosted by aphanitic dark grey	1169	415.75	416.00	.25	1520				30.30

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		interstitial groundmass. Grainsize increases from 1mm to 3mm downhole with a corresponding decrease in interstitial groundmass from 20-30% to 10-15%. Cumulate is grain-supported. Slight grainsize reduction to 1-2mm below 416.8; this may be an alteration effect. Pervasive talc-magnesite altered groundmass crosscut by minor magnesite, talc-magnesite and dark grey laminated aphanitic talc veinlets at 15-70 degrees to long core axis. Trace disseminated pyrite. 423.30 425.60 Ultramafic. Very fine grained to aphanitic medium grey talcose ultramafic gradational from above (423.3-424.0). Grades downhole into medium greenish grey chloritic-talcose zone. Generally very fine grained except locally porphyritic (424.0-424.4) or fine grained (425.3-425.6) because of magnesite pseudomorphs/porphyroblasts and disseminated grains. Lower contact sharp at 50 degrees to long core axis.									
425.60	429.80	DIORITE Probable dike. Fine grained (</= 0.5mm), massive, light brownish grey, equigranular groundmass. Biotite? and chlorite in groundmass. Minor quartz veinlets lower contact sharp at 20 degrees to long core axis.									
429.80	441.10	SOFT APHANITIC DIKE/XENOLITH Uncertain origin. Aphanitic to very fine grained medium to dark grey groundmass hosts ~5% biege pseudomorphs (< 0.25 to0.5mm). Groundmass is relatively soft and moderately talcose. Angular chloritic fracture fill from 438.5-438.8. Lower 1.0 foot has a light green-grey color suggesting presence of some chlorite in groundmass.	1170	439.50	439.75	.25	30				5.47
441.10	535.50	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 441.10 457.20 Orthocumulate Komatiite/Komatiitic Peridotite. Coarsens downhole from </= 0.5mm to 1.0-1.5mm. Cumulate grains are grain-supported to groundmass supported with 15-30% interstitial. Material. Alteration has locally obliterated texture.	1171	452.50	452.75	.25	2050				46.61
			1172	460.50	460.75	.25	2550				45.52
			1173	519.55	519.80	.25	3130				46.14
			1381	520.00	522.00	2.00	3600				
			1382	522.00	522.50	.50		1.510			
			1383	522.50	525.00	2.50	3500				

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Groundmass has been pervasively talc-magnesite altered. Weak to locally intense magnesite-(talc) veinlets at 35-80 degrees to long core axis. This section is gral into underlying serpentinite. The talc-magnesite alteration appears to be later than the serpentine alteration. 457.20 476.20 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained (< 0.5mm), light to medium green, massive, equigranular groundmass May not be primarry texture because there are local patches of slightly coarser grained serpentinite (1.0-1.5mm). Same unit as the overlying talc-magnesite altered unit. Groundmass serpentinized and crosscut by abundant green serpentine and/or magnesite veinlets. Serpentine on margins of veinlets where the two minerals are present in the same veinlet. Trace disseminated pyrite. Magnetite present in groundmass as well as in grey selvages to magnesite-serpentine veinlets and in rare. Magnetite veinlet. 476.20 477.00 Soft Aphanitic Dike/Xenolith. Uncertain origin, may also be a flowtop. Aphanitic, greenish grey, relatively soft groundmass with moderate talc-carbonate content. Moderate biege mottles (2-3mm diameter) similar to 423.3-425.6. Upper and lower contacts sharp at 52 and 49 degrees to long core axis respectively. Groundmass laminated at lower contact. 477.00 535.50 Orthocumulate Komatiite/Komatiitic Peridotite. Massive, medium greyish green, inequigranular, non-sorted fine to coarse grained porphyritic to open to close-packed? orthocumulate groundmass. Grainsize varies from equant 0.5mm grains to local tabular megacrysts up to 4mm x 18mm. Megacrysts are generally 1-2mm and subequant. Cumulate grains hosted by 20-50% very fine grained to aphanitic, light greenish grey interstitial groundmass of serpentine and magnesite? Porphyritic appearance may be an alteration overprint of the cumulate; ie. Selective destruction and grainsize reduction. Groundmass serpentinized. Core crosscut by minor to locally moderate (5-7 per foot) 1-10mm (rarely up to										

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		2.5cm) magnesite and/or green platey serpentine veinlets at 5-50 degrees to long core axis and average _ degrees to long core axis 40-45. Rare disseminated pyrite grain. Magnetite in groundmass, as well as dark grey selvages to veinlets and as minor veinlet and fracture filling. 522.00 522.50 ~5% nickeliferous pyrrhotite blebs up to 1.5mm diameter. Strongly magnetic. Reacts with Ni test solution. Shape of blebs suggests pyrrhotite is replacing cumulate grains. 527.60 534.60 Rock is slightly more greenish grey suggesting increased carbonate content in groundmass. Groundmass is fine grained (</= 1mm), equigranular and cut by serpentine veinlets at 45 degrees to long core axis. 534.60 535.50 Very fine grained, talcose ultramafic gradational from above.									
535.50	553.10	SOFT APHANITIC DIKE/XENOLITH As in 429.8-441.4; uncertain origin, may also be a flowtop. Very fine grained to aphanitic, medium greenish grey to grey, relatively soft groundmass with moderate talc? content. Locally 5-10% biege 'microphenocrysts?' upper contact sharp at 57 degrees to long core axis. Lower contact broken.	1174	548.75	549.00	.25	40				6.33
553.10	578.10	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Fine grained, greenish grey, porphyritic groundmass consists of 10-20% 0.5-1.0mm equant dark green serpentine grains in a light to medium greyish greem very fine grained serpentine-(magnesite?) groundmass. Alternatively the porphyritic appearance may be an alteration effect and the phenocrysts may actually be relict cumulate grains. Groundmass serpentinized (and carbonated?). Core cut by magnesite and/or serpentine veinlets and magnetite as in 477.0-535.5. No visible sulphides. 567.10 567.20 Aphanitic dike? as in 535.5-553.1. Sharp contacts at 45 degrees to long core axis. 576.00 578.10 Grainsize decreases downhole with increasing carbonate and talc content									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		such that the core is aphanitic, medium grey and talcose from 577.7-578.1. Lower contact sharp but broken.									
578.10	579.70	SOFT APHANITIC DIKE/XENOLITH As in 535.5-553.1; uncertain origin, may also be a flowtop. Very fine grained to aphanitic, medium to dark grey, except for 0.2 ft margins which are slightly greenish grey (chloritic?). 5-10% 1mm biege pseudomorphs from 578.6 to 579.1. Lower contact sharp at 30 degrees to long core axis.									
579.70	583.30	ULTRAMAFIC Very fine grained to aphanitic dark grey talcose groundmass. Lower contact sharp, subparrallels LCA from 582.7-583.9.									
583.30	588.60	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Probably same unit as 553.1-578.1 based on texture and mineralogy if 578.1-579.7 is a dike or xenolith. The core is fine grained with a porphyritic appearance. 10-15% dark green 'phenocrysts' in a lighter green serpentinized-carbonatized groundmass. Several hosted megacrysts suggests that the porphyritic texture is an alteration overprint of a cumulate with only relict cores of some grains preserved. Pervasive serpentinization-(carbonatization). Core cut by minor magnesite-serpentine veinlets and magnetite veinlets and selvages as in 553.1-578.1. No visible sulphides. 584.60 585.00 Ultramafic Dike. Fine grained relatively soft groundmass (serpentine?-carbonate?) contains 5-10% 1-2mm magnesite pseudomorphs. Contacts are sharp, angular and undulose and mirror one another which suggests this is an intrusive not a xenolith. Unit has dark grey aphanitic 2-10mm margins. Lower 0.3 ft is intensely serpentinized (1mm grainsize).									
588.60	591.50	ULTRAMAFIC DIKE As in 584.6 to 585.0. Possibly a flow. Fine grained, greenish grey (serpentinized-carbonatized) groundmass hosts 10-20%	1175	590.25	590.50	.25	990				33.32

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		1-4mm magnesite pseudomorphs. The 'dike' has upper and lower margins which are fine grained, dark green serpentinite with patches of lime green serpentinite and contain minor serpentine pseudomorphs up to 2-3mm. The internal contacts with the main dike are quite sharp and parallel the outer contacts. The margins may be chilled dike margins or possibly altered wall rock.									
		Sharp upper and lower contacts at 35 and 50 degrees to long core axis respectively.									
591.50	611.25	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Massive, medium to dark green, inequigranular orthocumulate? groundmass. Serpentine grains vary from 1mm equant to tabular 4mm x 15mm megacrysts. Average grainsize is 1-2mm with an apparent increase downhole to 2-3mm. Megacrysts are common from 606.5-611.25. Cumulate grains are not closely packed; they appear to be set in 20-40% fine serpentine-carbonate groundmass. This fabric may be an alteration overprint of a once close packed orthocumulate?. Megacryst zones appear more closely packed. The megacrysts may represent incipient patches of mesocumulate/adcumulate overgrowth	1384 1385	601.00 606.00	606.00 611.25	5.00 5.25	1100 6200				
		Pervasive serpentinization-carbonatization. Magnesite-(serpentine) veinlets and magnetite veinlets/selvages as in 553.1-578.1 Moderately abundant discontinuous 0.5-2.0cm long o.5-1.0mm thick fibrous asbestiform serpentine veinlets with a common orientation of 35 degrees to long core axis. Veinlets generally diffract around larger cumulate grains. Upper 0.7 ft intensely serpentinized and textures ghosted.									
		606.50 611.00 Groundmass contains 2-3% disseminated nickeliferous pyrrhotite blebs 1-2mm diameter. Blebs may be replacing cumulate grains.									
611.25	613.50	SOFT APHANITIC DIKE/XENOLITH As in 535.5 to 553.1. Possibly a flow top? Light green grey color suggests presence of some chlorite. Several possible ghosted grains within several mm of the contact. Sharp upper and lower ? contacts at 48 degrees to long core axis.									
613.50	668.90	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Close-packed? orthocumulate.	1386	613.50	618.50	5.00	2200				

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Upper contact may be gradational with the overlying unit suggesting it may be a flowtop chill rather than a dike. Upper 2 ft is a dark green pervasive serpentinite with ghosts of relict cumulate grains visible. Grainsize coarsens downhole from 1-2mm in the upper 2.5 ft to an inequigranular cumulate with equant 1mm grains to 4mm x 15mm tabular megacrysts. Cumulate grains are encircled by a thin rim of light greenish grey very fine serpentine-carbonate groundmass which makes up 10-15% of the rock volume. Zones with abundant megacrysts from 616.5-618.5; 635.7-650.2 and 653.4-658.0.	1176	623.95	624.20	.25	2750				44.06
		Pervasive serpentinization-carbonatization of groundmass. Magnesite-serpentine, magnetite and fibrous asbestiform serpentine as in 591.5-611.25. Asbestos locally rims megacrysts. Asbestos rare below 656.0.	1387	647.50	648.50	1.00	3900				
		One 1cm bleb of nickeliferous pyrrhotite at 648.0. Several blebs of nickeliferous pyrrhotite, 2-3mm diameter, rimmed by magnesite at 662.0-662.1 and at 663.5-663.7 (here the sulphide appears to core magnesite pseudomorphs after serpentine grains.	1388	661.50	663.00	1.50	6000				
		Lower contact sharp at 25. Degrees to long core axis May be gradational over 2mm. Pyrite euhedra along contact. 625.60 625.90 Soft Aphanitic Dike/Xenolith. As in 611.25 to 613.5. Dark greenish grey aphanitic talc-serpentine alteration of the ultramafic groundmass 0.1 ft on each side of the dike or is it a chill margin of the dike itself?. Sharp upper and lower contacts at 45 degrees to long core axis.	1389 1390	663.00 664.00	664.00 666.50	1.00 2.50	8000 3600				
668.90	669.50	ULTRAMAFIC Aphanitic pale greenish grey talc zone. Sharp lower contact at 35 degrees to long core axis.									
669.50	673.80	SOFT APHANITIC DIKE/XENOLITH ULTRAMAFIC Aphanitic medium green chloritic - (talcose?) zone. Rubbly broken core. Possibly a chloritic equivalent of the dike at 611.25-613.5. Sharp lower contact at 35 degrees to long core axis.									
673.80	676.40	ULTRAMAFIC Fine grained to aphanitic dark grey talcose ultramafic. Pale greenish grey talc from 673.8 to 673.9									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Lower contact sharp and jagged and averages 15 degrees to long core axis. Minor pyrite along contact. Chloritic zone with sharp contacts from 676.0-676.2.									
676.40	689.00	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Fine grained, medium to dark green, massive orthocumulate? similar to 613.5 to 668.9. Texture not well preserved except 686.0-689.0 where the rock is coarser grained ie. 2-3mm equant close-packed grains with an occasional megacryst. Groundmass serpentinized. Lower contact at 30 degrees to long core axis. 684.70 685.10 Aphanitic dark grey talcose ultramafic. Sharp upper contact broken by magnesite veinlets. Sharp lower contact at 55 degrees to long core axis. 685.10 685.50 Aphanitic chloritic zone. Sharp lower contact at 55 degrees to long core axis. 685.50 685.80 Aphanitic talcose ultramafic. Broken lower contact. 686.80 687.20 Minor nickeliferous pyrrhotite blebs in a 1cm wide zone at 20 degrees to long core axis. 688.00 688.90 Soft Aphanitic Dike/Xenolith dike as in 611.25 to 613.5. Abundant magnesite in fractures. Sharp upper contact at 20 degrees to long core axis. Jagged lower contact at 10 degrees to long core axis.	1177 1391	677.00 686.50	677.25 687.50	.25 1.00	2500 1800				40.20
689.00	696.00	ULTRAMAFIC Aphanitic, dark grey, talcose ultramafic. Intense foliation subparallels LCA. 692.50 695.80 Extremely broken and rubbly talc zone. 695.80 696.00 Broken chloritic core not as talcose as rest of section.									
696.00	696.80	INTERMEDIATE DIKE Very fine grained, aphric, light grey groundmass. More siliceous than dikes? such as 611.25-613.5.									
696.80	733.50	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 696.80 697.00 Aphanitic chloritic zone. Upper and lower contacts broken.	1392 1393 1394	697.50 701.00 706.00	701.00 706.00 709.00	3.50 5.00 3.00	5100 3000 5600				

Hole: L92-19 (cont'd)

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		697.00 697.50 Ultramafic. Aphanitic to very fine grained grey talcose ultramafic. Sharp lower contact at 50 degrees to long core axis. 697.50 733.40 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained (</= 1mm), massive cumulate. Color changes from medium green to light greenish grey downhole. Locally porphyriotic with 1-2mm serpentine grains. Porphyritic appearance may be due to carbonatization of groundmass. Groundmass serpentinized with variable pervasive carbonatization and locally talc alteration. Core cut by moderate 1-20mm magnesite +/-talc +/-green platey serpentine. The veinlets often have magnetite rich selvages. Veinlets at 40-80 degrees to long core axis. 1-2% Very fine disseminated nickeliferous pyrrhotite from 698.0-700.5 and 706.0-709.0. Generally associated with strong carbonate veining. 725.50 726.20 Pale medium green intensely talcose zone. Upper contact broken. Lower contact at 35 degrees to long core axis. 726.60 728.20 Soft Aphanitic Dike/Xenolith medium grey aphanitic groundmass as in 611.25 to 613.5. Probable dike hosts 10% 1mm biege 'phenocrysts'. Strong fabric subparallels LCA.. Lower contact broken. 728.20 730.00 Pale to medium grey, aphanitic talcose ultramafic. Sharp lower contact. Strong planar fabric subparallel to 30 degrees to long core axis. 732.60 733.20 Strongly serpentinized very fine grained groundmass. Texture obliterated. 733.20 733.40 Ground talcose core. 733.40 733.50 Aphanitic chloritic-biotitic? zone.	1178	717.00	717.25	.25	2550				51.58
733.50	744.10	DIORITE Zone of multiple diking. 733.50 735.90 Diorite. Fine grained (</= 0.5mm), massive, light brownish grey, equigranular dike? Could this be a coarser grained equivalent of the soft aphanitic dikes. Dike is cut by chloritic wisps and bands up to 3cm wide. 735.90 736.40 Chloritic zone. Aphanitic groundmass. Sharp upper and lower contacts									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		at 55 degrees to long core axis. 736.40 738.50 Ultramafic. Fine grained talcose ultramafic with aphanitic margins (0.2ft upper and 0.6ft lower margin). Lower contact sharp at 25 degrees to long core axis. 738.50 739.20 Chloritic zone. Very fine grained to aphanitic groundmass becoming more biotitic? in the lower 0.1-0.2ft. Lower contact sharp at 50 degrees to long core axis. Contact might be considered gradational over 1-2mm. 739.20 744.10 Diorite. As in 733.5 to 735.9. Lower contact sharp at 45 degrees to long core axis. Up to 1% disseminated pyrite									
744.10	787.00	ULTRAMAFIC Broken rubbly core from 758.0 to 769.0 with approx 1.4ft core loss likely occurring between 758 and 763. Measurements between 758 and 763 are approximate. Pervasive talc-magnesite alteration. 744.10 744.50 Pale greenish grey aphanitic chloritic zone. Relatively soft. Lower contact sharp at 50 degrees to long core axis. 744.50 744.60 Gouge. 744.60 744.80 Aphanitic talcose ultramafic with gradational lower contact. 744.80 757.50 Fine grained, massive, medium to dark grey ultramafic. Talc-magnesite alteration obliterates primary texture. Minor to moderate magnesite veinlets. 757.50 759.00 Aphanitic medium grey talcose ultramafic. Gradational from above. 759.00 760.00 Aphanitic chloritic zone. Upper and lower contacts sharp but broken. 760.00 760.80 Fine grained very soft chloritic (talcose?) zone. Contacts broken. 760.80 762.20 Diorite fine grained groundmass as in 763.8 to 768.0. Contacts broken. 762.20 762.90 Fine grained brownish green (biotite-chlorite?) zone. Broken contacts 762.90 763.70 Aphanitic, medium greenish grey talcose ultramafic. 763.70 763.80 Dark greenish brown biotitic-(chloritic?) zone. Very soft and crumbly core. Upper and lower contacts sharp at 50 degrees to long core axis.	1179	775.25	775.50	.25	2140				46.97

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		763.80 768.00 Diorite fine grained (<0.5-1.0mm), massive equigranular brownish grey dike? Biotite flakes in groundmass. 764.60 764.90 Vuggy magnesite vein with 1cm bleached selvages. 766.20 766.40 Bleached silicified zone. 768.00 768.30 Very fine grained brownish green soft chlorite-(biotite?) zone. Upper contact at 60 degrees to long core axis gradational over 2 to 3 mm. Lower contact broken. 768.30 768.80 Aphanitic medium grey talcose ultramafic. 768.80 769.00 Very fine grained chloritic zone. Contacts broken. 769.00 769.60 Aphanitic medium grey talcose ultramafic. Lower contact gradational. 769.60 780.50 Fine grained talc-magnesite altered ultramafic. Primary textures obliterated. Moderate magnesite veining. <3% 1mm disseminated magnetite euhedra. 780.50 780.90 Very fine grained medium grey ultramafic gradational from above. 780.90 781.50 Very fine grained to aphanitic medium green chloritic zone. Upper contact ground. Lower contact at 55 degrees to long core axis. 781.50 783.30 Diorite as in 763.8 to 768.0. Core extremely broken and rubbly. Lower contact gradational. 783.30 783.60 Very fine grained to aphanitic chloritic zone. Lower contact ground. 783.60 786.80 Fine grained talc-magnesite altered ultramafic as in 769.6 to 780.5. 786.80 787.00 Aphanitic chloritic zone. Undulose but sharp contact at 70-80 degrees to long core axis with underlying dike?.									
787.00	807.40	FELDSPAR PORPHYRY Multiple dike zone. Alternatively, this zone might be interpreted at a bedded dacite volcanic but doubtful. All dikes crosscut by moderate quartz-K-spar-chlorite veins. 787.00 790.30 Feldspar Porphyry. Aphanitic brownish maroon groundmass hosts 10% 1mm ghosted feldspar phenocrysts. Light grey chill margin? from 787.0-787.1. Approx 1% disseminated and fracture controlled pyrite. Might be the altered equivalent of the underlying interval. Lower contact defined by a chlorite-quartz-K-spar veinlet at 45 degrees to long									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		core axis. 790.30 804.00 Feldspar Porphyry. Medium greenish grey to biege aphanitic groundmass with bleached veinlet selvages and patches. Gradational color change to marron grey at 801.5. Possible chill margin 803.8-804.0. Local patches of 10-15% 1-2mm feldspar phenocrysts. Elsewhere porphyritic texture is ghosted or obliterated by silicification. Groundmass also contains approx 5% <0.5mm microlites. 40-50% Quartz stockwork with 1-2% disseminated pyrite euhedra from 799.2-803.3. 804.00 807.40 Feldspar Porphyry. Brownish maroon dike as in 787.0-790.3 except appears to be aphanitic and aphyric. 1-2% disseminated pyrite euhedra. Bleached white margin from 807.35-807.4. Sharp upper and lower contacts at 55 and 45 degrees to long core axis respectively.									
807.40	828.10	ULTRAMAFIC 807.40 807.80 Aphanitic chloritic zone. 807.80 808.30 Ground core loss. 808.30 809.70 Ultramafic. Dark grey very fine grained talcose ultramafic. Gradational lower contact at 45 degrees to long core axis. 809.70 828.10 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained, medium grey to greenish grey ultramafic. Groundmass pervasively carbonatized with moderate talc content. Core hardness increases downhole and corresponds to a change in color to gngry and presence of relict serpentine cumulate grains ie. 820.3-824.0. Moderate magnetite-(serp)-(talc) veinlets at 20-70 degrees to long core axis. 815.50 817.20 2-3% blebby pyrite-pyrrhotite with minor reaction to Ni test solution. 817.20 824.00 1-2% pyrite and minor nickeliferous pyrrhotite. Weak reaction to Ni test solution. 824.00 827.60 Very fine grained to aphanitic pale to medium grey talcose ultramafic. 827.60 828.10 Very fine grained to aphanitic chloritic zone. Sharp upper and lower contacts at 50 and 55 degrees to long core axis	1395 1396 1397	813.00 815.50 818.00	815.50 818.00 824.00	2.50 2.50 6.00	670 2400 1200				

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		respectively.									
828.10	830.20	DIORITE FELDSPAR PORPHYRY Multiple dike zone. 828.10 828.50 Diorite. Very fine grained pale biege dike?. 828.50 828.70 Chloritic zone. Aphanitic groundmass. Broken upper contact. 828.70 830.20 Feldspar Porphyry. Very fine grained, aphyric to ghosted feldspar porphyry? Faint ghosted outlines suggest some phenocrysts. Sharp upper and lower contacts at 70 and 40 degrees to long core axis.									
830.20	975.40	ORTHOCUMULATE KOMATIITE/KOMATIITIC PERIDOTITE 830.20 830.70 Chloritic zone. Very fine grained to aphanitic groundmass. Some talc. Broken lower contact. 830.70 832.50 Ultramafic. Very fine grained, massive, talcose ultramafic. Gradational into underlying unit. 832.50 835.00 Ultramafic. Fine grained, dark to pale greenish grey mottled, talc-magnesite altered, massive ultramafic. Darker grey mottles are magnetite rich. Lower contact ground. 835.00 884.50 Orthocumulate Komatiite/Komatiitic Peridotite. Fine grained (</=1mm), massive, pale greyish green equant, close-packed orthocumulate/mesocumulate if it is a primary texture. Serpentinized groundmass variably carbonatized. Pervasive groundmass carbonate from 880.5-884.5. Moderate (2-5 per ft), 1-10mm magnesite veinlets, some with magnetite-rich selvages. Minor dark green serpentine +/-carbonate veinlets ie. A 2.5cm vein at 876.5. Lower contact at 50 degrees to long core axis marked by a 0.2ft wide zone of carbonate veining. 884.50 892.50 Ultramafic. Fine grained talc-magnesite altered ultramafic. Primary texture obliterated by alteration. Local porphyritic texture created by magnesite pseudomorphs or alteration porphyroblasts. Lower contact gradational	1180 1181 1398 1399	834.00 878.75 907.00 910.00	834.25 879.00 910.00 916.60	.25 .25 3.00 6.60	2150 2630 7400 5700				33.69 49.59

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		891.00 892.00 Aphanitic talcose ultramafic. 892.00 892.50 Medium green chloritic zone. Upper contact sharp at 40 degrees to long core axis. Lower contact gradational over several mm at 40 degrees to long core axis. 892.50 893.80 Intermediate Dike. Very fine grained pale grey relatively soft dike? Moderate chlorite content in groundmass. Lower contact sharp or diffuse over 1mm at 32 degrees to long core axis. 893.80 943.30 Fine grained (1-1.5mm), pale to medium grey, massive ultramafic. Primary textures obliterated. Up to 5% 1mm interstitial magnetite grains. 893.80 894.30 Chloritic zone. Lower contact at 45 degrees to long core axis. 894.30 894.80 Aphanitic to very fine grained talcose ultramafic. Lower contact gradational. 904.00 913.70 Local porphyritic texture because of 5-10% 1-2mm magnesite porphyoblasts. 907.00 916.60 1-2% very fine (<1mm) disseminated pyrrhotite grains with moderate reaction to Ni test solution. 916.60 917.20 Chloritic zone. Sharp upper and lower contacts at 57 and 45 degrees to long core axis respectively. 928.40 928.90 Chloritic zone subparallel LCA. 929.90 930.10 Chloritic zone. Upper and lower contacts at 65 degrees to long core axis. Minor pyrite on contacts. 941.20 943.10 Very fine grained to aphanitic talcose ultramafic. Rubble from 942.0-943.1. Upper contact gradational. Lower contact broken. 943.10 943.30 Chloritic zone with broken contacts. 943.30 943.70 Diorite. Very fine grained, pale biege grey dike. Minor chlorite component in groundmass. Lower contact broken. 943.70 944.10 Chloritic zone. Broken rubbly core. 944.10 944.20 Aplite Dike. Siliceous dike as in 946.9-949.0. 944.20 944.50 Diorite. Fine grained brownish grey groundmass with foliated biotitic contact at 75 degrees to long core axis.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Foliation at 62 degrees to long core axis. 944.50 944.90 Chloritic zone. Very fine grained to aphanitic groundmass. Lower contact at 65 degrees to long core axis. 944.90 946.90 Diorite. Fine grained massive biotitic groundmass hosts abundant inclusions/intrusive dikelets of siliceous aplite dike as in 946.9-949.0. The siliceous patches may be alteration. Dike also contains 2-5mm angular biotitic xenoliths. Lower contact marked by a 2cm biotite zone at 45 degrees to long core axis. 946.90 949.60 Aplite Dike. Siliceous pinkish white to grey mottled and patchy groundmass. Lighter pinkish white patches appear to be an alteration of the darker grey fine grained dike? of intermediate to dacitic composition. Abundant chlorite fracture fills. 1-2% disseminated pyrite euhedra. 949.00 949.50 Diorite fine grained chloritized dike? Broken contacts. Sharp lower contact at 48 degrees to long core axis. 949.60 964.60 Ultramafic. Fine grained pale to medium grey magnesite-talc altered ultramafic. Primary texture obliterated. Moderate magnesite veinlets. Minor darker grey mottling created by magnetite concentrations in groundmass. Broken lower contact. 949.60 950.00 Chloritic zone. Lower contact broken. 950.00 950.30 Aphanitic, pale to medium grey talcose ultramafic. Gradational lower contact. 962.90 964.60 Very fine grained to aphanitic chloritic zone. Lower contact at 10 degrees to long core axis. Possible relict pseudomorphs from 963.3-964.6. 964.60 967.50 Diorite. Fine grained, massive, equigranular brownish grey groundmass with minor angular biotitic/chloritic xenoliths up to 0.5cm x 1.0cm. Xenoliths similar in composition to the chloritic zone. Weak foliation at 42 degrees to long core axis. Minor banding at 40-45 degrees to long core axis. Lower contact at 50 degrees to long core axis. 967.50 975.40 Ultramafic. Fine grained talc-magnesite altered ultramafic. Quite soft.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		967.50 968.00 Very fine grained chloritic zone. Lower contact ground. 971.30 971.50 Chloritic zone. Lower contact at 55 degrees to long core axis.									
975.40	1007.00	ULTRAMAFIC Same unit as in 623.5-867.0 in hole L92-15. 975.40 977.10 Ultramafic. Very fine grained to aphanitic, massive, dark grey talc-rich groundmass hosts 10% </=1mm carbonate pseudomorphs. Foliated at 40 degrees to long core axis from 975.4 to 976.0. 976.80 977.10 Very fine grained biotitic/chloritic zone. 0.1ft biotite band at lower contact 55 degrees to long core axis. 977.10 978.10 Diorite. Fine grained brownish grey groundmass contains approx 5% biotite and 1% disseminated pyrite. Lower contact at 45 degrees to long core axis. 978.10 1000.50 Ultramafic breccia. Dark grey intensely brecciated and moderately to strongly foliated ultramafic. Angular fragments of dark grey very fine grained talcose ultramafic with minor fragments of lighter greenish grey talc in a calcite-(talc) matrix. Breccia appears to be clast-supported. Trace pyrite. Foliation at 45 degrees to long core axis. 978.10 978.20 Very fine grained biotitic zone with minor chlorite. Lower contact broken. 1000.50 1003.30 Ultramafic. Brecciation less intense and rock becomes quite massive downhole with more of a fractured appearance. Gradational upper contact. 1002.90 1003.30 Chloritic zone. Upper contact broken. Lower contact at 55 degrees to long core axis. 1003.30 1003.80 Diorite. Fine grained brownish grey groundmass. Lower contact at 50 degrees to long core axis. 1003.80 1007.00 Ultramafic. Very fine grained, massive, dark grey talcose ultramafic. Local intense fractures with talc- calcite filling gives rock a brecciated appearance. 1003.80 1004.00 Chloritic zone with 1cm thick biotite band at lower contact. Lower contact									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		broken but approximately 62 degrees to long core axis.									
		1007.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Co-ords: 4600 4000
Grid: 34+00N 39+00E

Azimuth: 350.0
Grid Az: 315
Dip: -45.0

Elevation: 1000

Length: 389.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 12ft BW casing & shoe

*** Dip Tests ***		
Depth	Azi.	Dip
292.0		-45.0

Hole No.: L92-20

Property: Langmuir Block
Claim: CLM 140
Township: Langmuir
Province: Ontario

Date Started: Mar. 1, 1992
Date Completed: Mar. 2, 1992
Logged by: Ian Trinder
Date Logged: Mar. 7, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	13.90	OVERBURDEN									
13.90	222.80	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Textural and color variations appears to be the result of alteration and structural overprinting. Possible flow contact at 64.5. Overall the core is stongly fractured and blocky. 13.90 64.50 Cumulate Komatiite/Komatiitic Peridotite. Massive, very fine grained, equigranular, light to medium grey color. Core is moderately hard and is probably a serpentinite. Primary textures are not apparent. Several zones (16.0-21.2; 41.8-46.0; 46.9-49.2) have a light blue-green color and which is a later pervasive serpentine? alteration. These alteration zones have dark grey wisps, mottles and patches rich in magnetite. The altered zones have relatively sharp contacts. Moderate (3-5/ft) magnesite veinlets 1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets may also contain green platy serpentine and/or magnetite. Magnetite is also present as disseminated euhedra throughout the groundmass. Some of the veinlets have a light lime green serpentinized selvage. 64.50 76.00 Cumulate Komatiite/Komatiitic Peridotite. Upper contact is gradational and this subunit is probably part of the overlying cumulate.	1192 1193 1194	60.75 136.75 216.00	61.00 137.00 216.25	.25 .25 .25	2890 2800 2840				46.80 46.69 45.54

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Massive, very fine grained, equigranular, medium to dark faintly mottled green-grey color. Mottling is due to a light lime green serpentine overprint which increases in intensity downhole. Core is moderately hard Primary textures are not apparent. Minor (<5/ft) magnesite veinlets 1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets may also contain green platy serpentine and/or magnetite. Magnetite is also present as disseminated euhedra throughout the groundmass. Some of the veinlets have a light lime green serpentinized selvage. Approximately 2-3% stichtite is present as 1mm irregularly shaped disseminated, violet colored grains. 76.00 155.40 Cumulate Komatiite/Komatiitic Peridotite. Upper contact is gradational and this subunit is probably part of the overlying cumulate. Massive, fine grained, equigranular, color varies from light grey to medium greyish green to medium-dark mottled green-grey color. The color is dependant on the degree of lime green/green pervasive serpentine alteration overprint which increases in intensity downhole. Core is moderately hard. Primary textures are not apparent. Moderate to abundant (5 to >10/ft) magnesite veinlets <1mm to 2cm wide crosscut the core at <5 to 70 degrees to LCA. The narrow veinlets do however, exhibit a preferred orientation of 45 degrees to LCA which imparts a weak fabric to the core. The magnesite veinlets may also contain green platy serpentine and/or magnetite. The magnetite generally forms the outermost band in the veinlet and may account for up to 95% of the vein. Magnetite is also present as disseminated euhedra throughout the groundmass. Some of the veinlets have a light lime green serpentinized selvage. Approximately 2-3% stichtite is present as 1mm irregularly shaped disseminated, violet colored grains. Zone of intense magnesite-serpentine veining and crumbly fault gouge 89.0 to 93.0 Approximately 1 foot core loss. A total of 0.5 feet of gouge recovered. 155.40 182.40 Fault Zone. Zone comprises an incompetent crumbly breccia from 155.4 to 164.0. The breccia is strongly foliated at 35									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		degrees to LCA and consists of the overlying rock unit. Fault gouge and extremely friable foliated serpentinite is present from 164.0 to 172.7. Foliation is at 45 to 50 degrees to LCA. Incompetent crumbly breccia is present from 172.7 to 182.4. The breccia locally has a weak planar fabric created by veining at 30 degrees to LCA. This lower breccia consists of fragments and patches of dark grey serpentinite of the underlying unit with light lime green serpentine acting as matrix and an overprint of more massive sections. 182.40 222.80 Cumulate Komatiite/Komatiitic Peridotite. Upper contact is gradational from the fault zone and several minor brecia zone up to 0.6 feet are present to 193.5. This subunit is probably part of the overlying cumulate. Massive, fine to medium grained, equigranular, primary color is medium to dark grey with light lime green zones described below. Core is moderately hard. From 182.4 to 208.3 the rock is massive and apparently fine grained but below 208.5 the presence of magnesite as a hairthin rim around serpentine grains highlights a closepacked orthocumulate texture with anhedral equant to tabular grains varying from <1mm to 2mmx5mm. Is this cumulate texture masked elsewhere??. Moderate (5 to 10/ft) magnesite veinlets <1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA. The magnesite veinlets may also contain magnetite. The magnetite generally forms the outermost band in the veinlet. A medium blue-green talc? is also abundant as a veinlet filling with or without calcite. Some of the veinlets have a light lime green serpentinized selvage and in places these selvages coalesce to form pervasive lime green serpentinite patches up to 1.5 feet wide gradational into the dark grey serpentinite (Relict olivine??). Magnetite is also present as disseminated euhedra throughout the groundmass, particularly evident in the lime green patches/selvages Approximately 2-3% stichtite is present as 1mm to 5mm irregularly shaped disseminated, violet colored grains and blebs.									
222.80	286.00	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Appears to be a separate unit however upper contact is not distinct. Contact chosen at point where the coarse overlying cumulate texture is lost. This point also	1195 1196	258.50 284.80	258.75 285.05	.25 .25	2520 1190				40.90 27.32

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		corresponds to the limit of stichtite. The contact may be at approximately 233.3. Massive, fine to very fine grained, equigranular, light to medium grey color. Core is moderately hard. Color and texture resembles that of 13.9 to 64.5. Uncertain if the fine grained and massive nature of the groundmass is a result of pervasive serpentinization or if these relatively hard units (13.9-64.5; 182.4-222.8; 222.8-286.0) may be zones of relict olivine? They are not zones of pervasive carbonatization, no reaction with HCl when powdered. Zone of light grey very fine, soft, talcose ultramafic from approximately 233.3 to 239.0. Changes from light grey to dark grey from approximately 234.8. To 236.6. Broken rubbly contacts. Zone of intense fracturing, rubble and ground core from approximately 234.0 to 239.0; minor gouge. Approximately 1 foot of core loss?. Zone of light grey very fine, soft, talcose ultramafic from approximately 283.0 to 283.5. Broken rubbly upper contact. Lower contact gradational into moderately talcose fine ultramafic to 285.4. Zone of very fine massive chloritic Ultramafic? at base of flow, 285.6 to 286.0. Upper contact is sharp and amoeboid like in its undulations. The lower contact is broken but appears to be sharp at approximately 60 to LCA. Moderate (5 to 10/ft) magnesite veinlets <1mm to 5mm wide crosscut the core at <5 to 80 degrees to LCA. The magnesite veinlets may also contain minor dark green platy to asbestiform serpentine. Extremely blocky and fractured core from 233.0-243.0.									
286.00	389.00	**ANDESITE-DACITE VOLCANIC** 286.00 296.00 Dacite Tuff. Light grey, very fine to aphanitic groundmass with local patch containing rare 1 mm phenocryst. Possibly some silicification in upper 2 feet based on texture. 296.00 339.50 Andesite Tuff. Light grey, very fine groundmass with up to 10% calcite ovoids from 1mm to 1cm x 0.5cm diameter. Ovoids outline a planar fabric at 40 degrees to LCA. Locally there are faint ghostings suggestive of 40%	1197	343.30	343.60	.30	160				2.51

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		fragments up to 2cm x 1cm oriented similar to the calcite ovoids. Basal 0.6 feet contains chloritic wisps and laminations. Basal 0.3 feet contains siliceous (quartz) fragments up to 1 cm diameter. Minor calcite veinlets and fracture fills. 339.50 346.50 Argillite. Black finely laminated beds of graphitic argillite up 0.1 to 5 cm thick interbedded with very fine tuffaceous beds 0.2 to 2 cm thick (one bed 17 thick). Bedding at 60 degrees to LCA but locally contorted - soft sediment defomation?. Minor calcite in bedding parallel and crosscutting veinlets. Minor pyrite in bedding parallel and crosscutting 0.5 to 1 mm thick veinlets. 346.50 354.80 Andesite Tuff. Light grey, massive, very fine groundmass. Moderate calcite veinlets and fracture fills. Veinlets predominantly at 60 degrees to LCA. 354.80 359.20 Andesite Tuff. Dark green, massive to finely laminated, very fine chloritic groundmass Lower 1.2 feet interbedded with more felsic light grey tuff. Bedding at 60 degrees to LCA. Moderate calcite veinlets and fracture fills. Veinlets predominantly at 60 degrees to LCA but also random. Minor pyrite in bedding parallel and crosscutting 0.5 to 1 mm thick veinlets. 359.20 365.70 Andesite Tuff. Bedded at base. Beds up to 4.5 feet thick? Bedding at 50 to 55 degrees to LCA. Minor calcite veinlets and fracture fills. 365.70 389.00 Andesite Tuff Breccia. Light grey, massive very fine groundmass supports subangular to subrounded buff colored aphanitic equant to tabular fragments varying in size from <0.5 cm to >10 cm diameter. The fragments are 95% monolithic and are andesitic to dacitic in composition. Several medium grey aphanitic fragments observed. Fragments									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		are unevenly distributed (<5% to 40%) suggesting a crude bedding.									
		Minor calcite veinlets and fracture fills.									
		389.00 END OF HOLE.									

TIMMINS NICKEL INC

DIAMOND DRILL RECORD

Hole No.: L92-21

Co-ords: 7400 2600
Grid: 74+00N 26+00E

Azimuth: 305.0
Grid Az: 270
Dip: -45.0

Elevation: 1000

Length: 286.0

Purpose: Test magnetic gradient
Comments:
Materials left in Hole: 22ft BW casing & shoe

*** Dip Tests ***
Depth Azi. Dip

Property: Langmuir Block
Claim: CLM 140
Township: Langmuir
Province: Ontario

Date Started: Mar. 3, 1992
Date Completed: Mar. 3, 1992
Logged by: Ian Trinder
Date Logged: Mar. 8, 1992

Contractor: McKenzie Drilling Ltd.
Drill Type: Longyear 38
Core Size: BQ

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
.00	22.00	OVERBURDEN									
22.00	169.20	CUMULATE KOMATIITE/KOMATIITIC PERIDOTITE Textural and color variations appears to be the result of alteration Overall the core is moderately fractured (5-10 fractures/ft) and blocky.	1198 1199 1200	64.75 118.00 160.75	65.00 118.25 161.00	.25 .25 .25	2730 2790 1640				44.12 48.53 31.80
		22.00 68.80 Cumulate Komatiite/Komatiitic Peridotite. Massive, very fine grained, equigranular, light to medium grey color. Core is moderately hard and is probably a serpentinite. Primary textures are not apparent, however the rock locally has a weak fine grained salt and pepper texture where magnesite up to 0.5mm is disseminated in the groundmass.									
		Moderate (3-5/ft) to locally abundant (>10/ft) magnesite veinlets 1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA (average 50-55). The magnesite veinlets may also contain green platy serpentine and/or magnetite. Minor pervasive magnesite in groundmass.									
		25.70 34.30 Feldspar Porphyry aphanitic buff-white hard siliceous groundmass with up to 10% white equant, subhedral, 0.5-2mm feldspar phenocrysts and 2-3% black acicular mafic phenocrysts up to 2mm x 0.5 mm. Local strong pervasive reddish brown hematization. Upper and lower contacts at 58 and 55 degrees to LCA respectively.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		68.80 103.40 Cumulate Komatiite/Komatiitic Peridotite. Upper contact is gradational and this subunit is probably part of the same cumulate. Massive, very fine grained to fine grained, equigranular, medium grey to light lime green-grey colored patches and selvages to magnesite veinlets. Lighter colored patches and selvages is due to a light lime green serpentine overprint which increases in intensity downhole. Core is moderately hard. Primary textures are generally not apparent however where grainsize is 1mm faint relict cumulate texture may be locally preserved. The rock locally has a weak fine grained salt and pepper texture where magnesite up to 0.5mm is disseminated in the groundmass. Moderate (3-5/ft) to locally abundant (>10/ft) magnesite veinlets 1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA (average 50-55). The magnesite veinlets may also contain green platy serpentine and/or magnetite. Magnetite is also present as disseminated euhedra throughout the lime green serpentinized groundmass. Minor pervasive magnesite in groundmass. 103.40 169.20 Cumulate Komatiite/Komatiitic Peridotite. Upper contact is gradational and this subunit is probably part of the same cumulate. Massive, fine grained (<1mm), equigranular, light to medium grey color. Core is moderately hard and is probably a serpentinite. Primary textures are not apparent however the there is an apparent increase in grainsize downhole to approximately 1mm but this may be a magnesite/dolomite overprint. Pervasive lime green serpentinization from 124.2 to 127.3. Sharp upper and lower contacts defined by magnesite veinlets at 50 and 25 degrees to LCA respectively. 166.00 167.50 The rock is light green-grey, softer with possibly some talc in the groundmass. Ground upper and lower contacts. 167.50 169.20 Dark green very fine to aphanitic chloritized zone. 10% <0.5mm disseminated magnesite grains present from 168.3 to 169.2. Sharp lower contact at 75 degrees to LCA.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Moderate (3-5/ft) magnesite veinlets 1mm to 5mm wide crosscut the core at <5 to 70 degrees to LCA (average 50-55). The magnesite veinlets may also contain green platy serpentine and/or magnetite. From 127.3 to 166.0 the core is croscut by abundant biege to light orange-brown dolomite? 1 to 2mm wide veinlets and contains pervasively disseminated dolomite. Minor magnesite veinlets are also present in this dolomite zone.									
169.20	286.00	ANDESITE-DACITE VOLCANIC 169.20 174.80 Interbedded Tuffaceous Sediment and Magnetite. Oxide facies iron formation? Alternatively the magnetite bands could be a thermal metamorphic effect from the overlying ultramafic. Bands of fine magnetite (some with coarser cores) from 0.1 to 2cm alternate with very fine grained felsic tuffaceous? bands up to 7 cm at 65 degrees to LCA. The tuffaceous bands contains minor disseminated magnetite in the upper 1.5 feet of this unit. The magnetite bands are frequently flanked by a light green-grey colored band up to 3mm wide. Rare calcite fracture fill cuts the core. 174.80 190.80 Andesite Tuff. Light grey, massive, fine to very fine groundmass. Possibly dacitic composition. Minor calcite veinlets and fracture fills. Veinlets predominantly at 50-60 degrees to LCA. 190.80 191.80 Interbedded Tuffaceous Sediment and Magnetite. Oxide facies iron formation? Alternatively this magnetite-chlorite zone could be an alteration zone similar to that described below. Bands of fine magnetite (some with coarser cores) from 0.1 to 0.5cm alternate with very fine grained hard chloritic felsic? tuffaceous? bands up to 5cm. The tuffaceous bands contain minor disseminated magnetite. Minor calcite fracture fills cut the core. 191.80 195.60 Andesite Tuff.									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		Light grey, massive, fine to very fine groundmass. Possibly dacitic composition.									
		Minor calcite veinlets and fracture fills. Veinlets predominantly at 50-60 degrees to LCA.									
		195.60 228.00 Andesite Flow. Light grey, very fine groundmass with up to 5% subhedral to euhedral feldspar phenocrysts from 1mm to 5 x 3mm diameter. Possibly pillowed. At intervals of 0.4 to 5 feet are chloritic zones up to 0.1 to 0.3 feet thick with relatively sharp undulose contacts. These zones may be interpillow Rimming the chloritic zones are dark grey zones which grade into the andesite and often contain 10% <0.5mm calcite microlites. This may be the pillow selvage. One chloritic zone contains magnetite.									
		Minor calcite veinlets and fracture fills. Phenocrysts locally altered to calcite.									
		228.00 233.90 Chlorite-Magnetite Zone. Moderately hard very fine dark green chloritic zone simlialar to the interpillow zones above. Local faint lamination. Abundant disseminated magnetite in patches and laminations. Local concentrations of calcite microlites.									
		233.90 286.00 Andesite Flow. As in 195.6-228.0 except chloritic zones thicker (up to 1 foot) and more abundant with magnetite common. Chlorite also more extensive as wisps and pervasive disseminations in the groundmass below 259.4.									
		Light grey, very fine groundmass with up to 5% subhedral calcite pseudomorhs. Possibly pillowed. At intervals of 0.4 to 4.5 feet are chloritic zones up to 0.3 to 0.9 feet thick with relatively sharp undulose contacts. These zones may be interpillow Rimming the chloritic zones are dark grey zones which grade into the andesite and often contain 10% <0.5mm calcite microlites. This may be the pillow selvage. The chloritic zones generally contain magnetite.									
		Minor calcite veinlets and fracture fills. Moderate chorite as wisps and pervasive in the ground mass below 259.4.									
		Fine grained (<1mm) massive equigranular grey diorite? dikes from 242.1 to 242.6 and 256.0 to 259.4. Faint brown tint because of dolomite in groundmass. The									

From (ft)	To (ft)	Geological Description	Sample No.	From (ft)	To (ft)	Lgth (ft)	Nickel ppm	Nickel (%)	Copper ppm	Gold ppb	MgO (%)
		lower dike contains approx 5% faint angular fragments up to 1 cm diameter. Upper contacts broken; lower contacts at 45 and 50 degrees to LCA respectively. NOTE: the chloritic zones in the andesite flows might also be interpreted as a stringer alteration zone. 286.00 END OF HOLE.									

1991-92 Langmuir Diamond Drill Analyses

CERTIFICATE #	SAMPLE #	DDH #	FROM (ft)	TO (ft)	LENGTH (ft)	Ni (ppm)	Ni (%)	Cu (ppm)	Au (ppm)
44971	1301	L91 1	197.00	199.00	2.00		0.240		
44971	1302	L92 5	140.70	142.00	1.30		0.020		
43851 & 43863	1303	L92 11	152.80	153.70	0.90	1000			7
43851 & 43863	1304	L92 11	153.70	155.60	1.90	740			<5
43851 & 43863	1305	L92 11	180.00	182.00	2.00	810			<5
43851 & 43863	1306	L92 11	182.00	184.00	2.00	820			6
43851 & 43863	1307	L92 11	184.00	186.00	2.00	860			<5
43851 & 43863	1308	L92 11	186.00	188.00	2.00	740			<5
43851 & 43863	1309	L92 11	188.00	190.00	2.00	550			6
43864 & 43865	1310	L92 11	190.00	192.00	2.00	680			<5
43864 & 43865	1311	L92 11	192.00	194.00	2.00	660			<5
43864 & 43865	1312	L92 11	194.00	196.00	2.00	640			<5
43864 & 43865	1313	L92 11	196.00	198.00	2.00	600			<5
43864 & 43865	1314	L92 11	198.00	200.00	2.00	610			<5
43851	1315	L92 11	382.00	384.00	2.00	2300		140	
43851	1316	L92 11	384.00	386.00	2.00	2400		79	
43851	1317	L92 11	386.00	388.00	2.00	1300		58	
43851	1318	L92 11	388.00	390.00	2.00	1300		44	
43851	1319	L92 11	390.00	392.00	2.00	1600		30	
43851	1320	L92 11	392.00	394.00	2.00	1700		43	
43851	1321	L92 11	394.00	396.00	2.00	1900		51	
43851	1322	L92 11	396.00	398.00	2.00	2900		88	
43851	1323	L92 11	398.00	400.00	2.00	1700		70	
43851	1324	L92 11	400.00	402.00	2.00	3100		150	
43851	1325	L92 11	402.00	403.90	1.90	5700		230	
43851	1326	L92 11	403.90	405.30	1.40	2000		45	
43851	1327	L92 11	405.30	407.00	1.70	1600		26	
43864 & 43865	1328	L92 4	160.00	162.00	2.00	500			<5
43864	1329	L92 4	232.50	234.00	1.50				<5
44804	1330	L92 5	83.10	85.00	1.90	970			
44804	1331	L92 5	85.00	87.60	2.60	800			
44804	1332	L92 5	87.60	89.50	1.90	1200			
44804	1333	L92 5	91.00	91.60	0.60	460			
44804	1334	L92 5	91.60	92.20	0.60	1200			
44804	1335	L92 5	92.20	93.20	1.00	1000			
44804	1336	L92 5	93.20	93.40	0.20	1000			
44804	1337	L92 5	93.40	94.40	1.00	130			
44804	1338	L92 5	94.40	95.00	0.60	370			
44804	1339	L92 5	89.50	91.00	1.50	170			
43928	1340	L92 5	426.10	427.70	1.60				30
43928	1341	L92 5	427.70	429.10	1.40				7
43928	1342	L92 5	429.10	431.10	2.00				12
43928	1343	L92 5	431.10	433.20	2.10				64
44874	1344	L92 15	363.00	366.50	3.50	5600		150	
44874	1345	L92 15	366.50	370.70	4.20	5100		150	
44874	1346	L92 15	370.70	375.00	4.30	7600		490	
44874	1347	L92 15	375.00	378.10	3.10	7700		670	
44874	1348	L92 15	378.10	380.70	2.60		2.138	700	
44874	1349	L92 15	380.70	385.00	4.30	8000		310	
44874	1350	L92 15	385.00	390.00	5.00	8400		160	
44874	1351	L92 15	390.00	395.40	5.40	8800		360	
44874	1352	L92 15	395.40	400.00	4.60	6100		150	

1991-92 Langmuir Diamond Drill Analyses

CERTIFICATE #	SAMPLE #	DDH #	FROM (ft)	TO (ft)	LENGTH (ft)	Ni (ppm)	Ni (%)	Cu (ppm)	Au (ppm)
44874	1353	L92 15	400.00	405.00	5.00		1.118	210	
44874	1354	L92 15	405.00	410.00	5.00	7700		260	
44874	1355	L92 15	410.00	415.00	5.00		1.379	300	
44874	1356	L92 15	415.00	420.00	5.00		1.702	450	
44874	1357	L92 15	420.00	425.00	5.00		1.600	250	
44874	1358	L92 15	425.00	430.00	5.00	7500		120	
44874	1359	L92 15	430.00	435.00	5.00	2600		58	
44874	1360	L92 15	435.00	439.30	4.30	1700		22	
44874	1361	L92 15	439.30	443.00	3.70	2300		61	
44874	1362	L92 15	443.00	450.00	7.00	670		46	
44874	1363	L92 15	359.00	363.00	4.00	2500		180	
43934	1364	L92 15	354.70	359.00	4.30	4800			
43934	1365	L92 15	490.00	492.40	2.40	2500			
43934	1366	L92 15	492.40	497.10	4.70	6100			
43934	1367	L92 15	497.10	501.50	4.40	300			
43934	1368	L92 15	517.00	519.40	2.40	2100			
43934	1369	L92 15	522.80	527.00	4.20	5700			
43934	1370	L92 15	527.00	528.00	1.00	8700			
43934	1371	L92 15	528.00	532.50	4.50	1900			
43934	1372	L92 15	532.50	536.00	3.50	3900			
43934	1373	L92 15	536.00	541.00	5.00	5800			
43934	1374	L92 15	541.00	545.50	4.50	4700			
43934	1375	L92 15	545.50	548.10	2.60	6000			
43934	1376	L92 15	557.00	559.00	2.00	5300			
43934	1377	L92 15	559.00	560.00	1.00	9600			
43934	1378	L92 15	560.00	566.00	6.00	7100			
43934	1379	L92 15	566.00	571.00	5.00	4200			
43934	1380	L92 15	571.00	576.00	5.00	4800			
43934	1381	L92 19	520.00	522.00	2.00	3600			
43934	1382	L92 19	522.00	522.50	0.50		1.510		
43934	1383	L92 19	522.50	525.00	2.50	3500			
43934	1384	L92 19	601.00	606.00	5.00	1100			
43934	1385	L92 19	606.00	611.25	5.25	6200			
43934	1386	L92 19	613.50	618.50	5.00	2200			
43935	1387	L92 19	647.50	648.50	1.00	3900			
43935	1388	L92 19	661.50	663.00	1.50	6000			
43935	1389	L92 19	663.00	664.00	1.00	8000			
43935	1390	L92 19	664.00	666.50	2.50	3600			
43935	1391	L92 19	686.50	687.50	1.00	1800			
43935	1392	L92 19	697.50	701.00	3.50	5100			
43935	1393	L92 19	701.00	706.00	5.00	3000			
43935	1394	L92 19	706.00	709.00	3.00	5600			
43935	1395	L92 19	813.00	815.50	2.50	670			
43935	1396	L92 19	815.50	818.00	2.50	2400			
43935	1397	L92 19	818.00	824.00	6.00	1200			
43935	1398	L92 19	907.00	910.00	3.00	7400			
43935	1399	L92 19	910.00	916.60	6.60	5700			
43935	1400	L92 16	532.00	537.00	5.00	1400			
43935	1401	L92 16	537.00	542.50	5.50	1100			
43935	1402	L92 16	542.50	548.00	5.50	3000			
43935	1403	L92 15	467.00	472.00	5.00	990			
43935	1404	L92 15	472.00	477.00	5.00	2600			

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44971 **Certificate of Analysis**

Mr. Ian Trinder
Timmins Nickel Inc.
P.O. Box 1979
South Porcupine, Ontario
PON 1HO

Page: 1
March 2, 1992

Work Order #: 920010
Project :

SAMPLE NUMBERS Accurassay	Customer	Nickel %
253237	1301	0.24
253238	1302	0.02

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Dr. G. Duncan
CHEMIST

LF-30

Per: G. Duncan

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PON-1HO

January 30 92

Work Order # : 920020A
Project :

SAMPLE NUMBERS		Gold	Gold	
Accurassay	Customer	ppb	Oz/T	
253330	1303	7	<0.001	
253331	1304	<5	<0.001	
253332	1305	<5	<0.001	
253333	1306	6	<0.001	
253334	1307	<5	<0.001	
53335	1308	<5	<0.001	
253336	1309	6	<0.001	
253336	1309	5	<0.001	Check

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PON-1HO

January 30 92

Work Order # : 920023
Project :

SAMPLE NUMBERS Accurassay	Customer	Gold ppb	Gold Oz/T	
253396	1310	<5	<0.001	
253397	1311	<5	<0.001	
253398	1312	<5	<0.001	
253399	1313	<5	<0.001	
253400	1314	<5	<0.001	
253401	1328	<5	<0.001	
253402	1329	<5	<0.001	
253402	1329	<5	<0.001	Check

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43851 Certificate of Analysis

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PON-1HO

January 29 92

Work Order # : 920020
Project : Langmuir Expl.

SAMPLE NUMBERS Accurassay	Customer	Copper ppm	Nickel ppm
253330	1303		1000
253331	1304		740
253332	1305		810
253333	1306		820
253334	1307		860
53335	1308		740
253336	1309		550
253337	1315	140	2300
253338	1316	79	2400
253339	1317	58	1300
253340	1318	44	1300
253341	1319	30	1600
253342	1320	43	1700
253343	1321	51	1900
253344	1322	88	2900
253345	1323	70	1700
253346	1324	150	3100
253347	1325	230	5700
253348	1326	45	2000
253349	1327	26	1600

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
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Dr. G. Duncan
CHEMIST

Per: G. Duncan

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44804 **Certificate of Analysis**

Page: 1

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PON-1HO

January 31 92

Work Order # : 920027
Project : Langmuir Exploration

SAMPLE NUMBERS		Nickel
Accurassay	Customer	ppm
253484	1330	970
253485	1331	800
253486	1332	1200
253487	1333	460
253488	1334	1200
53489	1335	1000
53490	1336	1000
253491	1337	130
253492	1338	370
253493	1339	170

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

LF-30

Per: G. Duncan

ORIGINAL

ACCURASSAY LABORATORIES
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

43865 Certificate of Analysis

Mr. Ian Trinder
Timmins Nickel
Box 1979
South Porcupine, Ontario
PON-1HO

January 30 92

Work Order # : 920023
Project :

SAMPLE NUMBERS		Nickel
Accurassay	Customer	ppm
253396	1310	680
253397	1311	660
253398	1312	640
253399	1313	600
253400	1314	610
53401	1328	500

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ORIGINAL

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44874 **Certificate of Analysis**

Mr. Ian Trinder
Timmins Nickel Inc.
P.O. Box 1979
SOUTH PORCUPINE, Ontario
PON-1HO

February 12 92

Work Order # : 920051
Project : LANGMUIR

SAMPLE NUMBERS		Copper	Nickel
[illegible]curassay	Customer	ppm	ppm
254003	1344	150	5600
2[illegible]004	1345	150	5100
[illegible]005	1346	490	7600
254006	1347	670	7700
254007	1348	700	2.138 %
[illegible]4008	1349	310	8000
[illegible]4009	1350	160	8400
254010	1351	360	8800
[illegible]4011	1352	150	6100
[illegible]4012	1353	210	1.118 %
254013	1354	260	7700
[illegible]54014	1355	300	1.379 %
[illegible]4015	1356	450	1.702 %
254016	1357	250	1.600 %
254017	1358	120	7500
[illegible]4018	1359	58	2600
[illegible]4019	1360	22	1700
254020	1361	61	2300
[illegible]4021	1362	46	670
[illegible]4022	1363	180	2500

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
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Dr. G. Duncan
CHEMIST

LF-30

Per: G. Duncan

ORIGINAL

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43928 Certificate of Analysis

ATTN: Ian Trinder/Peter Tyler
Timmins Nickel Inc.
205-155 University Ave.
TORONTO, ON
M5H 3B7

Page #1

March 24 1992

Work Order # 920091

SAMPLE NUMBERS		Gold	Gold
Accurassay	Customer	ppb	Oz/T
254721	1340	30	0.001
254722	1341	7	<0.001
254723	1342	12	<0.001
254724	1343	64	0.002
254724	1343 check	90	0.003

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

LF-30

Per: G. Duncan

ORIGINAL

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
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TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

43934 **Certificate of Analysis**

ATTN: Ian Trinder/Peter Tyler
Timmins Nickel Inc.
205-155 University Ave.
TORONTO, ON
M5H 3B7

Page #1

March 24 1992

Work Order # 920092

SAMPLE NUMBERS Accurassay	Customer	Nickel ppm
254725	1364	4800
254726	1365	2500
254727	1366	6100
254728	1367	300
254729	1368	2100
254730	1369	5700
254731	1370	8700
254732	1371	1900
254733	1372	3900
254734	1373	5800
254735	1374	4700
254736	1375	6000
254737	1376	5300
254738	1377	9600
254739	1378	7100
254740	1379	4200
254741	1380	4800
254742	1381	3600
254743	1382	1.51%
254744	1383	3500
254745	1384	1100
254746	1385	6200
254747	1386	2200

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

LF-30

Per: G Duncan

ORIGINAL

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TEL.: (705) 567-3361

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43935 **Certificate of Analysis**

ATTN: Ian Trinder/Peter Tyler
Timmins Nickel Inc.
205-155 University Ave.
TORONTO, ON
M5H 3B7

March 24 1992

Work Order # 920092

SAMPLE NUMBERS Accurassay	Customer	Nickel ppm
254748	1387	3900
254749	1388	6000
254750	1389	8000
254751	1390	3600
254752	1391	1800
254753	1392	5100
254754	1393	3000
254755	1394	5600
254756	1395	670
254757	1396	2400
254758	1397	1200
254759	1398	7400
254760	1399	5700
254761	1400	1400
254762	1401	1100
254763	1402	3000
254764	1403	990
254765	1404	2600

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
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Dr. G. Duncan
CHEMIST

Per: G. Duncan

LF-30

ORIGINAL

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Received: 24-Feb-92 13:07
Project:
PO #:

Job: 921023
Status: Final

Sample	SiO2 ICAP %	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	LOI FURN %
1129	43.8	6.12	11.3	25.2	4.38	<0.02	0.07	0.292	0.18	9.30
1130	48.5	11.5	7.21	10.2	6.27	4.15	3.18	0.585	0.66	8.20
1131	39.3	2.17	7.58	30.5	7.54	<0.02	0.07	0.083	0.18	13.3
1132	51.5	13.7	14.2	9.58	1.94	3.10	0.49	1.158	0.23	4.85
1133	30.5	1.12	6.82	23.8	13.1	0.07	0.13	0.057	0.25	22.4
1134	39.7	1.06	6.25	35.6	2.70	0.07	0.11	0.045	0.18	13.5
1135	39.1	1.35	7.91	36.8	0.89	0.07	0.11	0.060	0.16	14.0
1136	39.7	1.58	7.78	35.6	1.99	0.04	0.11	0.057	0.16	13.1
1137	37.0	1.41	6.38	25.2	10.7	0.07	0.11	0.057	0.23	18.4
1138	54.3	3.34	4.08	29.5	0.03	0.07	0.13	0.045	0.16	6.70
1139	44.7	6.46	10.2	27.0	4.81	0.18	0.12	0.327	0.23	6.70

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205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07

PO #:

Job: 921023

Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm
1051	99.95	<3	<5	18	90	5790	<5	635	2240	<30	14
1052	100.0	<3	<5	19	90	4260	16	627	1980	440	37
1053	100.7	<3	<5	14	120	2680	9	541	2600	<30	19
1054	100.7	<3	<5	19	100	1610	<5	472	2690	<30	19
1055	100.2	<3	<5	19	80	4620	<5	396	2470	<30	23
1056	98.14	<3	<5	13	90	6210	9	870	2020	<30	22
1057	100.4	<3	<5	17	160	1710	9	331	3270	<30	22
1058	99.98	<3	<5	24	90	928	7	1670	1930	<30	178
1059	100.4	<3	<5	12	90	2810	28	756	1830	<30	26
1060	100.3	<3	<5	22	80	1310	9	665	2070	<30	25
1061	100.6	<3	<5	10	90	1220	9	1090	1760	<30	113
1062	100.6	<3	<5	7	130	2450	36	700	2230	<30	22
1063	100.8	<3	<5	21	100	2400	7	854	2370	<30	42
1064	100.8	<3	<5	20	110	2500	9	950	2400	<30	58
1065	100.8	<3	<5	19	110	2450	10	594	2460	<30	20
1066	100.7	<3	<5	23	100	1350	19	1360	1910	<30	32
1067	100.7	<3	<5	17	<30	194	7	1270	120	<30	13
1068	100.6	<3	<5	23	140	2630	16	672	1710	<30	38
1069	99.24	<3	<5	7	100	3330	<5	687	1980	<30	73
1070	98.91	<3	<5	22	70	2580	<5	787	2010	<30	74
1071	99.01	<3	<5	11	70	2940	19	699	2120	<30	159
1072	98.93	<3	<5	8	100	3050	<5	788	2150	<30	44
1073	98.96	<3	<5	24	120	2450	14	738	2220	<30	116
1074	100.3	<3	<5	22	100	1210	<5	852	2160	<30	76
1075	100.8	<3	80	11	30	520	<5	820	110	<30	485
1076	100.6	<3	<5	22	80	2350	<5	197	1890	<30	16

BARRINGER LABORATORIES

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28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07

PO #:

Job: 921023

Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm
1077	100.5	<3	<5	24	100	1630	<5	663	2070	<30	176
1078	99.10	<3	<5	<5	60	2630	<5	1420	1490	<30	18
1079	100.9	<3	431	<5	<30	318	93	937	70	<30	121
1080	99.91	<3	<5	<5	120	2820	28	1600	1110	30	12
1081	99.16	<3	<5	<5	70	2490	7	927	2200	<30	28
1082	100.7	<3	<5	<5	90	1780	21	1070	1840	<30	12
1083	100.8	<3	<5	<5	100	1860	51	1020	1780	<30	45
1084	100.8	<3	<5	<5	90	2050	20	1200	1880	<30	31
1085	99.63	<3	<5	<5	100	1820	45	1030	1570	<30	118
1086	99.96	<3	<5	<5	140	1610	36	667	2810	<30	57
1087	99.84	<3	7	<5	60	2190	40	947	1510	40	99
1088	99.41	<3	11	<5	50	2170	25	979	1500	<30	99
1089	99.89	<3	<5	5	70	2450	45	978	1650	<30	121
1090	98.65	<3	9	<5	70	2280	16	1050	1570	<30	65
1091	100.4	<3	<5	7	60	2130	18	762	1480	<30	89
1092	98.81	<3	<5	<5	90	2370	45	1280	1370	<30	36
1093	99.72	<3	24	5	100	1010	16	964	2500	<30	100
1094	97.61	<3	<5	<5	70	1610	6	560	1450	<30	37
1095	99.23	<3	<5	7	100	1580	16	596	2150	<30	90
1096	98.06	<3	<5	<5	60	1300	53	423	1820	<30	19
1097	98.03	<3	<5	41	90	2630	70	1420	910	<30	106
1098	100.0	<3	34	38	50	2220	55	1420	460	<30	155
1099	100.0	<3	<5	41	40	1720	<5	1660	580	<30	40
1100	100.1	<3	55	29	80	2410	42	1190	1440	<30	240
1101	99.25	<3	<5	38	60	1840	<5	1340	1080	<30	15
1102	99.28	<3	<5	31	80	2240	43	1120	1710	<30	21

BARRINGER LABORATORIES

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28-Feb-92

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205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07

PO #:

Job: 921023

Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm
1103	99.13	<3	<5	24	120	3320	<5	1070	1320	30	23
1104	98.51	<3	<5	33	80	1840	44	1400	1530	<30	30
1105	98.52	<3	<5	37	80	1690	63	1270	1570	<30	45
1106	100.5	<3	6	41	80	986	12	764	2300	<30	346
1107	98.57	<3	1250	29	<30	391	<5	514	260	<30	347
1108	100.8	<3	21	33	90	2050	<5	309	2720	<30	37
1109	100.5	<3	<5	44	80	2760	83	1070	1230	30	30
1110	99.11	<3	<5	46	50	2630	<5	1350	960	<30	68
1111	100.5	<3	81	31	<30	334	60	4370	140	<30	232
1112	99.41	<3	6	44	50	2740	87	952	1360	<30	40
1113	98.99	<3	15	29	80	2460	45	1010	1650	<30	52
1114	98.63	<3	9	35	80	1690	12	649	1790	<30	120
1115	100.0	<3	23	32	100	2730	11	1050	1780	<30	40
1116	100.4	<3	15	24	80	1840	<5	1230	1920	<30	89
1117	99.52	<3	18	27	110	2590	17	1160	1580	<30	40
1118	100.7	<3	5	26	70	2320	11	954	1340	<30	20
1119	100.6	<3	<5	30	100	1460	7	616	2350	30	22
1120	100.9	<3	6	29	120	1380	<5	688	2560	<30	35
1121	99.31	<3	<5	27	80	1280	110	261	1790	<30	21
1122	100.8	<3	5	36	80	2480	10	1110	1870	30	82
1123	100.5	<3	1280	<5	<30	160	22	236	40	<30	97
1124	100.9	<3	191	25	40	1790	9	930	1810	<30	250
1125	100.7	<3	121	<5	<30	862	1020	353	80	<30	398
1126	100.7	<3	328	29	70	1740	46	1260	1540	<30	281
1127	100.3	<3	5	25	70	2140	60	900	1440	<30	136
1128	98.33	<3	8	32	80	1530	13	1360	1940	30	494

BARRINGER LABORATORIES

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28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07

PO #:

Job: 921023 Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm
1129	100.7	<3	10	27	70	2470	100	1060	1570	<30	168
1130	100.6	<3	645	32	<30	650	60	1040	370	<30	401
1131	100.8	<3	7	36	80	2130	<5	615	2690	<30	95
1132	100.9	<3	90	15	<30	230	168	1550	130	<30	111
1133	98.48	<3	6	36	70	1210	<5	3680	2330	<30	123
1134	99.35	<3	<5	32	110	1250	6	793	2990	<30	105
1135	100.4	<3	<5	29	110	1240	17	882	3100	<30	76
1136	100.3	<3	<5	33	110	2760	6	702	2810	<30	76
1137	99.65	<3	16	36	100	2510	<5	1640	2240	<30	113
1138	98.40	<3	<5	27	70	1780	6	246	1990	<30	15
1139	100.8	<3	9	31	90	2960	11	964	1630	<30	82

BARRINGER LABORATORIES
5735 McADAM ROAD
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28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07
PO #:

Job: 921023 Status: Final

Sample	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
1051	64	147	20
1052	63	149	<10
1053	47	134	<10
1054	54	134	20
1055	55	132	<10
1056	115	192	30
1057	62	120	<10
1058	62	121	<10
1059	140	114	30
1060	102	106	20
1061	94	107	20
1062	108	131	20
1063	101	123	20
1064	100	122	20
1065	100	126	20
1066	110	121	20
1067	159	89	190
1068	136	123	20
1069	95	99	10
1070	81	88	10
1071	72	110	10
1072	85	95	10
1073	83	102	10
1074	96	86	10
1075	173	38	160
1076	71	66	10

BARRINGER LABORATORIES
5735 McADAM ROAD
MISSISSAUGA, ONTARIO
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28-Feb-92

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TIMMINS NICKEL INC.
205 - 155 University Avenue
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M5H 3B7

Attn: Ian Trinder
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Received: 24-Feb-92 13:07

PO #:

Job: 921023 Status: Final

Sample	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
1077	91	89	10
1078	190	117	40
1079	115	74	160
1080	116	115	20
1081	103	75	<10
1082	144	89	20
1083	127	106	<10
1084	134	117	20
1085	136	86	20
1086	103	103	<10
1087	157	102	20
1088	151	100	<10
1089	155	88	<10
1090	155	81	20
1091	145	94	<10
1092	165	95	20
1093	66	63	<10
1094	156	73	20
1095	90	84	<10
1096	109	198	<10
1097	200	215	20
1098	199	190	50
1099	221	215	50
1100	178	205	20
1101	130	216	20
1102	153	249	20

BARRINGER LABORATORIES
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Attn: Ian Trinder
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Job: 921023
Status: Final

Sample	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
1103	111	257	<10
1104	148	212	<10
1105	118	215	20
1106	73	203	<10
1107	127	168	210
1108	82	246	20
1109	184	211	30
1110	198	201	50
1111	115	126	150
1112	197	211	30
1113	159	208	20
1114	102	168	20
1115	149	193	30
1116	110	198	30
1117	161	197	30
1118	156	218	30
1119	105	159	20
1120	67	189	20
1121	89	155	20
1122	128	211	30
1123	51	70	120
1124	104	164	20
1125	62	49	140
1126	117	171	20
1127	153	185	30
1128	77	176	20

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Project:

Received: 24-Feb-92 13:07

PO #:

Job: 921023 Status: Final

Sample	V ICAP ppm	Zn ICAP ppm	Zr ICAP ppm
1129	170	209	30
1130	150	138	170
1131	76	208	20
1132	350	147	110
1133	74	182	30
1134	73	200	20
1135	73	208	30
1136	84	216	20
1137	72	198	30
1138	66	144	20
1139	182	198	40

BARRINGER LABORATORIES

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28-Feb-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Received: 24-Feb-92 13:07
Project:
PO #:

Job: 921023
Status: Final

Abbreviations:

Parameters:

SiO2	:	Silica
Al2O3	:	Alumina
Fe2O3	:	Ferric Oxide
MgO	:	Magnesium Oxide
CaO	:	Calcium Oxide
Na2O	:	Sodium Monoxide
K2O	:	Potassium Monoxide
TiO2	:	Titanium dioxide
P2O5	:	Phosphorus Pentoxide
LOI	:	Loss on Ignition
SUMOX	:	Sum of all major and minor oxides
Ag	:	Silver
Ba	:	Barium
Cd	:	Cadmium
Co	:	Cobalt
Cr	:	Chromium
Cu	:	Copper
Mn	:	Manganese
Ni	:	Nickel
Pb	:	Lead
Sr	:	Strontium
V	:	Vanadium
Zn	:	Zinc
Zr	:	Zirconium

Methods:

ICAP	:	Inductively coupled argon plasma

BARRINGER LABORATORIES

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28-Feb-92

Mr.Peter Tyler
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Toronto, Ontario
M5H 3B7

Attn: Ian Trinder
Received: 24-Feb-92 13:07
Project:
PO #:

Job: 921023 Status: Final

FURN	: Furnace
CALC	: Calculation

Units:

%	: percent
ppm	: parts per million

Quality codes:

<	: Less than quoted detection limit

Job approved by:

Signed: ....Danczige.....................
Margaret E. Danczige
Supervisor, Geochemistry/Fire Assay Services

BARRINGER LABORATORIES

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I N V O I C E

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7
Authority: Ian Trinder

Date : 28-Feb-92
Job : 921023
Invoice: 30623
PO #:
Project: Terms: Net 30 days

89 Core Sample Prep.		3.75	$ 333.75
Analyses:			
89 Lithoprint ICAP		21.00	$1869.00
	Sub Total:		$2202.75
	Taxes:	7.00	$ 154.19
	TOTAL DUE:		$2356.94

Remit to: Barringer Laboratories Limited
304 Carlingview Drive
Rexdale, Ontario
M9W 5G2

G.S.T. No. R121844088

--- Original ---

BARRINGER LABORATORIES

5735 McADAM ROAD
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PHONE: (416) 890-8566
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27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Received: 20-Mar-92 10:38
Project: Langmuir Exploration PO #:

Job: 921032 Status: Final

Sample	SiO2 ICAP %	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	LOI FURN %
1140	41.0	2.46	9.25	33.4	1.03	<0.02	<0.02	0.116	0.16	11.0
1141	32.3	1.22	6.64	36.3	0.25	<0.02	<0.02	0.055	0.16	22.6
1142	34.8	0.91	6.56	40.4	0.06	<0.02	<0.02	0.044	0.14	17.5
1143	34.2	0.92	7.14	38.9	0.72	<0.02	<0.02	0.036	0.16	18.4
1144	34.4	1.18	6.06	37.3	1.97	<0.02	<0.02	0.054	0.16	18.9
1145	32.5	0.20	5.72	35.8	0.06	<0.02	<0.02	0.008	0.09	22.8
1146	32.5	0.12	7.79	39.9	0.05	<0.02	<0.02	0.005	0.11	18.6
1147	32.0	0.31	6.06	36.9	0.06	<0.02	<0.02	0.013	0.14	24.7
1148	40.8	0.74	5.43	34.4	1.54	<0.02	<0.02	0.026	0.14	17.1
1149	56.2	16.3	5.25	6.45	1.45	6.81	3.43	1.083	0.94	0.70
1150	31.0	16.5	8.74	29.8	0.88	<0.02	0.10	1.106	0.82	11.1
1151	57.5	1.00	5.95	29.8	0.09	<0.02	0.04	0.039	0.18	6.05
1152	33.3	0.67	6.54	36.6	0.23	<0.02	0.04	0.035	0.11	22.7
1153	45.1	0.85	4.18	28.6	7.22	<0.02	0.05	0.046	0.18	14.3
1154	27.5	19.0	13.3	26.5	1.24	<0.02	0.07	1.153	1.17	10.5
1155	51.9	12.4	6.98	9.33	3.93	4.95	2.10	0.664	0.66	6.35
1156	59.6	15.5	4.40	2.39	4.11	7.45	0.78	0.864	0.60	3.35
1157	61.1	15.1	4.69	2.42	4.35	7.41	0.82	0.956	0.64	3.10
1158	33.5	3.68	7.05	16.4	20.7	0.07	0.13	0.190	0.27	18.3
1159	47.7	5.33	10.4	27.0	1.50	<0.02	0.19	0.305	0.18	8.00
1160	48.7	5.12	10.0	26.8	1.89	0.07	0.30	0.309	0.21	7.15
1161	37.0	10.9	10.2	10.9	12.1	1.73	5.66	0.580	0.27	10.1
1162	61.8	15.0	5.65	3.90	2.48	5.14	1.54	0.644	0.30	2.75
1163	58.3	15.1	6.78	3.91	3.37	4.15	2.04	0.671	0.30	3.40
1164	23.7	14.8	14.0	17.1	12.2	0.04	0.16	0.726	0.37	16.3
1165	49.4	3.61	9.64	26.2	2.17	<0.02	0.10	0.222	0.18	8.55

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
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27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Page: 2
Copy: 1 of 1

Attn: P.Tyler
Project: Langmuir Exploration PO #:

Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	SiO2 ICAP %	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	LOI FURN %
1166	57.1	20.0	4.35	2.82	2.67	5.93	3.34	1.113	0.73	2.35
1167	50.2	11.4	11.1	9.32	9.77	2.76	1.00	0.574	0.23	1.90
1168	50.6	8.80	10.0	13.4	11.7	1.82	0.42	0.464	0.25	2.40
1169	41.0	3.06	11.2	26.5	5.15	<0.02	0.16	0.151	0.21	11.8
1170	46.2	28.1	4.06	5.26	0.74	0.07	10.2	0.904	0.64	4.35
1171	29.9	1.91	7.62	35.1	0.27	<0.02	0.22	0.099	0.16	24.0
1172	35.9	1.80	6.42	37.6	0.34	<0.02	0.27	0.086	0.16	17.4
1173	38.5	1.20	5.41	39.1	0.11	<0.02	0.19	0.057	0.16	14.3
1174	44.2	27.3	6.03	6.07	0.85	0.08	9.56	0.979	0.78	4.65
1175	26.7	8.80	10.2	27.6	7.78	<0.02	0.25	0.816	0.66	17.5
1176	40.4	1.85	6.15	38.6	0.28	<0.02	0.06	0.080	0.16	12.3
1177	47.9	0.63	5.16	36.3	0.11	<0.02	<0.02	0.027	0.14	9.25
1178	32.3	0.44	4.60	40.1	0.11	<0.02	<0.02	0.020	0.14	22.3
1179	32.5	1.16	6.71	36.4	0.50	<0.02	<0.02	0.050	0.14	23.2
1180	41.0	0.65	4.79	28.1	8.58	<0.02	<0.02	0.029	0.21	16.9
1181	34.2	0.65	5.23	39.7	0.07	<0.02	<0.02	0.031	0.14	19.8
1182	49.6	4.50	9.15	30.5	0.49	<0.02	<0.02	0.210	0.18	6.10
1183	42.5	9.31	13.2	23.3	5.57	0.08	0.11	0.525	0.18	5.90
1184	45.3	4.93	8.88	28.6	2.18	<0.02	0.06	0.249	0.18	8.60
1185	68.2	15.1	3.06	1.64	1.51	7.37	0.47	0.270	0.21	1.45
1186	68.0	15.9	3.63	1.33	1.80	4.49	2.48	0.372	0.23	2.30
1187	43.8	8.56	12.2	23.0	6.69	0.05	0.12	0.512	0.27	5.50
1188	42.1	5.82	10.4	25.0	6.09	<0.02	0.18	0.327	0.21	10.2
1189	41.0	6.82	10.6	23.7	6.65	<0.02	0.11	0.372	0.25	10.7
1190	47.7	4.17	8.38	25.8	4.69	<0.02	0.12	0.255	0.21	9.00
1191	50.6	12.3	10.8	9.60	9.90	2.04	0.99	0.754	0.32	2.10

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Project: Langmuir Exploration PO #:

Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	SiO2 ICAP %	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	LOI FURN %
1192	34.6	0.80	8.57	39.2	0.21	<0.02	0.16	0.045	0.16	16.6
1193	38.7	0.44	6.95	40.9	0.25	<0.02	0.16	0.026	0.16	13.0
1194	37.0	0.37	6.56	39.1	2.57	<0.02	0.05	0.017	0.18	14.9
1195	39.1	2.42	7.84	35.9	2.11	<0.02	0.11	0.105	0.18	12.9
1196	46.8	6.01	9.81	25.7	5.09	0.04	0.13	0.267	0.23	6.65
1197	59.8	17.7	8.17	2.37	0.81	0.27	4.46	0.494	0.18	6.50
1198	36.3	1.50	7.05	37.9	2.69	<0.02	0.20	0.069	0.18	14.7
1199	33.1	0.87	6.59	39.6	1.04	<0.02	0.17	0.043	0.16	18.9
1200	35.5	4.00	9.38	27.0	8.41	<0.02	0.17	0.195	0.23	15.8
1201	39.1	2.95	10.4	34.1	1.85	<0.02	0.18	0.148	0.18	11.7
1202	39.3	1.13	8.45	38.6	0.55	<0.02	0.22	0.061	0.18	12.0
1203	37.4	1.09	7.45	37.9	0.89	<0.02	<0.02	0.048	0.16	13.4
1204	37.0	1.19	6.08	39.7	0.40	<0.02	<0.02	0.056	0.16	15.8
1205	32.5	0.55	4.88	37.1	0.10	<0.02	<0.02	0.034	0.14	25.5
1206	37.8	0.61	5.95	37.6	1.73	<0.02	<0.02	0.032	0.16	16.8
1207	40.6	1.82	9.45	26.3	5.86	<0.02	<0.02	0.058	0.18	13.5
1208	42.5	1.04	5.12	26.6	7.83	<0.02	<0.02	0.048	0.21	16.6
1209	54.1	12.7	9.70	3.98	4.69	5.81	2.08	0.722	0.34	6.35
1210	51.7	13.7	7.58	3.76	5.46	6.08	2.24	0.802	0.78	5.00
1211	59.2	15.0	4.48	3.13	3.55	7.67	0.81	0.971	0.69	5.10
1212	32.5	1.74	8.17	25.7	11.5	<0.02	0.08	0.070	0.23	20.4
1213	41.2	4.78	10.0	31.3	2.11	<0.02	0.12	0.237	0.23	10.7
1214	36.7	1.46	8.75	35.4	3.19	<0.02	0.11	0.060	0.16	14.8
1215	36.7	7.78	9.64	22.0	11.0	<0.02	0.10	0.379	0.25	12.6
1216	47.0	11.5	8.44	11.2	9.28	3.64	1.82	0.539	0.27	6.85
1217	31.8	2.80	6.09	18.2	21.9	<0.02	0.11	0.132	0.25	19.0

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
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27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Project: Langmuir Exploration PO #:

Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	SiO2 ICAP %	Al2O3 ICAP %	Fe2O3 ICAP %	MgO ICAP %	CaO ICAP %	Na2O ICAP %	K2O ICAP %	TiO2 ICAP %	P2O5 ICAP %	LOI FURN %
1218	36.5	7.82	10.8	25.8	8.30	0.08	0.20	0.352	0.23	10.4
1219	35.7	1.23	10.0	36.9	1.69	<0.02	0.13	0.055	0.18	13.5
1220	36.3	0.51	9.30	39.6	0.06	<0.02	0.16	0.024	0.14	14.5
1221	36.7	1.34	11.2	38.6	0.06	<0.02	<0.02	0.073	0.14	12.1
1222	38.7	2.66	7.34	39.4	0.01	<0.02	<0.02	0.124	0.14	12.3
1223	40.0	2.80	9.67	36.6	0.18	<0.02	<0.02	0.124	0.14	11.0
1224	41.2	3.34	9.17	35.6	0.95	0.04	<0.02	0.167	0.16	10.0
1225	44.9	5.91	9.08	25.8	6.34	<0.02	<0.02	0.272	0.18	8.30
1226	44.4	6.82	9.75	25.8	5.57	<0.02	<0.02	0.327	0.21	7.10
1227	43.4	4.40	8.84	28.8	3.89	<0.02	<0.02	0.203	0.16	10.7
1228	42.5	6.55	10.8	25.3	6.35	0.13	<0.02	0.250	0.18	8.55
1229	47.0	9.80	10.7	19.5	7.26	0.97	0.05	0.464	0.21	4.65
1230	49.2	3.97	8.18	26.2	5.85	0.12	<0.02	0.114	0.21	5.35
1231	38.9	1.91	11.5	35.9	0.30	<0.02	<0.02	0.080	0.14	10.9
1232	37.8	2.38	8.29	36.8	0.28	<0.02	<0.02	0.086	0.14	11.7
1233	32.5	0.45	5.91	36.6	0.11	<0.02	<0.02	0.025	0.14	25.0
1234	41.2	6.12	10.0	27.0	4.70	0.08	0.06	0.289	0.18	7.50
1235	44.0	6.37	11.0	26.6	2.08	<0.02	0.10	0.317	0.18	7.85
1236	45.9	6.72	10.0	25.2	3.23	<0.02	0.05	0.324	0.21	7.60
1237	44.2	5.12	10.3	26.5	4.27	0.04	<0.02	0.290	0.21	6.95
1238	43.8	6.55	11.0	26.5	4.06	0.04	<0.02	0.339	0.21	6.90
1239	42.7	5.33	8.89	25.8	4.38	<0.02	<0.02	0.252	0.18	11.6
1240	42.9	7.25	9.07	22.5	5.48	0.13	<0.02	0.345	0.16	10.5
1241	46.4	5.67	8.98	24.3	5.04	<0.02	<0.02	0.290	0.16	7.90
1242	42.3	8.63	10.8	23.3	5.23	<0.02	<0.02	0.420	0.21	6.80

BARRINGER LABORATORIES

5735 McADAM ROAD
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27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Project: Langmuir Exploration PO #:

Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm
1140	98.67	<3	6	<5	80	3660	<5	529	2050	<30	51	92
1141	99.57	<3	<5	<5	50	2430	6	790	2370	<30	25	56
1142	100.6	<3	<5	<5	60	1230	<5	792	2520	<30	26	58
1143	100.5	<3	<5	6	70	1400	7	939	2380	<30	38	59
1144	100.1	<3	<5	<5	40	1200	18	730	2260	<30	136	60
1145	97.30	<3	<5	<5	370	1170	196	351	17100	<30	24	35
1146	99.24	<3	<5	<5	150	1120	172	708	13600	<30	22	36
1147	100.3	<3	6	<5	40	1020	26	472	2380	<30	24	45
1148	100.3	<3	<5	<5	40	1050	14	321	1940	<30	108	47
1149	98.75	<3	1440	<5	<30	181	885	347	190	240	479	97
1150	100.2	<3	45	<5	<30	213	11	617	610	<30	64	129
1151	100.7	<3	269	<5	40	1300	44	125	4800	40	22	42
1152	100.4	<3	<5	<5	70	1300	119	549	7690	<30	30	47
1153	100.7	<3	23	<5	40	965	25	723	2600	<30	286	61
1154	100.7	<3	611	<5	<30	788	<5	1340	530	<30	89	233
1155	99.39	<3	4210	<5	<30	410	9	1020	240	<30	454	135
1156	99.16	<3	244	<5	<30	35	<5	352	30	<30	779	80
1157	100.7	<3	228	<5	<30	64	<5	398	30	<30	851	101
1158	100.4	<3	24	<5	40	1630	21	2100	940	<30	625	121
1159	100.6	<3	<5	<5	70	2270	60	878	1700	<30	97	177
1160	100.6	<3	10	<5	70	2660	24	873	1700	<30	70	169
1161	99.81	<3	382	<5	170	4820	<5	1750	3300	<30	498	261
1162	99.28	<3	624	<5	<30	168	13	667	80	<30	142	109
1163	98.16	<3	704	<5	<30	215	<5	899	80	<30	223	155
1164	99.86	<3	8	<5	30	358	<5	3040	180	<30	297	306
1165	100.0	<3	<5	<5	60	3000	20	928	1480	<30	18	129

BARRINGER LABORATORIES

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27-Mar-92

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Attn: P.Tyler
Received: 20-Mar-92 10:38
Project: Langmuir Exploration PO #:

Job: 921032 Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm
1166	100.4	<3	1450	<5	<30	62	<5	376	<30	<30	763	123
1167	98.38	<3	221	<5	30	714	133	1340	120	<30	226	280
1168	100.0	<3	54	<5	40	1510	70	1430	160	<30	127	281
1169	99.34	<3	<5	<5	70	4210	<5	842	1520	<30	206	125
1170	100.6	<3	3520	<5	<30	65	<5	427	<30	40	39	151
1171	99.44	4	17	<5	70	3720	<5	1070	2050	<30	22	86
1172	100.0	3	17	<5	90	1280	<5	745	2550	<30	28	84
1173	99.12	3	<5	<5	90	1390	15	436	3130	<30	28	69
1174	100.6	<3	3710	<5	<30	61	<5	560	40	70	56	169
1175	100.5	3	23	<5	50	834	<5	1530	990	<30	312	131
1176	99.96	<3	26	<5	80	1330	<5	216	2750	30	40	58
1177	99.59	<3	<5	<5	50	1450	<5	438	2500	<30	35	46
1178	100.0	<3	<5	<5	50	1140	22	870	2550	<30	39	43
1179	100.7	<3	<5	<5	50	1260	<5	961	2140	<30	145	54
1180	100.4	<3	6	12	30	913	14	811	2150	<30	473	38
1181	99.98	<3	<5	11	40	1100	10	721	2630	<30	34	43
1182	100.8	<3	7	<5	50	1720	38	558	1680	60	28	113
1183	100.8	<3	10	<5	50	3420	397	1530	1540	<30	42	215
1184	99.14	3	<5	<5	50	2280	86	989	1780	<30	60	143
1185	99.38	<3	178	<5	<30	123	8	402	50	70	152	46
1186	100.5	<3	376	<5	<30	62	<5	482	30	70	113	61
1187	100.8	<3	<5	<5	130	3830	184	1590	1900	80	45	241
1188	100.4	<3	12	<5	50	2420	12	1310	1730	40	163	168
1189	100.4	<3	9	<5	60	2570	81	1450	1740	<30	157	186
1190	100.4	3	<5	9	80	1970	55	1170	2120	60	131	115
1191	99.66	<3	138	<5	<30	827	102	1640	260	<30	151	283

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Project: Langmuir Exploration PO #:
Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm
1192	100.5	5	<5	<5	240	3960	<5	1190	2890	30	22	74
1193	100.7	6	<5	<5	50	1590	<5	217	2800	<30	20	56
1194	100.8	<3	<5	<5	50	1300	<5	592	2840	50	37	46
1195	100.8	3	<5	<5	70	1410	6	629	2520	30	31	88
1196	100.7	<3	<5	7	40	2120	5	1110	1190	60	22	170
1197	100.9	<3	409	<5	<30	84	43	610	160	100	56	106
1198	100.7	<3	<5	<5	70	1590	<5	1010	2730	50	35	77
1199	100.5	3	<5	<5	50	1270	<5	1200	2790	30	33	63
1200	100.7	<3	<5	<5	60	2390	15	1100	1640	30	66	135
1201	100.8	4	5	<5	60	3550	7	708	2170	30	60	110
1202	100.6	5	<5	<5	90	2030	8	591	2860	90	62	78
1203	98.52	<3	<5	<5	60	1410	8	460	2380	<30	50	44
1204	100.5	<3	127	<5	30	1220	<5	566	2290	<30	43	45
1205	100.9	<3	<5	<5	40	1020	<5	619	2360	<30	24	38
1206	100.8	<3	<5	<5	50	1050	17	627	2530	<30	113	45
1207	97.91	<3	21	<5	40	2360	327	663	4080	<30	1070	78
1208	100.1	<3	11	<5	50	984	8	723	1850	<30	630	56
1209	100.5	<3	560	<5	<30	106	<5	1480	60	<30	345	94
1210	97.22	<3	378	<5	<30	30	388	1100	40	30	595	146
1211	100.7	<3	295	<5	<30	55	87	461	<30	40	669	116
1212	100.4	<3	<5	<5	90	2110	6	1280	1750	<30	90	74
1213	100.8	<3	6	<5	60	1560	17	811	1470	<30	77	103
1214	100.8	<3	6	<5	90	5000	<5	624	2640	<30	86	75
1215	100.7	<3	<5	<5	50	2090	<5	1850	1160	<30	226	182
1216	100.7	<3	183	<5	<30	928	74	1140	450	<30	208	203
1217	100.5	<3	10	<5	50	1690	15	1600	1380	<30	419	93

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Received: 20-Mar-92 10:38

Job: 921032   Status: Final

Sample	SUMOX CALC %	Ag ICAP ppm	Ba ICAP ppm	Cd ICAP ppm	Co ICAP ppm	Cr ICAP ppm	Cu ICAP ppm	Mn ICAP ppm	Ni ICAP ppm	Pb ICAP ppm	Sr ICAP ppm	V ICAP ppm
1218	100.7	<3	6	<5	120	3030	272	1350	2410	<30	103	213
1219	99.56	<3	<5	<5	80	5840	84	773	1420	<30	44	77
1220	100.7	<3	<5	<5	<30	1380	107	482	690	<30	19	55
1221	100.4	<3	<5	<5	50	1970	87	442	1760	<30	20	63
1222	100.8	<3	<5	<5	<30	2320	<5	856	2190	<30	19	82
1223	100.6	<3	<5	<5	30	2830	<5	1400	2230	<30	22	91
1224	100.8	<3	<5	<5	50	1570	<5	1060	2210	<30	18	92
1225	100.9	<3	<5	<5	<30	1580	8	1210	1180	<30	48	147
1226	100.1	<3	<5	<5	30	2260	39	1200	1290	<30	44	166
1227	100.5	<3	<5	<5	<30	1760	11	1060	1590	<30	54	119
1228	100.8	<3	<5	<5	<30	3030	11	1270	1230	<30	101	151
1229	100.7	<3	13	<5	<30	2440	<5	1430	730	<30	34	202
1230	99.20	<3	<5	<5	<30	2630	<5	1260	360	<30	32	96
1231	99.91	<3	<5	<5	60	3700	<5	1060	1390	<30	26	84
1232	97.63	<3	<5	<5	60	3720	<5	529	1980	<30	28	75
1233	100.8	4	<5	<5	50	928	7	512	2370	<30	28	43
1234	97.31	<3	10	<5	60	2380	74	1210	1350	<30	62	163
1235	98.74	<3	13	<5	60	2490	26	997	1500	<30	44	167
1236	99.43	4	11	<5	60	2370	88	986	1340	<30	42	165
1237	98.01	<3	<5	<5	60	2330	29	1110	1650	<30	31	155
1238	99.56	<3	<5	<5	60	2630	38	1100	1400	<30	31	176
1239	99.37	<3	<5	<5	60	2020	42	1030	1420	<30	98	145
1240	98.51	<3	262	<5	50	2690	250	1170	1700	<30	69	176
1241	98.86	<3	<5	<5	<30	2100	186	756	1320	<30	58	142
1242	97.89	<3	<5	<5	<30	2200	14	1520	1000	<30	36	193

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Received: 20-Mar-92 10:38

Job: 921032 Status: Final

Sample	Zn ICAP ppm	Zr ICAP ppm
1140	124	<10
1141	100	<10
1142	109	<10
1143	103	<10
1144	107	<10
1145	110	<10
1146	123	<10
1147	93	<10
1148	94	<10
1149	77	210
1150	172	210
1151	109	<10
1152	98	<10
1153	106	<10
1154	243	200
1155	106	180
1156	36	190
1157	41	190
1158	106	20
1159	123	20
1160	123	20
1161	176	40
1162	20	150
1163	47	130
1164	147	90
1165	122	20

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Sample	Zn ICAP ppm	Zr ICAP ppm
1166	15	260
1167	86	40
1168	62	30
1169	83	20
1170	<5	220
1171	71	10
1172	55	10
1173	51	<10
1174	52	230
1175	122	140
1176	113	<10
1177	112	<10
1178	95	<10
1179	105	<10
1180	113	<10
1181	117	<10
1182	113	<10
1183	142	30
1184	126	10
1185	40	90
1186	92	100
1187	145	30
1188	307	30
1189	148	30
1190	133	20
1191	132	60

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Page: 11
Copy: 1 of 1

Attn: P.Tyler
Received: 20-Mar-92 10:38
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Job: 921032 Status: Final

Sample	Zn ICAP ppm	Zr ICAP ppm
1192	150	<10
1193	112	<10
1194	47	<10
1195	85	<10
1196	114	30
1197	853	150
1198	94	<10
1199	77	<10
1200	103	10
1201	77	10
1202	64	<10
1203	26	<10
1204	26	<10
1205	24	<10
1206	45	<10
1207	61	<10
1208	40	<10
1209	59	140
1210	154	330
1211	50	190
1212	41	10
1213	38	30
1214	26	<10
1215	71	30
1216	50	70
1217	36	20

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Sample	Zn ICAP ppm	Zr ICAP ppm
1218	57	20
1219	61	<10
1220	174	<10
1221	<5	<10
1222	6	<10
1223	20	<10
1224	<5	<10
1225	20	<10
1226	27	20
1227	<5	<10
1228	<5	<10
1229	11	30
1230	<5	<10
1231	8	<10
1232	<5	<10
1233	<5	<10
1234	47	20
1235	26	20
1236	93	20
1237	16	20
1238	61	20
1239	29	20
1240	32	10
1241	19	<10
1242	30	30

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27-Mar-92

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Attn: P.Tyler
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Project: Langmuir Exploration PO #:

Job: 921032 Status: Final

Abbreviations:

Parameters:

SiO2	:	Silica
Al2O3	:	Alumina
Fe2O3	:	Ferric Oxide
MgO	:	Magnesium Oxide
CaO	:	Calcium Oxide
Na2O	:	Sodium Monoxide
K2O	:	Potassium Monoxide
TiO2	:	Titanium dioxide
P2O5	:	Phosphorus Pentoxide
LOI	:	Loss on Ignition
SUMOX	:	Sum of all major and minor oxides
Ag	:	Silver
Ba	:	Barium
Cd	:	Cadmium
Co	:	Cobalt
Cr	:	Chromium
Cu	:	Copper
Mn	:	Manganese
Ni	:	Nickel
Pb	:	Lead
Sr	:	Strontium
V	:	Vanadium
Zn	:	Zinc
Zr	:	Zirconium

Methods:

ICAP : Inductively coupled argon plasma

BARRINGER LABORATORIES

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27-Mar-92

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7

Attn: P.Tyler
Received: 20-Mar-92 10:38
Project: Langmuir Exploration PO #:

Job: 921032 Status: Final

FURN	: Furnace
CALC	: Calculation

Units:

%	: percent
ppm	: parts per million

Quality codes:

<	: Less than quoted detection limit

Job approved by:

Signed: ....

Margaret E. Danziger
Supervisor, Geochemistry/Fire Assay Services

BARRINGER LABORATORIES

5735 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
PHONE: (416) 890-8566
FAX: (416) 890-8575

INVOICE

Mr.Peter Tyler
TIMMINS NICKEL INC.
205 - 155 University Avenue
Toronto, Ontario
M5H 3B7
Authority: P.Tyler

Date : 27-Mar-92
Job : 921032
Invoice: 30629
PO #:

Project: Langmuir Exploration   Terms: Net 30 days

103 Core Sample Prep.	3.75	$ 386.25
Analyses:		
103 Lithoprint ICAP	21.00	$2163.00
Sub Total:		$2549.25
Taxes:	7.00	$ 178.45
TOTAL DUE:		$2727.70

SUBMITTED TO ACCOUNTING
10/4/92

Remit to: Barringer Laboratories Limited
304 Carlingview Drive
Rexdale, Ontario
M9W 5G2

G.S.T. No. R121844088

--- Remittance Copy ---

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-211

PROPERTY:

COORDINATES: L24+00 N
33+00 E

HOLE DEPTH: 66'
SAMPLE INTERVAL: 66.0' to 65.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 2/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

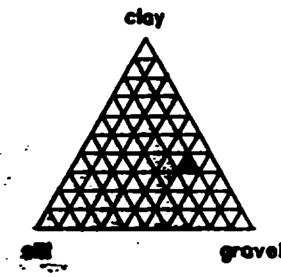
Humus

Very Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 3%

Lithologies:
2% felsic frag's
1% ultramafic frag's.

Angularity: 1 2 3 4 5
Size: Up to 1cm.

ASSAY RESULTS:

		Ni	Cu
L-211	Sample 1:		
	Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Didn't hit bedrock - rods tight in hole.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-212

PROPERTY:

COORDINATES: L22+00 N
32+00 E

HOLE DEPTH: 46
SAMPLE INTERVAL: 46.0' to 45.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

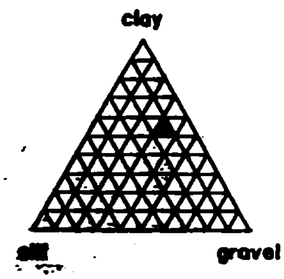
Humus

Very Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
3% felsic frag's.
2% ultramafic frag's.

Angularity: 1 2 3 4 5
Size: up to 1.5cm

ASSAY RESULTS:

	Ni	Cu
L-212 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Didn't hit bedrock.
One ultramafic frag. with 1% pyrite along a slip.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-213

PROPERTY:

COORDINATES: L 22+00 N
34+00 E

HOLE DEPTH: 49
SAMPLE INTERVAL: 49.0 to 48.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

Humus

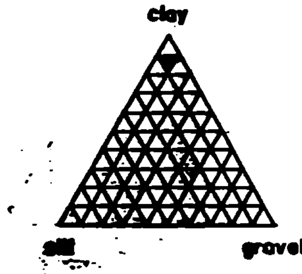
Very Easy Drilling

Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 0%

Lithologies:

Angularity: 1 2 3 4 5
Size:

ASSAY RESULTS:

	Ni	Cu
L-213 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Hit bedrock - Sample mainly clay with minor mixed fill

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-214

COORDINATES: L20+00 N
34+00 E

DATE: Jan 3/92

PROPERTY:

HOLE DEPTH: 44'
SAMPLE INTERVAL: 44.0'-43.25'
SAMPLE LENGTH: 0.75'

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

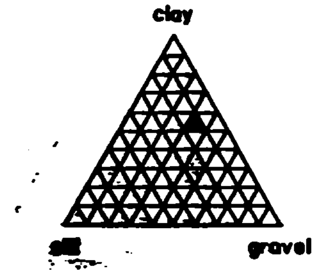
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
4% ultramafic and mafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-214 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Looks like good fill.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-215 A.3

COORDINATES: L20+00 N
32+00 E

DATE: Jan 3/92

PROPERTY:

HOLE DEPTH: 37',50'
SAMPLE INTERVAL: 50.0' to 49.25'
SAMPLE LENGTH: 0.75'

GRAPHIC SECTION
Scale: 1"=10'

DESCRIPTIVE NOTES

Humus

Easy Drilling

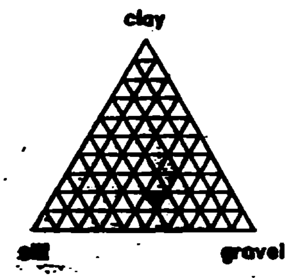
Clay

No Sample Clay

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 10%

Lithologies:
8% felsic frag's.
2% mafic and ultramafic frag's.

Angularity: 1 2 3 4 5
Size: Up to 1.5cm

ASSAY RESULTS:

	Ni	Cu
L-215 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
L-215A No sample-all clay

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-216

COORDINATES: 18+00 N
31+00 E

DATE: Jan [illegible]/92

PROPERTY:

HOLE DEPTH: 30'
SAMPLE INTERVAL: 30.0' to 29.25'
SAMPLE LENGTH: 0.75'

GRAPHIC SECTION
Scale: 1" = 5'

DESCRIPTIVE NOTES

Humus

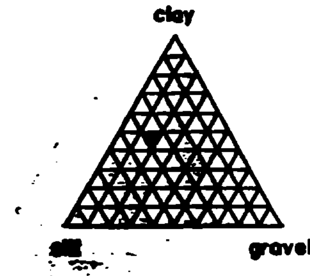
Easy Drilling

Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
4% ultramafic frag's
1% felsic frag's

Angularity: 1 2 3 4 5
Size: Up to 1cm

ASSAY RESULTS:

		Ni	Cu
L-216	Sample 1:		
	Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-217

PROPERTY:

COORDINATES: L18+00 N
33+00 E

HOLE DEPTH: 45'

SAMPLE INTERVAL: 45.0' to 44.25'

SAMPLE LENGTH: 0.75'

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

Humus

Easy Drilling Clay?

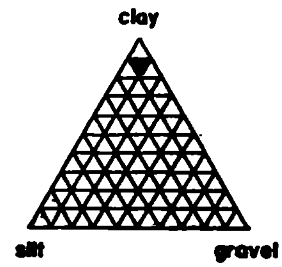
Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Grey

CONTENT:



FRAGMENTS: <1%

Lithologies:
Minor felsic and ultramafic frag's.

Angularity: 1 2 3 4 5
Size: 5-8 mm

ASSAY RESULTS:

	Ni	Cu
L-217 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Clay rich sample.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-218

PROPERTY:

COORDINATES: L16+00 N
32+00 E

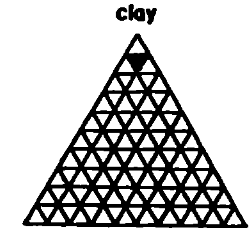
HOLE DEPTH: 9'
SAMPLE INTERVAL: 8.9' to 8.25', 9.0' to 8.9' Bedroc
SAMPLE LENGTH: 0.65'

DATE: Jan 3/92

GRAPHIC SECTION Scale: 1" = 5	DESCRIPTIVE NOTES
	Humus
	Easy Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
5% ultramafic frag's.
Trace felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1.5cm

ASSAY RESULTS:

	Ni	Cu
L-218 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Ultramafic intrusive - peridotite?

ADDITIONAL NOTES:
Outcrop nearby.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-219

PROPERTY:

COORDINATES: L16+00 N
30+00 E

HOLE DEPTH: [illegible]

SAMPLE INTERVAL: [illegible], [illegible], 28.4 Bedrock

SAMPLE LENGTH: [illegible]

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1"= [illegible]

DESCRIPTIVE NOTES

Humus

Easy Drilling Clay?

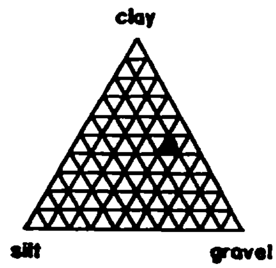
Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Grey

CONTENT:



FRAGMENTS: 5%

Lithologies:
4% ultramafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5

Size: Up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-219 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
ultramafic intrusive - peridotite

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-220

PROPERTY:

COORDINATES: L14+00 N
30+00 E

HOLE DEPTH: 16'
SAMPLE INTERVAL: 15.9' to 15.25', 16.0 to 15.9' Bedrock
SAMPLE LENGTH: 0.65

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 5

DESCRIPTIVE NOTES

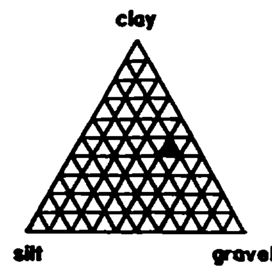
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 3%

Lithologies:
2% ultramafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-220 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Ultramafic intrusive - peridotite?

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-221

PROPERTY:

COORDINATES: L14+00 N
32+00 E

HOLE DEPTH: 23
SAMPLE INTERVAL: 22.7 to 23.25, 23.0 to [illegible] Bedrock
SAMPLE LENGTH: 0.55

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 10

DESCRIPTIVE NOTES

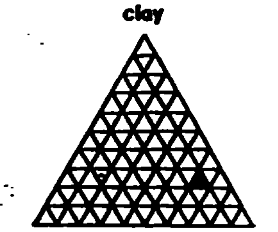
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 10%

Lithologies:
Mainly ultramafic frag's.

Angularity: 1 2 3 4 5
Size: up to 1.5 cm

ASSAY RESULTS:

	Ni	Cu
L-221 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Ultramafic intrusive - peridotite.

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-222

PROPERTY:

COORDINATES: L12+00 N
31+00 E

HOLE DEPTH: 18'

SAMPLE INTERVAL: 17.8 to 17.25', 18.0' to 17.8' Bedrock

SAMPLE LENGTH: 0.55'

DATE: Jan 3/92

GRAPHIC SECTION
Scale: 1" = 5'

DESCRIPTIVE NOTES

Humus

Easy Drilling Clay?

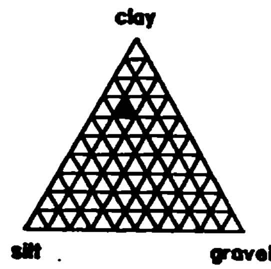
Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Grey

CONTENT:



FRAGMENTS: 5%

Lithologies:
4% ultramafic and mafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: Up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-222 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Ultramafic - oxidized.

ADDITIONAL NOTES:
Outcrop nearby

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-223

COORDINATES: L 10+00 N
28+00 E

DATE: Jan 6/92

PROPERTY:

HOLE DEPTH: 2'

SAMPLE INTERVAL: 2.0' to 1.25'

SAMPLE LENGTH: 0.75'

GRAPHIC SECTION
Scale: 1" = 2'

DESCRIPTIVE NOTES

Humus.

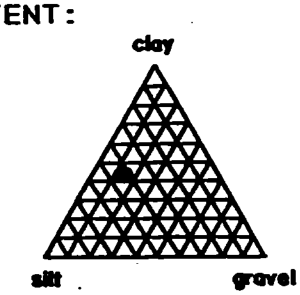
Soil?

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Dark Brown

CONTENT:



FRAGMENTS: 5%

Lithologies:
Half ultramafic, half felsic frag's.

Angularity: 1 2 3 4 5

Size: Up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-223 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Not till - soil? Outcrop and boulders nearby.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-224

PROPERTY:

COORDINATES: L10+00 N
30+00 E

HOLE DEPTH: 11'

SAMPLE INTERVAL: 11.0' to 10.25'

SAMPLE LENGTH: 0.75'

DATE: Jan 6/92

GRAPHIC SECTION
Scale: 1" = 5'

DESCRIPTIVE NOTES

Humus

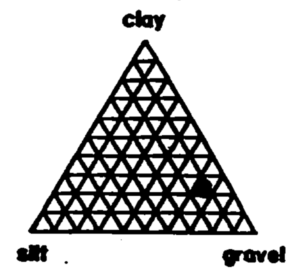
Hard Drilling Boulders

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Brown

CONTENT:



FRAGMENTS: 3%

Lithologies:
2% felsic frag's
1% ultramafic frag's
Minor mafic frag's

Angularity: 1 2 3 4 5

Size: up to 1.5cm

ASSAY RESULTS:

	Ni	Cu
L-224 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Boulders on surface - may not have hit bedrock

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-225

PROPERTY:

COORDINATES: L8+00 N
30+00 E

HOLE DEPTH: 9'

SAMPLE INTERVAL: 9.0' to 8.25'

SAMPLE LENGTH: 0.75'

DATE: Jan 6/92

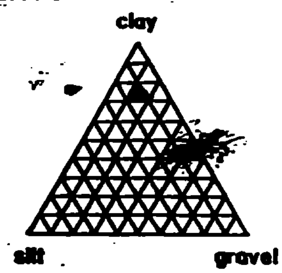
GRAPHIC SECTION Scale: 1" = 5'	DESCRIPTIVE NOTES
	Humus
	Easy Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Lt brown

CONTENT:



FRAGMENTS: 3%

Lithologies:
Dominantly mafic frag's.

Angularity: 1 2 3 4 5

Size: up to 1cm.

ASSAY RESULTS:

	Ni	Cu
L-225 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Boulders on surface
Clay rich sample,

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-226

PROPERTY:

COORDINATES: L8+00 N
32+00 E

HOLE DEPTH: 29.0'
SAMPLE INTERVAL: 29.0' to 28.25'
SAMPLE LENGTH: 0.75

DATE: Jan 6/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

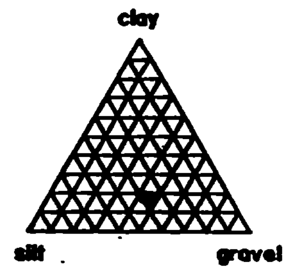
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 2%

Lithologies:
1% ultramafic
1% felsic

Angularity: 1 2 3 4 5
Size: up to 8mm

ASSAY RESULTS:

	Ni	Cu
L-226 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-227

PROPERTY:

COORDINATES: L6+00 N
33+00 E

HOLE DEPTH: 25'

SAMPLE INTERVAL: 24.9' to 24.25', 25.0 to 24.9 Bedrock

SAMPLE LENGTH: 0.65

DATE: Jan 6/92

GRAPHIC SECTION Scale: 1" = 10'

DESCRIPTIVE NOTES

Humus

Easy Drilling Clay?

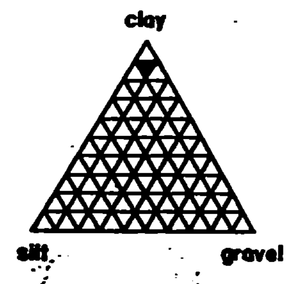
Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5

COLOUR: Grey

CONTENT:



FRAGMENTS: 3%

Lithologies:
2% ultramafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5

Size: Up to 8 mm.

ASSAY RESULTS:

	Ni	Cu
L-227 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Mafic intrusive - Light green, conchoidal fracture - diabase?

ADDITIONAL NOTES:
Clay rich sample.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-228

PROPERTY:

COORDINATES: L6+00 N
35+00 E

HOLE DEPTH: 39'
SAMPLE INTERVAL: 39.0' to 38.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 6/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

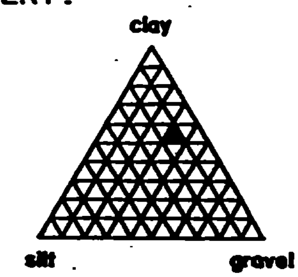
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
4% ultramafic frag's
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1cm

ASSAY RESULTS:

	Ni	Cu
L-228 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-229

PROPERTY:

COORDINATES: L4+00 N
37+00 E

HOLE DEPTH: 54'
SAMPLE INTERVAL: 54.0' to 53.25'
SAMPLE LENGTH: 0.75

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1"=10'

DESCRIPTIVE NOTES

Humus

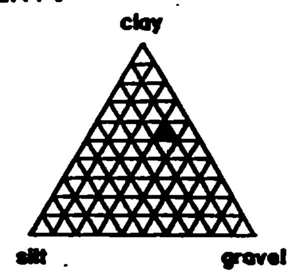
Easy Drilling

Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
4% mafic + ultramafic frag's
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1.5cm.

ASSAY RESULTS:

	Ni	Cu
L-229 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-230

PROPERTY:

COORDINATES: L4+00 N
35+00 E

HOLE DEPTH: 37'
SAMPLE INTERVAL: 37.0 to 36.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1"=10'

DESCRIPTIVE NOTES

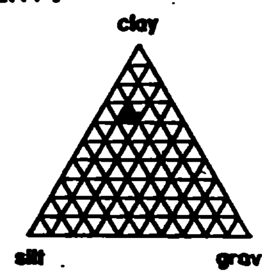
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1/2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 5%

Lithologies:
4% mafic and ultramafic frag's.
1% felsic frag's.

Angularity: 1 2 3 4 5
Size: Up to 1.5cm

ASSAY RESULTS:

	Ni	Cu
L-230 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-231

PROPERTY:

COORDINATES: L4+00 N
33+00 E

HOLE DEPTH: 23'
SAMPLE INTERVAL: 22.8' to 22.25'; 30.0' to 22.8' Bedrock
SAMPLE LENGTH: 0.55

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1" = 10'

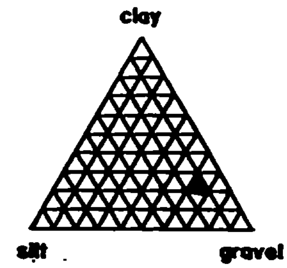
DESCRIPTIVE NOTES

Humus

Easy Drilling
Clay? with boulders

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 3%

Lithologies:
2% intermediate and felsic frag's.
1% ultramafic frag's.

Angularity: 1 2 3 4 5
Size: Up to 1.5cm.

ASSAY RESULTS:

	Ni	Cu
L-231 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:
Ultramafic - talcose.

ADDITIONAL NOTES:

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-232

PROPERTY:

COORDINATES: L2+00 N
33+00 E

HOLE DEPTH: 34'
SAMPLE INTERVAL: 34.0' to 33.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1"=10'

DESCRIPTIVE NOTES

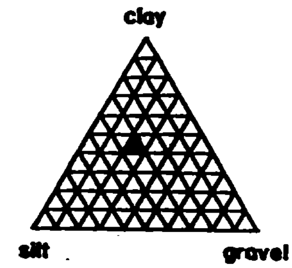
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: <1%

Lithologies:
Mafic and ultramafic frag's.
Trace felsic frag's.

Angularity: 1 2 3 4 5
Size: 5 - 8mm.

ASSAY RESULTS:

	Ni	Cu
L-232 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Rods tight in hole.

EQUIPMENT LOSS:
Almost - used tugger to recover rods.

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-233A, B

PROPERTY:

COORDINATES: L2+00 N
35+00 E

HOLE DEPTH: 21', 20'
SAMPLE INTERVAL: 20.0' to 19.25'
SAMPLE LENGTH: 0.75'

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1" = 5'

DESCRIPTIVE NOTES

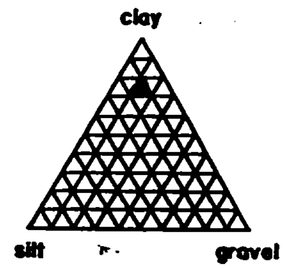
Humus

Easy Drilling Clay?

Hard Drilling

SAMPLE DESCRIPTION

OXIDATION: 1 2 3 4 5
COLOUR: Grey
CONTENT:



FRAGMENTS: 2%

Lithologies:
Mainly mafic and ultramafic frag's. Minor felsic frag's.

Angularity: 1 2 3 4 5
Size: up to 1cm.

ASSAY RESULTS:

	Ni	Cu
L-233 Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
L-233A no sample - all clay.
L-233B Clay rich.

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-234

PROPERTY:

COORDINATES: L0+00 N
34+00 E

HOLE DEPTH: 13´
SAMPLE INTERVAL: NO
SAMPLE LENGTH: SAMPLE

DATE: Jan 7/92

GRAPHIC SECTION
Scale: 1" = 10´

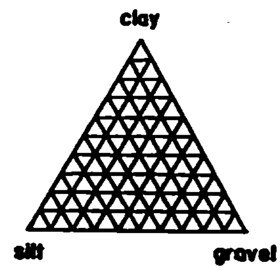
DESCRIPTIVE NOTES

Humus

Easy Drilling Clay?

Clay

SAMPLE DESCRIPTION
No Sample
OXIDATION: 1 2 3 4 5
COLOUR:
CONTENT:



FRAGMENTS:

Lithologies:

Angularity: 1 2 3 4 5
Size:

ASSAY RESULTS:

	Ni	Cu
Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Numerous boulders on surface.
Second attempt - sample all clay.
No Sample

EQUIPMENT LOSS:

OVERBURDEN DRILL HOLE LOG

DRILL HOLE #: L-235A,B

PROPERTY:

COORDINATES: L0+00
36+00 E

HOLE DEPTH: 17', 18'
SAMPLE INTERVAL: NO
SAMPLE LENGTH: SAMPLE

DATE: Jan 8/92

GRAPHIC SECTION
Scale: 1" = 10'

DESCRIPTIVE NOTES

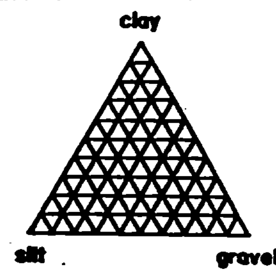
Humus

Easy Drilling Clay?

Clay

SAMPLE DESCRIPTION
No SAMPLE

OXIDATION: 1 2 3 4 5
COLOUR:
CONTENT:



FRAGMENTS:

Lithologies:

Angularity: 1 2 3 4 5
Size:

ASSAY RESULTS:

	Ni	Cu
Sample 1:		
Sample 2:		

BEDROCK SAMPLE RETRIEVED
Yes No

BEDROCK DESCRIPTION:

ADDITIONAL NOTES:
Sample all clay.

EQUIPMENT LOSS:

ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO
BOX 426
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

43802 **Certificate of Analysis**

Page: 1

Mr. David Pena
Timmins Nickel Inc.
Box 1979
South Porcupine, Ontario
PON 1HO

January 17 92

Work Order # : 920009
Project :

SAMPLE NUMBERS Accurassay	Customer	Nickel ppm
253214	L-211	<1
2 3215	L-212	24
2 3216	L-213	52
253217	L-214	200
253218	L-215	32
2 19	L-216	11
2 3220	L-217	4
253221	L-218	500
2 3222	L-219	220
2 3223	L-220	120
253224	L-221	280
2 3225	L-222	140
2 3226	L-223	550
253227	L-224	19
253228	L-225	15
2 3229	L-226	3
2 3230	L-227	10
253231	L-228	25
2 3232	L-229	43
2 3233	L-230	28
253234	L-231	27
2 3235	L-232	<1
2 3236	L-233	<1

* Aqua Regia Digest

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

LF-30

Per: G. Duncan

ORIGINAL

ACCURASSAY LABORATORIES

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43803 **Certificate of Analysis**

Page: 1

Mr. David Pena
Timmins Nickel Inc.
Box 1979
South Porcupine, Ontario
PON 1HO

January 18 92

Work Order # : 920009A
Project :

SAMPLE NUMBERS		Nickel
A curassay	Customer	ppm
253214	L-211	1
2 3215	L-212	5
2 3216	L-213	2
253217	L-214	10
2 [illegible]218	L-215	4
2 [illegible]19	L-216	2
253220	L-217	<1
253221	L-218	36
[illegible]3222	L-219	43
2[illegible]3223	L-220	10
253224	L-221	230
[illegible] 3225	L-222	14
[illegible]3226	L-223	47
253227	L-224	4
[illegible]3228	L-225	6
[illegible]3229	L-226	7
253230	L-227	9
253231	L-228	<1
[illegible]3232	L-229	12
253233	L-230	21
253234	L-231	46
[illegible]3235	L-232	8
[illegible]3236	L-233	10

* HF Digest

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Dr. G. Duncan
CHEMIST

Per: G. Duncan

ORIGINAL

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PAGE 1

Dip: 250' → 44°
500' → 42°

PROPERTY Langmuir
HOLE NUMBER 91-11
GRID REFERENCE 3500 N / 9918.5 E (RAMP.
TOWNSHIP
CLAIM
AZIMUTH 083°
DIP ANGLE -45°

DRILLING COMPANY Morissette
FOREMAN
DIP TESTS:
CORE SIZE AQ
CORE STORED AT:
LOGGED BY AL
DATE Dec 24/91

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
0.0 - 13.0	Andesite				
	f to m.g., greenish-grey unit, uniform + massive				
	transition zone into Um. Not magnetic				
13.0 - 56.8	Ultramafic				
	f.g., darker greenish grey unit w/ svrl qtz-carb vlts				
	x-cutting the core at various <.				
	Py blobs locally that seems to be associated w/ carb. vlts				
	Wkly brecciated locally w/ qtz-carb. filling.				
	Sharp lower CT. Magnetic throughout				
56.8 - 68.5	Andesite				
	v.f.g to f.g., greenish unit, mod. chloritic w/ flows				
	~30° - 50° to C.A.				
	The first 2.5' is strongly magnetic w/ magnetite x-tals				
	up to 1.5 mm. + contains py x-tals up to 60.5'				
	locally at 60.0-60.5 The py are stretched + elongated				
	due to slight shearing ~50° to C.A.				
	The remainder of unit is somewhat more massive.				
68.5 - 71.8	Dacite				
	f.g., light greenish-grey, uniform unit w/ flow				
	banding ~55° to C.A.				
	Locally minor qtz-carb vlts w/ slight hematized				
	staining in first 10'. The lower CT is gradational.				
	Local 1mm py x-tals + carb 1mm blebs <2% vol.				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY LANGMUIR
HOLE NUMBER 91-11
GRID REFERENCE
TOWNSHIP
CLAIM
AZIMUTH
DIP ANGLE -45°

DRILLING COMPANY MORISSETTE FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AL DATE Dec 24/91

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
71.8 - 285.0	Andesite				
	f.g., greenish-grey, uniform unit w flows ~45-50°				
	to c.A. Sval wk qtz-carb fract. fillings throughout.				
	Major 0.2' qtz vein w hematized carb. at 110.0'				
	Sval local section w carb blebs stretched slightly				
	along flow planes				
	From 124' → 136' wkly to mod. magnetic w magnetite				
	bands <5mm, tr py x-tals <1% ~2-3mm in size.				
	Carb is very slightly hematized locally 140'-142'				
	Magnetite banding: 154'-155' 159' - 166'				
	170'-171' 186' - 192'				
	199'-205' 210' - 219'				
	223'-243' 271' - 277'				
	From 150' → 285', tr py within magnetite bands,				
	sval carb blebs stretched along flow				
	planes				
285.0 - 304.6	Dacite				
	f.g., light grey, massive unit w mi tr qtz-feld phenocrysts				
304.6 - 362.8	Andesite				
	same as 71.8-285.0 w more py-x-tals up to 5mm in				
	size near mt bands				
	Q.V. between 322.6-323.7 w carb on lower ct				
	From 318' → po blebs ± semi-x-tls <1% vol. near mt injections				
	± bands				
	At 323.0' → 3cm's semi massive py vein 50% vol.				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY Langmuir
HOLE NUMBER 91-11
GRID REFERENCE
TOWNSHIP
CLAIM
AZIMUTH
DIP ANGLE

DRILLING COMPANY Morissette
FOREMAN
DIP TESTS:
CORE SIZE AQ
CORE STORED AT:
LOGGED BY AL
DATE Dec 24/91 – Jan 6/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
Con't	FROM 353.0 - 355.0 sub po vlts ~10% volume along mt inject	353.0 - 355.0	L 648	0.06	
	Gradational lower CT				
362.8 - 405.7	Dacite				
	f.g., light grey, massive + uniform ō local to cand.				
	Po + py x-tal mineralization stops at 368' ≈ 3% volume				
	between 362.8 - 368.' Note: py x-tal within po vlts				
	locally.				
405.7 - 406.8	Massive Sulphide	405.7 - 405.9	L 649	5.59	0.2 6.57
	First 0.2' react well with Ni-Test	405.9 - 406.8	L 650	6.79	0.9 1.1
	Massive comprised mostly of po-py 45-45 %				
	Bottom of vein mt + cp 9-1%				
406.8 - 420.2	Ultramafic				
	f.g., massive, uniform, unit ō tr sulph.	406.8 - 412.0	651	0.42	5.2
	The unit is mod. talcy + wkly chloritic magnetic	412.0 - 415.0	652	0.15	
		415.0 - 420.2	653	0.14	
420.2 - 431.6	Dyke				
	c.g., qtz - feld. - biot rich vein ō silified Um				
	Upper CT ~35° to c.A.				
	Qtz - feld vein at 423.7 - 424.5, 426.3 - 428.0, 431.2 - 431.6				
	The remainder is mod - strongly silicified ?Um ō feld x-tals ±				
	biotite				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY LANGMUIR
HOLE NUMBER 91-11
GRID REFERENCE
TOWNSHIP
CLAIM
AZIMUTH
DIP ANGLE

DRILLING COMPANY
FOREMAN
DIP TESTS:
CORE SIZE
CORE STORED AT:
LOGGED BY
DATE Jan 6/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
431.6 - 540.0	Ultramafic				
	f.g., light greenish to grey, massive unit, wkly to mod.	435 - 440	654	0.17	
	talcy w/ mi qtz-carb vlts magnetic	440 - 445	655	0.21	
	Trace to 1% sulph. blebs, mostly po	460 - 465	656	0.20	
	More chloritic + less talcy between 461 - 462, 463 - 464.7	470 - 475	657	0.77	
	Small increases in qtz-carb vlts after 500' + more magnetite	480 - 485	658	0.38	
	After 540' → 2% py, tr po-pn	490 - 495	[illegible]	0.13	
540.00	E.O.H.	495 - 500	[illegible]	0.16	
		510 - 515	661	0.17	
		520 - 525	662	0.18	
		530 - 535	663	0.53	
		535 - 540	664	1.01	

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

dip 250' : -34°
500' : -33°

PROPERTY LANGMUIR
HOLE NUMBER 91-12
GRID REFERENCE 3500N / 7918.5E (RAMI
TOWNSHIP
CLAIM
AZIMUTH 76°
DIP ANGLE -4?°

DRILLING COMPANY MORISSETTE
FOREMAN
DIP TESTS:
CORE SIZE AQ
CORE STORED AT:
LOGGED BY AL
DATE Jan 13/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
0.0 - 12.1	Andesite				
	f.g., greenish grey, massive, chloritic unit w no mineralization				
12.1 - 80.5	Ultramafic				
	f.g., greyish, mod. talcose unit w sev'l qtz-carb-talc veins/vlts. The unit is mod. magnetic + contains py x-tals + blebs locally	40 - 45.0	L665	0.17	
		50 - 55	666	0.21	
		60 - 65	667	0.38	
80.5 - 291.7	Andesite				
	v.f.g to f.g., light greenish to greenish grey unit, w local qtz-carb vlts bearing hematized feld. + minor epidote				
	Flows ≈ 45° to c.A. Minor magnetite injection w associated py x-tals locally throughout unit				
	Major Q.V. between 138.8 - 139.5 + 140.5 - 142.0				
	* Major magnetite injected zone w 15-20% volume between 174.0' - 235.0' w tr po				
	Between 235 - 249, the unit has qtz-carb - tr py spherical + lenseoid fillings				
	* Sip ∥ q.v. ~30-40° to c.A. between 247 - 249'				
	* Magnetite injected zone w 10% mag. between 282' - 287.6' w 1-2% py x-tals				
291.7 - 315.0	Dacite				
	f.g., light grey, mod. carb. unit w sev'l carb fract. fillings + [illegible]. Local tr po - magnetite				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY LANGMUIR
HOLE NUMBER 91-12
GRID REFERENCE
TOWNSHIP   CLAIM
AZIMUTH 76°   DIP ANGLE -45

DRILLING COMPANY MORISSETTE   FOREMAN   DIP TESTS:
CORE SIZE AQ   CORE STORED AT: LOGGED BY AL   DATE JAN 13/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
con't					
315.0-358.7	Andesite				
	Same as 80.5-291.7 ē more carb-py-mag nodules in first 20' of unit				
	Locally minor qtz vein ~30° to c.A.				
	Flows ~40° to c.A. From 335 → 358.7 more massive				
358.7-384.4	Dacite				
	v.f.g. to f.g., light grey to light greenish grey, mod. siliceous unit ē local py xtals + sval qtz-carb-(po-mag) blob/nodules				
	minor q.v. at 381.0-381.2				
384.4-460.3	Ultramafic				
	f.g., grey to dark grey, wkly talcy unit ē sval qtz-carb-	384.4-390	668	0.10	
	talc vlts. Wkly to mod magnetic throughout	395-400	669	0.11	
	Tr po mineralization locally.	405-410	670	0.13	
	Chloritic band between 384.4-385.3 + 387.8-389.1	420-425	671	0.23	
	Last 1.0' chloritic Between 457-459 → 2' core grind	445-450	672	0.10	
460.3-462.7	Silicified Zone				
	f.g., light grey to whitish, strongly silicified zone, mod brecciated ē faint tr of hematized staining.				
462.7-486.1	Ultramafic				
	f.g. to m.g., greyish, wkly to mod. talcose unit ē	470-475	673	0.81	
	sval qtz-carb-talc vlts. Wkly magnetic	475-480	674	0.17	
	Last 1.5' chloritic, 481.8-485.0 v. talcy zone.				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY Langmuir
HOLE NUMBER 91-12
GRID REFERENCE
TOWNSHIP CLAIM
AZIMUTH 76° DIP ANGLE -45°

DRILLING COMPANY Morissette FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AC DATE JAN 17/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
486.1-493.2	Dyke.				
	f to m.g., siliceous + biotitic, dioritic unit c̄ sharp cT	488-492	675	0.03	
	Mineralization consist of py x-tals <2mm <1% volume.				
493.2-500.0	Ultramafic				
	v. talcose unit c̄ first 1.0' chloritic cT				
	wkly magnetic c̄ tr diss.				
500	E.O.H.				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

dip 250' → -42°
500' → -39°

PAGE 1

PROPERTY LANGMUIR
HOLE NUMBER 91-13 3500 N / 9918 E
GRID REFERENCE RAMP
TOWNSHIP CLAIM
AZIMUTH 90° DIP ANGLE -46°

DRILLING COMPANY MORISSETTE FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AL DATE JAN 17/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
0.0-79.6	Ultramafic				
	f to m.g., dark grey, unit c svrl qtz-carb-talc vlts +	20 - 25	676	0.13	
	fracture fillings. Generally the unit is mod brecciated.	35 - 40	677	0.22	
	First 0.7' is andesite c minor py x-tals	60 - 65	678	0.13	
	Generally the unit is poor in mineralization except				
	for local blebs po-py associated c qtz-carb-talc fillings				
	The lower ct c Va is gradational @ 30° to c.A.				
	wkly magnetic throughout				
79.6-352.9	Andesite				
	f.g. light grey to dark grey, unit c svrl qtz-carb 1-2mm	290 - 295	679	0.02	
	fract. fillings. Locally tr py x-tals 2mm, often ass/c mt.	295 - 301	680	0.01	
	Local wkly epidotized bands	301 - 310	681	0.03	
	82.4-83.0 wkly hematized q.v. c 2.0' above vein somewhat	313 - 322	682	0.02	
	more siliceous + dacitic in composition				
	Magnetite injection zoning start at 135' → 240'				
	Flows ~ 30-45° to c.A				
	local tr qtz-carb eyes stretched along foliation planes				
	From 270' → 301' more dacitic in composition c mi q.v.				
	<2"; increase in py x-tals along chloritic 2-3mm laminae				
	c tr po, 2-3% py locally between 290'-301'				
	From 301' → 352.9 dacitic c svrl qtz-carb vlt, fract fillings +				
	blebs c mt within matrix, tr py + po				
	Qtz-carb vein at 336.2-336.6				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY LANSMUIR
HOLE NUMBER 91-13
GRID REFERENCE
TOWNSHIP CLAIM
AZIMUTH 90° DIP ANGLE -46

DRILLING COMPANY MORISSETTE FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AL DATE JAN 17/92

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
352.9-395.4	Ultramafic				
	f to m.g., dark grey, v. wkly talcose unit w minor	352.9-358.0	683	0.08	
	qtz-carb fract fillings + vlts. The upper CT w dacite	360-365	684	0.11	
	is gradational. Mineralization is poor; w po-pn + py	370-375	685	0.16	
		380-385	686	0.46	
395.4-403.9	Granodiorite ?				
	m to c.g., siliceous unit w feld. laths within matrix up to 5mm				
	From 404-404.5 pinkish q.v. w vugs				
	Generally the unit is wkly hematized (light pinkish) throughout.				
403.9-500.0	Ultramafic				
	same as 352.9-405.4 w local increase in sulphides ≈1%	403.9-410	687	0.51	
	Locally more talc. wkly to med. magnetic throughout	410-415	688	0.91	
	Minor 2" semi-massive seam of sulph. at 411.5'	415-420	689	0.23	
500.0	E.O.H.	420-425	690	0.74	
		425-430	691	0.21	
		430-435	692	0.16	
		435-440	693	0.45	
		440-445	694	0.79	
		445-450	695	0.20	
		450-455	696	0.19	
		455-460	697	0.15	
		460-465	698	0.15	
		465-470	699	0.46	
	485.3-490.0 703 0.15	470-475	700	0.74	
	490-495 704 0.13	475-480	701	0.09	
	495-500 705 0.16	[illegible]	[illegible]	[illegible]	

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

dip 250' : 35°
500' : 30°

PROPERTY LANGMUIR
HOLE NUMBER 91-14
GRID REFERENCE 3500 N / 7718 E
TOWNSHIP CLAIM
AZIMUTH 058° DIP ANGLE - 35°

DRILLING COMPANY MORISSETTE FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AL DATE JAN 23/92

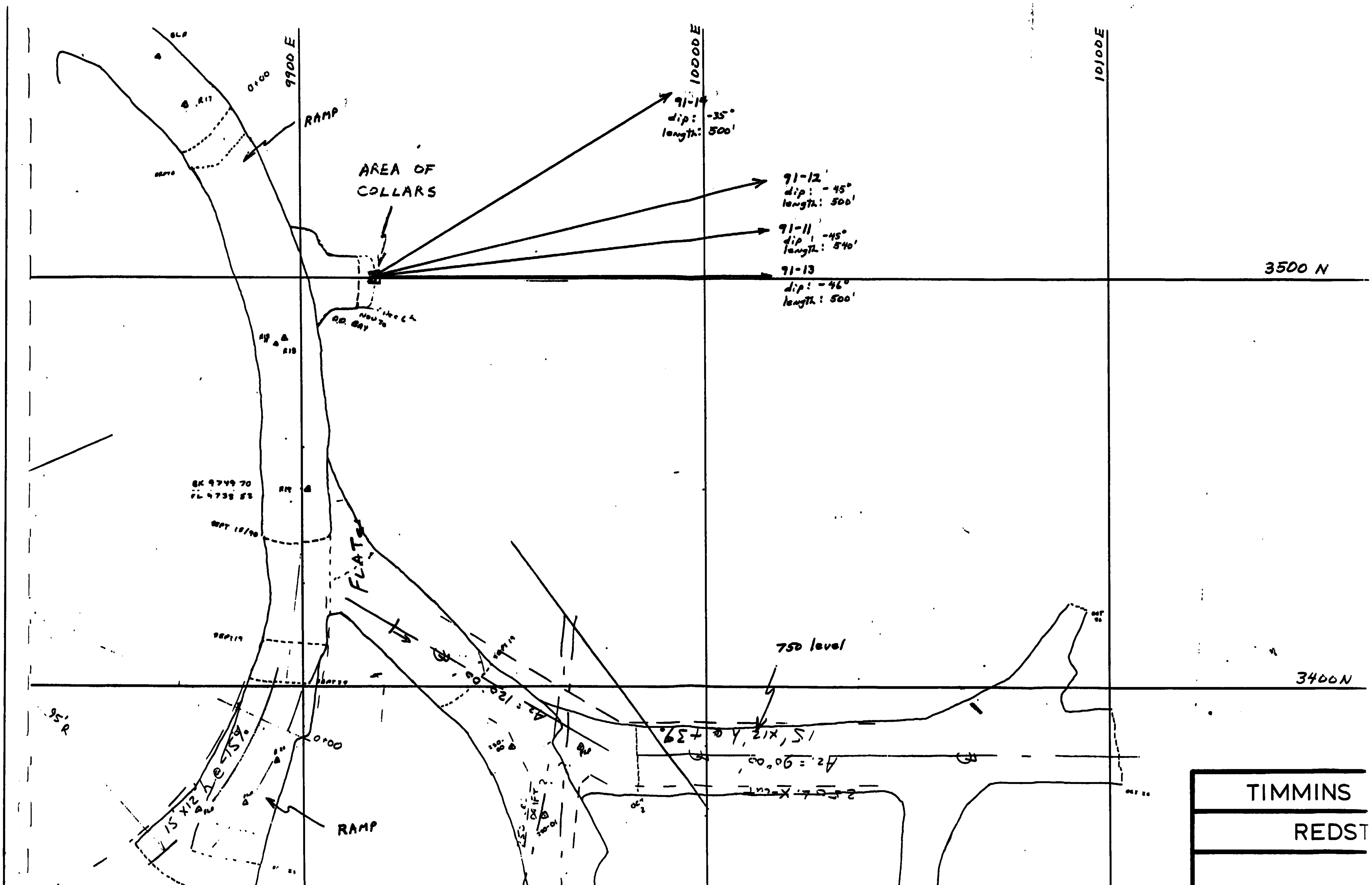
FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS	
0.0 - 2.0	Andesite				
	f.g. greenish-grey, massive unit c̄ diss py on lower				
	CT c̄ UM. The CT is somewhat gradational non-mag.				
2.0 - 93.1	Ultramafic				
	v.f.g. to f.g., wkly talcose unit c̄ sval qtz-carb-py				
	vlts ≈ 40° to 50° to C.A.				
	Locally py x-tals up to 5mm in unit				
	Somewhat, lightly brecciated by section				
	Minor local andesitic bands <3" magnetic				
93.1	Andesite				
	f.g., light greenish grey, siliceous unit c̄ flows ≈				
	30° to 40° to C.A.				
	From 115'-120' more chloritic c̄ feld porphyry + carb x-tals				
	Trace py locally				
	From 128.5 - 130.0 Qtz vein c̄ strongly silicified wallrock;				
	the upper CT is mod hematized over 1"				
	From 146.6 - 148.8 Barren white q.v. c̄ py x-tal on lower CT				
	From 159.6 - 160.4 50% qtz veining. (white + barren)				
	From 164.4 - 166.1 75% white barren q.v.				
	From 174' → 229.1' sval mt injection lenses ∥ to foliation				
	≈ 45° to C.A c̄ local qtz-carb lensoid to stretched				
	out lenses along planes (indication on movement along				
	these planes)				
	From 254.2' to 258.5' sval mi mt injections c̄ carb lensoid				
	porphyroblast				

TIMMINS NICKEL INC.
DIAMOND DRILL LOG

PROPERTY LANGMUIR
HOLE NUMBER 71-14
GRID REFERENCE
TOWNSHIP CLAIM
AZIMUTH 058 DIP ANGLE -35°

DRILLING COMPANY MORISSETTE FOREMAN DIP TESTS:
CORE SIZE AQ CORE STORED AT: LOGGED BY AC DATE JAN [illegible]/7[illegible]

FOOTAGE	DESCRIPTION OF CORE	SAMPLE INTERVAL	SAMPLE NUMBER	ASSAYS		
	From 258.5 - 260' → highly chloritic altered zone w					
	mi qtz vlt ; moderately sheared					
	Qtz veining at 262.8 - 263.6					
	From 265 → the unit gets slightly more dacitic + slightly					
	more carb. w tr - 1% py diss + x-tals					
	From 320.7 1" q.v. ≈ 50° to C.A.					
	From 366.2 - 367.5 a highly deformed qtz-carb-chl. vein					
	From 382.6 - 387.0 mod. carb whisks					
	From 390.4 - 390.5 py x-tals band					
	From 391.8 - 393.0 mod. carb. whisks					
	From 403.3 - 408.5 mod carb diss					
	From 409.8 - 409.9 py x-tals band					
	From 417.7 - 420.0 mod carb x-tals + py x-tals in chl. matrix	425.0-430.3	706	0.06		
	From 425.0 - 430.3 wkly carb. w tr cp.					
430.3-431.5	Massive Sulphide Zone	430.3 - 430.5	707	11.09	0.2	
	75% mt rich vein w lower CT pn-rich + mid vein	430.5 - 431.0	708	3.46	0.5	
	po-pn rich lense.	431.0 - 431.1	709	9.50	0.1	3.51 / 1.9
		431.1 - 431.5	710	1.65	0.4	
431.5 - 500.0	Ultramafic	431.5 - 432.2	711	1.58	0.7	
	f to m.g., dark grey massive, wkly sheared, talcy unit	432.2 - 434.1	712	0.65	1.9	
	w po-pn diss + blebby sulph. up to ≈ 465'	434.1 - 440	713	0.12		
	Sval qtz-carb-talc vein + vlts at various angles	440 - 445	714	0.14		
	Mod to strongly magnetic.	445 - 450	715	0.31		
	Highly chloritic band between 432.2 - 434.1 w sulph. (po-pn)	450 - 455	716	0.27		
	on upper + lower CT	455 - 460	717	0.64		
		460 - 465	718	0.60		
[illegible]	E.O.H.	465 - 470	719	0.41		


9900 E
10000 E
10100 E
3500 N
3400N
91-14
dip: -35°
length: 500'
91-12
dip: -45°
length: 500'
91-11
dip: -45°
length: 540'
91-13
dip: -46°
length: 500'
AREA OF
COLLARS
RAMP
RAMP
FLAT
750 level
15'x12' @ +3%
15'x12' @ -15%
95'R
TIMMINS
REDST

REPORT ON THE GEOPHYSICAL SURVEYS

LANGMUIR PROPERTY

TIMMINS, ONTARIO

N.T.S. 42A/6

PREPARED FOR

TIMMINS NICKEL INC.

Toronto, Ontario **R. W. Woolham, P.Eng.**

February 26, 1992

TABLE OF CONTENTS

LIST OF FIGURES

APPENDIX 1

LIST OF MAPS

(In Map Pocket)

INTRODUCTION

Geophysical surveys utilizing the magnetic and horizontal loop electromagnetic methods have been completed on the Langmuir property claim group of Timmins Nickel Inc. The surveys were performed by Exsics Exploration Limited. The surveys were conducted during the period November to December 1991 and January to February 1992.

The magnetic and electromagnetic surveys were designed to detect and map ultramafic and iron formation units on the property that are associated with nickel mineralization similar to that found at the presently operating Redstone Mine to the west. For a more detailed discussion of the geology, mineralization and host structure of nickel deposits
on the property the reader is referred to reports by Peter Tyler a consultant with Timmins Nickel Inc.

This report describes the logistics, parameters and results of the geophysical surveys.

PROPERTY LOCATION AND ACCESS

The property is located in central Langmuir Township approximately 30 km. southeast of Timmins, Ontario. Access is via highway and gravel road from Timmins via South Porcupine. (Figure 1)

SURVEY PARAMETERS AND PRESENTATION

Magnetic Survey

An EDA Instruments Inc. proton total field magnetometer was used for the survey. This instrument is microprocessor controlled and can be programed to automatically record the station location, time and magnetic value. Magnetic diurnal variations were monitored by an EDA base station magnetometer. Instrument specifications are contained in Appendix 1.

Readings were taken along grid lines spaced 200 ft. apart at 50 ft. station intervals. Approximately 90 line miles of data were collected.

The magnetic values recorded in the field were corrected for diurnal variations by down loading the recorded values stored in the magnetometer memory into the microprocessor controlled base station each day at which time diurnal corrections were automatically calculated and stored into a storage device for later processing and editing.

Office compilation consisted of entry of the data file into a computer system for editing and machine plotting and contouring. A regional datum value of 59,000 nanotesla (nT) was subtracted from all readings. A contour map at a scale of 1:6,000 was generated with appropriate title and legend with a contour interval of 200 nT. (see map LN-1 in pocket at back of report)

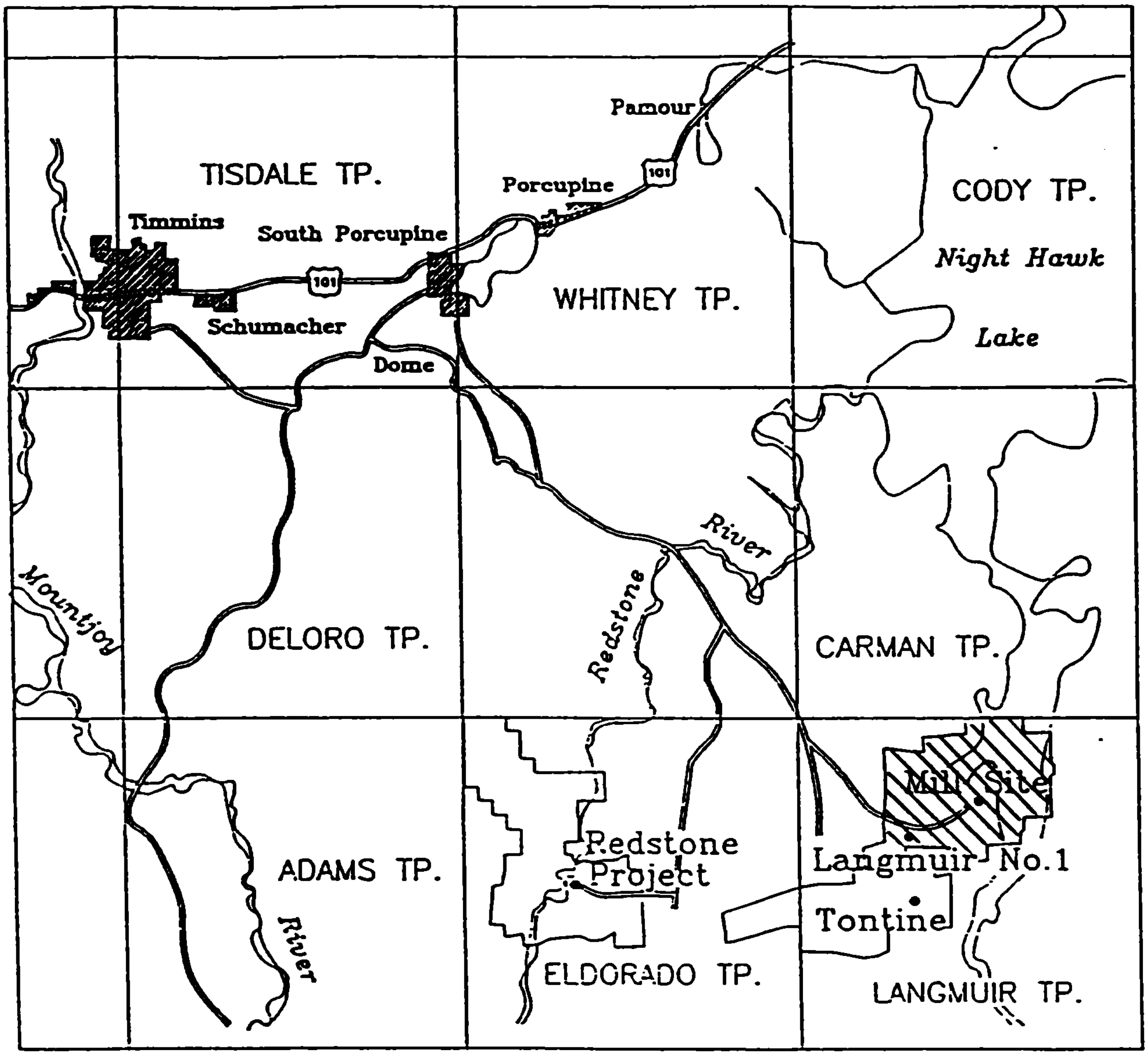


FIGURE 1

LOCATION MAP

SURVEY PARAMETERS AND PRESENTATION (continued)

Electromagnetic Survey

The electromagnetic instrument used for the survey was an Apex Parametrics Ltd. MaxMin II unit. A coil spacing of 500 ft. was used for the survey with a station reading interval of 100 ft. Survey lines were 200 ft apart. Accurate leveling of the coils was monitored at each station and correct coil distance was maintained using the picket line chainages. The in-phase and quadrature readings at frequencies of 444 Hz and 1,777 Hz were measured at each station. A total of approximately 90 line miles of traverse was completed over the property.

Subsequently, office compilation consisted of entry of the data values into a computer system for machine plotting. A survey map was generated at a scale of 1:6,000 with appropriate title and legend. The in-phase and quadrature values are shown as solid and dashed profile lines, respectively, on Maps LN-2 (444 Hz) and LN-3 (1,777 Hz) contained in a pocket at the back of this report.

RESULTS AND CONCLUSIONS

Magnetic Survey

The magnetic survey detected very high amplitude, 1,000 nT to 20,000 nT, broad magnetic zones trending north to northeast through the grid as seen on Map LN-1. These anomalous responses are attributed to two sources. The main source of the magnetic responses are ultramafic intrusives which host nickel mineralization in the area. Secondary local magnetic responses, sometimes masked by the response of the ultramafics, are produced by conductive iron formation units having intermittent continuity throughout the property. The iron formation units are more readily apparent on the compilation map LN-4 which shows both their magnetic and conductive characteristics.

The major magnetic anomalies are cross-cut by a series of more subtle narrow linear horizons trending north-south. These features are related to later mafic diabase dyke intrusives ubiquitous to the area.

Electromagnetic Survey

There are several conductive zones on the property as indicated on Maps LN-2 and LN-3. Very high conductivity responses were recorded in the northeast half of the property from line 7,800 north to about line 15,600 north. The other high conductivity responses are located in the southwest part of the property from line 3,600 north to 5,200 north at about 5,500 east. All of these responses are related to known iron formation units mapped and drilled previously by past exploration programs. The other responses having high conductivity attributes just to the west of the southwest conductors are all produced by power line effects as indicated on the maps.

RESULTS AND CONCLUSIONS (continued)

There are two other isolated conductors of possible interest centered on line 3,200 north at approximately 8,200 east and on line 7,800 north at 4,250 east. These conductors were all drill tested and found to be associated with iron formation.

Poorer conductivity responses are present as short two to five line linear conductive trends scattered throughout the grid as well as a long formational conductive trend seen at the north part of the grid on the extreme east side of lines 12,400 north to 15,000 north. These conductors are thought to be related to shear or contact zones as they fall on the flanks of high amplitude magnetic horizons which mark the contact between ultramafics and intermediate volcanics.

This interpretation was confirmed, at least in one area, where of one of the poorer conductivity horizons in the southwest part of the grid was drilled. The hole intersected a wide altered shear structure related to the contact between an ultramafic intrusive body and intermediate volcanics.

COMMENTS AND RECOMMENDATIONS

Numerous conductive indications have been detected that can be generally explained by previous geological and drill information. Ultramafic and iron formation units on the property are associated with nickel mineralization similar to that found at the Redstone Mine to the west. To date, the nickel occurs in relatively small deposits having variable conductivity and continuity. This type of nickel deposit, however, is associated with a particular contact zone marked by a specific ultramafic horizon.

Sulphides in varying concentrations are present with the nickel mineralization. Locally the sulphides are conductive and if present in a large enough concentration relative to the electromagnetic survey geometries should be detectable. Nevertheless, a small, but economic, deposit or one at depth may go undetected or may produce a poor conductivity response indistinguishable from sources related to contact zones or other poor conductivity sources.

The magnetic survey has mapped the ultramafic bodies in detail and the favourable nickel hosting stratigraphies can readily be identified. Any conductive responses that are present along these horizons are recommended for further investigation. Additionally, as part of an ongoing program, portions of the favourable horizons having structural irregularities, known to sometimes portend possible nickel mineralization, merit further detailed investigation.

Geophysically, a transient electromagnetic(TEM) survey may be of some aid in detecting conductors at depths greater than the present horizontal loop electromagnetic survey. This survey had an approximate depth of exploration in the order of 200 to 250 feet. The TEM survey is recommended for geologically selected favourable areas. Careful attention to the transmitter loop location relative to the target geometry is important for such a method to be productive.

CERTIFICATE OF QUALIFICATION

I, Roderick W. Woolham of the town of Pickering, Province of Ontario, do hereby certify that:-

1. I am a geophysicist and reside at 1463 Fieldlight Blvd., Pickering, Ontario, L1V 2S3

2. I graduated from the University of Toronto in 1961 with a degree of Bachelor of Applied Science, Engineering Physics, Geophysics Option. I have been practising my profession since graduation.

3. I am a member in good standing of the following organizations: The Association of Professional Engineers of the Province of Ontario (Mining Branch); Society of Exploration Geophysicists; South African Geophysical Association.

4. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Timmins Nickel Inc. or any affiliate.

5. I personally was involved with the technical aspects of the surveys and wrote the report.

6. I consent to the use of this report in submissions for assessment credits or similar regulatory requirements.

R. W. Woolham, P.Eng.

REGISTERED PROFESSIONAL ENGINEER
R.W. WOOLHAM
PROVINCE OF ONTARIO

Toronto, Ontario

February 26, 1992

APPENDIX 1

INSTRUMENT SPECIFICATIONS

OMNI PLUS "Tie-Line" VLF/Magnetometer System

EDA

Specifications

Frequency Tuning Range	15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz.
Transmitting Stations Measured	Up to 3 stations can be automatically measured at any given grid location within frequency tuning range.
Recorded VLF Magnetic Parameters	Vertical in-phase, vertical quadrature (out-of-phase), total field strength (or optional horizontal amplitude), dip angle.
Standard Memory Capacity	1300 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings.
Display	Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.
RS232C Serial I/O Interface	Variable baud rate from 300 to 9600 baud, 8 data bits, 2 stop bits, no parity.
Test Mode	A. Diagnostic Testing (data and programmable memory). B. Self Test (hardware).
Sensor Head	Contains 3 orthogonally mounted coils with automatic tilt compensation
Operating Environmental Range	−40°C to +55°C; 0 – 100% relative humidity; Weatherproof.
Power Supply	Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.
Weights and Dimensions	
Instrument Console	3.8 kg, 122 x 246 x 210 mm.
Sensor Head	0.9 kg, 140 dia. x 130 mm.
VLF Electronics Module	1.7 kg, 280 x 190 x 60 mm.
Lead Acid Battery Cartridge	1.8 kg, 138 x 95 x 75 mm.
Lead Acid Battery Belt	1.8 kg, 540 x 100 x 40 mm.
Disposable Battery Belt	1.2 kg, 540 x 100 x 40 mm

EDA Instruments Inc
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Telex 06 23222 EDA TOR
Cables: Instruments Toronto
Telephone (416) 425-7800
Fax (416) 425 8135

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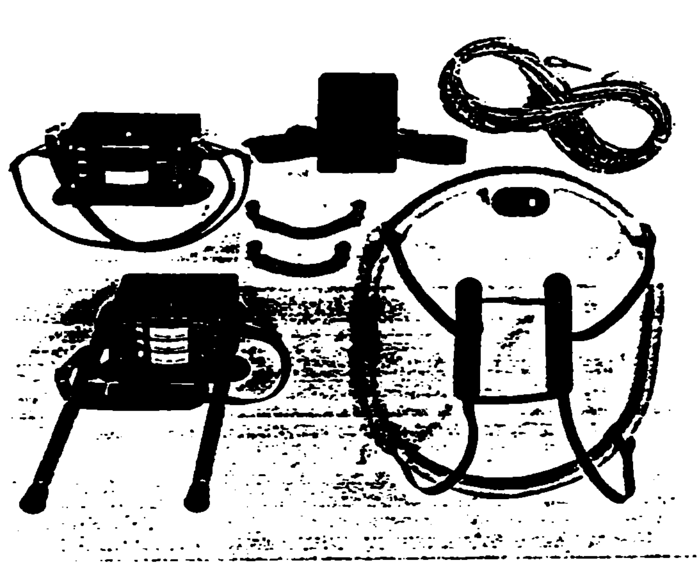
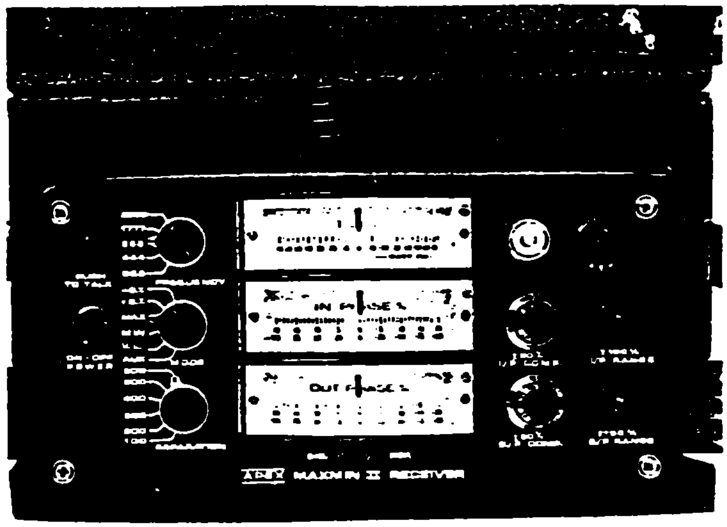
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
Telephone (303) 422-9112





MAXMIN II

SPECIFICATIONS :

Frequencies: 222, 444, 888, 1777 and 3555 Hz.

Modes of Operation:
- MAX: Transmitter coil plane and receiver coil plane horizontal (Max-coupled; Horizontal-loop mode). Used with refer. cable.
- MIN: Transmitter coil plane horizontal and receiver coil plane vertical (Min-coupled mode). Used with reference cable.
- V.L. : Transmitter coil plane vertical and receiver coil plane horizontal (Vertical-loop mode). Used without reference cable, in parallel lines.

Coil Separations: 25, 50, 100, 150, 200 & 250 m (MMII) or 100, 200, 300, 400, 600 and 800 ft. (MM II F). Coil separations in V.L. mode not restricted to fixed values.

Parameters Read:
- In-Phase and Quadrature components of the secondary field in MAX and MIN modes.
- Tilt-angle of the total field in V.L. mode.

Readouts:
- Automatic, direct readout on 90 mm (3.5") edgewise meters in MAX and MIN modes. No nulling or compensation necessary.
- Tilt angle and null in 90 mm edgewise meters in V.L. mode.

Scale Ranges:

In-Phase:	±20%, ±100% by push-button switch.
Quadrature:	±20%, ±100% by push-button switch.
Tilt:	±75% slope.
Null (VL):	Sensitivity adjustable by separation switch.

Readability: In-Phase and Quadrature: 0.5%. Tilt: 1%

Repeatability: ±0.5% to ±1% normally, depending on conditions, frequencies and coil separation used.

Transmitter Output:
- 222 Hz : 175 Atm^2
- 444 Hz : 160 Atm^2
- 888 Hz : 100 Atm^2
- 1777 Hz : 60 Atm^2
- 3555 Hz : 30 Atm^2

Receiver Batteries: 9V trans. radio type batteries (4). Life: approx. 35 hrs. continuous duty (alkaline, 0.5 Ah), less in cold weather.

Transmitter Batteries: 12V 7.5Ah Gel-Cell rechargeable batteries (2 × 6V in series).

Reference Cable: Light weight 2-conductor teflon cable for minimum friction. Unshielded. All reference cables optional at extra cost. Please specify.

Voice Link: Built-in intercom system for voice communication between receiver and transmitter operators in MAX and MIN modes, via reference cable.

Indicator Lights: Built-in signal and reference warning lights to indicate erroneous readings.

Temperature Range: -40°C to +60°C (-40°F to +140°F).

Receiver Weight: 6 kg (13 lbs.)

Transmitter Weight: 13 kg (29 lbs.)

Shipping Weight: Typically 60 kg (135 lbs.), depending on quantities of reference cable and batteries included. Shipped in two field/shipping cases.

Specifications subject to change without notification.

APEX PARAMETRICS LIMITED
200 STEELCASE RD E., MARKHAM, ONT., CANADA, L3R 1G2

Phone (416) 495-1612 Cables: APEXPARA TORONTO Telex: 06-966273 NORDVIK TOR

REPORT ON THE GEOPHYSICAL SURVEYS

TONTINE PROSPECT AREA

LANGMUIR TOWNSHIP

TIMMINS, ONTARIO

NTS 42 A/6

PREPARED FOR

TIMMINS NICKEL INC.

Toronto, Ontario

February 25, 1992

R. W. Woolham, P.Eng.

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LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

Geophysical surveys utilizing the magnetic and transient domain (pulse) electromagnetic methods have been completed on the Tontine Prospect area of Timmins Nickel Inc. The surveys were performed by Goulet & Lamarche Explorations Inc. of Val d'Or, Quebec. The surveys were conducted during the period February 10 to February 21, 1992.

The magnetic and electromagnetic surveys were designed to detect and map ultramafic and massive sulphide/iron formation units on the property that are associated with nickel mineralization similar to that found at the presently operating Redstone Mine to the west.

This report describes the logistics, parameters and results of the geophysical surveys.

PROPERTY LOCATION AND ACCESS

The property is located in southwest Langmuir Township approximately 30 km. southeast of Timmins, Ontario. Access is via highway and gravel road from Timmins via South Porcupine.(Figure 1)

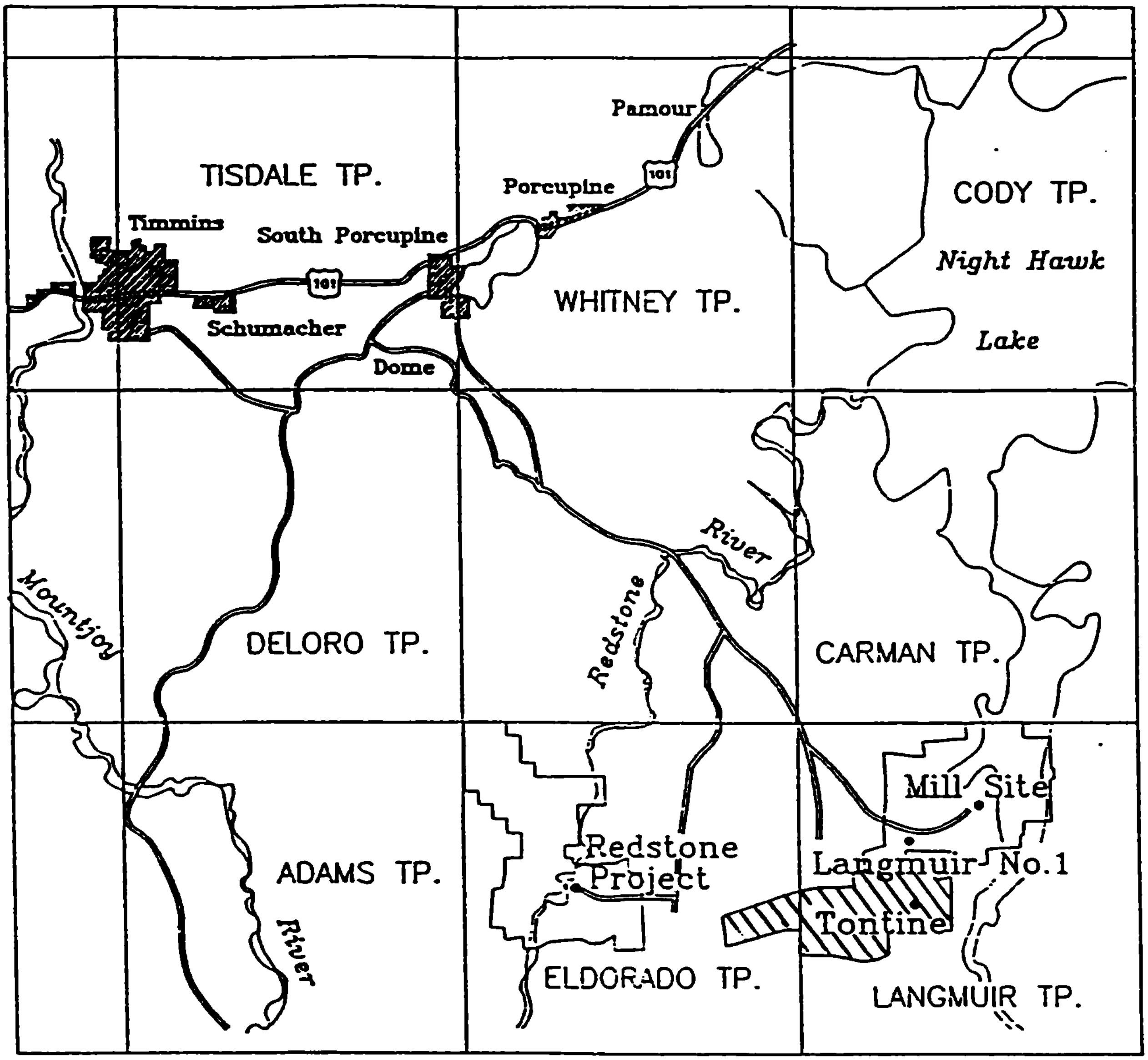


FIGURE I

LOCATION MAP

SURVEY PARAMETERS AND PRESENTATION

Magnetic Survey

An EDA Omni Plus proton total field magnetometer was used for the survey. This instrument is microprocessor-controlled and can be programed to automatically record the station location, time and magnetic value. Magnetic diurnal variations were monitored by a EDA PPM 400 magnetic recording base station. Instrument specifications are contained in Appendix 1.

Total field and vertical gradient readings were taken along grid lines spaced 200 feet apart at 50 feet station intervals. In all, approximately 6.9 line miles of data were recorded.

The magnetic values recorded in the field were corrected for diurnal variations by down loading the recorded values stored in the field magnetometer memory into the microprocessor controlled base station each day at which time diurnal corrections were automatically calculated and stored into a storage device for later processing and editing.

Office compilation consisted of entry of the data file into a computer system for editing and machine plotting and contouring. A regional datum value of 59,000 nanotesla (nT) was subtracted from the total field readings. A posted value and contour map of the total field, at a scale of 1 : 2,400, was generated with appropriate title and legend with a contour interval of 100 nT. (see Appendix 2, Map no. 1) The complete set of data are contained on disk in an XYZ format in a pocket at the back of this report.

Electromagnetic Survey

The electromagnetic survey using the pulse or transient domain technique, referred to variously as PEM, TDEM or TEM, utilized a Geonics EM 37 unit. Instrument specifications are contained in Appendix 1.

There are two main types of TEM measuring configurations; moving coplanar transmitter and receiver with fixed separation, and fixed large transmitter source with moving receiver. The latter configuration was used on the Tontine survey area as schematically shown at the top of Figure 2. A discussion of the method is contained in the next section. The large transmitter loop was placed south of the survey grid in the form of an elongated rectangle with its longest dimension parallel to strike. The receiver traversed the survey lines measuring the vertical (Z) and horizontal (X) components of the secondary field decay voltages at twenty different time intervals after transmitter current shut off.(see Figure 2) The orientation of the axis of the receiver coil for the X direction is horizontal and in a direction parallel to the survey line. Measurement units are in millivolts. Station intervals were 100 feet.

The survey data consisting of 40 values for each station, 20 vertical component and 20 horizontal component readings, are digitally recorded and stored by a microprocessor controlled system. The data can be later transferred to disk in a XYZ file format for processing and plotting. The presentation of 40 channels of data in a concise format, having a dynamic range of 3 to 4 orders of magnitude, is difficult. Usually all the channels are presented in profile form for each line. This produces large maps or a page of data for each line. For this report, the vertical and horizontal data for the even channels from 8 to 20 are profiled as shown on maps 2 and 3 respectively.(Appendix 2) This format was adequate for interpretation purposes. The complete set of data are contained in a XYZ format on disk in a pocket at the back of this report.

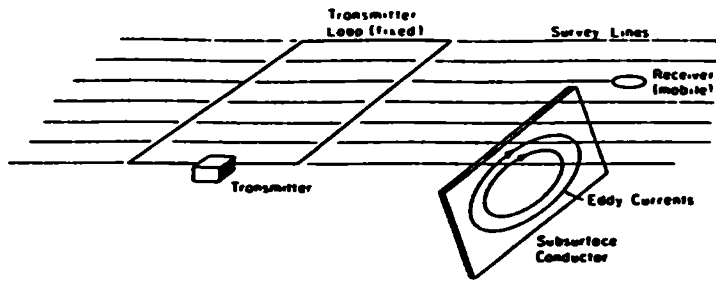


FIGURE 1. Survey configuration.

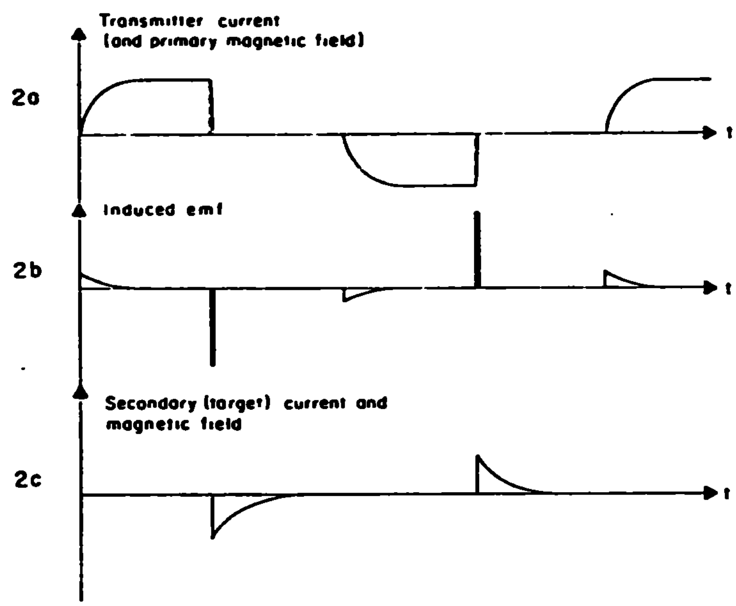


FIGURE 2. System waveforms.

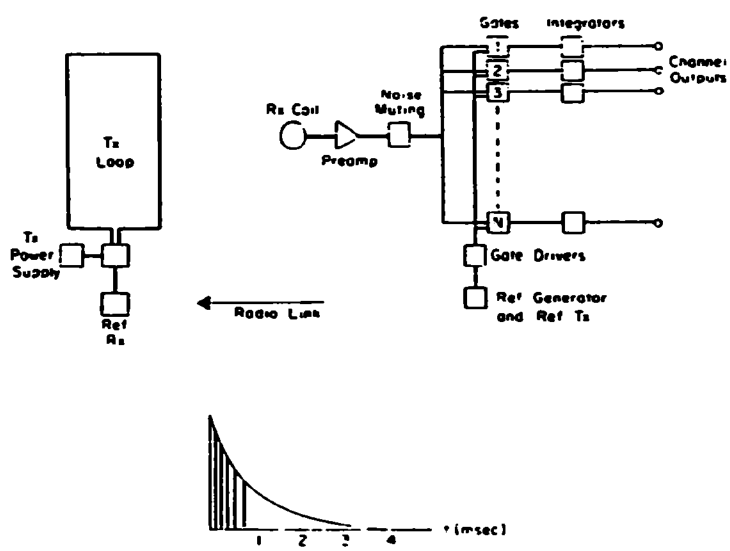


FIGURE 3. Block diagram and typical transient (showing initial gates).

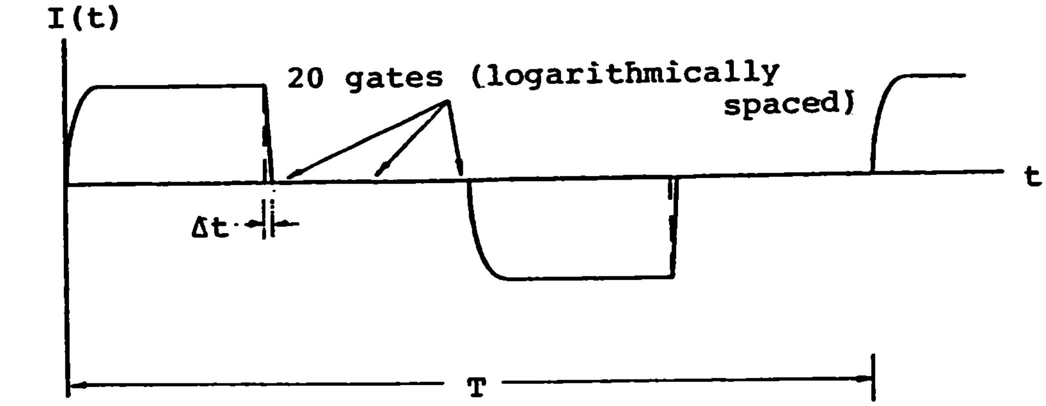
FIGURE 2

The TEM Method

The TEM method utilizes a pulsed on-off transmitter signal. The receiver coil measures the decaying secondary field at specific time intervals subsequent to the transmitted primary field being set to zero. The decay responses are measured at times of as low as 0.1 millisecond to as high as 100 milliseconds after the energizing primary field falls to zero amplitude. Figure 2 and 3 schematically illustrate the technique and time gates. The advantages of the method over conventional frequency domain systems, such as the horizontal loop method, are better signal to noise ratio, (transmitter-receiver coil orientation is not a factor); multi-channel measurements in effect represent the whole frequency spectrum; better and more diagnostic detection of deeply buried conductive sources.

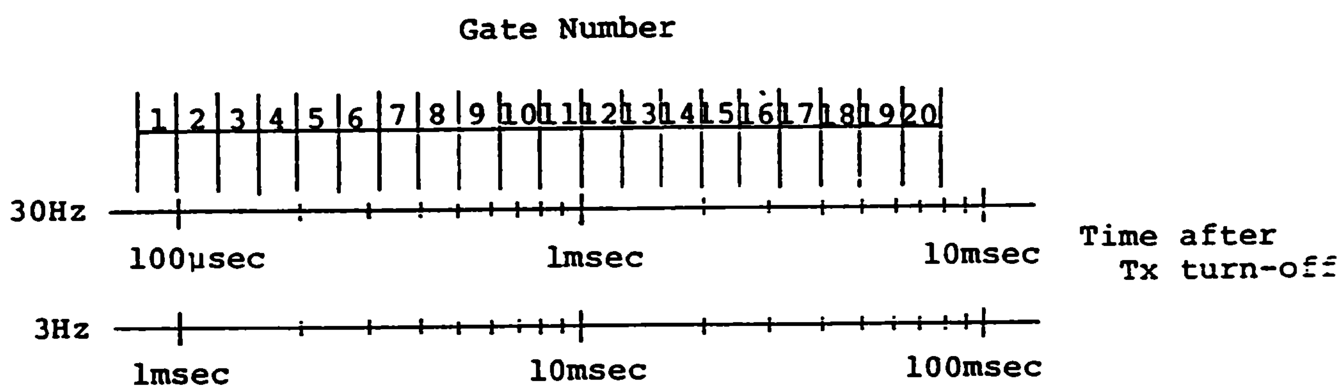
The horizontal component produces a peak over a vertical or near vertical conductor while the vertical component of the secondary field produces a "cross over" response and the maximum gradient of the vertical field occurs over the conductor edge as shown in Figure 4. For dipping conductors the vertical component axis will be shifted up-dip from the horizontal peak location. Generally, the position of the horizontal peak is chosen as the most accurate conductor location. For multiple conductors containing one dominant conductive body both the horizontal and especially the vertical component responses from adjacent conductive sources can be attenuated or masked considerably. This attenuation depends to a great extent on the transmitter loop location and primary field orientation relative to the conductor.

The decay rate of the secondary field is directly related to the conductivity of the energized earth environment. Generally speaking, responses that are only present in the early channels, say 1 to 8, represent low conductivity sources, such as conductive overburden and fault or contact horizons. In this instance the secondary field induced in the conductor falls off with time very rapidly. On the other hand, very late channel responses, say 14 to 20, relate to high conductivity sources such as massive sulphides and/or graphite. Such good conductivity sources continue to support induced current flow at late times after current shut off.



Transmitter Current Waveform

FIG. 1



Gate Location and Widths (30 and 3Hz)

FIG. 2

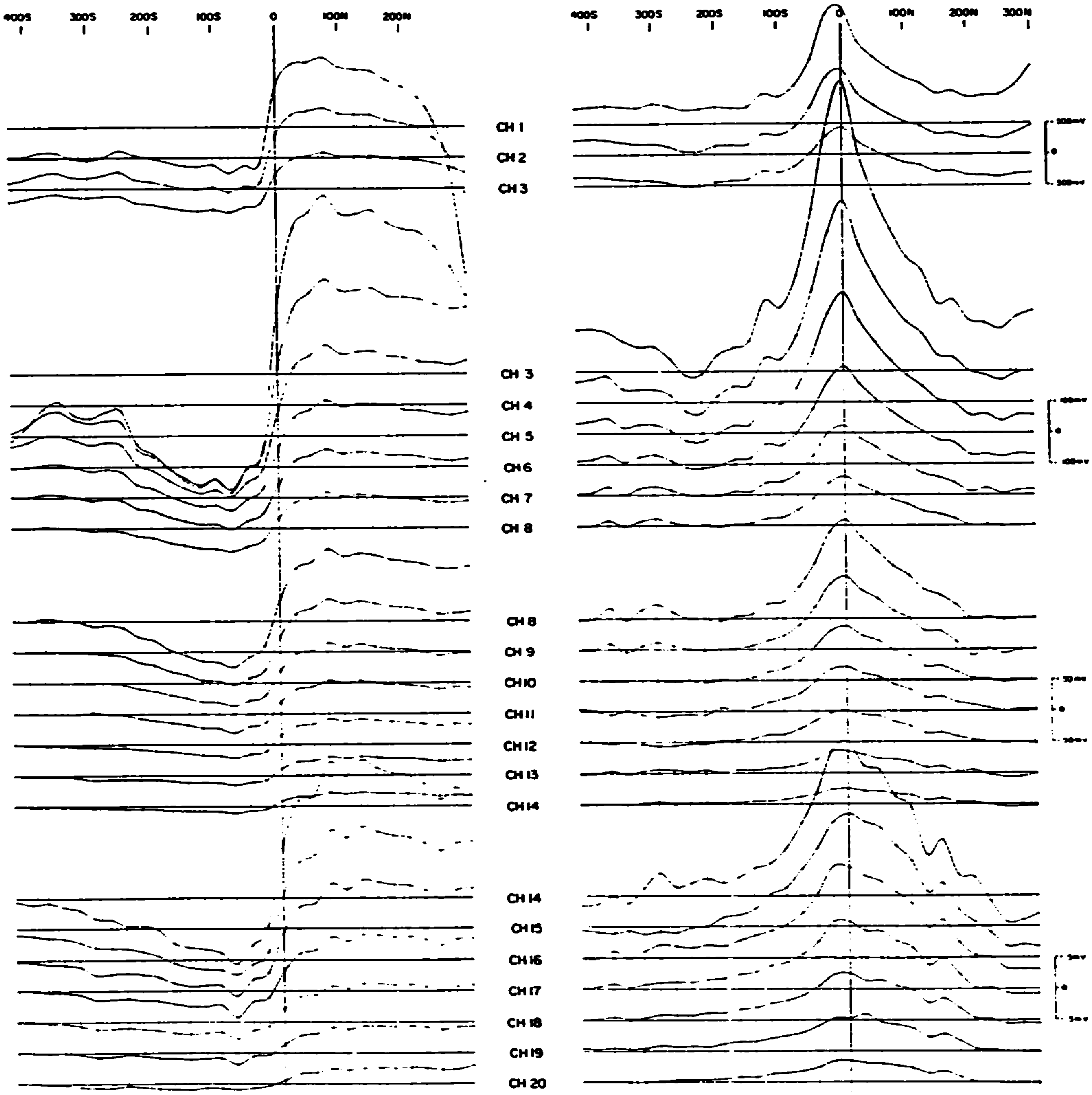
FIGURE 3

EM 37

FIXED TRANSMITTER CONFIGURATION

VERTICAL FIELD (Hz)

HORIZONTAL FIELD (Hx)



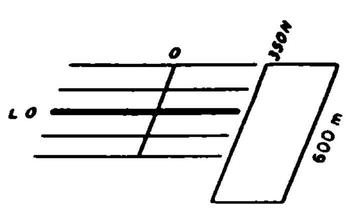


FIGURE 4

CALABOGIE TEST SITE

LINE O

geoterrex ltd
OTTAWA

RESULTS AND CONCLUSIONS

Magnetic Survey

Map 1 contains the magnetic values measured over the grid as well as a detailed contour presentation. The more significant higher amplitude portions of the magnetic results have been reproduced on the interpretive compilation, map 4, and reference to that map is recommended for a better grasp of the main magnetic features of interest.

The magnetic survey has mapped a long wide sinuous feature which trends right across the survey grid along baseline 0. This feature is related to an ultramafic body intersected in drilling and hosting the Tontine nickel deposit in the vicinity of line 0 and the baseline. Note the steep magnetic gradient on the north side of this anomaly compared to the more gentle gradient on its south side. This asymmetry is typical of tabular bodies having a south dip. The south dip of the ultramafics in this area has been confirmed by previous drilling.

At the extreme northwest corner of the grid, at the north end of line 4000 west, a high amplitude broad magnetic anomaly is present which may also reflect ultramafics. To the west, off the grid, drilling intersected an ultramafic unit contained within a broader magnetic domain.

There are two other less extensive but high amplitude anomalies located in the central part of the grid just north of the main anomaly caused by the ultramafic body. These features are produced by magnetic portions of a sedimentary iron formation unit containing pyrrhotite and magnetite. The conductive portions of this unit have been detected by the electromagnetic survey to be discussed in the next section.

Electromagnetic Survey

Map 4 is an interpretive compilation map showing the location of conductive intercepts as interpreted from the TEM results as well as the major magnetic anomalies. The TEM anomalies have been given two general categories related to the channel responses. Definite high amplitude and/or late channel anomalies have been designated as good conductivity anomalies while the remaining less well defined or early channel responses have been designated medium to poor conductivity. Based on anomaly characteristics, line to line continuity, and relationship to magnetic structures, some of the conductor intercepts have been joined from line to line and designated with a letter. Other single line anomaly intercepts having favourable characteristics have also been identified by a letter for ease of discussion.

Conductor E, in the southwest part of the grid, and conductor G-2, in the northeast part of the grid, are reflecting known sedimentary sulphide iron formation and graphite horizons detected by previous horizontal loop electromagnetic surveys.
These surveys utilized a 200 feet coil separation providing a depth exploration of about 100 feet. The TEM survey appears to have detected the deeper western extension of the G-2 horizon as indicated by the faulted extension of conductor G-1. A series of poor conductivity responses further to the west of conductor G-1 probably map the less conductive portion and/or contacts of the sedimentary unit. Conductors H and I, just south and east of G-2, are probably additional interflow sedimentary lenses within the volcanics.

RESULTS AND CONCLUSIONS (continued)

Electromagnetic Survey

Note the very high amplitude response of conductor E as seen on maps 2 and 3. This is caused by the strong coupling and high amplitude of the primary field with the conductor that is proximal to the transmitter loop. Such conductor/transmitter loop geometries can produce masking effects for other nearby smaller conductors. For near vertical conductors, the position of the loop is optimum for producing maximum response amplitudes when the expected conductive source is outside the loop near vertical or dips away from the loop. General dips on the survey grid are south indicating the loop location would be optimum if located to the north of the grid. On the east side of the area, however, a north loop location might energize conductor G-2 to such an extent that it could mask responses to the south of it.

Nickel, pyrite, and pyrrhotite mineralization is closely associated with the contact horizon of the ultramafic units. Several conductors located on the flanks of the magnetic anomaly trending along the baseline, reflecting the ultramafic bodies, have been designated on the interpretation map. These conductors, A, B, C, D, and J, are single line anomalies having late channel responses suggesting good conductivity. Unfortunately, it is not possible, with the present survey information, to determine the depth to the source of these anomalies. Conductor F, although less conductive, also has a favourable location relative to the ultramafic body in addition to apparent line to line continuity.

RECOMMENDATIONS

Further investigation of the following anomalies is recommended:

First Priority

Conductors A, B, C, D and J.

Second Priority

Conductors F and I

Third Priority

Remaining conductor intercepts peripheral to the ultramafic body.

These recommendations are contingent on the completion of a second TEM survey with the transmitter loop to the north. This survey and interpretation of the results should be completed prior to drill testing of any of the present conductors.

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1. I am a geophysicist and reside at 1463 Fieldlight Blvd., Pickering, Ontario, L1V 2S3

2. I graduated from the University of Toronto in 1961 with a degree of Bachelor of Applied Science, Engineering Physics, Geophysics Option. I have been practising my profession since graduation.

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Toronto, Ontario

February 25, 1992

REGISTERED PROFESSIONAL ENGINEER
R. W. WOOLHAM
PROVINCE OF ONTARIO

APPENDIX 1

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5151 Ward Road
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USA 80033
Telephone (303) 422-[illegible]

PPM SERIES Portable Magnetometers

EDA

General Description

The portable PPM Series magnetometers consist of three standard field units which have a number of common features and specifications. They represent the most advanced application of microprocessor technology, sophisticated software and system design available to date.

Standard features of all units include:

- Improved accuracy.
- Enhanced data reliability and validity.
- Automatic diurnal and reference field correction capability.
- Data recall of stored readings easily accesses total field, time, line, position and error of any previously recorded reading.
- Automatic fine tuning.
- Programmable 24 hour clock.
- 5000nT per metre gradient tolerance.
- Interchangeable sensors.
- Only two simple controls, a keypad and mode switch.
- Custom-designed low temperature LCD which displays field reading, error, time, signal strength and decay rate, battery status and descriptors.
- In-line configuration option eliminates all cables.
- Patent pending signal processing technique.
- Statistical error analysis of signal.
- Keypad with audio feedback.
- Switch selectable test mode to verify subsystem status and system performance.
- Internal lithium battery back-up system to protect status tables, programs and data.
- Constant energy polarization.
- Convenient snap-in power cartridges containing any disposable "C" cells or rechargeable sealed lead acid batteries.
- Operating temperature -35°C to +50°C.
- Rugged custom designed aluminum investment cast case offering complete protection against rain and dust.

PPM-300 Total Field Magnetometer

This model is the most advanced field magnetometer in the world. The PPM-300 measures the earth's magnetic field to sensitivities of 0.1nT and displays the resulting data on the high visibility LCD. The automatic power-off capability prevents the unnecessary consumption of power.

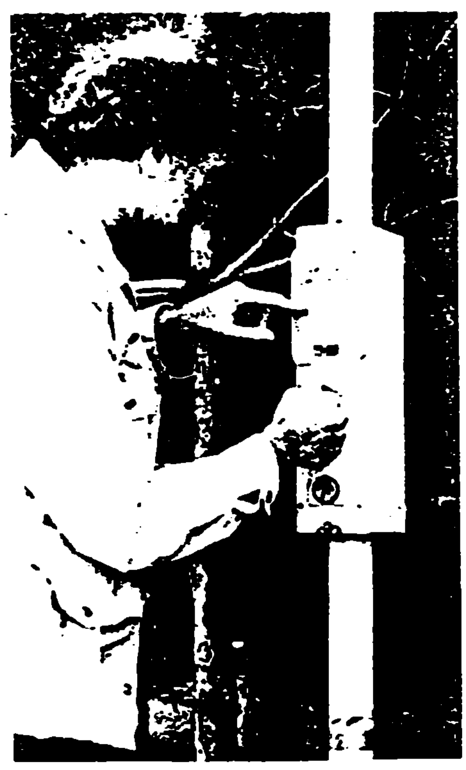
In addition to providing the total field magnitude and time, it also records on its internal solid state memory, the grid co-ordinates (line and station) and reading error. The non-volatile memory can store 1384 data blocks, eliminating any need to record data manually. Should the operator wish to recall and interrogate the memory for previously stored parameters in any one data block such as the total field, the time the reading was taken, the line and position number and/or the error, he may do so with the data recall feature incorporated into the software.

Accumulated data is regularly transferred into either the DCU-400 Thermal Printer or the DCU-200 Magnetic Cassette Recorder. Data may also be fed directly into small desk top computers for other interpretative uses.

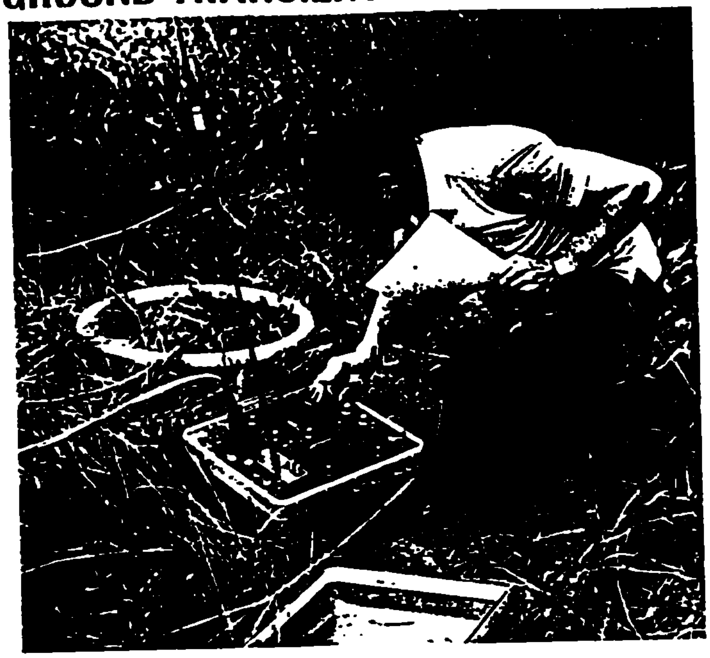
Two sensor configurations, as shown here, are available. The in-line sensor attached directly to the electronics console leaves the operator with complete freedom from cables. The remote sensor is recommended for use in dense bush or rugged terrain

PPM-400 Base Station Magnetometer

This integral sensor and console package is the first magnetometer specifically designed for base station applications, which include airborne data verification and ground survey corrections. It's unique in-line configuration allows it to be set up above the ground and away from hazards and local magnetic interferences. As with the PPM-300, a remote sensor configuration is also available. Unlike other base station magnetometers which have limited versatility, the PPM-400 is completely programmable through its keypad, and has the ability to perform diurnal and reference field corrections to data collected by the PPM-300. All data is stored internally in a high capacity 2779 data block non-volatile memory which is then either transferred into the DCU-400 or DCU-200. Also unique to this instrument is a "snooze" alarm used to conserve power. In simple terms, the microprocessor acts as an alarm clock and turns power-draining circuits off following each reading and automatically powers up just prior to taking a subsequent reading.



GROUND TRANSIENT EM



EM37

The ever increasing requirement for greater depth of exploration, improved rejection of conductive overburden or host rock response and enhanced definition of potential ore-bearing structures demands the application of large scale transient electromagnetic methods with their inherent ability to generate highly diagnostic data. The EM37, designed both for the direct detection of conductive targets at great depth and for mapping general geologic structure, incorporates a number of innovative features fully exploiting the potential of transient electromagnetic techniques to provide an exploration tool of superior flexibility and cost-efficiency.

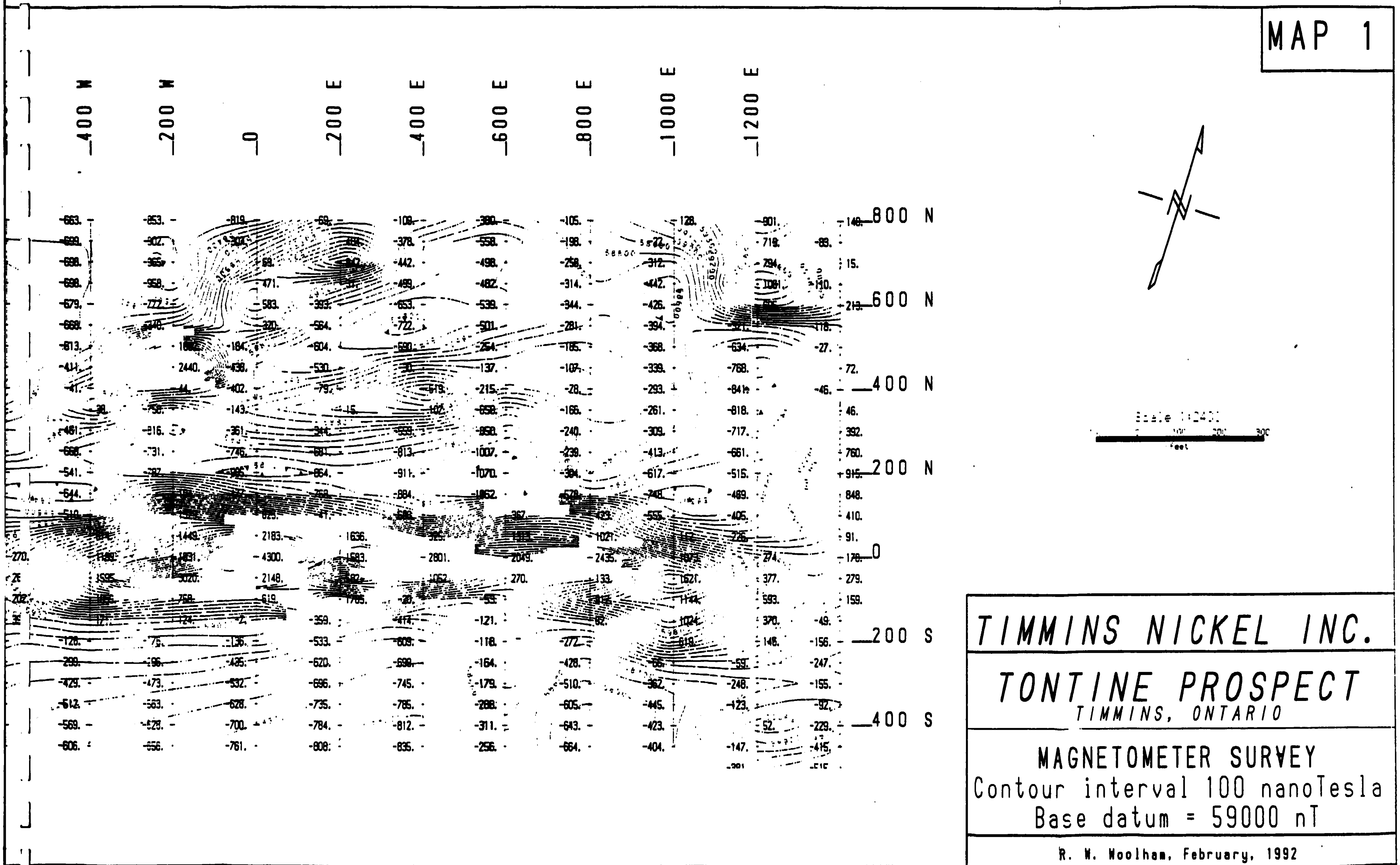
Specifications

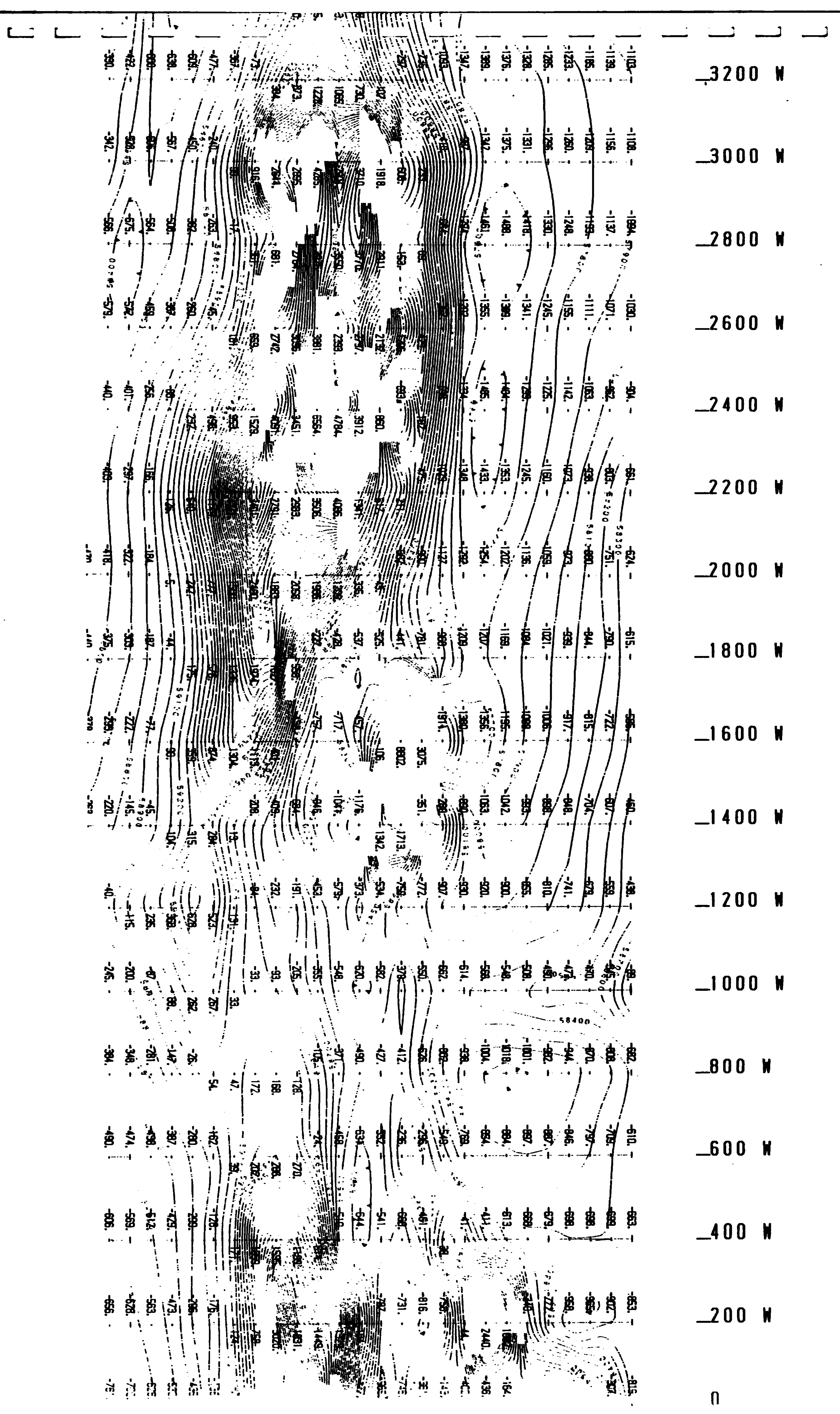
MEASURED QUANTITY	30 channels of time rate-of-change of transmitted magnetic field.
PRIMARY FIELD	● 3 or 30 Hz repetition rate — switch selected. ● 20 amp (max.) rectangular, bipolar current. ● 300 x 600 meter single turn loop. ● equal current on/off-time.
SURVEY RANGE	10 to 1500 meters from loop side.
R-T SYNCHRONIZATION	27 MHz radio link, direct wire link, high stability quartz crystal oscillators, or derived from received primary field.
CHANNEL 1 DELAY	80 usec. @ 30 Hz; 800 usec. @ 3 Hz
CHANNEL SPACING	20 geometrically spaced gates over full current off time.
RECEIVER BANDWIDTH	40 kHz
RECEIVER INTEGRATION	16 — 16384 full transmitter cycles in x4 increments.
RECEIVER OUTPUTS	● Digital meter (LED) readout of individual channels selected by 20 position rotary switch. ● 20 parallel lines (for external data logger). ● Audio noise monitor.
POWER SOURCE	Transmitter : 5 HP gasoline motor coupled to 120V, 3Φ, 2.5KVA, 400 Hz alternator. Receiver : 12V Rechargeable Battery.
DIMENSIONS	Transmitter Console : 25 x 42 x 36 cm Motor/Alternator : 35 x 74 x 48 cm Loop Wire (20 Amp) : 6 reels — 33 x 31 x 31 cm Receiver Console : 38 x 37 x 27 cm Receiver Coil : 100 cm dia., 7 x 5 cm X-section
WEIGHTS	Transmitter Console : 20 kg Motor/Alternator : 60 kg Loop Wire (20 Amp) : 120 kg (6 reels) Receiver Console : 22 kg Receiver Coil : 8.0 kg (each) Shipping : 390 kg

APPENDIX 2

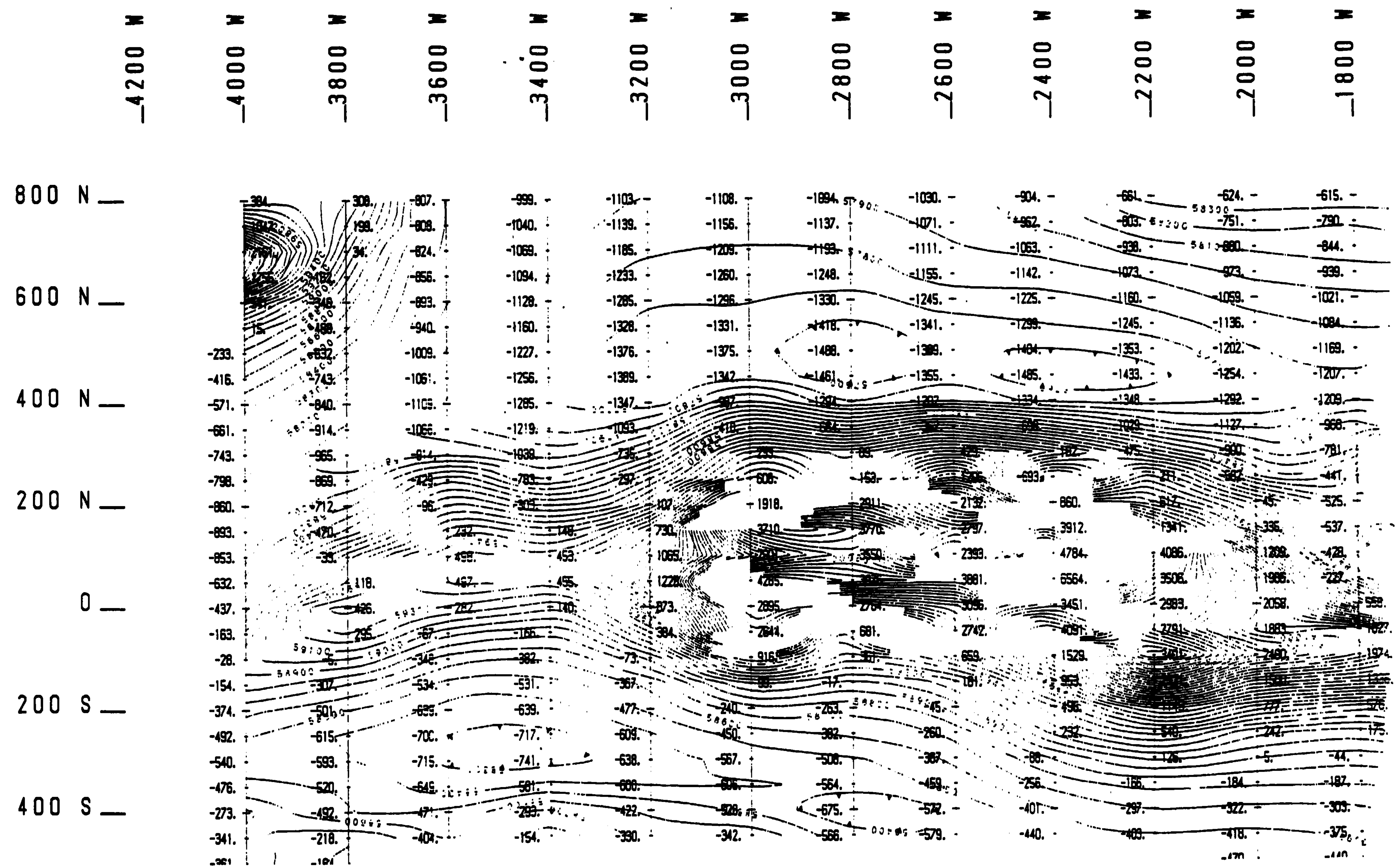
GEOPHYSICAL MAPS

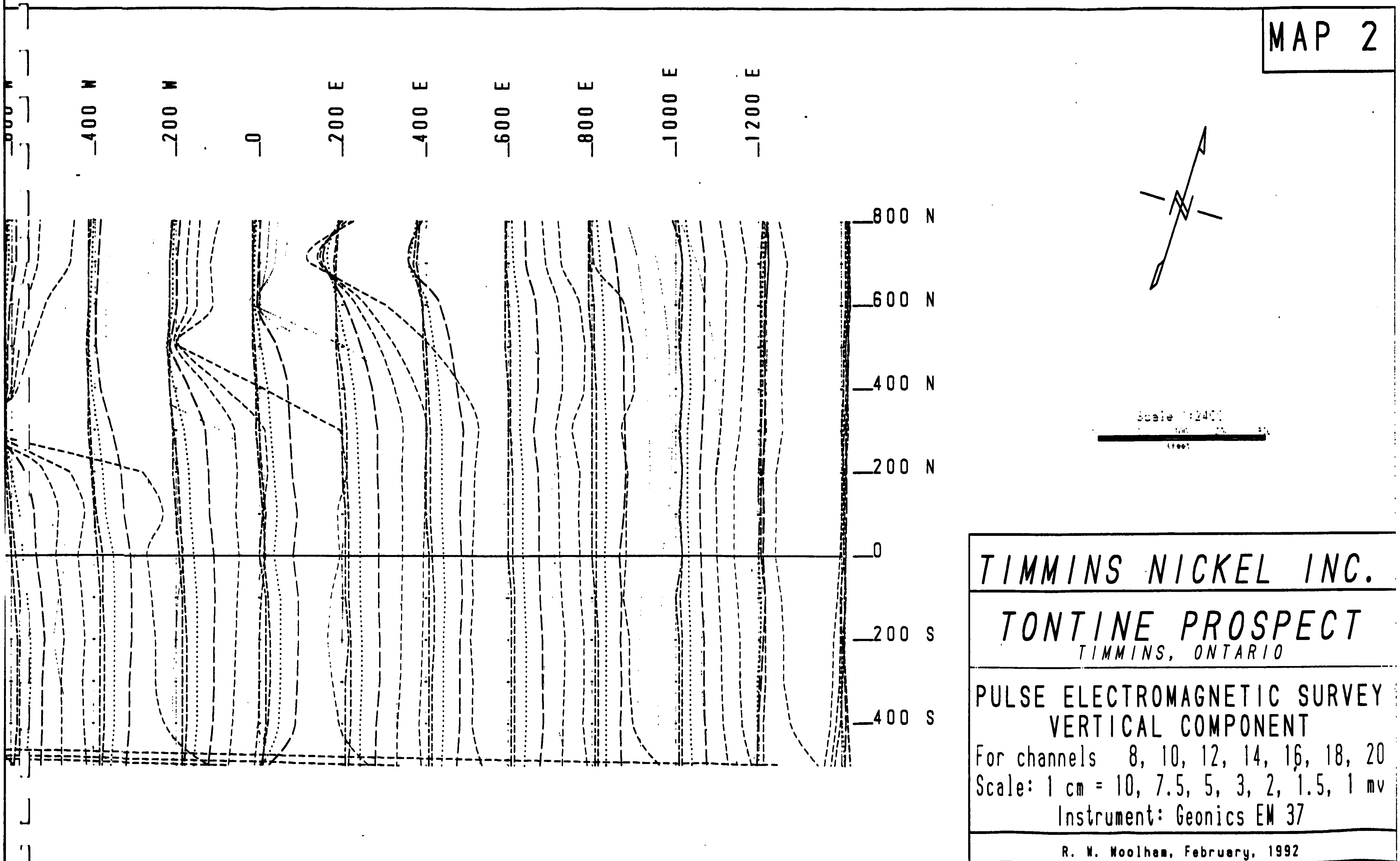
Map 1:	Magnetometer Survey
Map 2:	Pulse Electromagnetic Survey, Vertical Component
Map 3:	Pulse Electromagnetic Survey, Horizontal Component
Map 4:	Interpretive Compilation, Magnetic Anomalies and EM Conductor Locations

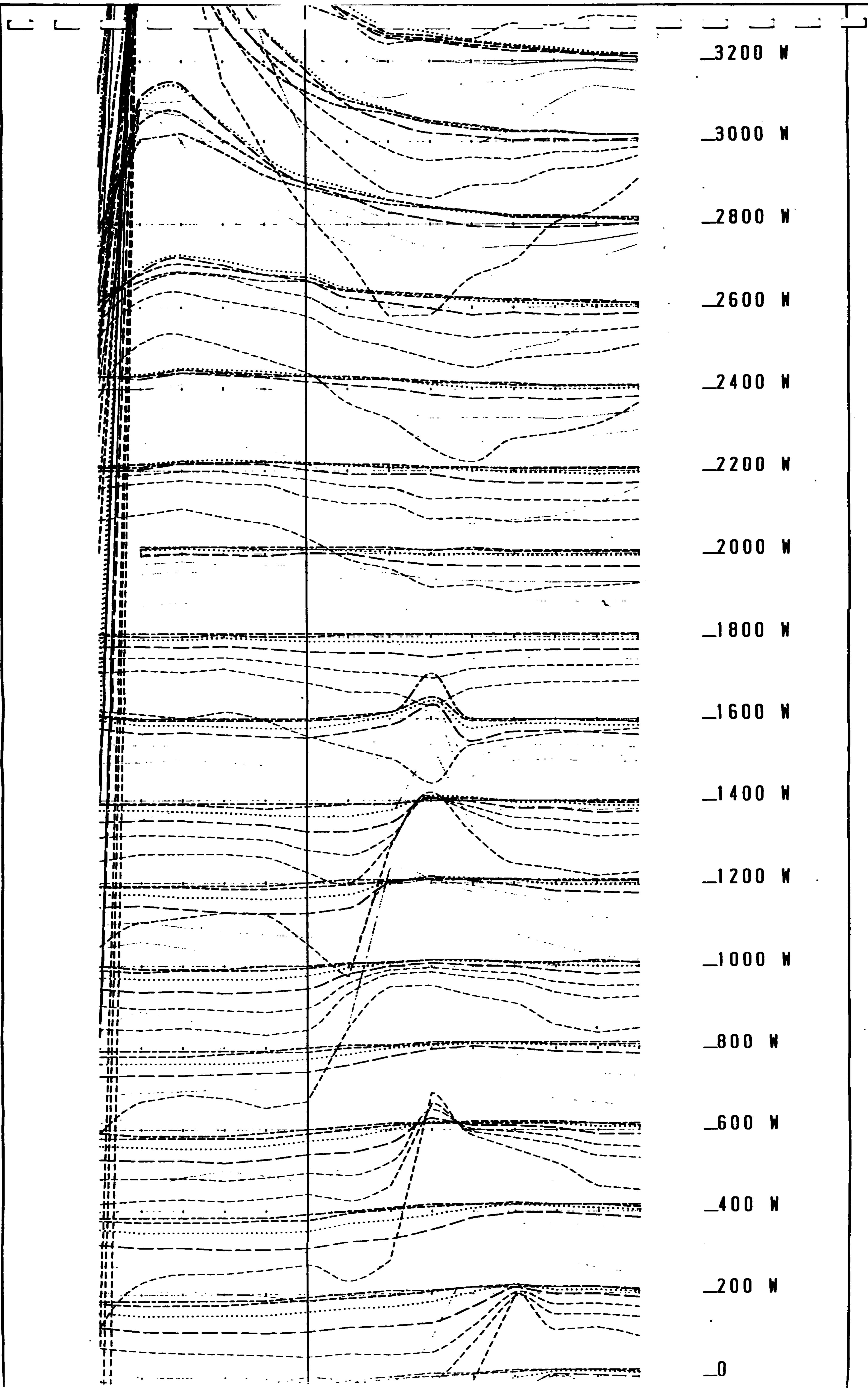

MAP 1
400 W
200 W
0
200 E
400 E
600 E
800 E
1000 E
1200 E
800 N
600 N
400 N
200 N
0
200 S
400 S
TIMMINS NICKEL INC.
TONTINE PROSPECT
TIMMINS, ONTARIO
MAGNETOMETER SURVEY
Contour interval 100 nanoTesla
Base datum = 59000 nT
R. W. Woolham, February, 1992



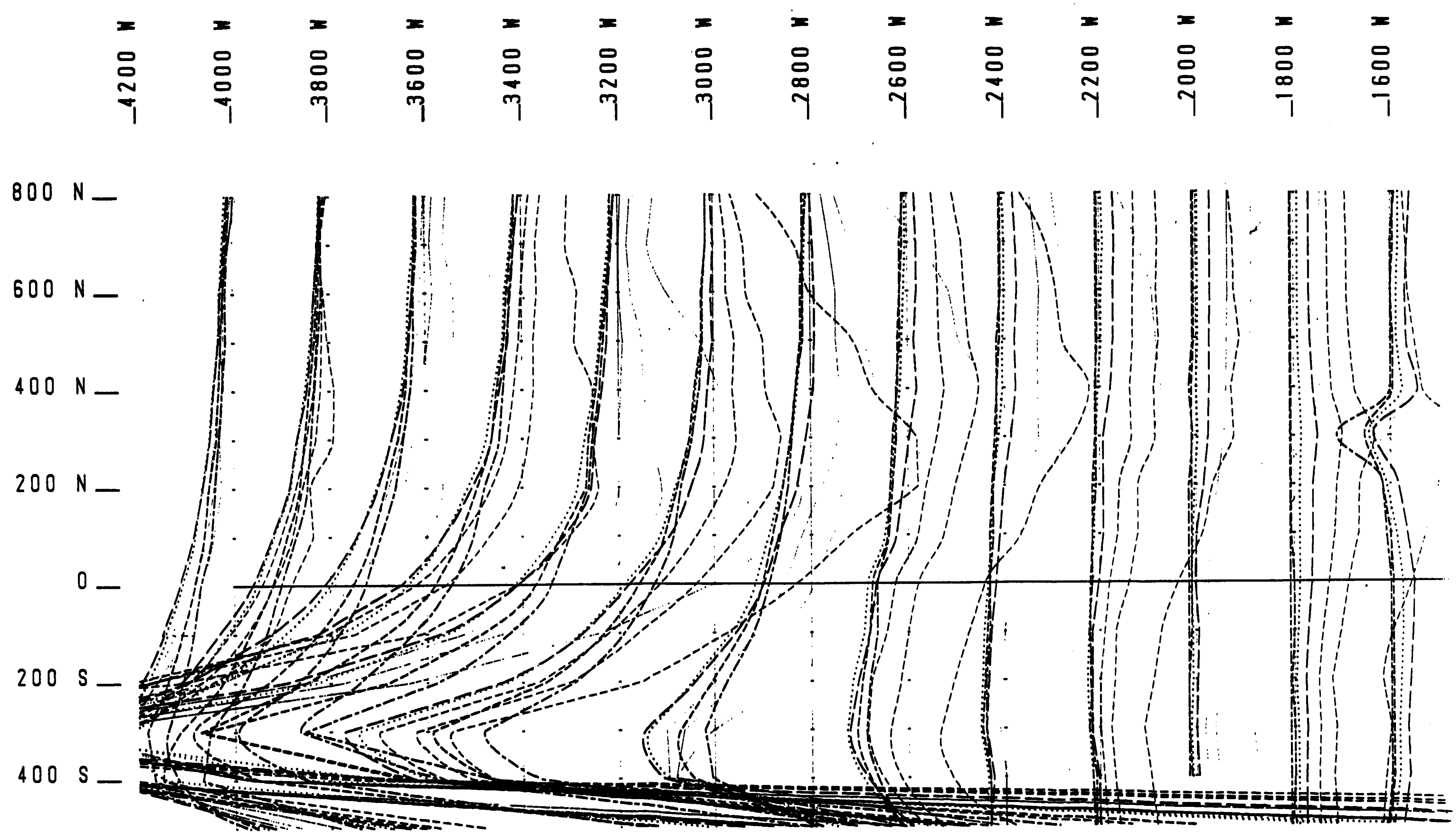
3200 M
3000 M
2800 M
2600 M
2400 M
2200 M
2000 M
1800 M
1600 M
1400 M
1200 M
1000 M
800 M
600 M
400 M
200 M
0


4200 W
4000 W
3800 W
3600 W
3400 W
3200 W
3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
800 N
600 N
400 N
200 N
0
200 S
400 S

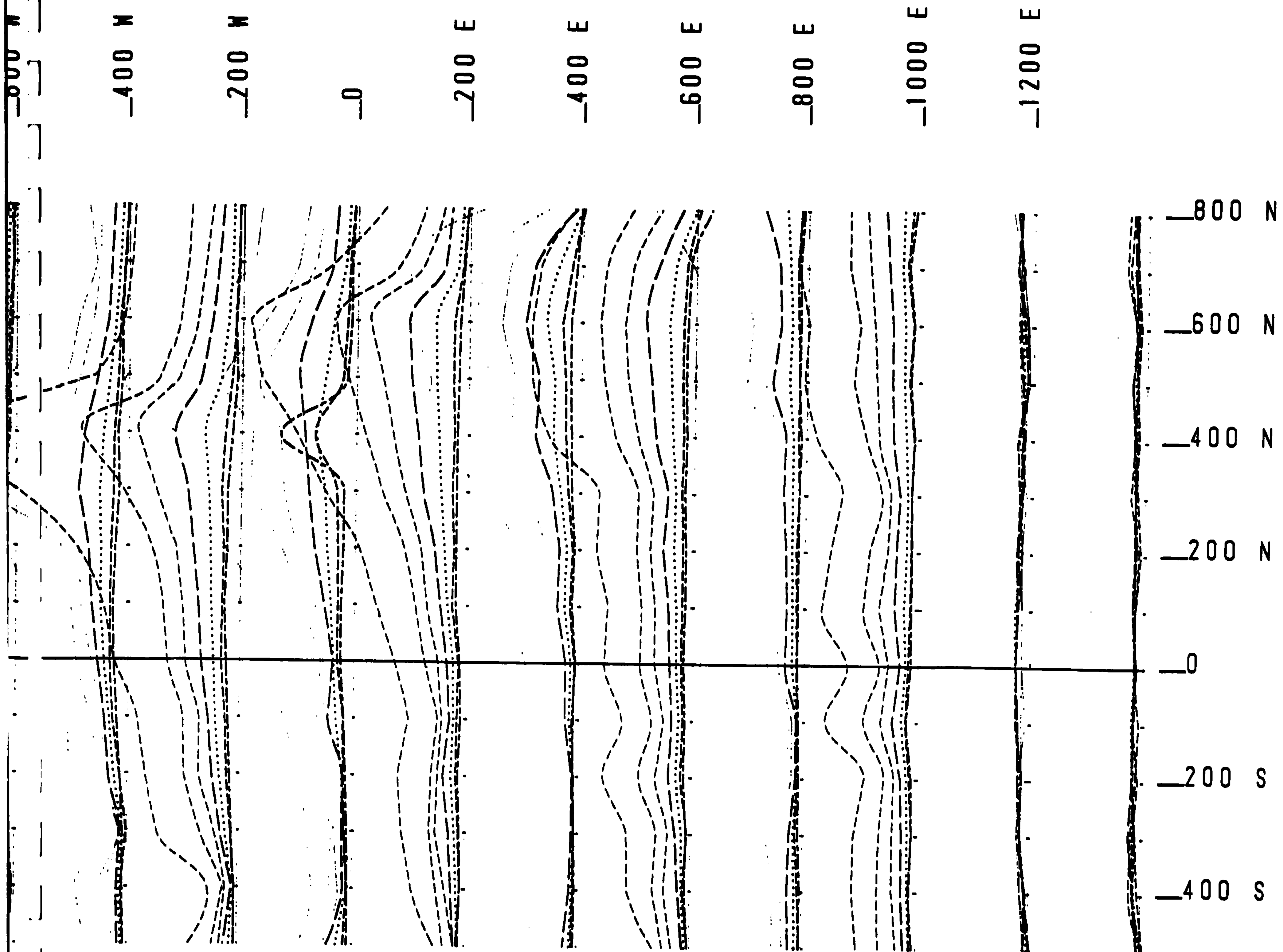

MAP 2
400 W
200 W
0
200 E
400 E
600 E
800 E
1000 E
1200 E
800 N
600 N
400 N
200 N
0
200 S
400 S
TIMMINS NICKEL INC.
TONTINE PROSPECT
TIMMINS, ONTARIO
PULSE ELECTROMAGNETIC SURVEY
VERTICAL COMPONENT
For channels 8, 10, 12, 14, 16, 18, 20
Scale: 1 cm = 10, 7.5, 5, 3, 2, 1.5, 1 mv
Instrument: Geonics EM 37
R. W. Woolham, February, 1992



3200 W
3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
1600 W
1400 W
1200 W
1000 W
800 W
600 W
400 W
200 W
0


4200 W
4000 W
3800 W
3600 W
3400 W
3200 W
3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
1600 W
800 N
600 N
400 N
200 N
0
200 S
400 S

MAP 3



TIMMINS NICKEL INC.

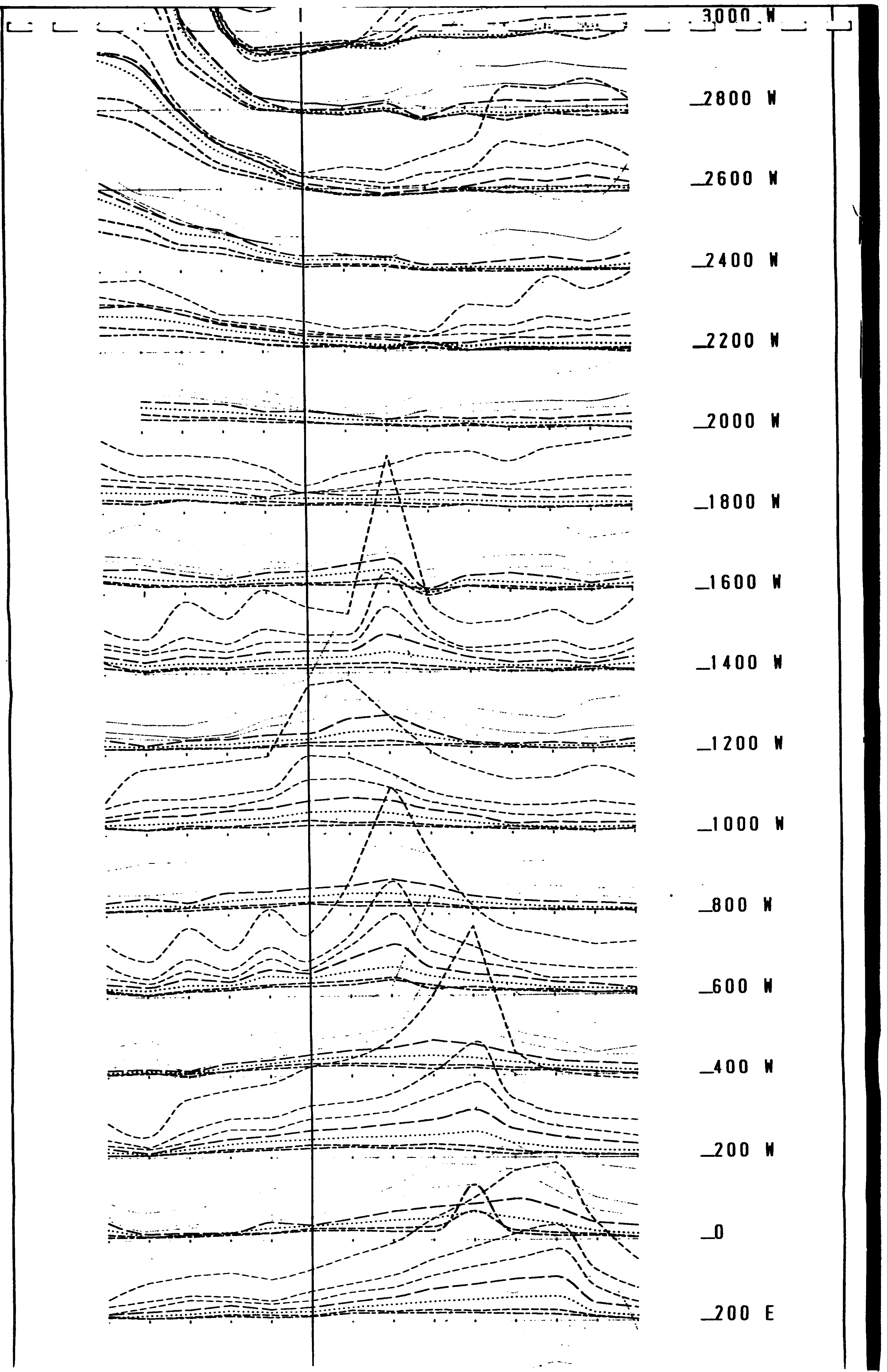
TONTINE PROSPECT

TIMMINS, ONTARIO

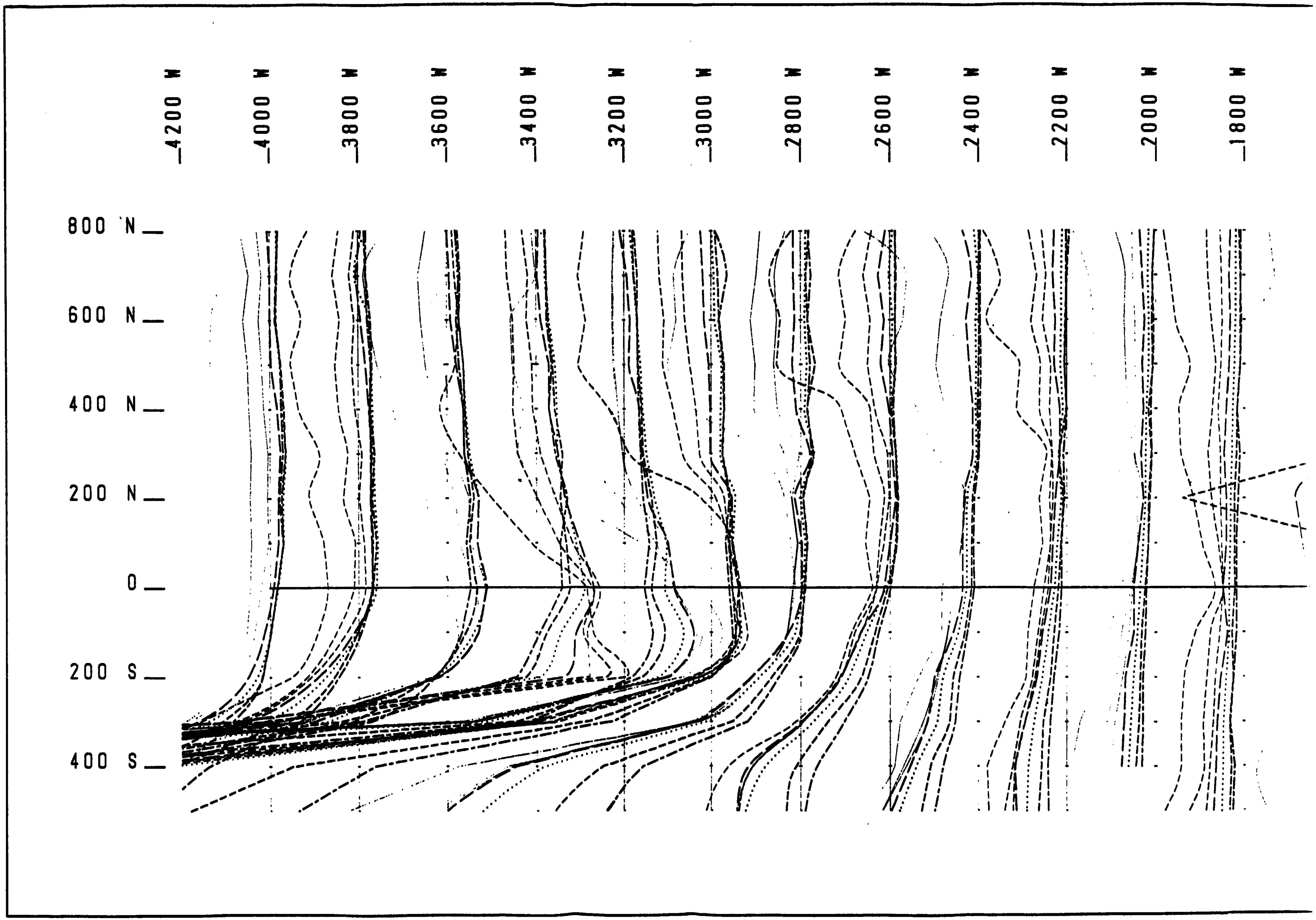
PULSE ELECTROMAGNETIC SURVEY
HORIZONTAL COMPONENT

For channels 8, 10, 12, 14, 16, 18, 20
Scale: 1 cm = 10, 7.5, 5, 3, 2, 1.5, 1 mv
Instrument: Geonics EM 37

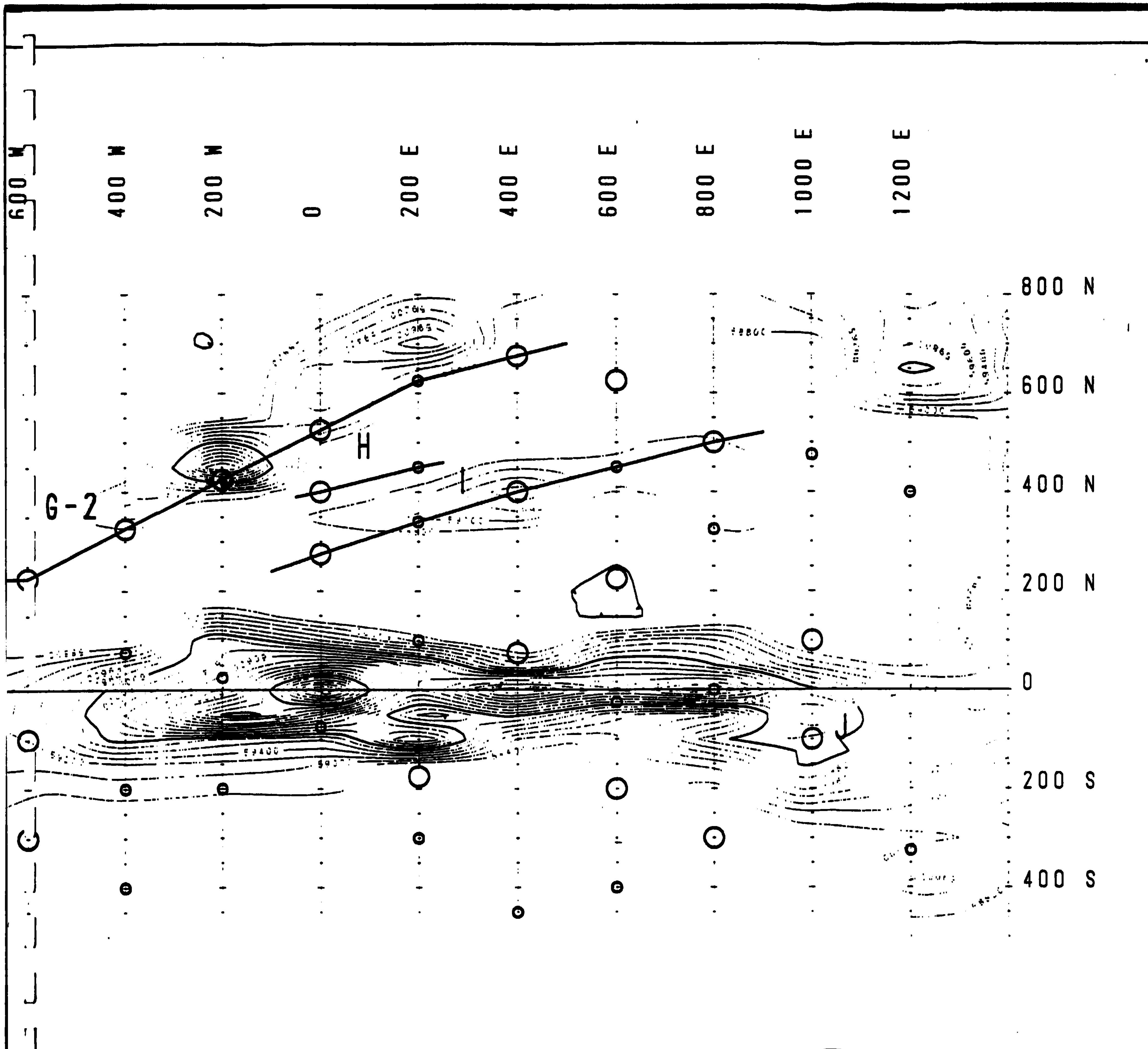
- R. W. Woolham, February, 1992



3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
1600 W
1400 W
1200 W
1000 W
800 W
600 W
400 W
200 W
0
200 E



4200 M
4000 M
3800 M
3600 M
3400 M
3200 M
3000 M
2800 M
2600 M
2400 M
2200 M
2000 M
1800 M
800 N
600 N
400 N
200 N
0
200 S
400 S



TIMMINS NICKEL INC.

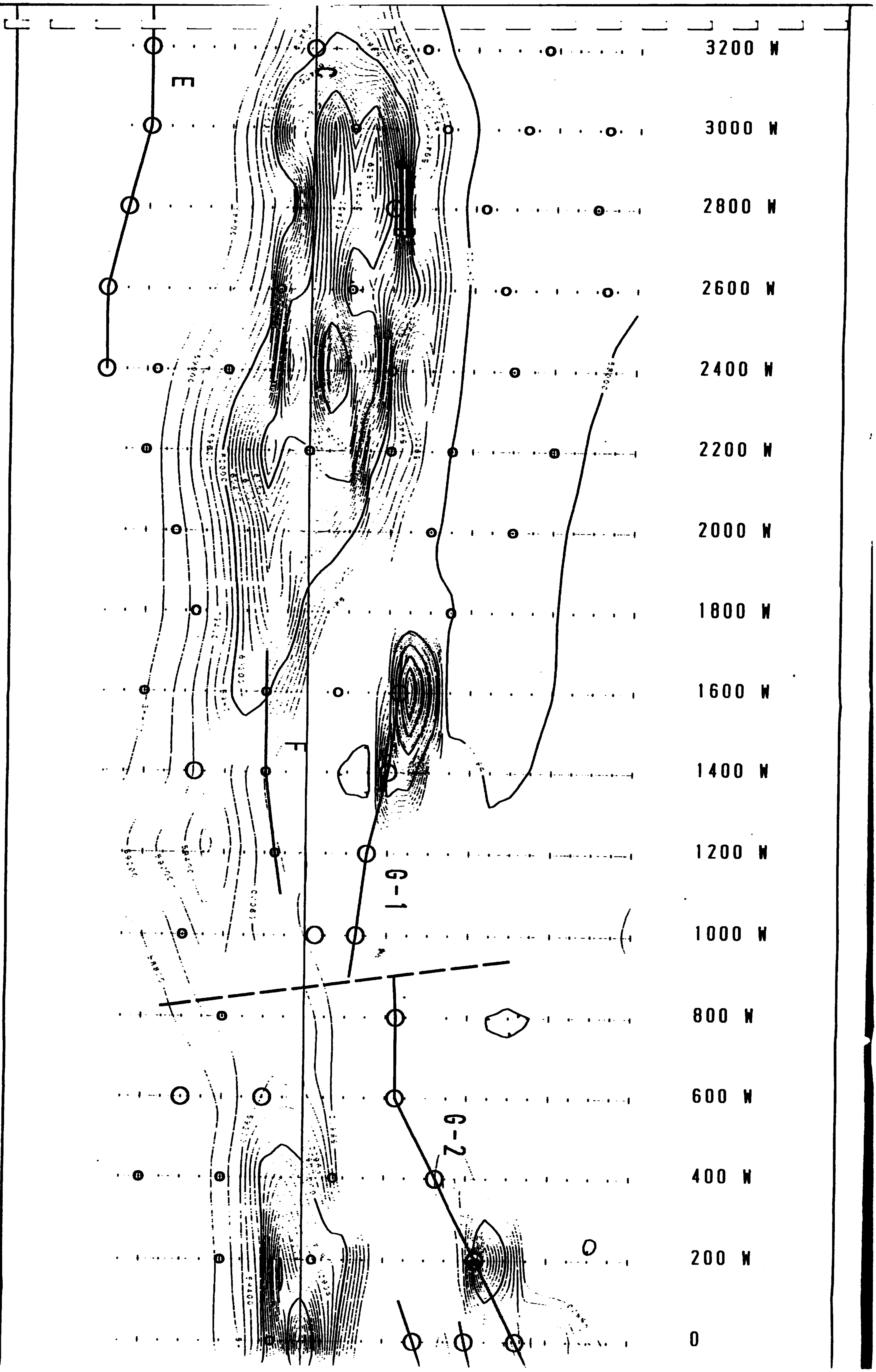
TONTINE PROSPECT

TIMMINS, ONTARIO

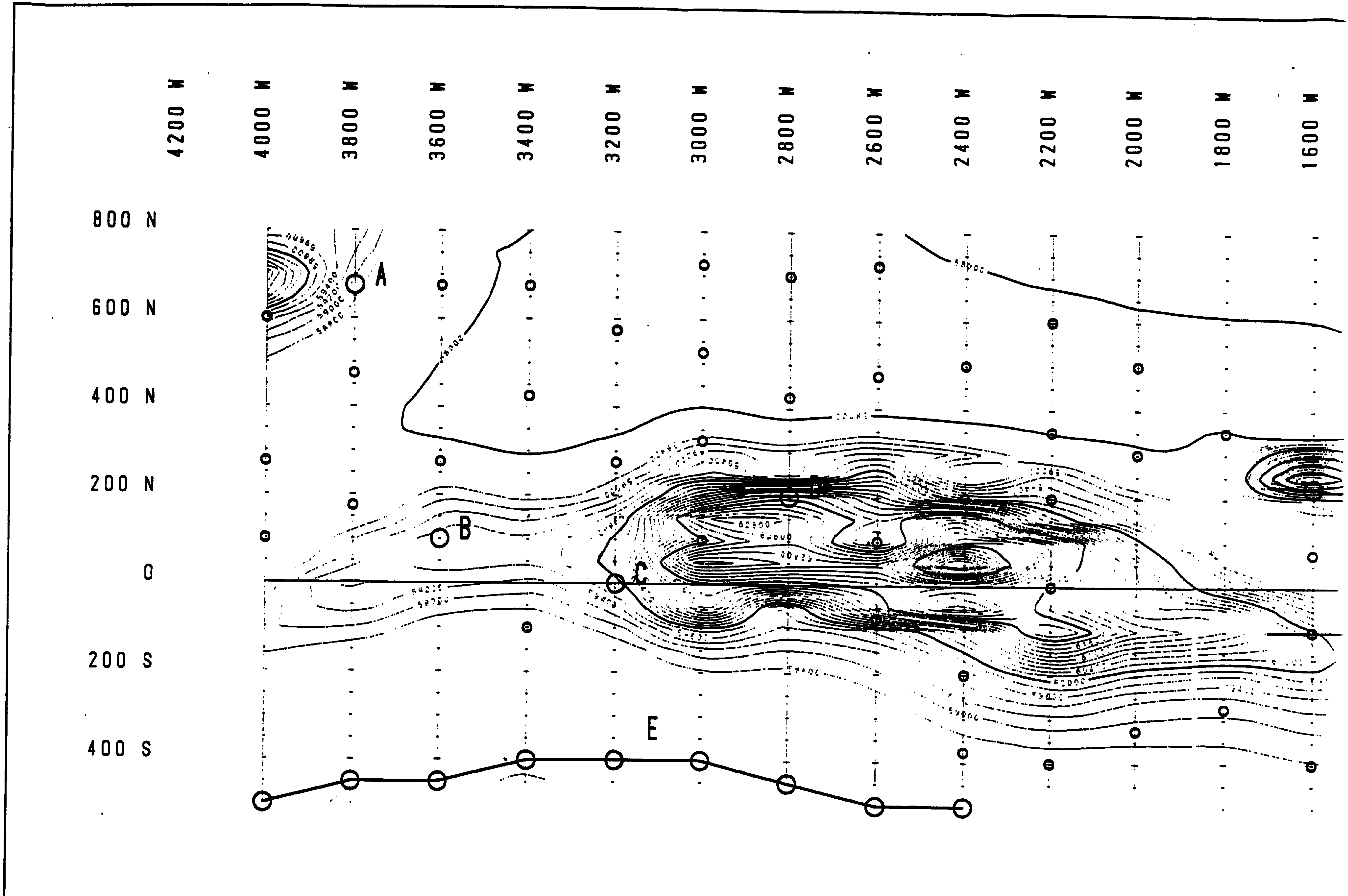
INTERPRETIVE COMPILATION
MAGNETIC ANOMALIES AND
PULSE EM CONDUCTOR LOCATIONS

Conductor Position Shown As A Circle
Large Circle = Good Conductivity
Smaller Circle = Medium to Poor Conductivity

R. W. Woolham, February, 1992



3200 W
3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
1600 W
1400 W
1200 W
1000 W
800 W
600 W
400 W
200 W
0
E
F
G-1
G-2


4200 W
4000 W
3800 W
3600 W
3400 W
3200 W
3000 W
2800 W
2600 W
2400 W
2200 W
2000 W
1800 W
1600 W
800 N
600 N
400 N
200 N
0
200 S
400 S
A
B
C
D
E

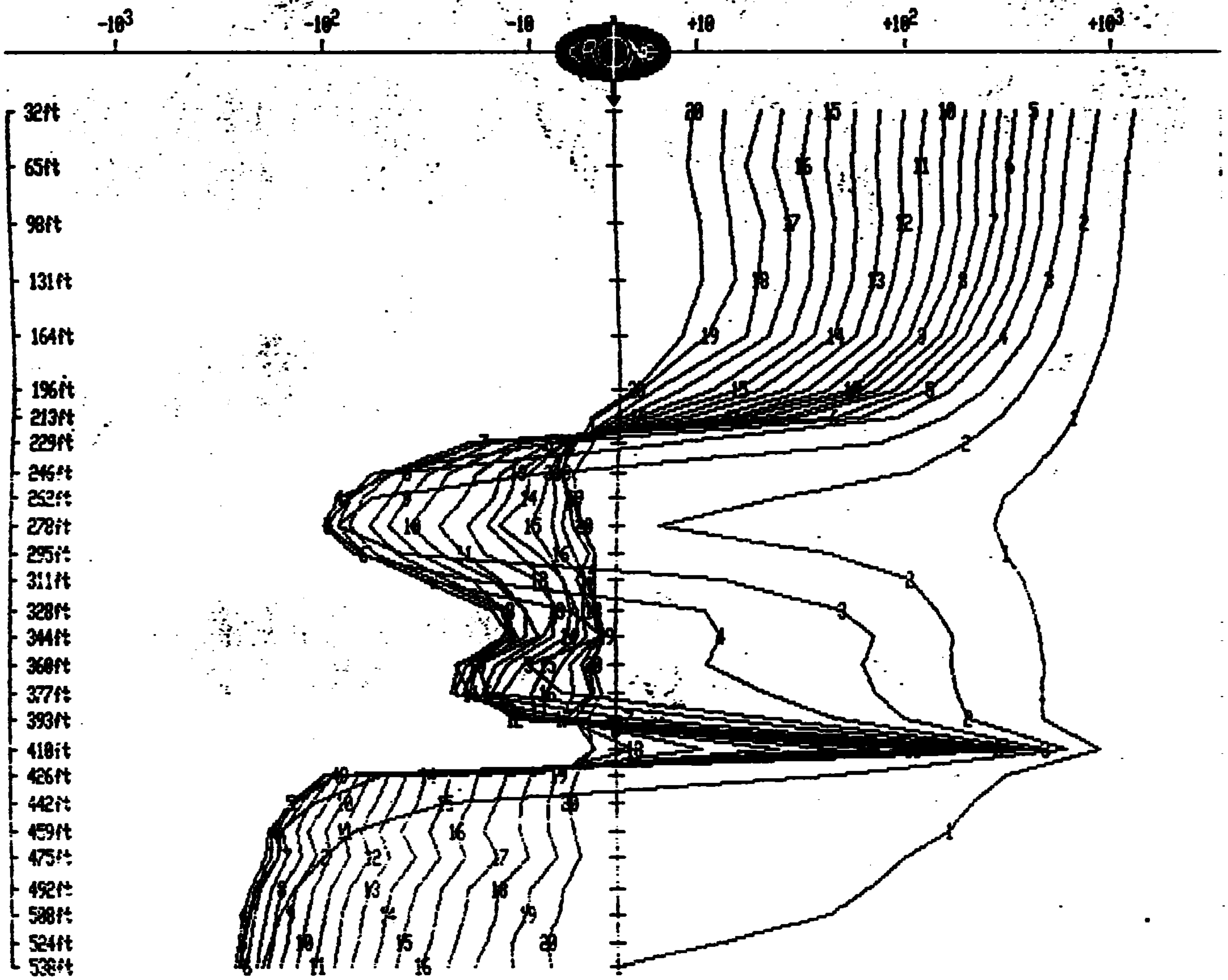
ADAMS - ELDORADO GEOPHYSICAL

REPORT IN PROGRESS

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client	: TIMMINS-NICKEL	Hole	: 91-11
Grid	: SOUS-TERRE	Tx Loop	: C
Time Base	: 16.66 ms	Date	: Feb 4, 1992
Ramp Time	: 1.50 ms	File	: 9111TC.pem
Scale	: 1in = 100 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.666 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : C
Date : Feb 4, 1992
File : 9111TC.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	3 A7	1512.0	90	1024	PP	1	26270	1310	868	657	514	424	347	288	241	197	158	126	99
65ft	Z	3 A7	1512.0	90	1024	PP	2	24750	1203	797	609	479	392	325	272	225	186	150	119	95
98ft	Z	3 A7	1512.0	90	1024	PP	3	23280	1134	738	566	452	375	310	266	221	183	151	118	96
131ft	Z	3 A7	1512.0	90	1024	PP	4	22520	1036	648	483	377	317	261	222	186	154	128	104	85
164ft	Z	3 A7	1512.0	90	1024	PP	5	21430	902	520	375	283	233	187	162	140	115	99	81	67
196ft	Z	3 A7	1512.0	90	1024	PP	6	20320	710	358	231	158	124	102	84	70	59	52	40	32
213ft	Z	3 A7	1512.0	90	1024	PP	8	20430	622	272	145	85	57	43	28	25	20	16	14	11
229ft	Z	3 A7	1512.0	90	1024	PP	7	19580	520	188	74	7	-8	-20	-18	-19	-16	-12	-11	-8
246ft	Z	3 A7	1512.0	90	1024	PP	9	19110	394	101	-8	-46	-58	-51	-48	-40	-32	-26	-19	-14
262ft	Z	3 A7	1512.0	90	1024	PP	10	17840	294	24	-60	-66	-78	-75	-66	-49	-41	-30	-21	-15
278ft	Z	3 A7	1512.0	90	1024	PP	11	17520	268	5	-66	-101	-96	-66	-75	-61	-49	-38	-28	-20
295ft	Z	3 A7	1512.0	90	1024	PP	12	16940	303	43	-42	-72	-66	-64	-57	-45	-35	-27	-21	-17
311ft	Z	3 A7	1512.0	90	1024	PP	13	16400	370	104	13	-20	-32	-33	-29	-26	-19	-15	-14	-9
328ft	Z	3 A7	1512.0	90	1024	PP	14	15770	419	142	49	11	-5	-15	-14	-13	-14	-11	-11	-7
344ft	Z	4 A7	1512.0	90	1024	PP	15	15220	444	168	70	13	-1	-13	-12	-14	-12	-11	-9	-9
360ft	Z	4 A7	1512.0	90	1024	PP	16	14650	466	165	62	11	-10	-18	-23	-22	-20	-19	-18	-15
377ft	Z	4 A7	1512.0	90	1024	PP	20	14060	460	176	71	21	-6	-16	-20	-24	-24	-21	-20	-17
393ft	Z	4 A7	1512.0	90	1024	PP	17	13460	461	201	98	46	23	12	2	-5	-8	-10	-11	-12
410ft	Z	4 A7	1512.0	90	1024	PP	19	11840	676	600	475	403	364	334	308	282	251	219	192	143
426ft	Z	4 A7	1512.0	90	1024	PP	18	12400	309	45	-53	-89	-101	-101	-99	-89	-81	-68	-61	-49
442ft	Z	4 A7	1512.0	90	1024	PP	21	11680	211	-26	-111	-140	-145	-140	-128	-117	-97	-82	-70	-57
459ft	Z	4 A7	1512.0	90	1024	PP	22	11360	160	-73	-162	-187	-182	-172	-161	-136	-120	-99	-82	-67
475ft	Z	4 A7	1512.0	90	1024	PP	23	10310	10	-102	-168	-194	-182	-168	-152	-131	-111	-94	-77	-61
492ft	Z	4 A7	1512.0	90	1024	PP	24	10360	64	-141	-216	-231	-219	-208	-182	-162	-138	-115	-95	-77
508ft	Z	4 A7	1512.0	90	1024	PP	25	10030	43	-166	-231	-249	-237	-220	-196	-174	-148	-122	-101	-83
524ft	Z	4 A7	1512.0	90	1024	PP	26	9478	13	-186	-253	-261	-253	-232	-207	-180	-154	-131	-107	-87
538ft	Z	4 A7	1512.0	90	1024	PP	27	9391	0	-202	-260	-277	-264	-245	-218	-191	-164	-138	-113	-92

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : C
Date : Feb 4, 1992
File : 9111TC.pem

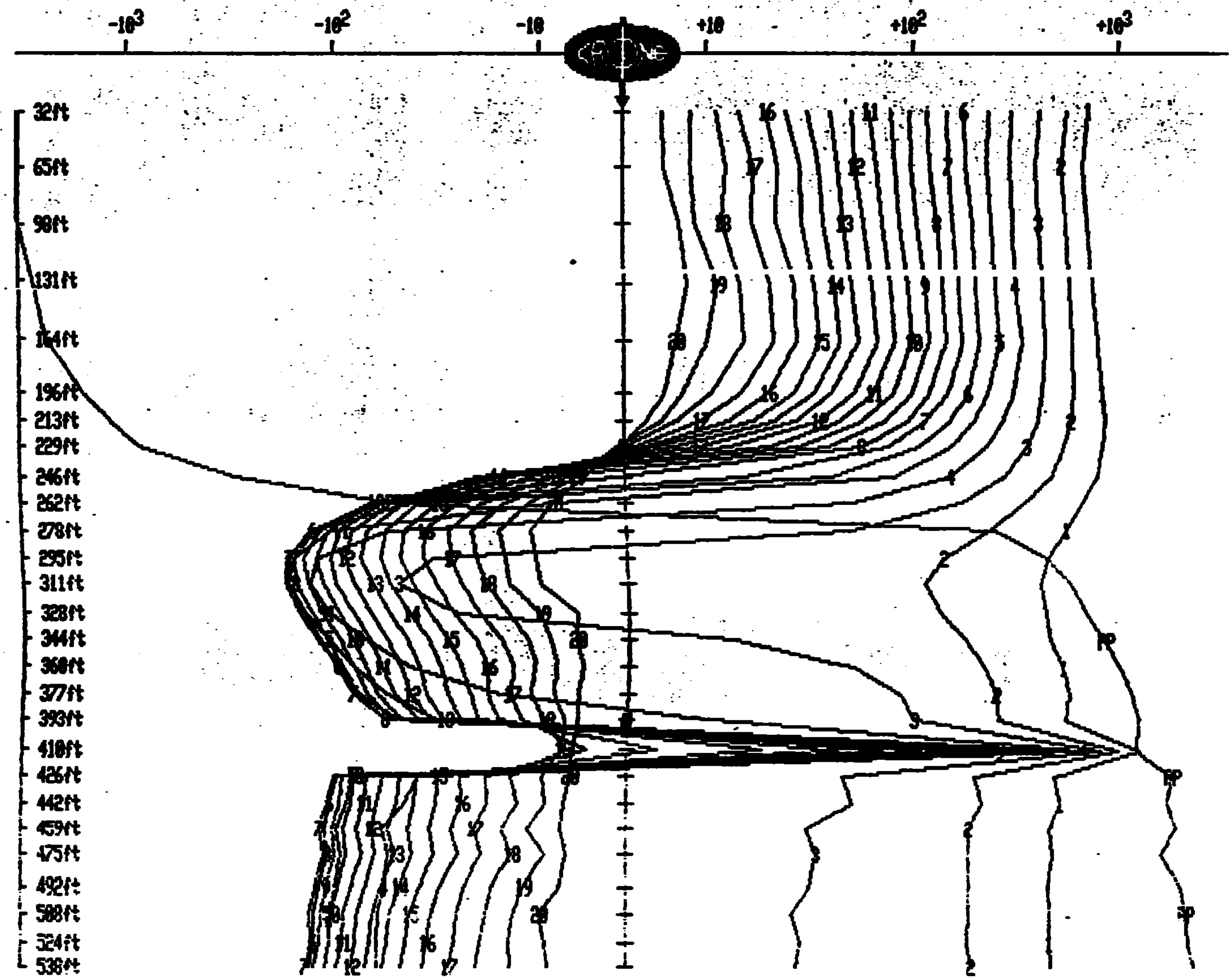
Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	76	58	44	35	26	20	14	9
65ft	Z	73	56	42	32	24	17	13	9
98ft	Z	76	57	45	35	27	21	14	10
131ft	Z	68	54	43	34	26	19	15	10
164ft	Z	55	43	34	27	21	16	11	8
196ft	Z	25	19	15	11	8	4	3	2
213ft	Z	8	6	4	2	1	-1	-3	-3
229ft	Z	-6	-6	-6	-6	-6	-5	-5	-3
246ft	Z	-12	-10	-8	-8	-7	-7	-7	-5
262ft	Z	-13	-11	-9	-7	-6	-6	-5	-5
276ft	Z	-16	-14	-10	-8	-6	-5	-4	-4
295ft	Z	-12	-9	-8	-7	-5	-3	-2	-3
311ft	Z	-8	-6	-6	-4	-3	-5	-3	-2
328ft	Z	-7	-5	-5	-4	-2	-3	-2	-3
344ft	Z	-7	-6	-5	-3	-2	-2	-1	-1
360ft	Z	-13	-11	-8	-6	-5	-4	-3	-3
377ft	Z	-15	-14	-1	-8	-5	-3	-3	-2
393ft	Z	-1	-10	-9	-9	-6	-6	-5	-3
410ft	Z	106	73	45	24	10	2	-2	-3
426ft	Z	-40	-33	-25	-18	-13	-10	-7	-5
442ft	Z	-46	-35	-27	-20	-15	-11	-8	-6
459ft	Z	-55	-43	-31	-24	-17	-11	-8	-5
475ft	Z	-49	-37	-28	-21	-15	-10	-7	-4
492ft	Z	-61	-48	-37	-28	-20	-15	-10	-6
508ft	Z	-67	-51	-40	-30	-21	-15	-11	-7
524ft	Z	-70	-54	-43	-32	-23	-17	-13	-8
538ft	Z	-76	-59	-46	-35	-26	-19	-13	-8

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 100 ft

Hole : 91-11
Tx Loop : E
Date : Feb 4, 1992
File : 9111TE.pem

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : E
Date : Feb 4, 1992
File : 9111TE.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	5 A7	1512.0	90	1024	PP	116	-4444	717	564	416	302	234	180	148	119	97	79	62	51
65ft	Z	5 A7	1512.0	90	1024	PP	115	-3886	680	532	402	301	232	183	151	123	99	83	68	53
98ft	Z	6 A7	1512.0	90	1024	PP	114	-3358	713	554	415	310	241	197	158	131	106	88	72	59
131ft	Z	6 A7	1512.0	90	1024	PP	113	-2829	742	572	428	315	251	199	164	138	115	94	78	63
164ft	Z	6 A7	1512.0	90	1024	PP	112	-2450	788	593	441	338	262	210	175	145	120	99	82	67
196ft	Z	7 A7	1512.0	90	1024	PP	111	-1639	833	606	428	306	232	185	149	120	99	80	65	52
213ft	Z	7 A7	1512.0	90	1024	PP	110	-1203	862	581	407	273	198	151	114	94	73	57	45	35
229ft	Z	7 A7	1512.0	90	1024	PP	109	-878	827	543	354	228	152	108	76	57	39	28	20	13
246ft	Z	7 A7	1512.0	90	1024	PP	108	-301	775	468	277	150	81	40	15	-1	-9	-15	-18	-20
262ft	Z	7 A7	1512.0	90	1024	PP	107	-51	649	348	168	50	-9	-42	-58	-64	-66	-64	-59	-53
278ft	Z	7 A7	1512.0	90	1024	PP	106	241	538	227	49	-55	-104	-127	-133	-128	-119	-108	-95	-82
295ft	Z	7 A7	1512.0	90	1024	PP	105	433	440	137	-33	-123	-160	-173	-169	-158	-142	-124	-106	-90
311ft	Z	7 A7	1512.0	90	1024	PP	104	562	397	109	-50	-134	-172	-176	-171	-157	-137	-117	-100	-82
328ft	Z	7 A7	1512.0	90	1024	PP	103	670	418	131	-26	-109	-143	-154	-146	-133	-118	-98	-83	-68
344ft	Z	7 A7	1512.0	90	1024	PP	102	806	441	171	13	-74	-111	-126	-122	-113	-98	-84	-69	-57
360ft	Z	7 A7	1512.0	90	1024	PP	101	961	507	210	49	-45	-84	-99	-101	-95	-83	-73	-61	-49
377ft	Z	7 A7	1512.0	90	1024	PP	100	1108	548	243	83	-16	-57	-78	-84	-80	-71	-63	-53	-44
393ft	Z	7 A7	1512.0	90	1024	PP	99	1197	528	249	98	1	-32	-50	-57	-57	-53	-48	-40	-35
410ft	Z	6 A7	1512.0	90	1024	PP	98	1186	1222	961	789	655	555	470	395	322	259	202	150	105
426ft	Z	6 A7	1512.0	90	1024	PP	97	1752	472	195	45	-39	-82	-10	-100	-97	-91	-80	-70	-57
442ft	Z	7 A7	1512.0	90	1024	PP	96	1675	505	210	50	-46	-88	-106	-109	-106	-95	-84	-72	-62
459ft	Z	6 A7	1512.0	90	1024	PP	95	1840	455	182	30	-59	-97	-112	-118	-112	-103	-90	-78	-66
475ft	Z	7 A7	1512.0	90	1024	PP	94	1568	466	183	33	-55	-94	-111	-112	-108	-99	-87	-74	-63
492ft	Z	6 A7	1512.0	90	1024	PP	93	1961	443	183	31	-57	-10	-119	-123	-119	-109	-97	-84	-71
508ft	Z	6 A7	1512.0	90	1024	PP	92	2083	453	182	25	-61	-107	-125	-133	-126	-117	-104	-90	-78
524ft	Z	6 A7	1512.0	90	1024	PP	91	2149	455	178	28	-63	-106	-125	-131	-127	-118	-106	-92	-79
536ft	Z	6 A7	1512.0	90	1024	PP	90	2271	463	187	27	-63	-111	-132	-138	-134	-125	-111	-98	-83

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : E
Date : Feb 4, 1992
File : 9111E.pem

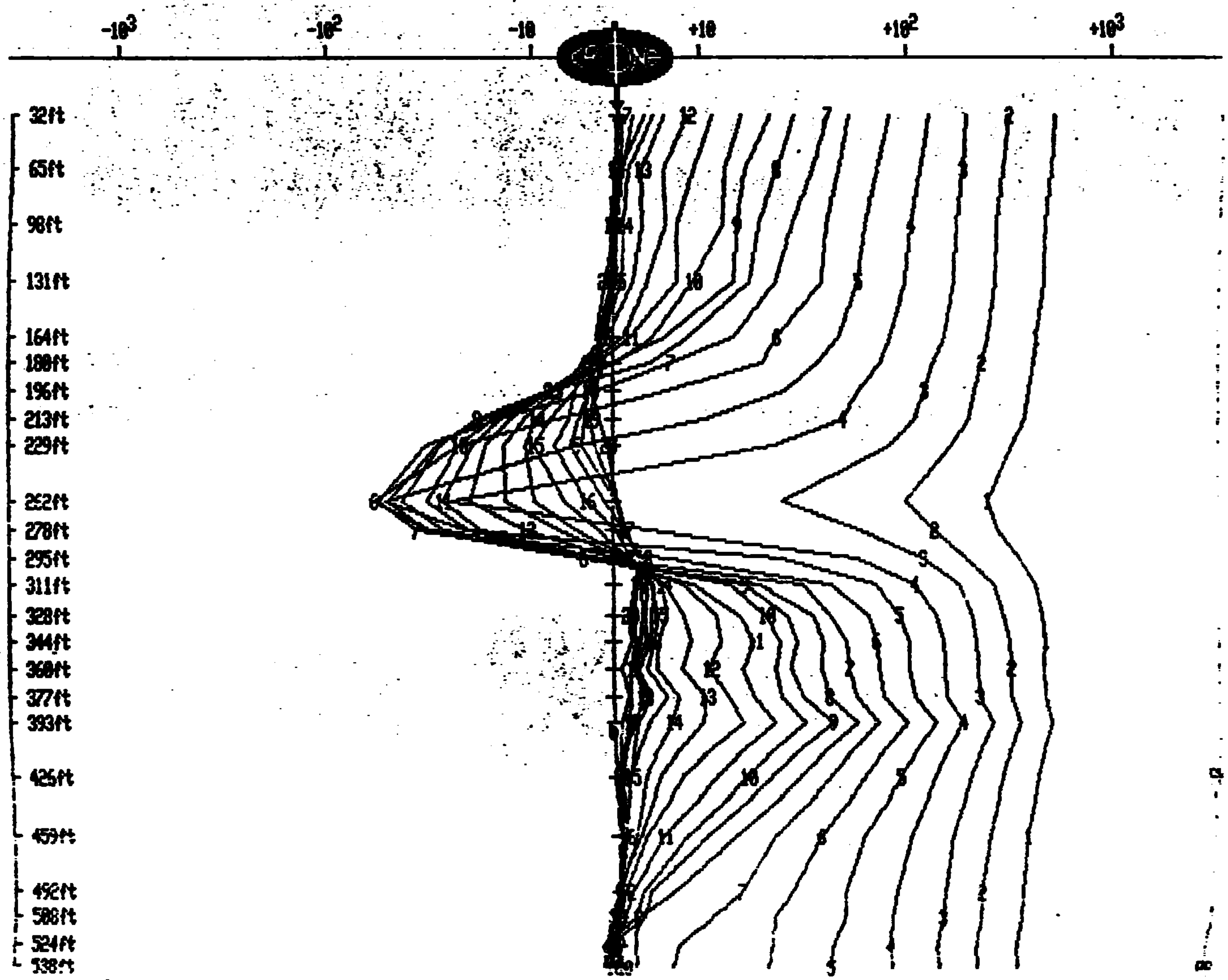
Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	40	31	25	20	15	11	8	5
65ft	Z	44	35	29	23	17	13	8	5
98ft	Z	46	38	30	22	17	12	9	7
131ft	Z	50	42	33	27	20	15	11	8
164ft	Z	55	45	36	28	21	15	10	6
196ft	Z	41	33	27	20	15	11	7	5
213ft	Z	27	21	17	13	9	6	5	3
229ft	Z	9	6	4	3	2	0	-1	-0
246ft	Z	-18	-16	-14	-11	-8	-7	-6	-5
262ft	Z	-46	-39	-31	-25	-19	-15	-11	-9
278ft	Z	-69	-57	-46	-37	-28	-22	-16	-11
295ft	Z	-75	-61	-48	-38	-28	-21	-15	-11
311ft	Z	-67	-55	-42	-33	-25	-19	-14	-10
328ft	Z	-55	-44	-36	-27	-20	-15	-10	-6
344ft	Z	-46	-36	-29	-22	-16	-12	-9	-6
360ft	Z	-40	-32	-25	-19	-14	-11	-9	-5
377ft	Z	-37	-29	-22	-18	-14	-11	-9	-6
393ft	Z	-30	-25	-20	-16	-13	-1	-7	-6
410ft	Z	69	39	18	4	-5	-7	-8	-6
426ft	Z	-49	-40	-32	-25	-18	-14	-1	-7
442ft	Z	-50	-41	-32	-24	-18	-13	-1	-7
459ft	Z	-55	-44	-35	-27	-21	-15	-12	-8
475ft	Z	-51	-42	-33	-25	-19	-14	-1	-7
492ft	Z	-60	-48	-39	-31	-23	-17	-12	-8
508ft	Z	-66	-54	-43	-34	-26	-18	-14	-10
524ft	Z	-67	-56	-45	-35	-26	-20	-14	-1
538ft	Z	-71	-59	-48	-37	-28	-21	-14	-9

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 100 ft

Hole : 91-11
Tx Loop : W
Date : Feb 4, 1992
File : 9111TW.pem

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL-D'OR GEOPHYSIQUE LTEE
BOREHOLE EM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : W
Date : Feb 4, 1992
File : 9111TW.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	5 A7	1512.0	90	1024	PP	65	5475	527	312	196	128	82	52	41	28	22	16	12	8
65ft	Z	5 A7	1512.0	90	1024	PP	66	5420	503	296	188	116	72	47	35	24	17	13	9	6
98ft	Z	5 A7	1512.0	90	1024	PP	67	5418	482	282	178	107	65	42	29	20	16	13	8	6
131ft	Z	5 A7	1512.0	90	1024	PP	68	5304	480	280	176	103	61	41	24	18	15	1	8	4
164ft	Z	5 A7	1512.0	90	1024	PP	69	5510	449	261	160	88	49	25	15	9	6	5	2	1
180ft	Z	5 A7	1512.0	90	1024	PP	70	5108	433	243	142	78	39	21	7	5	-0	0	-2	-3
196ft	Z	5 A7	1512.0	90	1024	PP	71	5048	413	225	128	62	27	7	-2	-8	-8	-7	-7	-7
213ft	Z	5 A7	1512.0	90	1024	PP	72	4908	390	210	114	51	11	-7	-14	-16	-18	-15	-14	-12
229ft	Z	5 A7	1512.0	90	1024	PP	73	4746	342	174	87	24	-4	-22	-31	-28	-27	-22	-18	-16
262ft	Z	5 A7	1512.0	90	1024	PP	74	4542	257	104	26	-23	-49	-56	-53	-47	-40	-31	-26	-19
278ft	Z	5 A7	1512.0	90	1024	PP	76	4419	290	144	62	4	-20	-30	-34	-31	-25	-19	-17	-10
295ft	Z	5 A7	1512.0	90	1024	PP	75	4299	366	205	126	60	26	7	-1	-3	-2	-2	-2	0
311ft	Z	5 A7	1512.0	90	1024	PP	77	4183	441	275	187	114	75	45	33	20	17	15	1	9
328ft	Z	5 A7	1512.0	90	1024	PP	78	4097	474	309	218	146	97	69	45	37	27	22	16	13
344ft	Z	5 A7	1512.0	90	1024	PP	80	3985	494	331	229	157	108	75	53	41	31	25	19	13
360ft	Z	5 A7	1512.0	90	1024	PP	81	3847	485	332	232	161	107	77	55	41	29	24	17	12
377ft	Z	6 A7	1512.0	90	1024	PP	82	3721	494	333	235	163	115	81	59	44	33	26	19	14
393ft	Z	6 A7	1512.0	90	1024	PP	83	3624	525	370	273	196	144	104	75	60	45	33	24	17
426ft	Z	6 A7	1512.0	90	1024	PP	84	3179	442	297	207	138	95	64	43	31	22	17	12	8
459ft	Z	6 A7	1512.0	90	1024	PP	85	3068	378	251	165	104	61	38	23	15	11	8	5	3
492ft	Z	6 A7	1512.0	90	1024	PP	86	2941	359	224	151	88	49	27	15	7	4	3	2	1
508ft	Z	6 A7	1512.0	90	1024	PP	87	2878	350	225	146	84	49	22	11	2	3	2	1	0
524ft	Z	6 A7	1512.0	90	2048	PP	88	2730	335	214	139	82	43	22	7	2	-1	-1	-1	-2
538ft	Z	6 A7	1512.0	90	1024	PP	89	2683	341	216	144	85	42	21	7	2	-1	-1	-2	-1

CRONE GEOPHYSICS & EXPLORATION LTD
CROVAL OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-11
Tx Loop : W
Date : Feb 4, 1992
File : 9111TW.pem

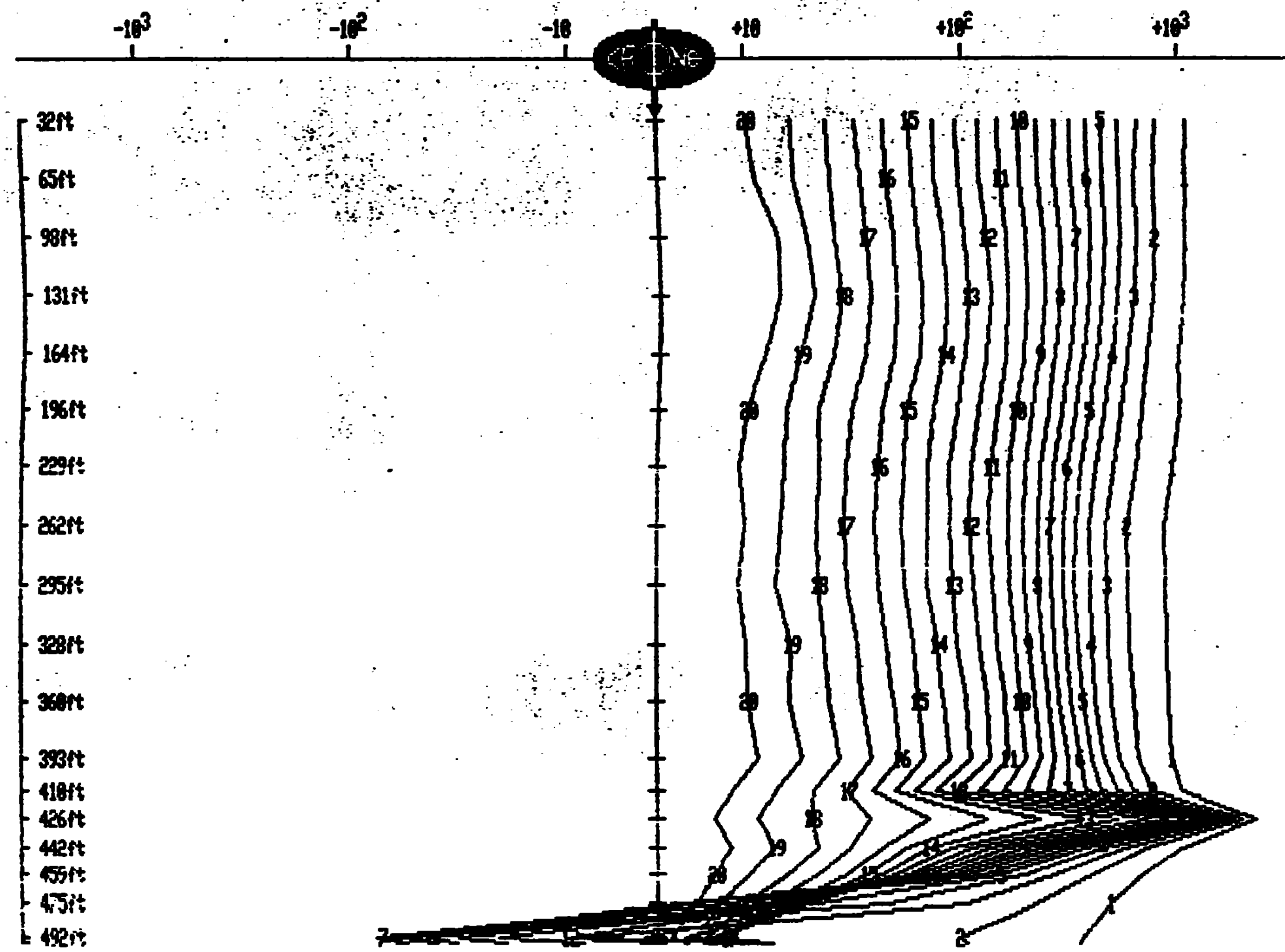
Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	6	4	3	2	1	0	-0	0
65ft	Z	3	2	0	1	1	-0	0	-0
98ft	Z	3	1	0	0	-0	-0	-1	0
131ft	Z	3	1	0	0	0	-0	-0	-1
164ft	Z	-1	-1	-1	-1	-1	-1	-2	-2
180ft	Z	-2	-4	-3	-2	-2	-2	-1	-1
196ft	Z	-7	-6	-5	-5	-3	-3	-2	-3
213ft	Z	-10	-9	-7	-5	-4	-3	-3	-2
229ft	Z	-13	-10	-9	-7	-5	-4	-2	-1
262ft	Z	-13	-9	-6	-3	-1	0	1	1
278ft	Z	-6	-4	-2	0	1	1	1	2
295ft	Z	1	2	2	2	3	4	3	3
311ft	Z	6	6	5	5	4	3	3	3
328ft	Z	9	7	6	5	4	4	3	2
344ft	Z	9	6	5	5	4	3	3	2
360ft	Z	8	5	4	3	2	3	2	1
377ft	Z	11	8	6	5	5	4	2	2
393ft	Z	11	7	4	3	2	3	2	1
426ft	Z	5	4	2	2	1	-0	0	1
459ft	Z	3	2	1	1	1	0	0	1
492ft	Z	-0	0	0	0	0	0	-0	0
508ft	Z	-0	-1	-1	-1	-1	-0	0	-0
524ft	Z	-2	-1	-1	-1	-1	-0	-0	0
538ft	Z	-2	-0	-1	-0	0	-0	0	1

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 100 ft

Hole : 91-14
Tx Loop : C
Date : Feb 4, 1992
File : 9114TC.PEM

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-14
Tx Loop : C
Date : Feb 4, 1992
File : 9114TC.PEM

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	3 A7	1512.0	90	1024	PP	28	18690	1096	794	654	529	448	380	320	271	225	185	148	120
65ft	Z	3 A7	1512.0	90	1024	PP	29	19330	1070	764	628	530	442	378	320	266	225	185	151	120
98ft	Z	3 A7	1512.0	90	1024	PP	30	19660	1058	767	631	532	456	387	332	282	235	195	157	128
131ft	Z	3 A7	1512.0	90	1024	PP	31	19590	1031	744	601	505	431	376	322	274	234	193	158	132
164ft	Z	3 A7	1512.0	90	1024	PP	32	18850	978	698	566	480	411	357	307	263	224	189	156	127
196ft	Z	3 A7	1512.0	90	1024	PP	33	20250	1009	678	544	453	389	333	289	249	211	177	146	119
229ft	Z	3 A7	1512.0	90	1024	PP	34	19660	946	643	508	419	356	309	267	232	198	166	136	111
262ft	Z	3 A7	1512.0	90	1024	PP	35	17820	868	588	468	395	338	300	259	228	195	164	135	109
295ft	Z	3 A7	1512.0	90	1024	PP	36	17270	880	591	473	397	335	298	263	228	197	168	140	115
328ft	Z	3 A7	1512.0	90	1024	PP	37	16210	895	601	483	405	354	310	271	240	207	179	149	123
360ft	Z	3 A7	1512.0	90	1024	PP	38	15360	916	634	502	422	368	326	285	255	221	189	161	133
393ft	Z	4 A7	1512.0	90	1024	PP	39	14160	946	670	541	461	403	357	314	273	236	201	167	137
410ft	Z	4 A7	1512.0	90	1024	PP	41	14040	1054	765	629	529	449	380	313	255	202	158	122	96
426ft	Z	4 A7	1512.0	90	1024	PP	40	12730	2327	2010	1826	1679	1563	1457	1348	1218	1070	900	718	536
442ft	Z	4 A7	1512.0	90	1024	PP	42	13800	1050	725	564	453	373	321	272	232	195	164	135	111
459ft	Z	4 A7	1512.0	90	1024	PP	43	13110	690	406	271	196	154	127	106	93	83	72	65	57
475ft	Z	4 A7	1512.0	90	1024	PP	44	12650	494	221	105	45	21	8	3	4	8	12	15	17
492ft	Z	4 A7	1512.0	90	1024	PP	45	11800	365	98	-9	-58	-72	-77	-71	-60	-45	-32	-21	-10
495ft	Z	4 A7	1512.0	90	1024	PP	46	11560	352	106	11	-40	-58	-59	-56	-41	-33	-19	-9	1

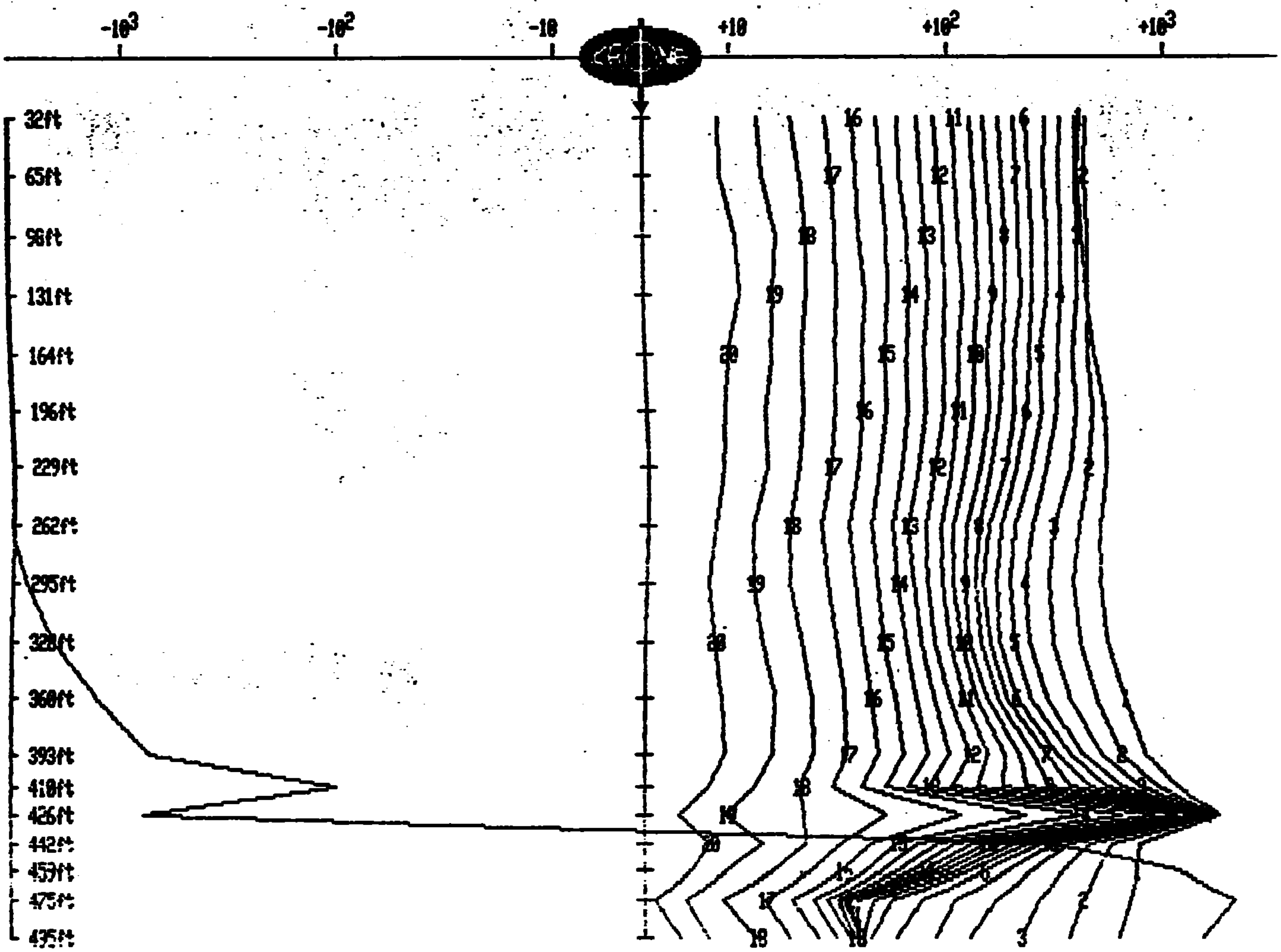
Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	95	74	58	44	33	24	17	10
65ft	Z	96	75	58	44	34	25	17	11
98ft	Z	101	81	61	47	36	26	19	14
131ft	Z	104	83	64	48	37	27	20	14
164ft	Z	101	80	62	48	35	25	18	12
196ft	Z	94	73	55	43	31	22	15	10
229ft	Z	87	69	54	41	30	22	15	9
262ft	Z	99	69	53	40	29	22	15	10
295ft	Z	91	70	55	42	30	22	14	9
329ft	Z	97	79	60	45	33	24	17	10
360ft	Z	107	83	64	49	35	25	16	10
393ft	Z	110	89	68	53	38	28	18	12
410ft	Z	77	62	50	39	30	21	14	9
426ft	Z	368	231	132	71	38	20	12	7
442ft	Z	90	71	56	43	31	22	14	9
459ft	Z	50	43	37	30	22	16	11	7
475ft	Z	20	20	19	16	13	10	7	5
492ft	Z	-1	3	7	7	8	6	4	2
495ft	Z	8	11	13	13	13	9	6	4

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 100 ft

Hole : 91-14
Tx Loop : E
Date : Feb 4, 1992
File : 9114TE.PEM

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms

Hole : 91-14
Tx Loop : E
Date : Feb 4, 1992
File : 9114TE.PEM

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	5 A7	1512.0	90	1024	PP	117	-6851	413	442	395	333	284	233	202	173	148	128	108	87
65ft	Z	5 A7	1512.0	90	1024	PP	118	-6743	397	433	394	328	282	240	210	179	153	132	110	91
98ft	Z	5 A7	1512.0	90	1024	PP	119	-6669	418	443	398	333	290	247	214	186	160	136	113	96
131ft	Z	5 A7	1512.0	90	1024	PP	120	-6349	442	449	400	334	290	247	220	186	162	139	118	98
164ft	Z	5 A7	1512.0	90	1024	PP	121	-5533	468	436	376	319	265	236	200	178	151	130	111	95
196ft	Z	5 A7	1512.0	90	1024	PP	122	-5223	513	450	377	308	264	225	197	169	150	129	108	92
229ft	Z	5 A7	1512.0	90	1024	PP	123	-4380	516	428	350	273	233	199	177	151	134	114	99	83
262ft	Z	6 A7	1512.0	90	1024	PP	124	-3542	481	383	294	234	195	168	148	131	116	101	89	75
295ft	Z	6 A7	1512.0	90	1024	PP	125	-2908	493	367	284	222	187	163	140	130	116	102	91	79
328ft	Z	6 A7	1512.0	90	1024	PP	126	-2134	541	402	303	234	202	172	156	141	124	114	100	86
360ft	Z	7 A7	1512.0	90	1024	PP	127	-1334	652	479	362	287	239	206	186	169	150	133	118	130
393ft	Z	7 A7	1512.0	90	1024	PP	128	-750	814	633	512	420	368	321	283	248	213	183	153	126
410ft	Z	7 A7	1512.0	90	1024	PP	130	-104	1151	936	775	646	541	450	371	296	233	179	136	104
426ft	Z	6 A7	1512.0	90	1024	PP	129	-810	1790	1709	1647	1615	1613	1615	1613	1574	1490	1342	1136	890
442ft	Z	7 A7	1512.0	90	1024	PP	131	302	762	575	456	371	308	266	230	200	174	149	130	108
459ft	Z	7 A7	1512.0	90	1024	PP	132	1161	750	490	340	243	188	148	126	112	97	88	77	69
475ft	Z	6 A7	1512.0	90	1024	PP	133	2113	696	419	264	165	107	76	55	46	38	38	34	33
495ft	Z	7 A7	1512.0	90	1024	PP	134	1510	611	361	217	127	87	57	44	40	38	39	39	39

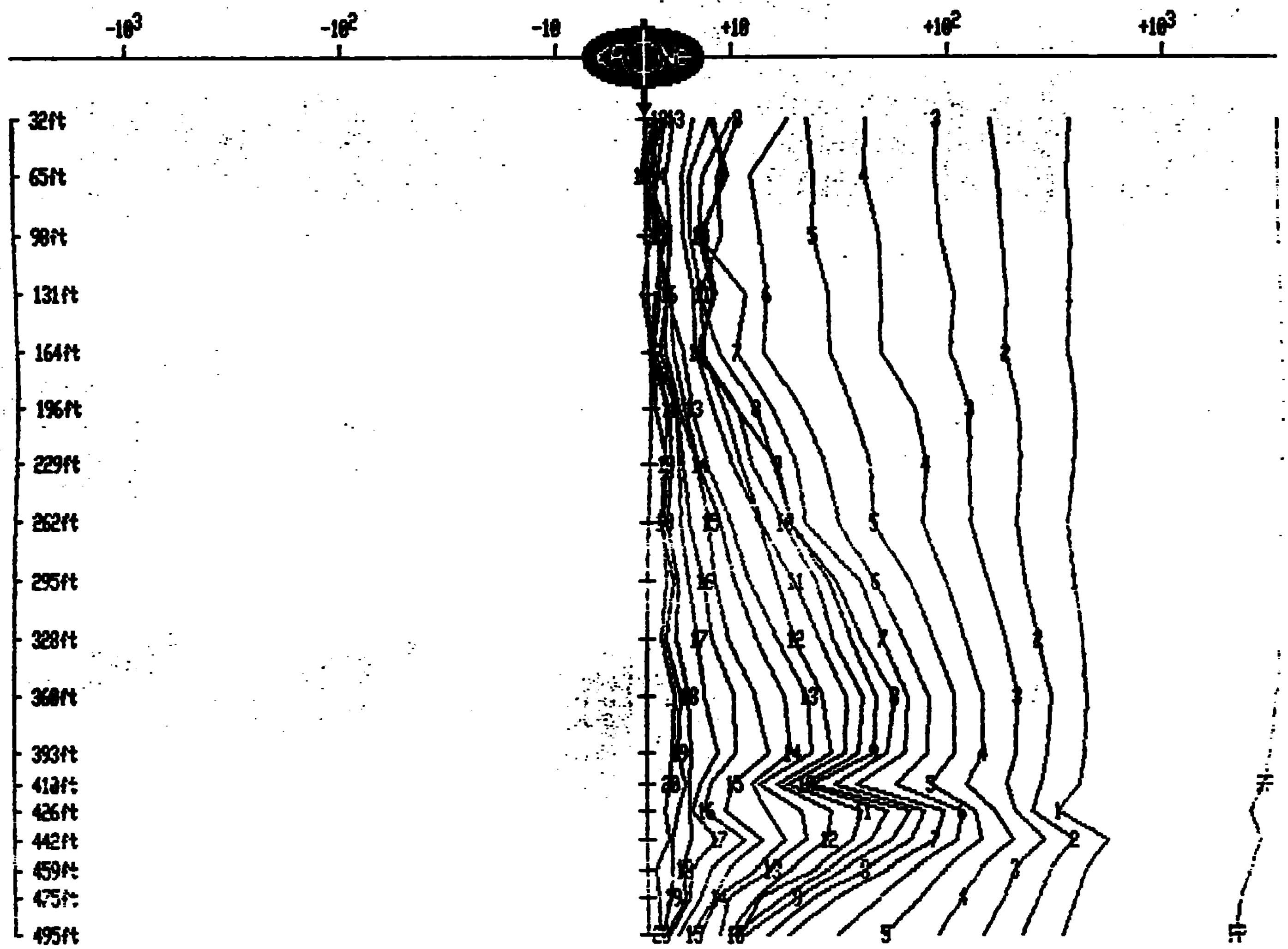
Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	74	60	48	37	28	19	13	9
65ft	Z	76	61	50	38	29	21	14	9
98ft	Z	79	65	52	39	31	23	16	11
131ft	Z	82	67	53	42	31	22	16	11
164ft	Z	77	64	51	40	30	21	15	1
196ft	Z	76	64	51	39	30	21	14	9
229ft	Z	70	58	46	37	27	20	14	9
262ft	Z	63	53	43	34	25	19	12	8
295ft	Z	67	57	46	36	27	19	12	7
329ft	Z	74	63	50	40	31	21	14	8
360ft	Z	86	71	57	44	33	23	16	9
393ft	Z	102	81	63	47	34	24	15	9
410ft	Z	82	65	52	40	30	21	13	7
426ft	Z	632	403	228	115	52	22	9	4
442ft	Z	90	73	57	44	32	22	14	8
459ft	Z	59	50	42	32	24	16	9	5
475ft	Z	31	28	24	19	14	9	5	1
495ft	Z	37	35	30	25	19	13	7	4

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : SOUS-TERRE
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 100 ft

Hole : 91-14
Tx Loop : W
Date : Feb 4, 1992
File : 9114TW.PEM

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL		Hole	: 91-14
Grid : SOUS-TERRE		Tx Loop	: W
Time Base : 16.66 ms		Date	: Feb 4, 1992
Ramp Time : 1.50 ms		File	: 9114TW.PEM

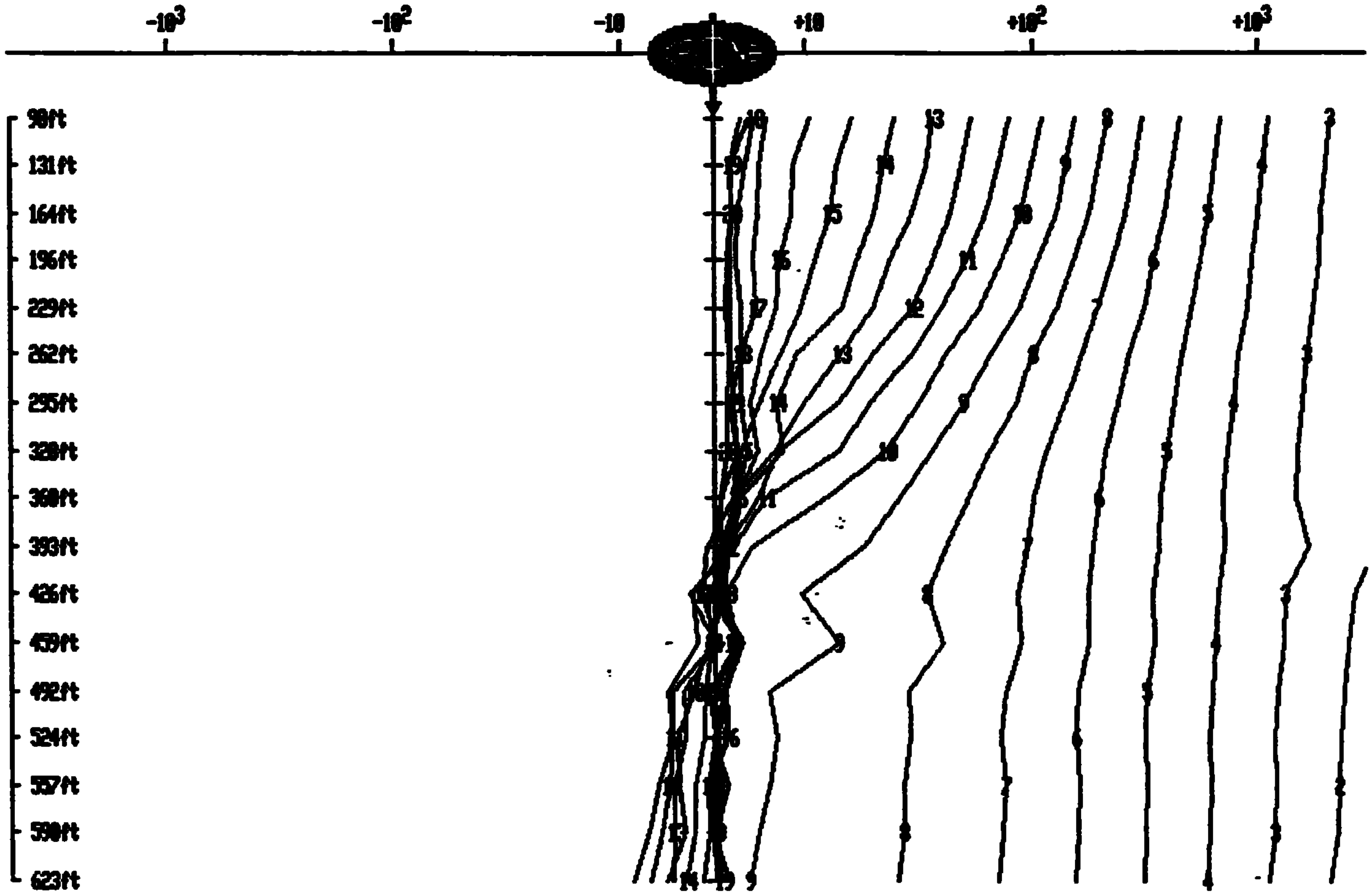
Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12
32ft	Z	4 A7	1512.0	90	2048	PP	64	9406	366	158	89	42	22	18	8	11	8	1	8	6
65ft	Z	4 A7	1512.0	90	2048	PP	63	8147	355	170	87	41	24	12	1	8	9	7	5	4
98ft	Z	5 A7	1512.0	90	1024	PP	62	7391	370	176	92	48	24	13	6	9	7	6	5	4
131ft	Z	5 A7	1512.0	90	1024	PP	61	6590	359	182	104	48	27	14	11	6	8	8	6	5
164ft	Z	5 A7	1512.0	90	2048	PP	60	5667	347	178	98	47	27	13	10	8	5	6	6	5
196ft	Z	5 A7	1512.0	90	2048	PP	59	5315	369	202	118	67	34	20	15	12	1	10	9	7
229ft	Z	5 A7	1512.0	90	1024	PP	58	4774	371	206	121	75	42	26	19	15	16	12	11	1
262ft	Z	5 A7	1512.0	90	1024	PP	57	4265	353	203	125	74	44	30	21	18	18	17	13	13
295ft	Z	5 A7	1512.0	90	1024	PP	56	3992	381	226	150	96	66	45	38	30	28	24	19	16
328ft	Z	6 A7	1512.0	90	1024	PP	55	3622	416	260	181	118	85	62	49	39	35	29	25	19
360ft	Z	6 A7	1512.0	90	1024	PP	54	3312	436	297	228	143	107	80	64	55	46	40	33	26
393ft	Z	6 A7	1512.0	90	1024	PP	53	3064	423	287	202	144	106	80	62	52	45	38	33	28
410ft	Z	6 A7	1512.0	90	1024	PP	52	2919	406	268	186	121	82	57	37	29	23	21	18	16
426ft	Z	6 A7	1512.0	90	1024	PP	51	2524	319	244	203	164	132	114	95	77	66	51	39	29
442ft	Z	6 A7	1512.0	90	1024	PP	50	2792	551	381	277	198	142	110	86	66	54	44	36	27
459ft	Z	6 A7	1512.0	90	1024	PP	49	2499	430	295	199	138	94	68	51	41	32	27	23	18
475ft	Z	6 A7	1512.0	90	1024	PP	48	2256	368	260	179	114	74	48	30	24	20	17	13	13
495ft	Z	6 A7	1512.0	90	1024	PP	47	2128	334	217	144	88	50	31	18	14	11	[illegible]	11	9

Station	Cmp	13	14	15	16	17	18	19	20
32ft	Z	4	3	2	2	1	2	0	1
65ft	Z	2	1	1	0	-0	-0	-0	-0
98ft	Z	3	1	1	3	1	2	2	1
131ft	Z	2	3	2	2	1	1	1	-1
164ft	Z	4	3	2	1	1	0	-0	0
196ft	Z	5	4	3	3	3	2	2	1
229ft	Z	7	6	5	4	4	3	2	2
262ft	Z	1	8	7	5	4	2	2	2
295ft	Z	12	10	8	7	5	4	3	2
328ft	Z	16	13	9	8	6	4	2	2
360ft	Z	22	17	13	10	7	5	4	3
393ft	Z	23	19	12	10	8	5	4	3
410ft	Z	13	12	[illegible]	7	6	5	5	3
426ft	Z	21	14	9	7	5	5	4	2
442ft	Z	22	17	14	11	8	5	3	3
459ft	Z	15	13	9	7	5	4	3	1
475ft	Z	9	8	8	6	5	4	3	1
495ft	Z	8	6	5	4	3	2	2	1

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9211
Grid	: LANGMUIR	Tx Loop	: COLLAR
Time Base	: 16.66 ms	Date	: Jan 29, 1992
Ramp Time	: 1.50 ms	File	: DH9211CL.PEM
Scale	: 1in = 127 ft		

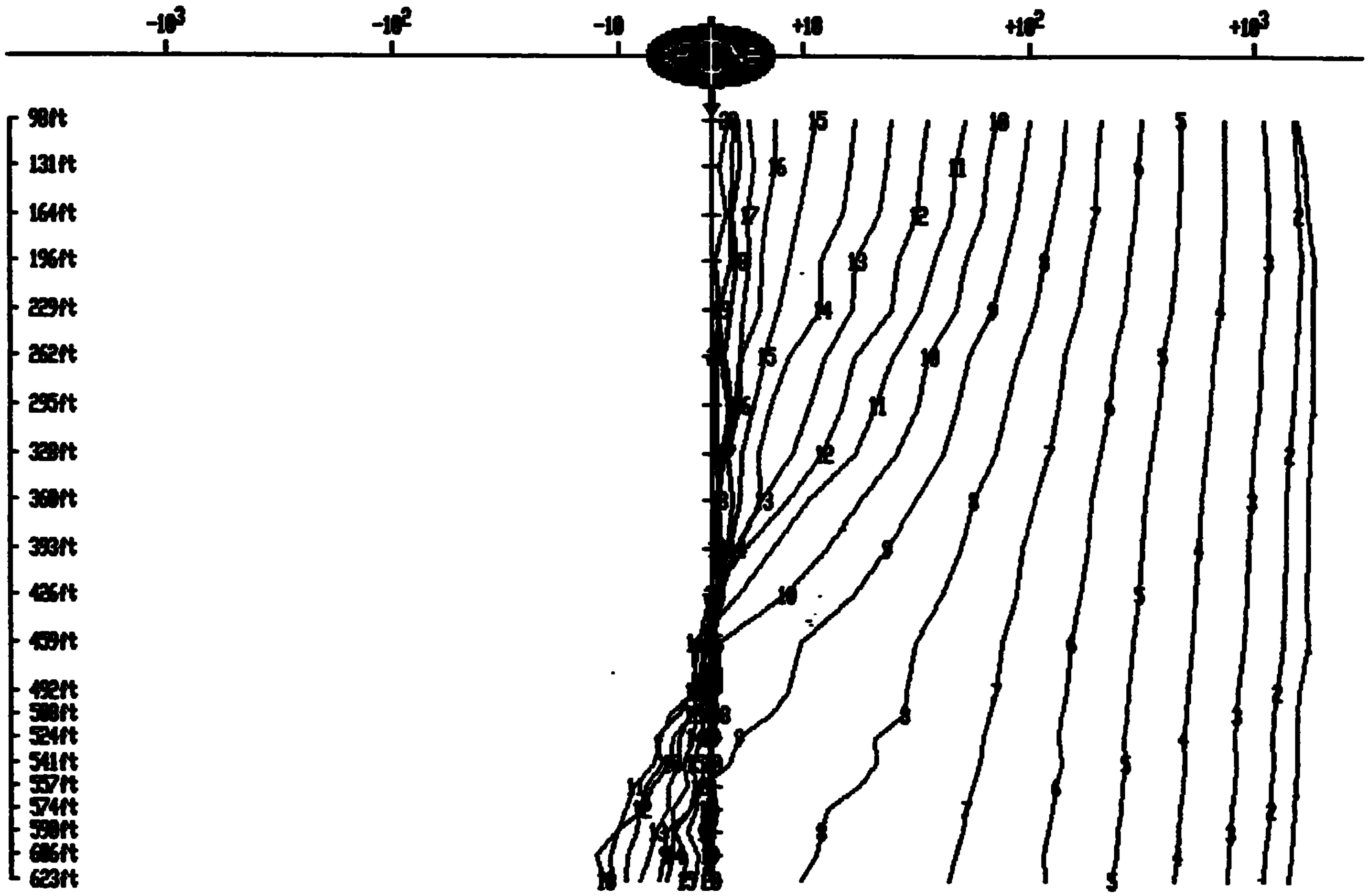
AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	:	EXSICS EXPLORATION LIMITED			
Client	:	TIMMINS-NICKEL	Hole	:	DH9211
Grid	:	LANGMUIR	Tx Loop	:	[redacted] South
Time Base	:	16.66 ms	Date	:	Jan 29, 1992
Ramp Time	:	1.50 ms	File	:	DH9211WL.PEM
Scale	:	1in = 127 ft			

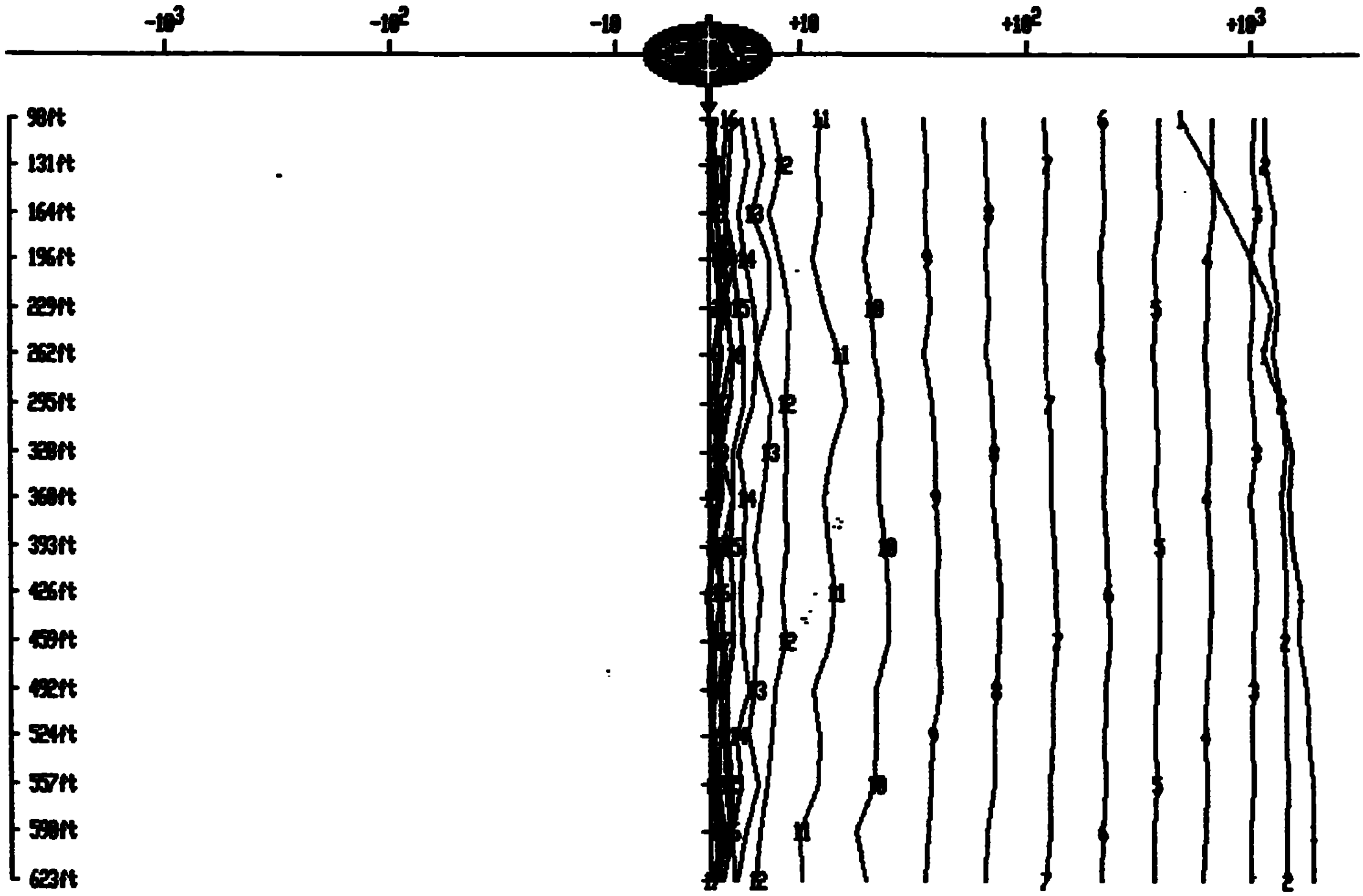
AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

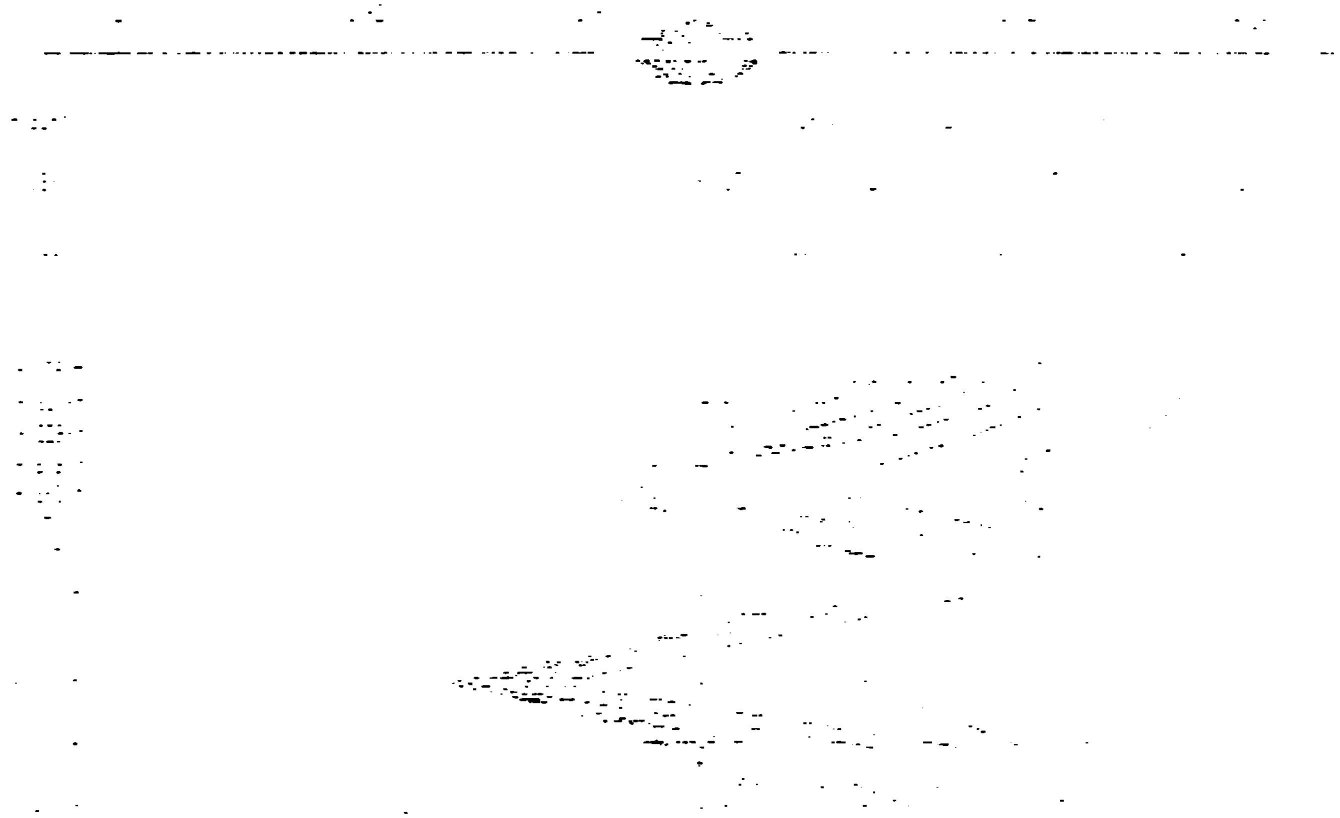
User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9211
Grid	: LANGMUIR	Tx Loop	: ~~EAST~~ NORTH
Time Base	: 16.66 ms	Date	: Jan 29, 1992
Ramp Time	: 1.50 ms	File	: DH9211EL.PEM
Scale	: 1in = 127 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Langmuir 13



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

TIMMINS-NICKEL

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

TIMMINS-NICKEL 13
REDSTONE

DRONE GEOPHYSICS & EXPLORATION LTD

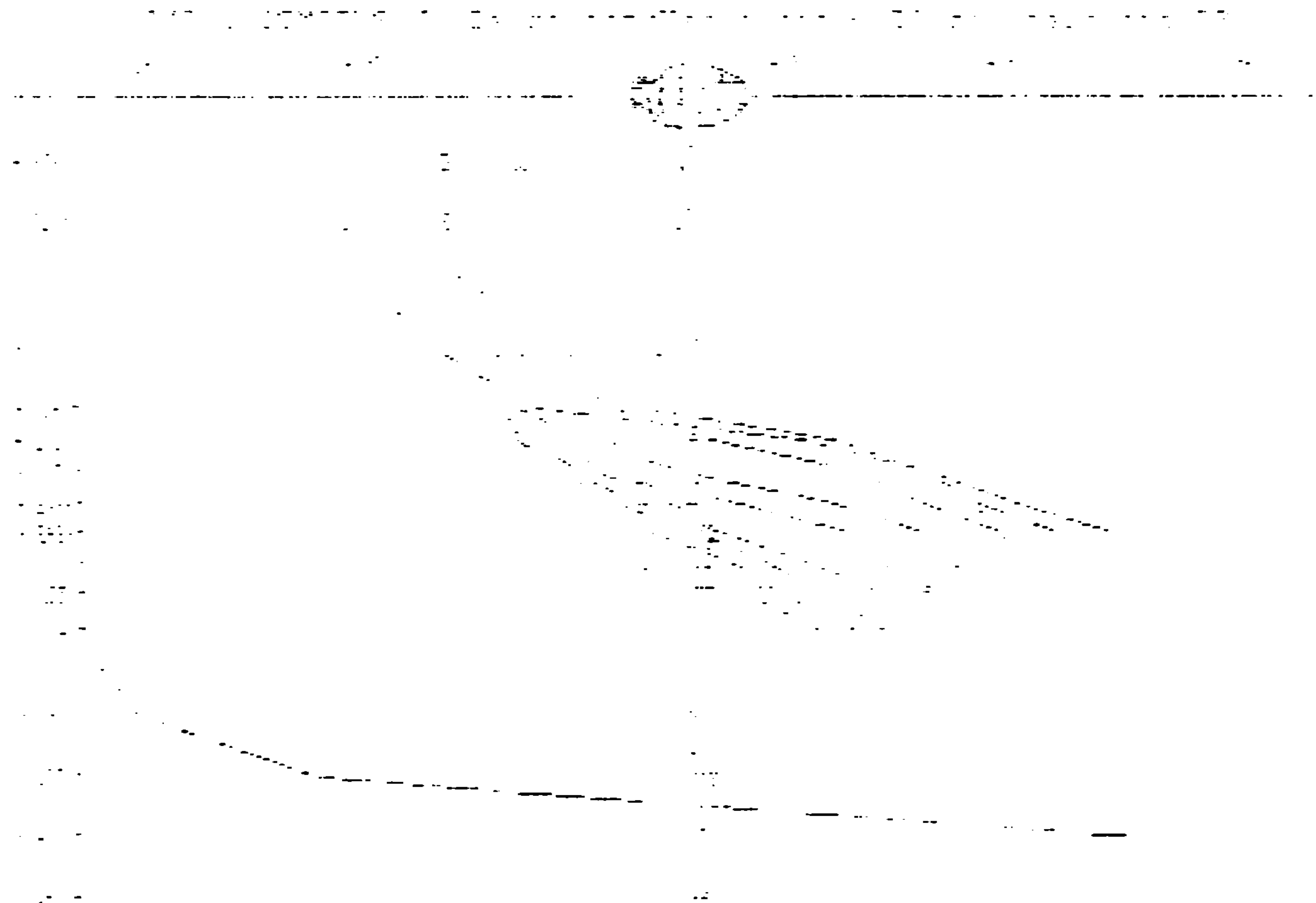
VAL D'OR GEOPHYSIQUE LTEE

[illegible] PEM

[illegible]

[illegible]

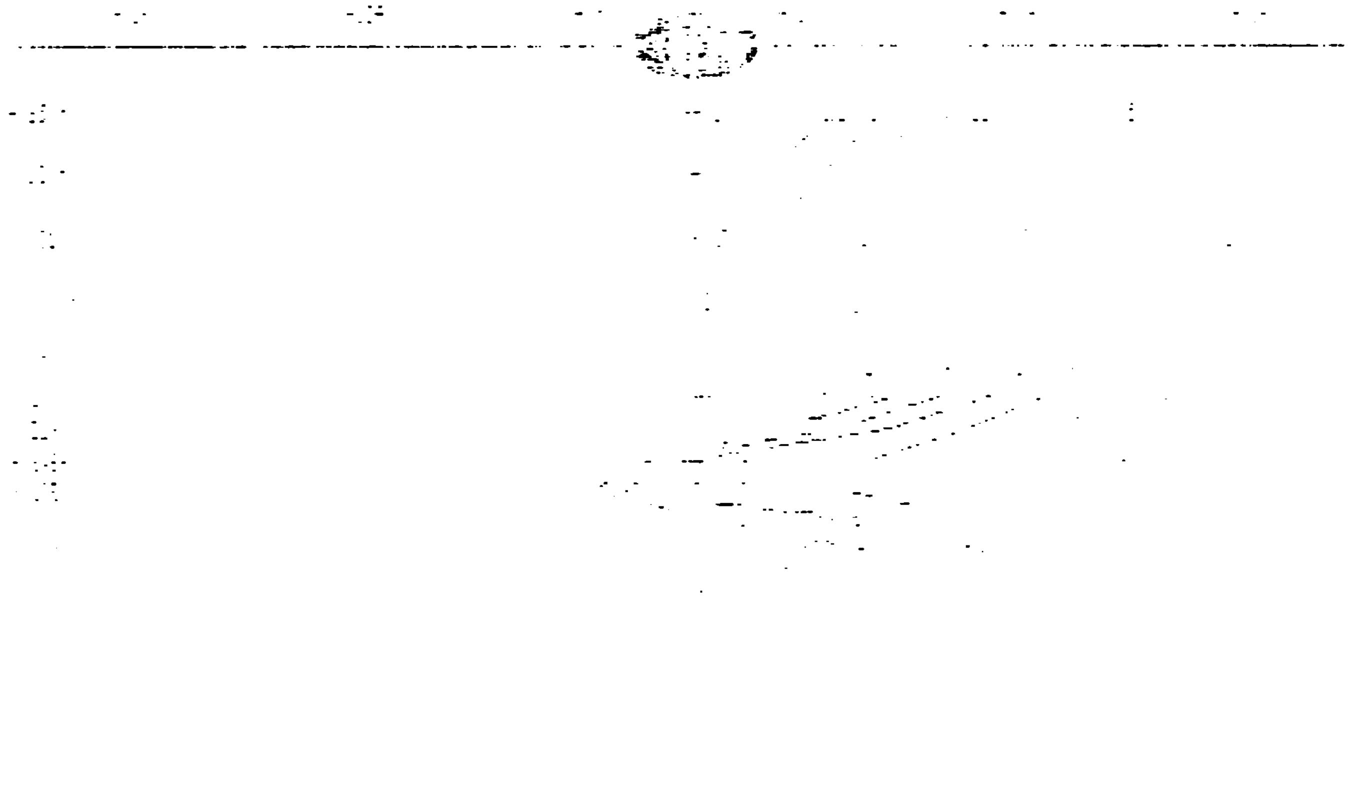
13



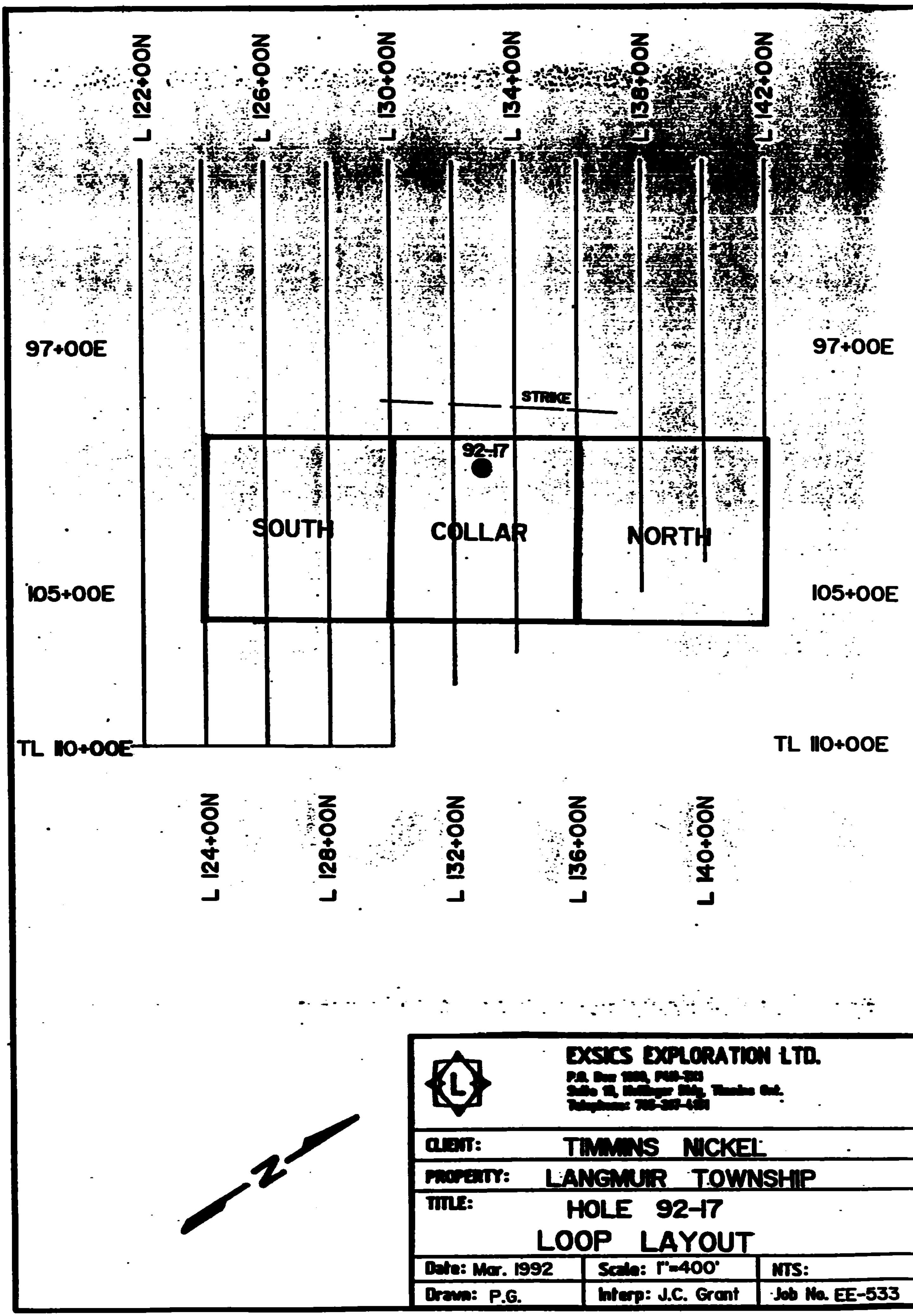
CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

TIMMINS-NOVEL 13
Langmuir



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM



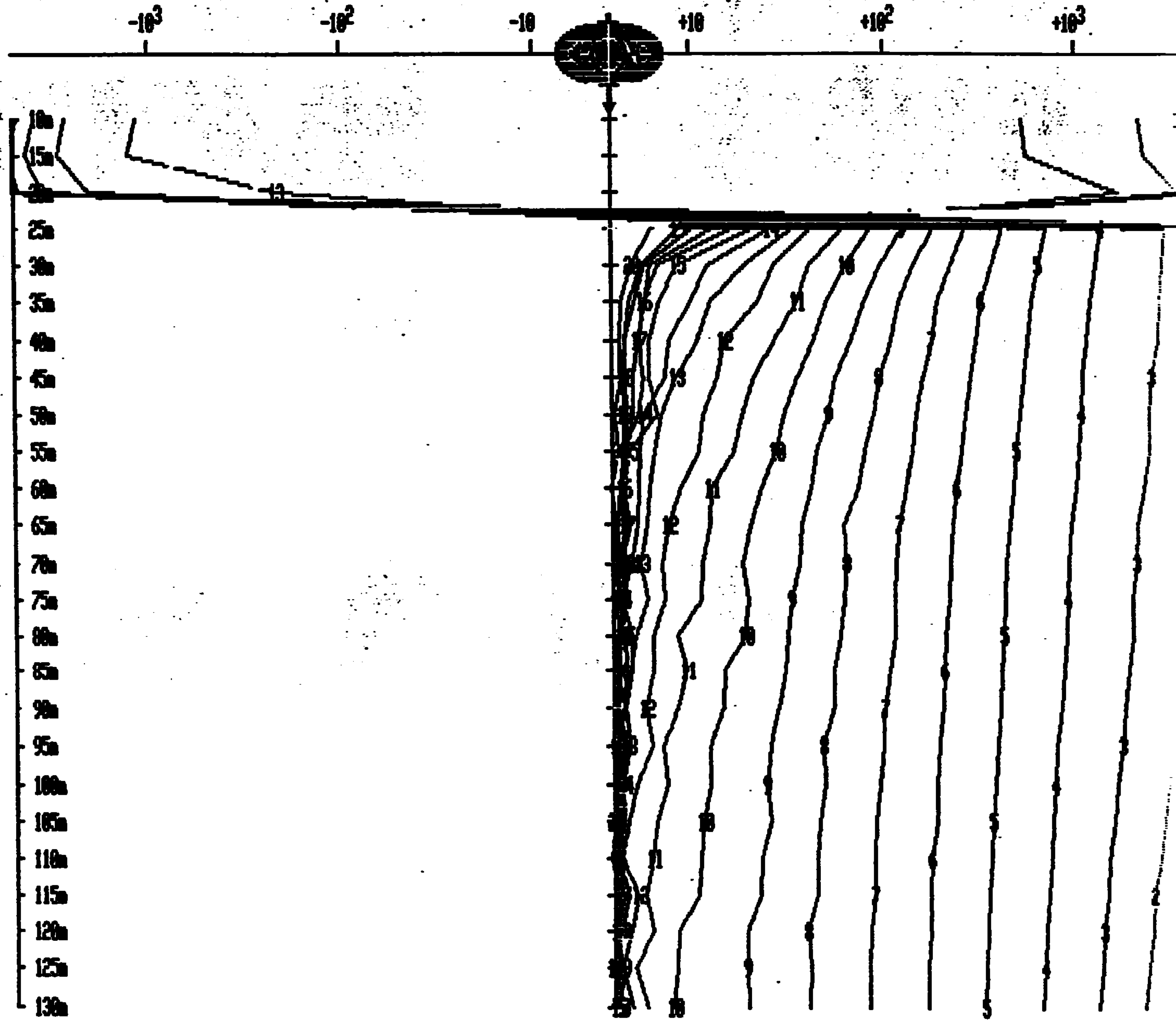
L 122+00N
L 126+00N
L 130+00N
L 134+00N
L 138+00N
L 142+00N
97+00E
97+00E
STRIKE
92-17
SOUTH
COLLAR
NORTH
105+00E
105+00E
TL 110+00E
TL 110+00E
L 124+00N
L 128+00N
L 132+00N
L 136+00N
L 140+00N
N
EXSICS EXPLORATION LTD.
CLIENT: TIMMINS NICKEL
PROPERTY: LANGMUIR TOWNSHIP
TITLE: HOLE 92-17
LOOP LAYOUT
Date: Mar. 1992
Scale: 1"=400'
NTS:
Drawn: P.G.
Interp: J.C. Grant
Job No. EE-533

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User : EXSICS EXPLORATION LIMITED
Client : TIMMINS-NICKEL
Grid : LANGMUIR
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1:1000

Hole : DH9217
Tx Loop : COLLAR
Date : Mar 9, 1992
File : DH9217CL.pem

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels

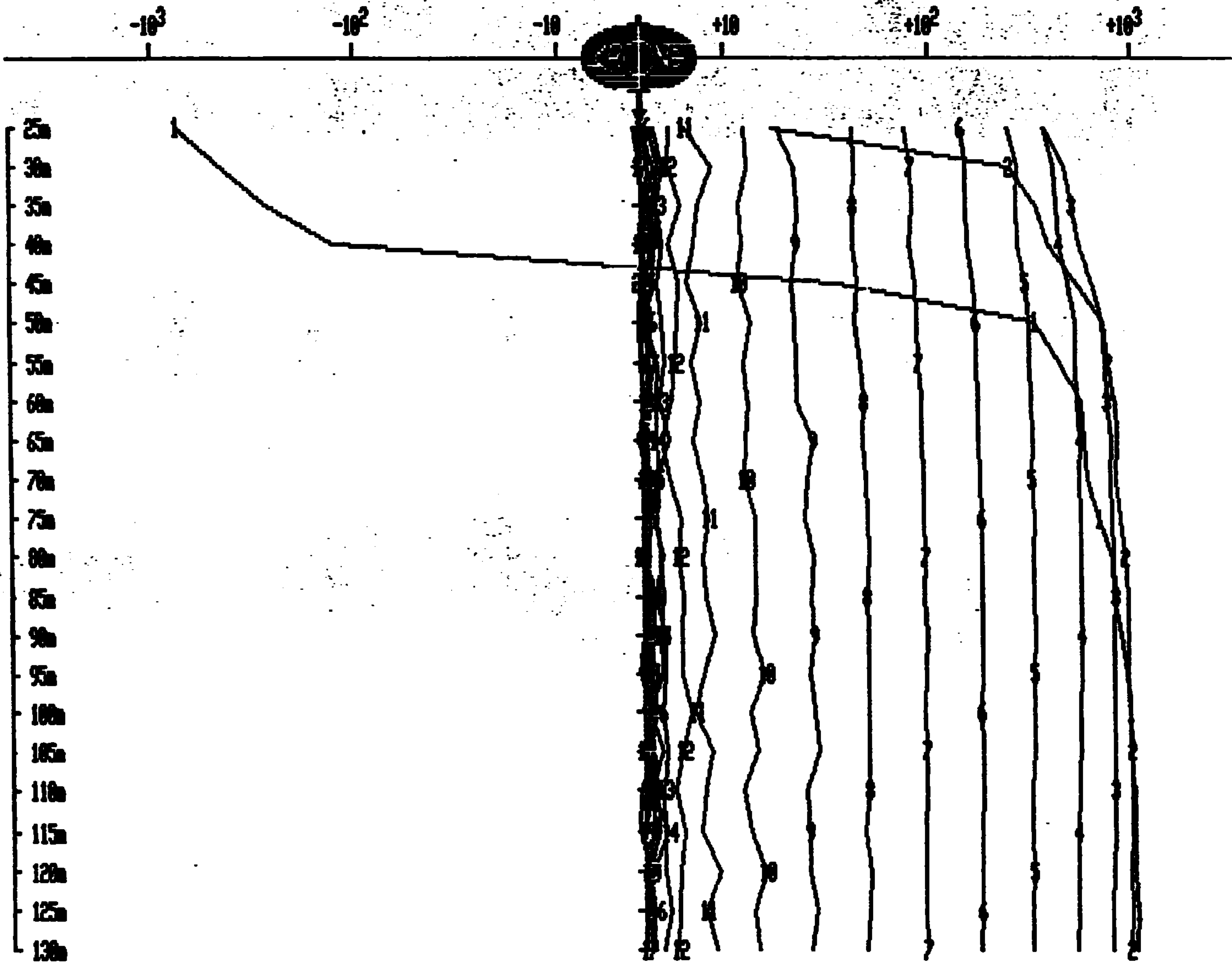


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User : EXSICS EXPLORATION LIMITED
Client : TIMMINS-NICKEL
Grid : LANGMUIR
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1:1000

Hole : DH9217
Tx Loop : NORTH
Date : Mar 9, 1992
File : DH9217NL.pem

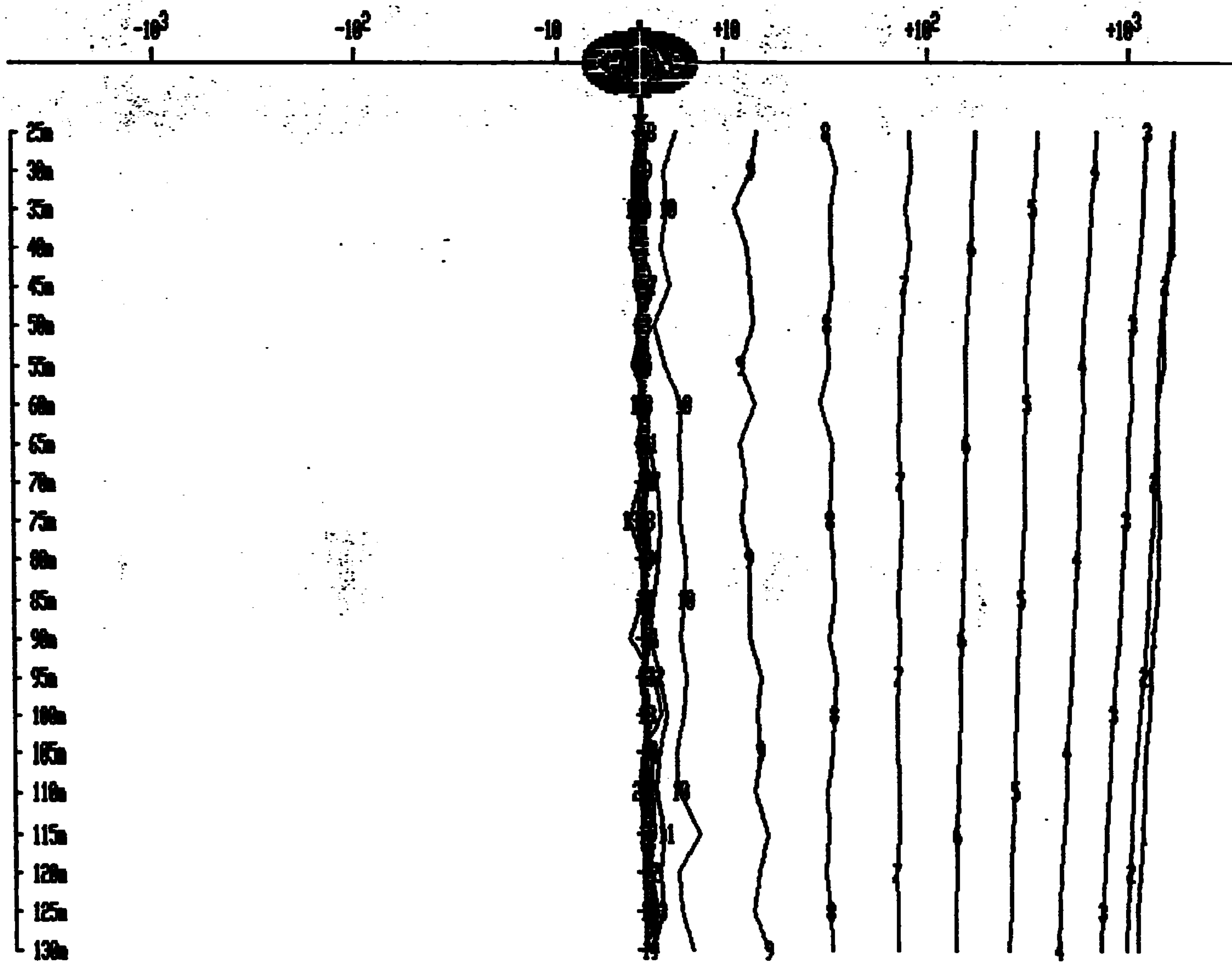
AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels

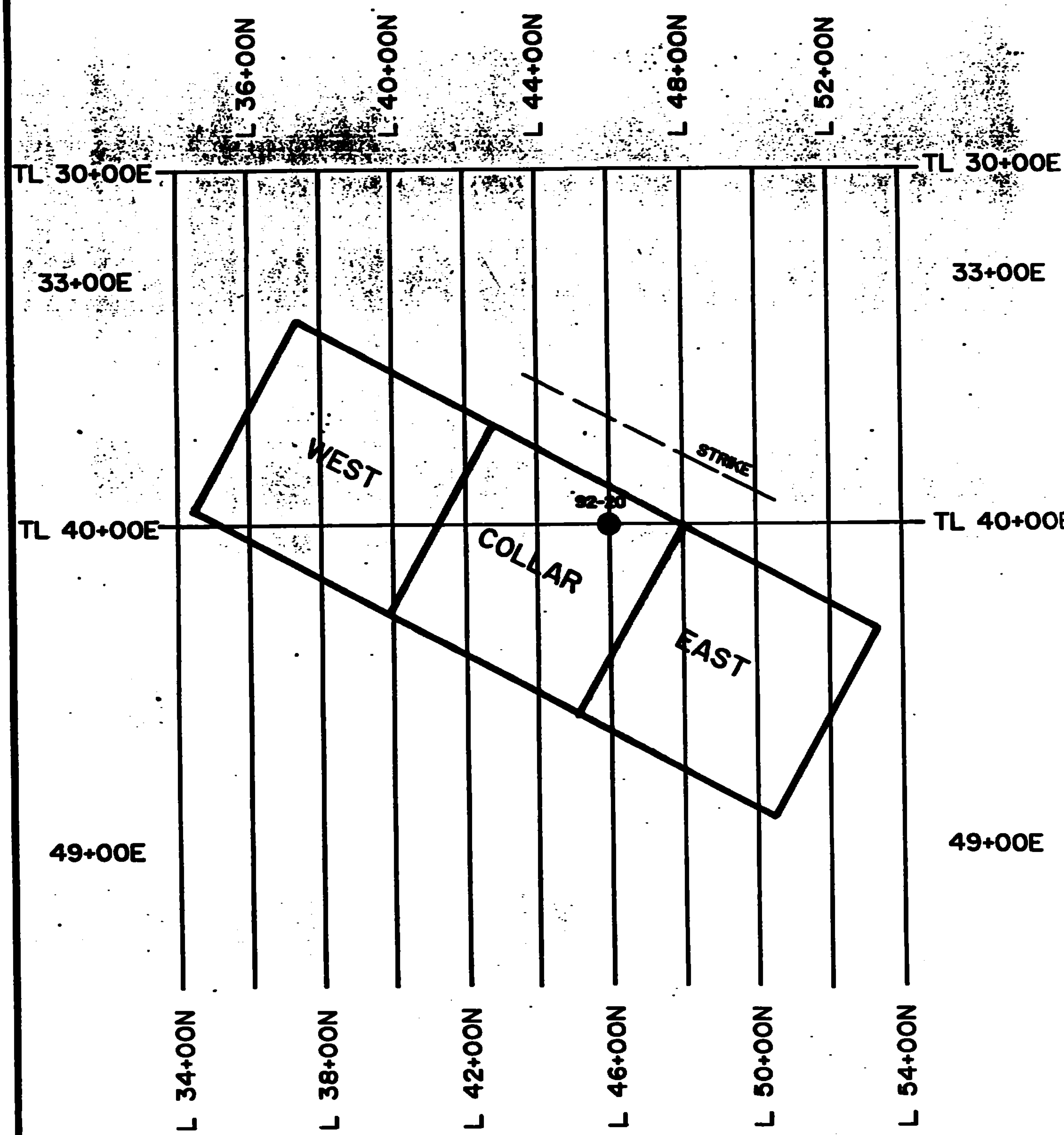


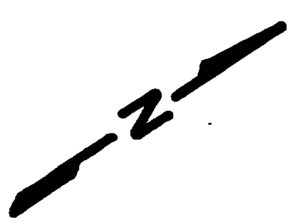
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9217
Grid	: LANGMUIR	Tx Loop	: SOUTH
Time Base	: 16.66 ms	Date	: Mar 9, 1992
Ramp Time	: 1.50 ms	File	: DH9217SL.pem
Scale	: 1:1000		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels







EXSICS EXPLORATION LTD.

CLIENT:	TIMMINS NICKEL
PROPERTY:	LANGMUIR TOWNSHIP
TITLE:	HOLE 92-20 LOOP LAYOUT

Date: Mar. 1992	Scale: 1"=400'	NTS:
Drawn: P.G.	Interp: J.C. Grant	Job No. EE-533

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9220
Grid	: LANGMUIR	Tx Loop	: COLLAR
Time Base	: 16.66 ms	Date	: Mar 11, 1992
Ramp Time	: 1.50 ms	File	: DH9220CL.pem
Sync Type	: Cable	Coil Area	: 4000 sq m
# Channels	: 20	Polarity	: +
# Readings	: 13	Stn Units	: Imperial
Loop Size	: 600'x600'	Receiver	: Digital #113
Current	: 11 AMP	Operator	: P.A

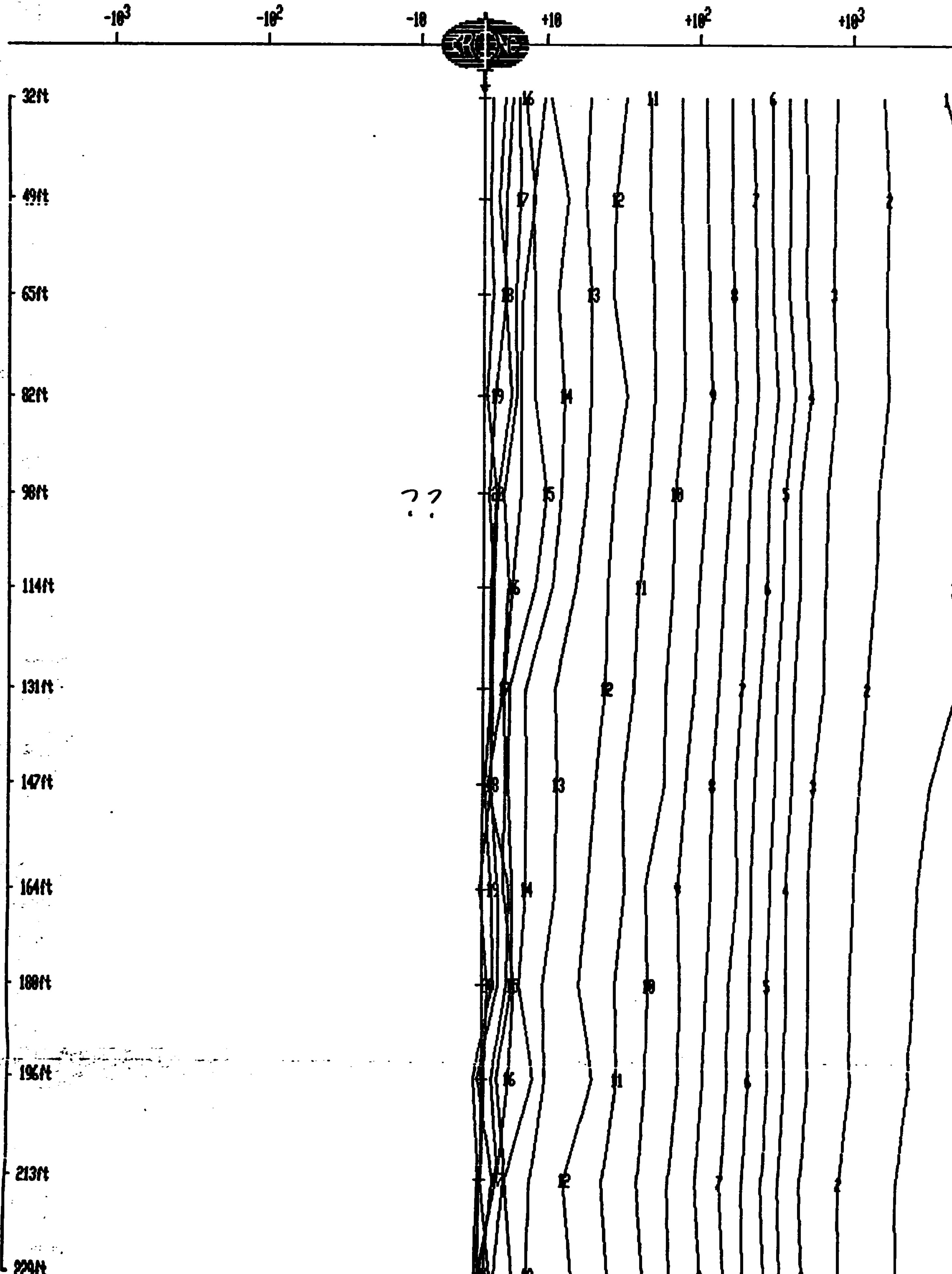
Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9220
Grid	: LANGMUIR	Tx Loop	: COLLAR
Time Base	: 16.66 ms	Date	: Mar 11, 1992
Ramp Time	: 1.50 ms	File	: DH9220CL.pem
Scale	: 1in = 25 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9220
Grid	: LANGMUIR	Tx Loop	: EAST
Time Base	: 16.66 ms	Date	: Mar 11, 1992
Ramp Time	: 1.50 ms	File	: DH9220EL.pem
Sync Type	: Cable	Coil Area	: 4000 sq m
# Channels	: 20	Polarity	: +
# Readings	: 13	Stn Units	: Imperial
Loop Size	: 600'x600'	Receiver	: Digital #113
Current	: 11 Amp	Operator	: P.A.

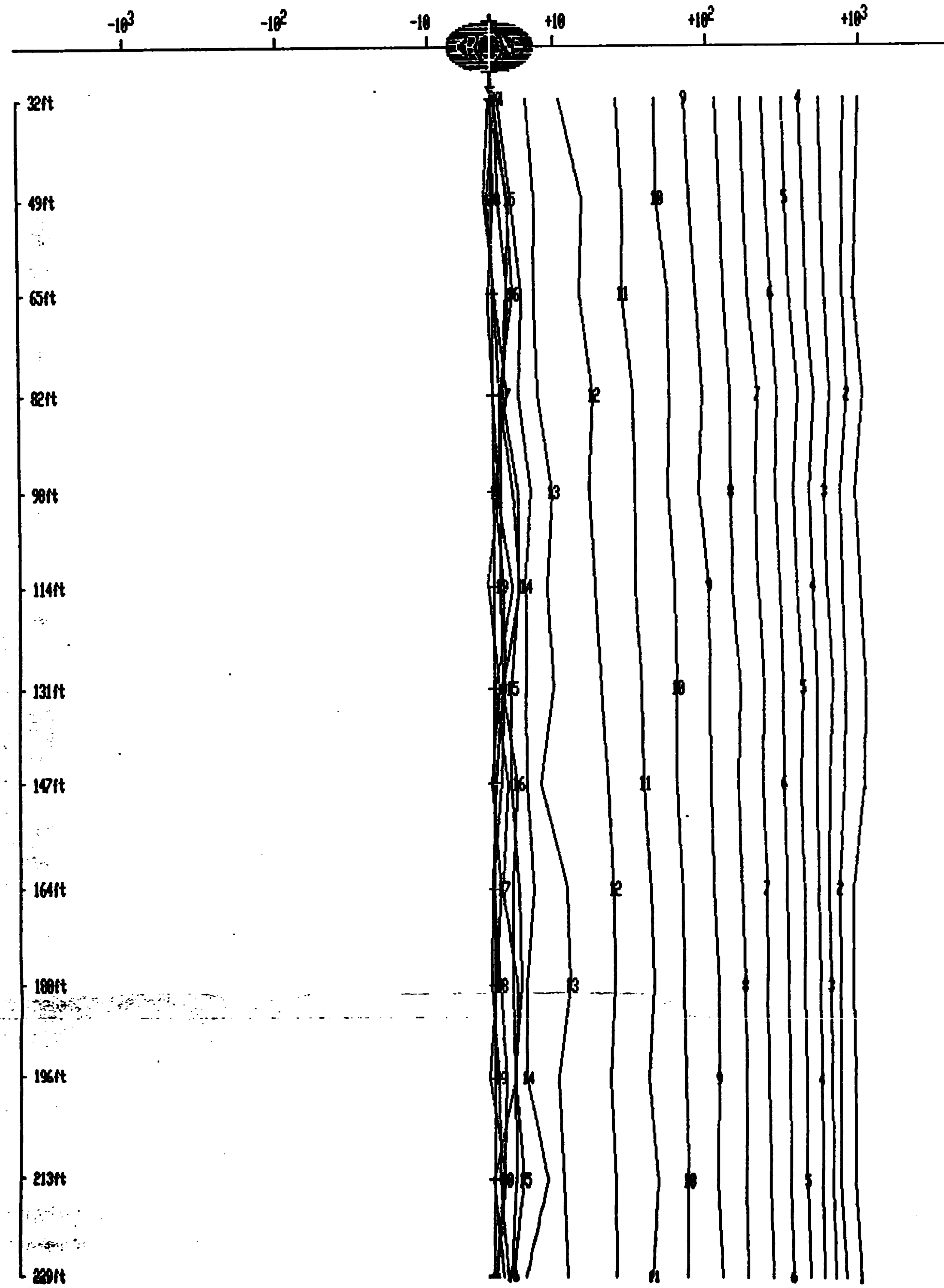
Channel Times (usec)

Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9220
Grid	: LANGMUIR	Tx Loop	: EAST
Time Base	: 16.66 ms	Date	: Mar 11, 1992
Ramp Time	: 1.50 ms	File	: DH9220EL.pem
Scale	: lin = 25 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User : EXSICS EXPLORATION LIMITED
Client : TIMMINS-NICKEL
Grid : LANGMUIR
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Sync Type : Cable
Channels: 20
Readings: 13
Loop Size : 600'x600'
Current : 11 AMP

Hole : DH9220
Tx Loop : WEST
Date : Mar 11, 1992
File : DH9220WL.pem
Coil Area : 4000 sq m
Polarity : +
Stn Units : Imperial
Receiver : Digital #113
Operator : P.A.

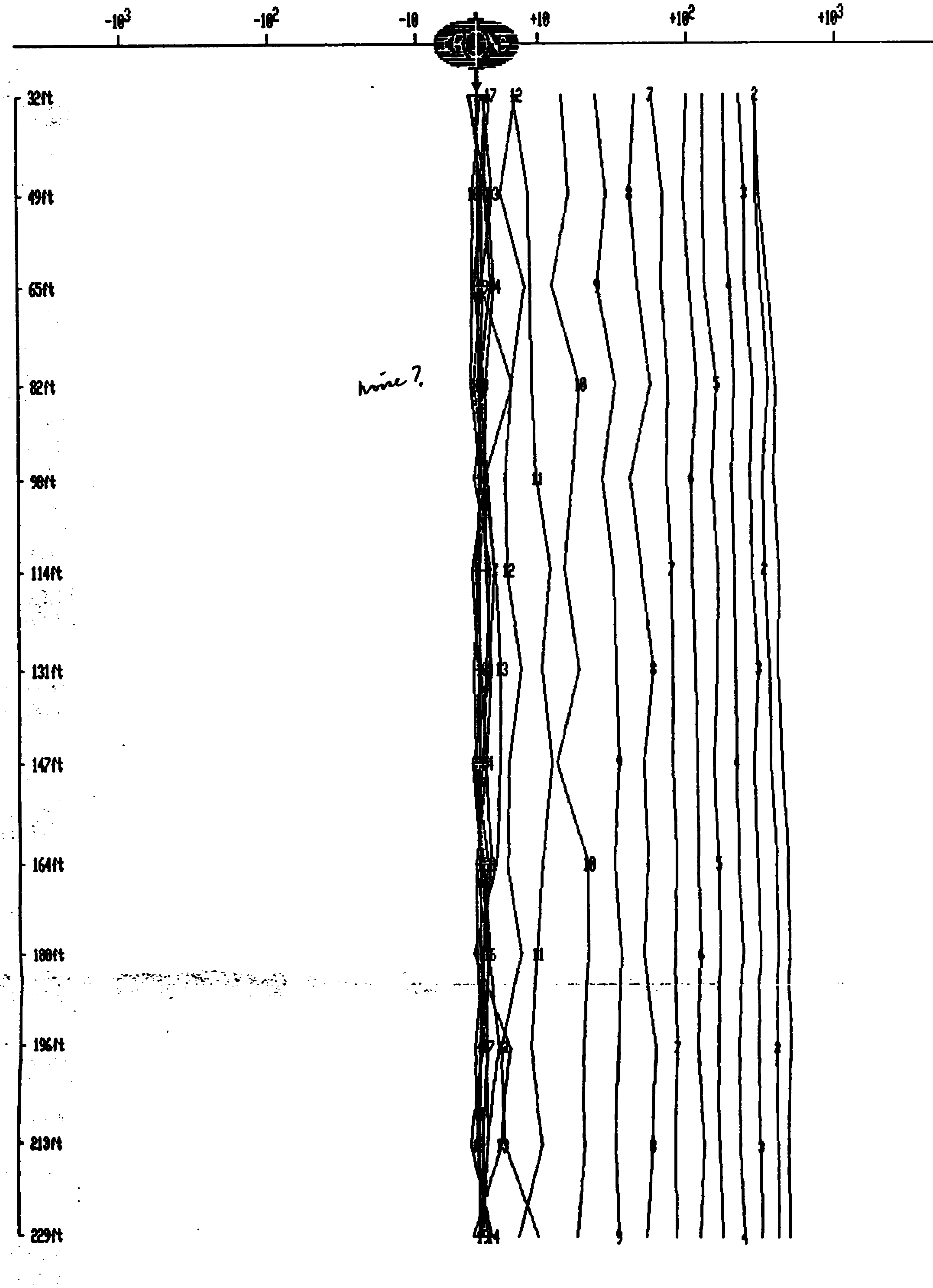
Channel Times (usec)

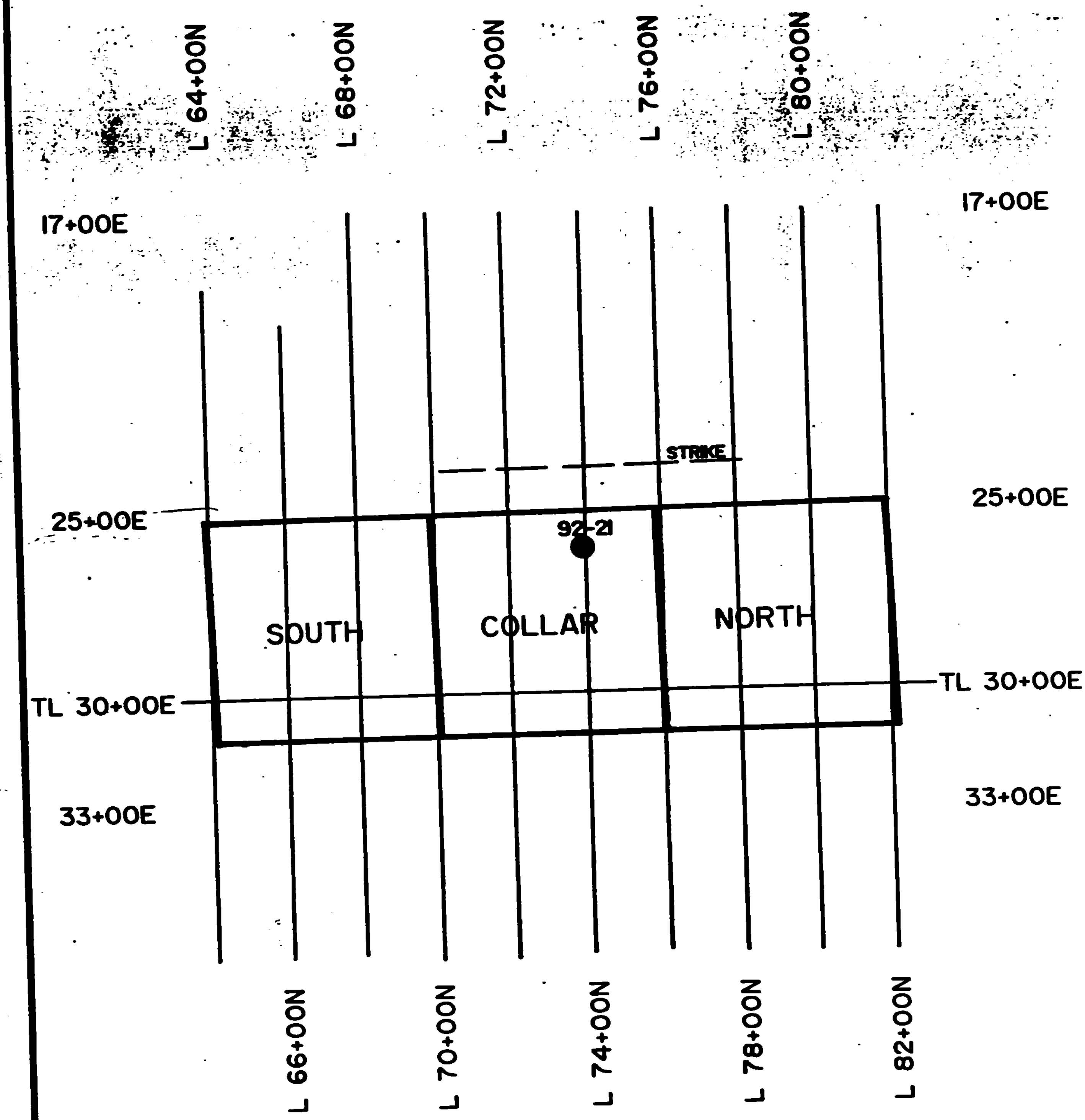
Ch	Start	End	Center	Ch	Start	End	Center	Ch	Start	End	Center
PP	-198	-99	-149	1	76	104	90	2	104	131	117
3	131	171	151	4	171	225	198	5	225	292	259
6	292	378	335	7	378	490	434	8	490	639	565
9	639	828	733	10	828	1075	952	11	1075	1395	1235
12	1395	1809	1602	13	1809	2348	2078	14	2348	3046	2697
15	3046	3951	3498	16	3951	5121	4536	17	5121	6646	5884
18	6646	8617	7632	19	8617	11170	9894	20	11170	14490	12830

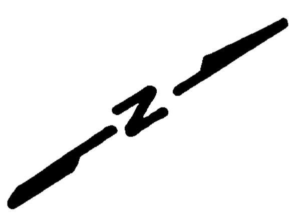
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9220
Grid	: LANGMUIR	Tx Loop	: WEST
Time Base	: 16.66 ms	Date	: Mar 11, 1992
Ramp Time	: 1.50 ms	File	: DH9220WL.pem
Scale	: lin = 25 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels







EXSICS EXPLORATION LTD.

CLIENT:	TIMMINS NICKEL
PROPERTY:	LANGMUIR TOWNSHIP
TITLE:	HOLE 92-21 LOOP LAYOUT

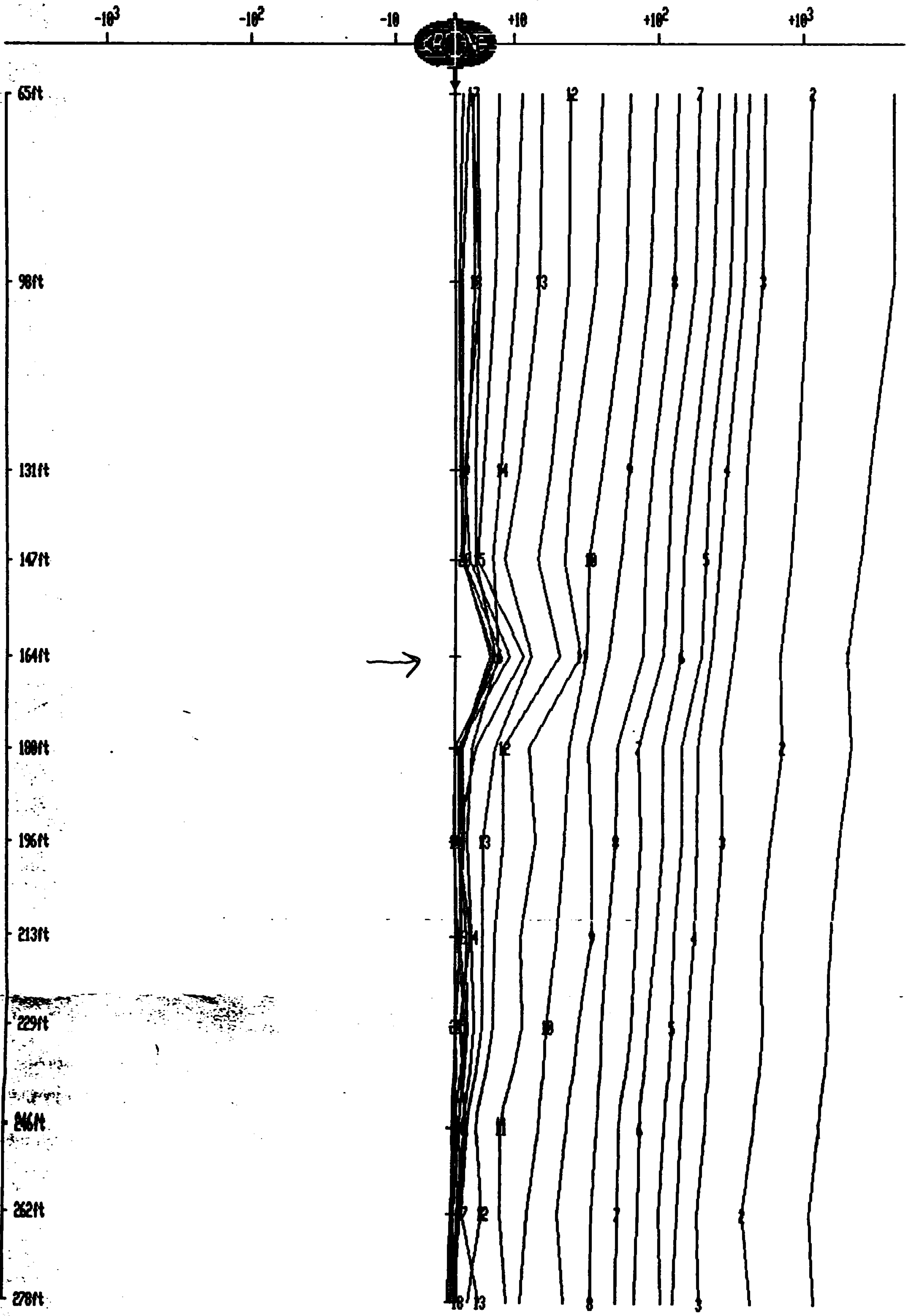
Date: Mar. 1992	**Scale:** 1"=400'	**NTS:**
Drawn: P.G.	**Interp:** J.C. Grant	**Job No.** EE-533

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User : EXSICS EXPLORATION LIMITED
Client : TIMMINS-NICKEL
Grid : LANGMUIR
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 25 ft

Hole : DH9221
Tx Loop : COLLAR
Date : Mar 6, 1992
File : DH9221CL.pem

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels

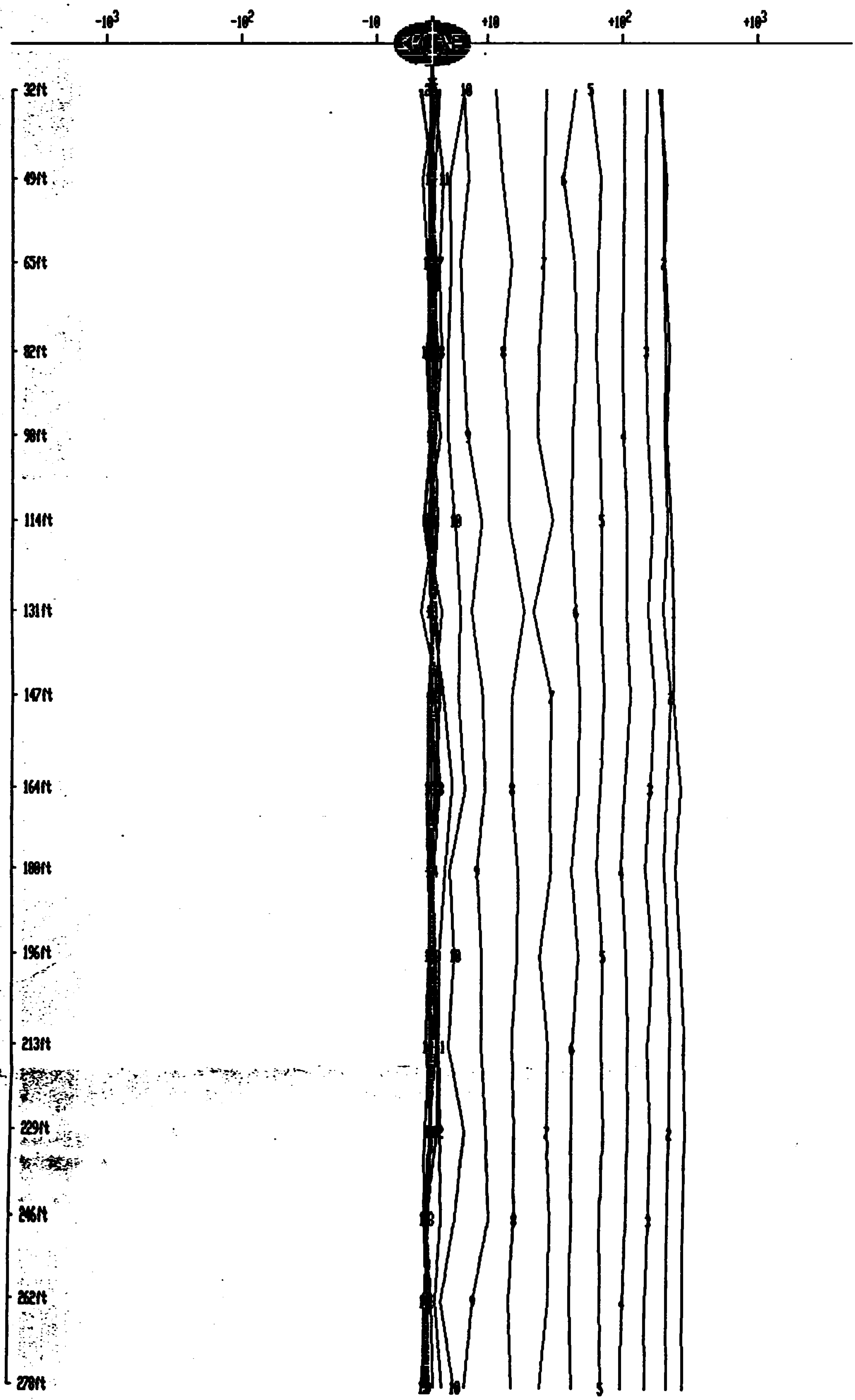


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User : EXSICS EXPLORATION LIMITED
Client : TIMMINS-NICKEL
Grid : LANGMUIR
Time Base : 16.66 ms
Ramp Time : 1.50 ms
Scale : 1in = 25 ft

Hole : DH9221
Tx Loop : SOUTH
Date : Mar 6, 1992
File : DH9221SL.pem

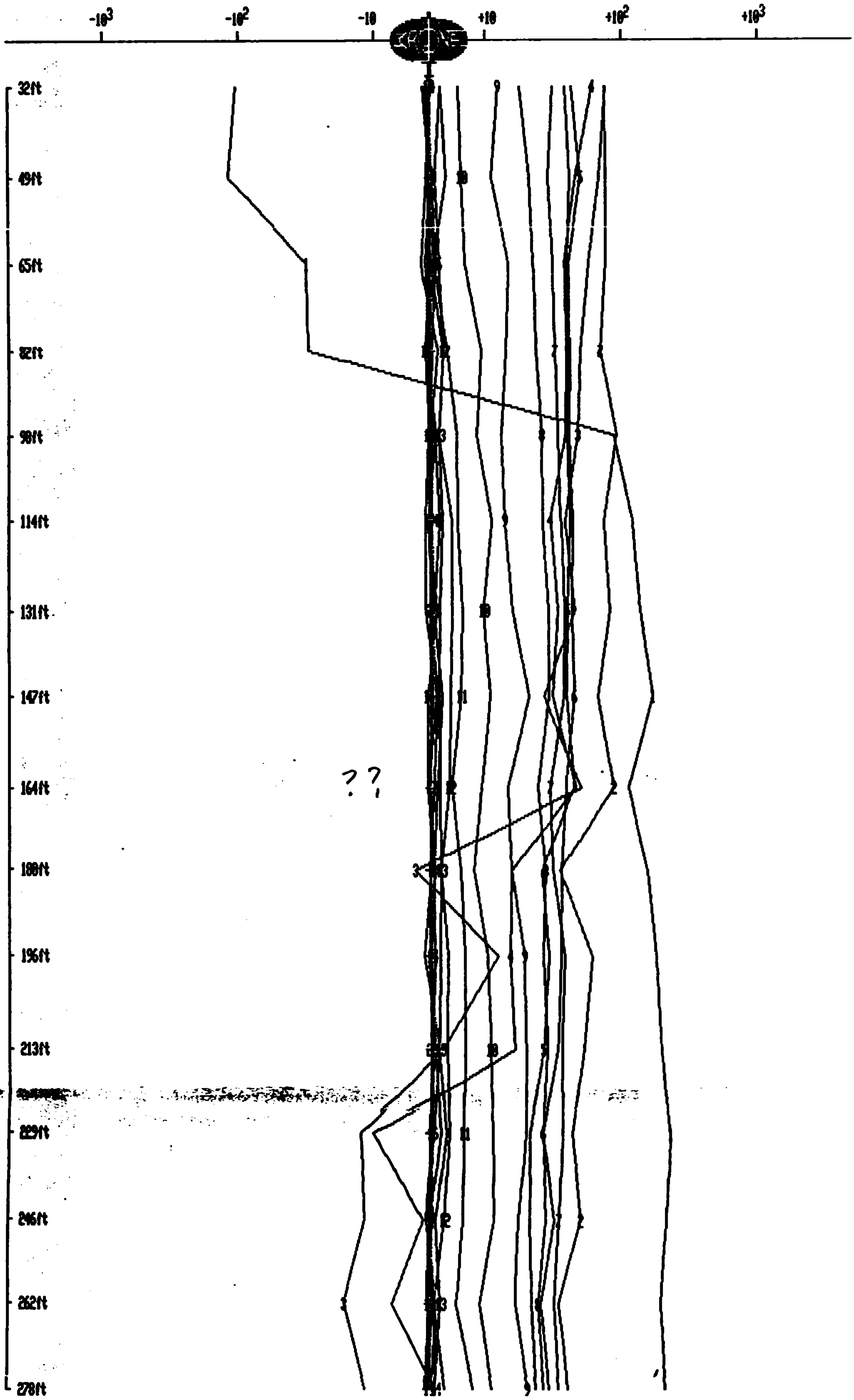
AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

User	: EXSICS EXPLORATION LIMITED		
Client	: TIMMINS-NICKEL	Hole	: DH9221
Grid	: LANGMUIR	Tx Loop	: NORTH
Time Base	: 16.66 ms	Date	: Mar 6, 1992
Ramp Time	: 1.50 ms	File	: DH9221NL.pem
Scale	: 1in = 25 ft		

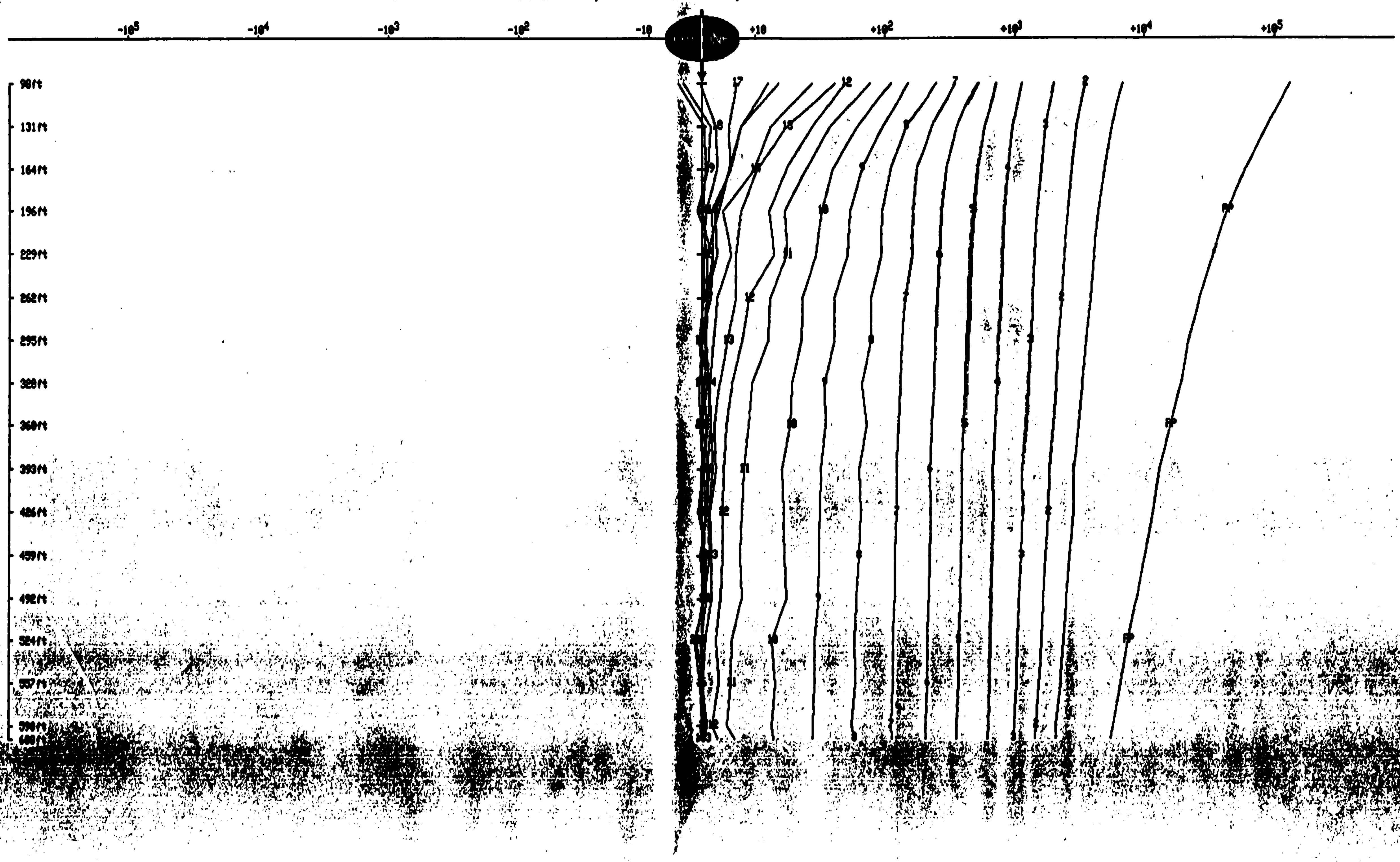
AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client	: TIMMINS-NICKEL	Hole	: L92-14
Grid	: LAMGMIUR	Tx Loop	: C
Time Base	: 16.66 ms	Date	: Feb 5, 1992
Ramp Time	: 1.50 ms	File	: L9214TC.pem
Scale	: 1in = 100 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL
Grid : LAMGMIUR
Time Base : 16.66 ms
Ramp Time : 1.50 ms

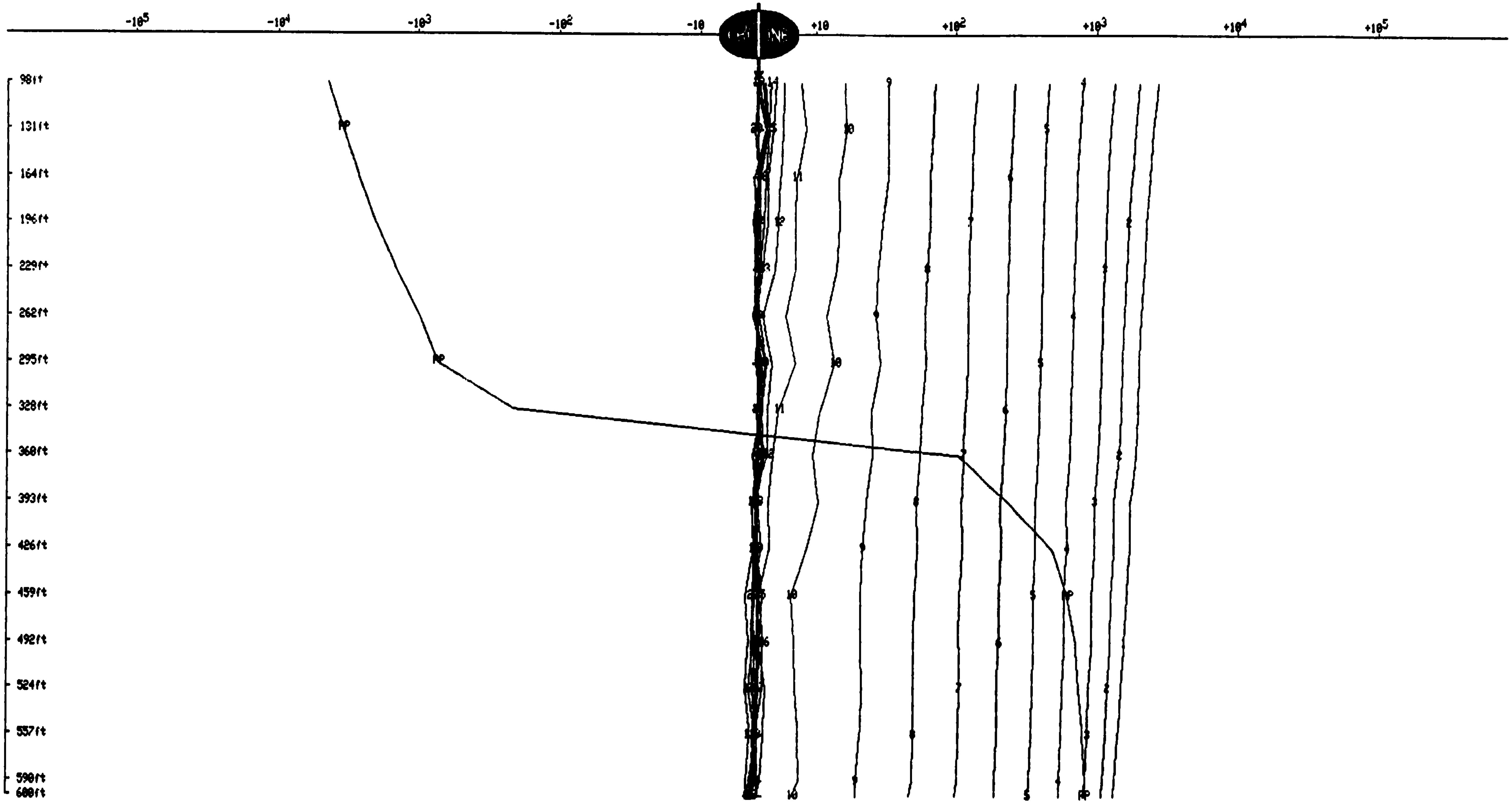
Hole : L92-14
Tx Loop : C
Date : Feb 5, 1992
File : L9214TC.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
98ft	Z	0 A7	1516.5	90	1024	PP	35	132900	6853	3545	2011	1160	735	517	346	249	152	112	79	51	42	28	13	15	7	-0	-3	-4
131ft	Z	1 A7	1516.5	90	1024	PP	36	87810	5655	3018	1730	954	569	358	231	149	98	62	38	28	18	13	7	7	5	3	2	1
164ft	Z	2 A7	1516.5	90	1024	PP	37	59710	4961	2755	1593	886	509	294	176	110	67	40	25	18	10	1	6	5	5	3	1	1
196ft	Z	2 A7	1516.5	90	1024	PP	38	43310	4475	2565	1485	836	475	274	165	96	55	33	17	13	7	4	2	3	3	1	-1	0
229ft	Z	2 A7	1516.5	90	1024	PP	39	33450	4096	2376	1416	805	453	262	163	94	52	30	18	14	6	6	2	1	3	0	2	1
262ft	Z	3 A7	1516.5	90	1024	PP	40	26490	3837	2282	1375	791	449	254	145	80	41	23	13	9	6	3	2	1	1	0	1	1
295ft	Z	3 A7	1516.5	90	1024	PP	24	21840	3571	2145	1322	757	435	245	136	79	41	23	13	8	5	2	-0	1	1	-0	0	1
328ft	Z	3 A7	1516.5	90	1024	PP	25	18960	3364	2077	1287	747	424	244	132	68	35	19	9	6	3	2	1	1	2	0	-0	1
360ft	Z	3 A7	1516.5	90	1024	PP	26	15860	3131	1981	1240	723	411	232	129	73	35	19	9	5	2	2	0	2	1	1	-0	-0
393ft	Z	4 A7	1516.5	90	1024	PP	27	12980	2870	1860	1172	690	396	225	124	65	32	16	8	4	3	2	1	1	0	-0	0	0
426ft	Z	4 A7	1516.5	90	1024	PP	28	11620	2829	1822	1182	697	402	228	124	66	32	17	8	4	2	1	1	1	1	-0	-0	-1
459ft	Z	4 A7	1516.5	90	1024	PP	29	10020	2637	1737	1140	676	391	224	120	64	32	17	7	4	2	2	-0	-0	0	0	1	1
492ft	Z	4 A7	1516.5	90	1024	PP	30	8699	2483	1668	1093	656	385	219	119	62	31	18	7	4	2	1	1	0	1	0	0	1
524ft	Z	5 A7	1516.5	90	1024	PP	31	7384	2338	1595	1058	644	376	213	116	60	29	13	6	3	1	0	-0	0	0	0	-1	-1
557ft	Z	5 A7	1516.5	90	2048	PP	32	6497	2230	1538	1035	633	372	213	116	60	29	14	5	3	0	0	0	-0	0	0	0	-0
590ft	Z	5 A7	1516.5	90	2048	PP	33	5736	2081	1467	987	611	359	206	113	57	28	13	5	2	1	0	1	0	0	0	1	0
600ft	Z	5 A7	1516.5	90	1024	PP	34	5486	2063	1436	981	607	359	208	114	59	28	14	6	3	1	0	0	0	0	-0	0	-0

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client	: TIMMINS-NICKEL	Hole	: L92-14
Grid	: LAMGMIUR	Tx Loop	: S
Time Base	: 16.66 ms	Date	: Feb 5, 1992
Ramp Time	: 1.50 ms	File	: L9214TS.pem
Scale	: 1in = 100 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

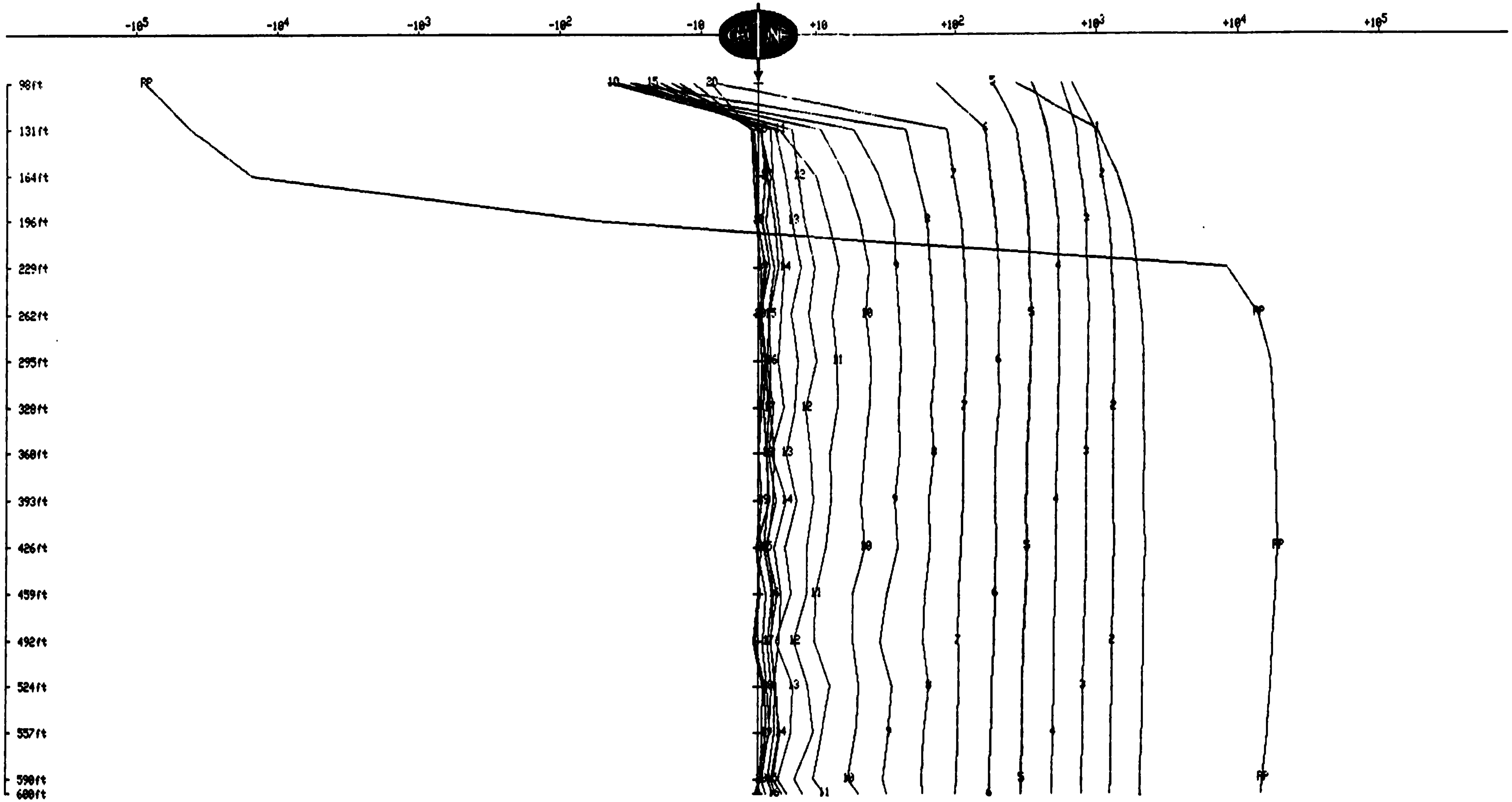
Client	: TIMMINS-NICKEL	Hole	: L92-14
Grid	: LAMGMIUR	Tx Loop	: S
Time Base	: 16.66 ms	Date	: Feb 5, 1992
Ramp Time	: 1.50 ms	File	: L9214TS.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
98ft	Z	5 A7	1516.5	90	1024	PP	47	-4341	2782	2035	1360	803	459	257	140	72	33	16	8	5	3	2	1	1	-0	0	-0	0
131ft	Z	6 A7	1516.5	90	1024	PP	48	-3404	2568	1914	1288	768	438	250	133	70	33	17	8	4	3	2	2	2	1	1	0	-0
164ft	Z	6 A7	1516.5	90	1024	PP	49	-2612	2411	1806	1223	737	424	239	130	66	33	15	7	4	2	1	0	0	-1	0	0	0
196ft	Z	6 A7	1516.5	90	1024	PP	50	-1991	2295	1719	1179	717	416	236	126	67	30	15	7	3	2	1	-0	0	-0	0	-1	-0
229ft	Z	6 A7	1516.5	90	1024	PP	51	-1435	2199	1657	1146	703	411	233	124	64	28	14	7	3	1	0	0	0	0	0	0	-0
262ft	Z	6 A7	1516.5	90	1024	PP	52	-978	2095	1597	1116	688	403	229	122	61	27	12	5	1	-0	0	-0	-1	-0	-0	-0	-0
295ft	Z	6 A7	1516.5	90	1024	PP	22	-715	2038	1559	1095	678	402	228	122	63	30	14	7	3	2	1	1	1	0	-0	0	1
328ft	Z	6 A7	1516.5	90	1024	PP	21	-210	2016	1524	1078	670	393	224	117	59	26	11	4	2	1	1	-0	-0	0	1	1	1
360ft	Z	6 A7	1516.5	90	1024	PP	20	106	1933	1477	1041	650	385	218	115	57	26	1	3	2	0	1	0	1	1	-0	-1	-1
393ft	Z	6 A7	1516.5	90	1024	PP	19	236	1775	1369	975	616	367	208	112	53	23	11	2	-1	-1	-1	-0	-0	0	-0	0	0
426ft	Z	6 A7	1516.5	90	1024	PP	18	492	1762	1373	978	620	368	211	112	54	22	9	2	-1	-1	-1	0	-0	-0	-0	-0	1
459ft	Z	6 A7	1516.5	90	1024	PP	17	623	1673	1307	938	596	358	203	108	51	21	6	0	-1	-2	-0	0	0	1	0	-1	-1
492ft	Z	7 A7	1516.5	90	1024	PP	16	719	1614	1287	929	599	357	202	107	51	21	6	0	-1	-1	-1	-0	1	0	0	-0	-1
524ft	Z	7 A7	1516.5	90	1024	PP	15	750	1521	1222	892	580	348	199	107	50	22	6	1	-1	-2	-0	0	1	0	-0	-1	-1
557ft	Z	7 A7	1516.5	90	2048	PP	14	809	1467	1177	875	567	345	198	106	51	21	7	1	-0	-1	-1	-0	-0	-0	-0	-0	-0
590ft	Z	7 A7	1516.5	90	1024	PP	13	852	1397	1133	840	552	336	192	104	50	20	7	1	-1	-2	-0	-0	-1	-1	-1	-1	-0
600ft	Z	7 A7	1516.5	90	1024	PP	12	835	1365	1112	824	545	332	190	102	48	20	6	0	-2	-2	-2	-1	-1	-1	-0	-1	-1

CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client	: TIMMINS-NICKEL	Hole	: L92-14
Grid	: LAMGMIUR	Tx Loop	: W
Time Base	: 16.66 ms	Date	: Feb 5, 1992
Ramp Time	: 1.50 ms	File	: L9214TW.pem
Scale	: 1in = 100 ft		

AXIAL COMPONENT dBa/dt nanoTesla/sec - 20 channels and PP



CRONE GEOPHYSICS & EXPLORATION LTD
VAL D'OR GEOPHYSIQUE LTEE
BOREHOLE PEM

Client : TIMMINS-NICKEL		Hole	: L92-14
Grid : LAMGMIUR		Tx Loop	: W
Time Base : 16.66 ms		Date	: Feb 5, 1992
Ramp Time : 1.50 ms		File	: L9214TW.pem

Station	Cmp	Gains	ZTS	Delay	Stack	Ovld	Rdg#	PP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
98ft	Z	1 A7	1516.5	90	1024	PP	46	-85240	266	674	568	341	183	74	-7	-31	-45	-43	-44	-38	-31	-28	-22	-19	-16	-14	-11	-8
131ft	Z	2 A7	1516.5	90	2048	PP	45	-41070	1020	988	726	446	271	162	87	44	19	11	4	6	3	2	1	0	1	-1	-1	-1
164ft	Z	4 A7	1516.5	90	1024	PP	44	-15080	1443	1116	788	501	302	177	98	53	29	17	10	7	5	3	2	2	1	0	-1	-0
196ft	Z	6 A7	1516.5	90	1024	PP	43	-54	1802	1265	856	538	326	192	111	63	37	21	12	8	6	4	3	1	1	-0	-0	-0
229ft	Z	4 A7	1516.5	90	1024	PP	42	8470	1965	1306	868	542	331	199	117	66	38	24	15	1	7	5	4	3	2	2	1	1
262ft	Z	4 A7	1516.5	90	1024	PP	41	14060	2146	1369	894	553	338	202	120	70	40	23	13	9	6	4	2	2	0	1	1	0
295ft	Z	3 A7	1516.5	90	1024	PP	1	17490	2205	1361	882	550	336	202	121	72	41	25	14	10	7	4	2	2	1	1	1	1
328ft	Z	3 A7	1516.5	90	1024	PP	2	18240	2212	1349	873	543	331	202	117	67	40	25	14	8	7	5	3	2	2	1	0	1
360ft	Z	3 A7	1516.5	90	1024	PP	3	18950	2235	1355	866	534	320	192	114	71	40	23	13	9	5	3	2	3	2	2	0	0
393ft	Z	3 A7	1516.5	90	1024	PP	4	19130	2210	1341	857	523	316	190	114	65	37	21	13	1	7	5	3	3	2	2	1	0
426ft	Z	3 A7	1516.5	90	1024	PP	5	19270	2263	1364	860	527	320	194	111	67	39	23	12	9	5	3	1	2	1	-0	-0	1
459ft	Z	3 A7	1516.5	90	1024	PP	6	18770	2218	1343	851	515	313	190	108	62	33	19	10	9	6	4	3	3	3	1	0	0
492ft	Z	3 A7	1516.5	90	1024	PP	7	17980	2209	1320	834	504	304	188	106	60	29	19	1	6	3	4	2	2	2	1	-0	-1
524ft	Z	3 A7	1516.5	90	1024	PP	8	17280	2173	1323	824	503	301	182	108	66	36	21	13	9	6	3	3	3	2	2	1	1
557ft	Z	3 A7	1516.5	90	1024	PP	9	16500	2154	1298	819	496	300	181	106	61	34	20	11	1	6	4	4	3	2	2	1	1
590ft	Z	4 A7	1516.5	90	1024	PP	10	15370	2089	1292	805	490	295	176	104	58	31	17	1	7	4	3	3	2	1	-0	0	1
600ft	Z	4 A7	1516.5	90	1024	PP	11	14990	2096	1272	804	488	293	178	103	59	33	21	12	8	5	4	3	3	1	1	-0	-0

MAP LN-1

TIMMINS NICKEL INC.

LANGMUIR GRID
TIMMINS, ONTARIO

TOTAL FIELD MAGNETIC SURVEY
Contour Interval 200 nT
Base Datum - 59,000 nT

R. W. Woolham, February, 1992

Scale 1:6000

250 0 250 500 750 (feet)

MAP LN-2

TIMMINS NICKEL INC.

LANGMUIR GRID

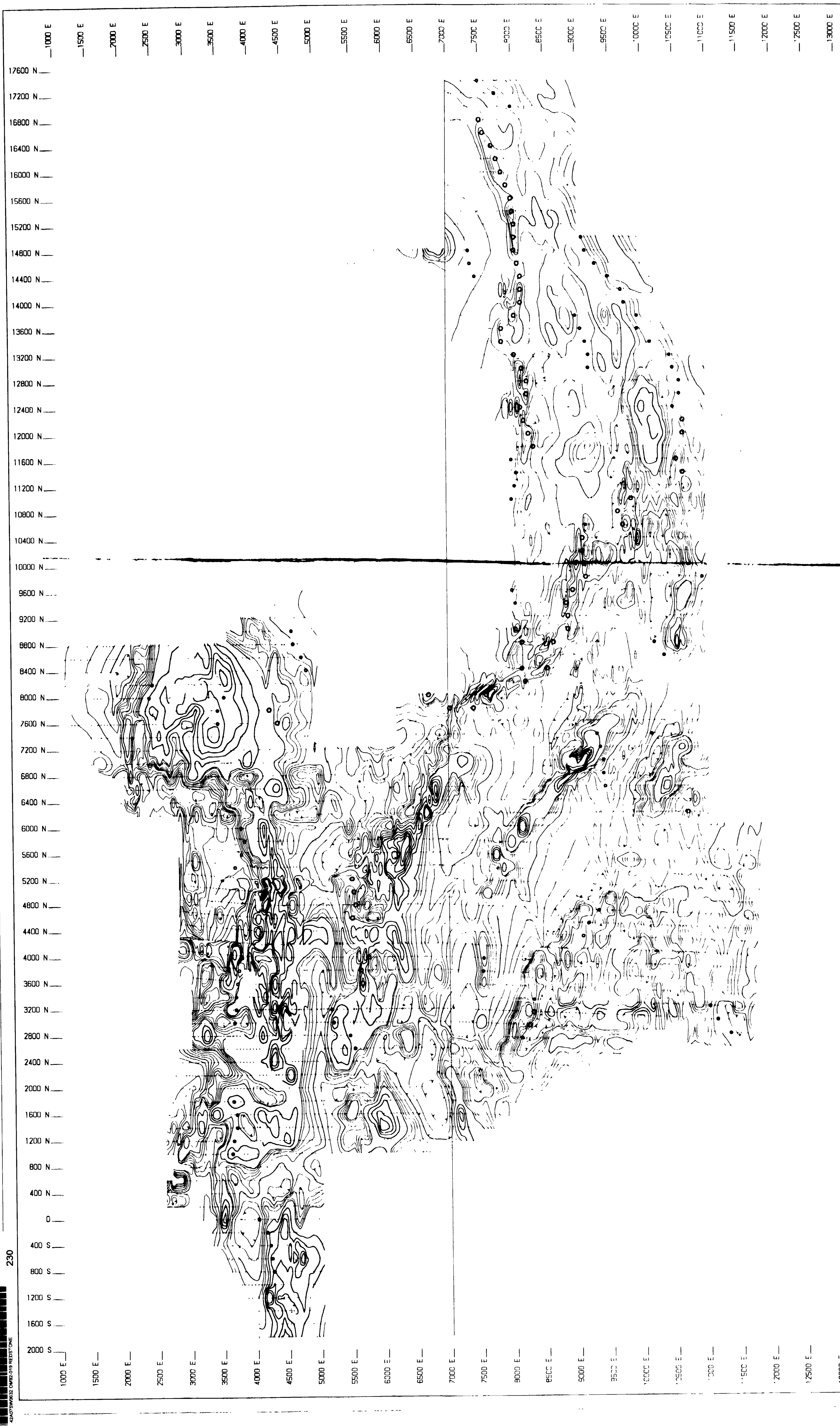
LANGMUIR TWP., TIMMINS, ONTARIO

HORIZONTAL LOOP 444 HZ
ELECTROMAGNETIC SURVEY

Large Circle = High Conductivity
Smaller Circle = Low Conductivity
Coil Separation = 500 feet
Plot Scale: 1 cm. = 20 %
P.L. = Power Line Response

R. W. Woolham, February, 1992


Scale 1:6000
250 0 250 500 750
(feet)
MAP LN-3
TIMMINS NICKEL INC.
LANGMUIR GRID
LANGMUIR TWP., TIMMINS, ONTARIO
HORIZONTAL LOOP 1777 HZ
ELECTROMAGNETIC SURVEY
Large Circle = High Conductivity
Smaller Circle = Low Conductivity
Coil Separation = 500 feet
Plot Scale: 1 cm. = 40 %
P.L. = Power Line Response
R. W. Woolham, February, 1992



230

Scale 1:9600

500 0 500 1000

(feet)

MAP LN-4

TIMMINS NICKEL INC.

LANGMUIR GRID

LANGMUIR TWP., TIMMINS, ONTARIO

EM CONDUCTOR AND MAGNETIC COMPILATION

Large Circle = High Conductivity
Smaller Circle = Low Conductivity
Contours every 200 nT below 2000 nT
Above 2000 nT every 1000 nT

R. W. Woolham, February, 1997