

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORTS

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**ASSESSMENT REPORT**

**ON THE**

**BT 1-11 CLAIMS**

**PRINCE GEORGE MINING DIVISION BRITISH COLUMBIA**

**LAT 54° 03' N LONG 121° 36' W**

**N.T.S. 93 I 4**

**FOR**

**26BT RESOURCE DEVELOPMENT CO. LTD.**

**BY**

**S. JAIN, P. GEOPH (ALBERTA), P. GEO. (B.C.)**

**&**

**W. L. KELSCH, P. GEOPH (ALBERTA)**

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ASSESSMENT REPORT**

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**December 04, 1995**

**Calgary, Alberta**

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**December 04, 1995**

**Calgary, Alberta**

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## INTRODUCTION

### Claim Data

The B.T. Properties are presently held in the name of 26BT Resource Development Co. Ltd. They were originally staked by Brendan A. Gordon on behalf of Malcolm T. MacDonald, one of the principals of the Company.

<u>Claim Name</u>	<u>Tenure Number</u>	<u>Anniversary Date</u>
B.T. 1-4	313837-313840	October 8, 1993
B.T. 5,6	313845-313846	October 8, 1993

These were then sold to the company.

B.T. 7, 8, 9, 10 and 11 were acquired on behalf of the company in 1993. Details are as follows:

B.T. 8-10	323096-323098	December 21, 1994
B.T. 7,11	323202-323203	December 29, 1994

The total area of claim is approximately 51 sq. km.

### Location & Access

The property lies north of the Fraser River and south of the West Torphy River. The centre of the claims is about 6 kilometres N.N.E. of Sinclair Mills (Figure 1). Access to the claims is by old logging roads. The claims lie between the elevation of 700 meters and 1690 meters in generally rugged terrain. Devil's club and windfall trees make the claims difficult to traverse.

### History

Two of the principals of the company entered the area north and east of MacGregor in 1989. This was based on projections of the trends seen in the configuration of the North American Continental mass as demonstrated by Government gravity and magnetic maps. Later, while studying reports and maps in the Provincial offices in Prince George, the magnetic feature shown on Aeromagnetic Map 1536 G of the Geophysics Division of Mines and Technical Surveys (Figure 2) was noted. Subsequent sampling along Creeks Crossing the old logging road north of Sinclair Mills yielded unusually high amounts of magnetite. The decision to stake the area at the north west end of Bearpaw Ridge was then made and carried out in 1992. An aeromagnetic survey was flown, processed and interpreted in 1993. As a result of this survey, additional areas surrounding the claims were staked. 9 holes were drilled to the depth of 100' on the claims in October 1994. The chemical analysis from the cores showed that Fe<sub>2</sub>O<sub>3</sub> content averaged between 10 - 20% in the holes and reached up to 35% in some zones. The magnetic separation in 20 samples from two of the holes showed that in samples with high Fe<sub>2</sub>O<sub>3</sub> content (greater than 10%), magnetite is more than 75% of total Fe<sub>2</sub>O<sub>3</sub> percentage.

Three holes were drilled to the depths of 300' in June 1995. Two of the holes confirmed the presence of magnetite in a variable amount to at least 300'. The third hole was mislocated and missed the anomaly. This hole does not appear to have any commercial significance.

## Geology

Following summary of known geology of Bearpaw ridge closely follows the report by Pell (1994). The area is mapped as Silurian volcanoclastics, felsic and intermediate tuffs, agglomerates of Nonda formation over the ridge, foliated hornblende gneiss on the western slope and coarse grained massive pink syenites in the southwest (Figure 3). Pell notes sodalite syenite outcrop and two flanking syenite sills in southeast portion of the claim area which intrude the volcanoclastics whose southeastern extent is not defined. These volcanoclastics "largely comprise clinopyroxene crystal tuffs, calcareous tuffs and minor basaltic flows. Flow rocks contain clinopyroxene phenocrysts and altered phenocrysts (now chlorite) in a ground mass of opaque oxides, plagioclase and clinopyroxene microphenocrysts and chlorite". These may be classified as alkali basalts. Folded and foliated dioritic orthogneiss vary from a banded gneiss containing 5 - 10% magnetite-ilmenite to a mafic gneiss with 15 - 20% magnetite-ilmenite. Chemical analyses indicates  $Fe_2O_3$  content of 6.9 and 14.5% in two volcanic samples and 1.5, 7 and 11.2% in three samples from mafic gneiss. Corresponding  $TiO_2$  content is .59 and 2.06% in volcanics and .27, .80 and 2.01% in mafic gneisses.

Kelsch in an appendix to Kelsch and Jain (1994) reported that the accessible part of the terrain is generally covered by a thin layer of soil. The vegetation is thick. Devil's club and mosquitoes are plentiful and they make the work quite difficult. In spite of these problems, he obtained several surface samples. The majority of these samples were from glacial erratics which had not moved very far from their original location. The magnetic susceptibility of these samples ranged from .001 to .250 emu. Two of the samples were analyzed chemically by Terramin Research Labs Ltd (Table 1). The analysis showed 22 and 25% Iron Oxide and 4.34 and 5% Titanium Oxide in these samples. These figures support more work on the prospect to define concentrations of magnetite and ilmenite which may have economic interest.

The magnetic data acquired by 26BT strongly suggest a magnetite rich intrusive of elliptical shape on the ridge. This is confirmed by the mineralogical analysis of samples from two holes drilled in October, 1994 which consist of highly mafic Diorite containing minerals indicative of contact zones. Pell (1994) does not mention this intrusive. Incidentally, the sodalite body mapped by Pell was not encountered in hole 95-3.

## Geophysics

26BT engaged Geonex Aerodat to conduct an aeromagnetic and electromagnetic survey over a 12 km X 13 km area including the company's claims. The data were acquired in February, 1993 by a helicopter with mean terrain clearance of 100 m for helicopter and 70 m for sensing equipment. The survey comprises 321 line kilometres, with east-west traverse lines spaced 500 m apart and two north-south tie lines. In addition to the total field map with variable contour interval, Geonex also supplied maps for vertical gradient of the magnetic field and VLF-EM total field. The VLF-EM map is relatively quiet and indicates general absence of sulphide ores in the area. The vertical gradient measurements did not provide meaningful data probably



because magnetic anomalies were very strong and very sharp. Therefore, the interpretation reported here is based mainly on magnetic total field. The details of acquisition and preliminary processing are contained in the report submitted by Geonex and included in Kelsch, and Jain (1993).

Geonex had difficulties in positioning of the data. Final data was received in November 1993. Jeff Thurston, M.Sc., of Commonwealth Geophysical Development Company, Ltd. did the processing and interpretation in late November, 1993.

## **Processing**

The interpretation processing included the following steps:

1. Plot all flight lines on the map to check data tape, and for a base for profile interpretation (Figure 4).
2. Source inversion for all profiles using a Werner-deconvolution-based program **MAGDEP**. To estimate sources at various depth levels, data were interpreted with window length 135, 225, 435, 675, 1170, 2325, 3465, and 5985 m. Sources located within 100 m intervals were grouped together. Werner deconvolution and **MAGDEP** are described in detail by Jain (1976).
3. Grid and plot the total-magnetic field at a fixed contour interval of 100 NT. The map shows a major high (magnitude up to 4500 NT) accompanied by a major low of 1500 NT to the north (Figure 5).
4. Plot the total-magnetic field reduced to the pole (RTP) to minimize the bipolarity of the magnetic field and to locate the anomalies vertically above their sources. This was done after removal of the International Geomagnetic Reference field (IGRF) model (Figure 6).
5. Plot radar altimeter map to show deviation from desired terrain clearance and to estimate the probable effect of these deviations on the total field. The map shows significant deviations in terrain clearance but they do not correspond to any magnetic anomalies. In any event, the most serious deviations are noted in quiet magnetic areas (Figure 7).
6. Plot ground elevation map computed by subtracting radar elevation from barometric elevation, to check for location errors. Final map shows no measurable location errors (Figure 8).

The tie lines are not properly levelled. Therefore, the magnetic data is based on traverse lines alone. The data are dominated by wavelengths shorter than the spacing between flight lines, and a meaningful second derivative map could not be obtained.

## Interpretation

The total-magnetic field map is dominated by an elliptical high oriented in the NW - SE direction and its companion low to the north. The total magnitude of the anomaly from peak to trough is 5,700 NT. There are local anomalies with relative amplitudes of 1000 NT , and less than 500 m in aerial extent.

The total magnetic field has an inclination of 72 degrees and declination of 20 degrees east. For these parameters, the observed total field is bipolar and each source is represented by a high along the southern edge and a low along the northern edge. The reduction of magnetic field to the north pole (Figure 6) locates the anomaly vertically above the sources. The positive anomaly in Figure 6 is displaced to the north of its location in total field (Figure 5) and the negative rim is substantially reduced. The negative rim around strong anomalies after reduction to the pole suggest relatively thin sources and sharpness of anomalies indicate them to be close to the surface. **MAGDEP** (Jain, 1976) profiles identify the lateral and vertical location of the sources as well as the susceptibility contrast. As indicated earlier, the profiles show positive anomalies as high as 1,000 NT with wavelength of the order of 250 - 500 m. These anomalies are from highly susceptible sources (susceptibility contrast up to 1 emu) and located on or very close to the ground surface. The depth estimates range from 0 - 300 m below the surface. However, the depth estimates are not entirely accurate because no allowance has been made for the flight level not being horizontal and of the sources finite thickness of the sources.

**MAGDEP2D** is the modification of **MAGDEP** for the gridded data and works on interpolated profiles in the same way as described in the paper on **MAGDEP** referenced above. The profiles are interpolated for each major anomaly in a direction perpendicular to the strike and interpreted. The source bodies are outlined quite well by the horizontal gradient (Figure 9). The depth estimates range from 200 m - 300 m below the surface and may be inaccurate for the same reasons as the depths estimated in **MAGDEP**. Note that there is a probable extension of the magnetic body to the southwest but the susceptibility is less than the main anomaly. A close examination of the maps and the profiles shows four major bodies which are on or very close to the surface and are very highly magnetic. The interpretation overlay (Figure 10) shows the location of these bodies and identifies places where samples must be collected to establish the source of magnetism. Two of the marked places are identified for deep test because magnetic field is low at these points. It is of some importance to know if the low is due to lower susceptibility or thicker overburden.

Drilling subsequent to the interpretation has established that local variations in magnetite concentration are the main source of local magnetic anomalies.

## Modelling

The anomalies were computed for numerous hypothetical two and three dimensional sources. The best fit with the major anomaly was obtained by a trapezoidal rectangular prism oriented in NW - SE direction, 5 km X 3.5 km at the bottom (140 m below surface) and 2 km X 2 km at the top (surface). Susceptibility contrast of this prism from surrounding medium is .05 emu. On the other hand, a prism of the same lateral size but only 45 m thick will cause the same anomaly if susceptibility increases progressively from .025 emu on the edge to 0.175 emu in the

centre. In addition, either body needs small sources of high susceptibility contrast to explain high frequency anomalies superimposed on the main anomaly.

An anomaly of 1,000 NT over 500 m (as observed on many profiles) can be caused by a 250 X 250 m ore body located with its top surface 200 m below the flight plane and thickness of 3 m to 30 m for susceptibility range of .5 to .05 emu. To obtain a crude reserve estimate, consider that an ore body with 10 percent magnetite content (density of 5 gms/cc), with an area of one square kilometre and an average thickness of one meter contains .5 million tons of magnetite. Four main ore bodies on this prospect have an area of 19, 3, 3 and 1 sq kms, and probably contain 13 million tons per meter thickness. For a susceptibility of .2 emu, the ore bodies are at least 30 m thick and contain probable reserve of 390 million tons.

### **Correlation of Geology and Geophysics**

As discussed earlier, Pell (1994) has noted varying amount of magnetite-ilmenite in hornblende gneiss in the west as well as volcanoclastics on top of the ridge. A comparison of magnetic anomaly map with geology shown in Figure 3 establishes that western anomaly is due to magnetite ilmenite concentration in altered mafic gneiss although the concentration is likely to be greater than that suggested by Pell. The main magnetic anomaly is due to an elliptic intrusive oriented in NW - SE direction with magnetite concentration near the surface. High-frequency anomalies are caused by variations in magnetite concentrations. Higher magnitude of the anomalies strongly suggests that the concentration of magnetite is greater than elsewhere in the area. Two smaller anomalies in the south may be due to either the magnetite-ilmenite concentrations in volcanoclastics or small offshoots of the main intrusive body with lesser magnetite concentration.

### **DRILLING**

9 holes were drilled to a depth of 30.46 m (100 ft) in October 1994 and 3 holes to the depth of 91.38 m (300 ft) in June 1995. All holes were cored in hard rock. Location of the holes is shown in Figure 11. Core diameter was 43 mm (1 3/4"). Hole 7 did not hit the hard rock till it reached the bottom. Susceptibility was measured at 1 ft intervals on the cores and analyzed for the magnetite content. Two boulder specimens were also collected and later analyzed. The holes were drilled to determine the source of magnetic anomaly and not for details of local geology. Core logs are included with this report. No obvious metals have been noted in the cores. Appendix 1 gives details of the drilling logistics.

### **CHEMICAL AND MINERALOGICAL ANALYSIS OF CORES**

114 samples were selected from eleven cores to include a wide variety of susceptibility and core type (grain-size, colour, rock type) and two from boulders picked up on the site. Magnetic susceptibility of the samples was measured several times and the average recorded.

The samples were chemically analyzed by Terramin Research Labs of Calgary in December, 1994 and August, 1995. The results of their analyses are reported in Table 2 which also lists measured susceptibility. The sample number identifies the hole and depth of sample in feet.

Chemical analysis shows consistent level of 40 - 50% silica, 12 - 20%  $Al_2O_3$ , 10 - 12%  $CaO$ , 3 - 6%  $MgO$ , 2%  $Na_2O$ , 0.2 - 0.5%  $K_2O$  and 0.1 - 0.3%  $MnO$ . Two samples analyzed for Vanadium gave values of 430 and 450 ppm.  $Fe_2O_3$  content varied from 5% to 36% and  $TiO_2$  content from 1% to 7%. Two of the three low susceptibility samples from deep holes showed zinc content of approximately .01% and one of the samples showed Barium of .12% (Appendix 5). In future analyses, these elements will be analyzed in low-susceptibility zones. So far, the analyses shows that Iron and Titanium are main metals of economic interest in the area represented by the cores. Therefore, the following analysis was restricted to these two metals.

### MINERALOGICAL ANALYSIS

20 samples from holes BT 4 and BT 5 were analyzed for mineral content by Pilsum Master, P.Geol. (Appendix 2). He identified the rocks tentatively as Diorites (more than 50% mafic) from the contact zone. The minerals are sodic feldspar and plagioclase, diopsidic pyroxene and wollastonite. A major component is magnetite and sufficient titanium is present to indicate the presence of ilmenite. The presence of contact zone minerals is noted. Since both holes are located on slope of the magnetic anomaly, this analysis is consistent with a Diorite or Syenite intrusive being the source of this anomaly. We are not aware of any mention of this intrusive in published literature.

Norm calculations by CIPW method conducted by Master Mineral Resource Services Ltd. for five samples (Appendix 2) shows approximately equal weight distribution in Rutile and Ilmenite in samples with high magnetite concentration. Ilmenite norm is calculated as 4.6% by weight.

Iron minerals are magnetite and Diopside. The norm in magnetite samples varies from 27 - 38% for Diopside and 18 - 38% for magnetite. Magnetite content is only slightly smaller than  $Fe_2O_3$  in chemical analysis.

The magnetic separation of 10 gm samples from holes 94-4 and 94-5 by handheld magnet yielded approximately half of that expected from CIPW norms (Appendix 3). This is not unusual since the norms are useful in a relative sense only. The separates confirm approximately even distribution of Titanium in Rutile and Ilmenite indicated by CIPW norms (Table 3). This table shows that upto 10% Fe is present in Magnetite form. Ore grade magnetite can be recovered by first separating magnetic material from plagioclase and Diopsides and then separating ilmenite and magnetite in the magnetic separates.

The magnetic separation in 46 samples from deep holes was done after placing the ground sample in water. The analysis (Appendix 4) shows Iron content of upto 65% (Magnetite 91%) in magnetic separates and 20% (28% magnetite) in core sample. The magnetic iron content is about 50 - 70% of total iron in samples, rest probably in Pyroxenes. Probably, a better Ti magnetite separation method will yield higher magnetite content. Titanium content of magnetic separate ranges from 3.2 - 7% which is equivalent to  $TiO_2$  being 0.2 - 2.8% of the sample. This shows that non magnetic  $TiO_2$  (Rutile?) is two to five times of magnetic  $TiO_2$  (Ilmenite). Small  $TiO_2$  in magnetic separates indicates that most iron in separates is magnetite with very small amount of Ilmenite.

## Magnetic Susceptibility Analysis of the Cores

Magnetic susceptibility was measured at one foot interval for the cores and two boulders found near one of the holes. The magnetic susceptibility logs are plotted in Figure 12. The susceptibility was measured by a susceptibility meter purchased by 26BT for this purpose. The meter, model KT-9 is manufactured by Exploranium Radiation Systems.

We are aware of two studies relating magnetic susceptibility to magnetite content. Note that the susceptibility studies do not include all iron ore since Hematite is only weakly magnetic and hematite rich ores have low susceptibility. Gaucher (1965) presented the equation between maximum magnetite content (by volume, computed from density) V and susceptibility K as follows:

$$K = (0.3 + V) * V.$$

This equation was derived empirically for magnetite ores in northern Quebec. Bath (1962) similarly computed the relationship for Biwabik Iron formation in Minnesota. The relationship derived for Biwabik iron ores is:

$$K=0.00116V^{1.39}.$$

The volume was computed by magnetic separation. We used both equations to plot magnetite content for the holes. The equation given by Gaucher (1965) had to be modified to avoid negative volume content. The magnetite content logs are given in Figures 13 and 14. Both equations show several sections on many of the holes where magnetite content is more than 20%. In some holes, there is indication of better magnetite content near the bottom. Table 3 gives the average susceptibility and average magnetite content for the holes with both equations.

The equation for Biwabik ores provides smaller magnetite content than the one for northern Quebec. However, both equations suggest presence of mine grade ore in many holes. These results are most encouraging particularly considering that the hole locations in 1994 were governed by accessibility and were not optimal from the magnetic anomaly. There are many stronger anomalies on the map which need to be tested.

The susceptibility of the samples measured in the laboratory was quite different from that recorded in field at the corresponding depth in the hole (Figure 12). Figure 15 shows a plot of susceptibility measured in laboratory (sample value; y-axis) vs that measured in the field (log value; x-axis). The plot symbol indicates the depth of the sample in units of 10 feet (3.282 m). The slope of fitted line indicates that on average the sample value is 77% log value. There is no apparent depth deviation in this relationship. The cause of this reduction is not known and was not investigated.

As indicated above, Terramin Research Laboratories of Calgary, Alberta separated the magnetic component in powdered core sample and calculated Iron and Titanium content for 46 samples (Appendix 4). The amount of iron in the separate was converted into percent content in the

sample and plotted vs the susceptibility of the sample (Figure 16). This plot shows a reasonable correlation and following equivalent relationships were deduced from the plot

$$\begin{aligned}\text{IRON} &= .07538 * \text{Susceptibility of sample} \\ \text{IRON} &= .05804 * \text{Susceptibility in log} \\ \text{MAGNETITE} &= .08126 * \text{Susceptibility in log}\end{aligned}$$

Based on the last relationship, magnetite content from twelve holes was estimated as shown in Figure 17. There is considerable variation among holes, even within the same hole. 95-1, 95-2, 94-3, 94-1 and 94-4 show thick zones where magnetite concentration is of commercial interest. Note that the concentration is significantly less than anticipated in Figures 13 and 14. Whether this is due to poor magnetic separation method, significant presence of nonmagnetic ferrous oxide ore or iron silicates has not yet been established. Note that the magnetite content is still high at the total depth in many holes.

The plot of TiO<sub>2</sub> content from chemical analysis vs susceptibility (Figure 18) is quite random indicating that the susceptibility is not influenced by titanium minerals in the samples.

### Reserve Estimates

#### **Magnetite:**

Table 5 shows residual magnetic total field reduced to the pole, average magnetite recovery in percent and average susceptibility for the length of the core. Figure 19 is the plot of magnetite content vs magnetic field. Hole 94-2 was inconsistent with other holes and was dropped. In spite of a wide scatter, it is possible to fit a second degree curve among the points. The equation of this curve is:

$$\text{Magnetite content} = a + b * F + c * F^2$$

where F is the total field,  $a = 0.397$ ,  $b = 1.148 * 10^{-3}$  and  $c = 9.437 * 10^{-8}$ .

None of the holes is located on or near the peak of the anomalies and three points with high magnetic values show considerable divergence. Therefore, this equation can only provide crude estimates. The recoverable magnetite content computed from this equation and the magnetic field is shown in Figure 20. On this map, 5 and 4% contours include areas of 2.5 and 6.25 sq km respectively. If the average depth of ore is 300' as indicated by 95-1 and 95-2, there is 62 million tons of recoverable magnetite in 5% zone and additional 75 million tons in 4% zone. Following observations need to be emphasised:

1. Laboratory analysis shows that Iron content in ore after magnetic separation ranges from 40 - 65%.
2. The areas with smaller average content not included in these calculations are likely to have rich zones to supplement these estimates.

3. The deep holes indicate that reserves are present below 300'.
4. Weakly magnetic iron ores have not been included in these estimates.
5. Western magnetic anomaly is located at the end of the flight lines. It is probable that its areal extent is larger to the west than defined on this data.

Another estimate of magnetite reserve may be obtained from correlation of magnetic data interpretation with hole data. The bands of variable concentration of magnetite are present at different depths in different holes. 95-2 has poor concentration from top of the core to 90' but very rich (upto 25%) zones below that to 300'. In 95-1, rich zones start at 30' and continue to 300' with many intercalated poor zones. 84-1 and 84-4 have better than 4% magnetite from the top while in 84-6 and 84-8 rich zones start at 40' and 80' respectively. Depth to source is also obtained from magnetic profiles as described under the title Geophysics-Interpretation. After combining magnetic profile interpretation with hole data, a map shown in Figure 20A was obtained. The depth to top of magnetite increases to the southwest as the ground elevation increases. The thickness of magnetite must also increase in this direction to account for higher magnetic field.

On the map in Figure 20A, an area of 10 sq km averages magnetite content of 3% or more from the cores. This is equivalent to 150 million tons of recoverable magnetite. This estimate is quite close to the one made in the previous paragraph.

*In view of scant drill hole information and scatter in various curves used in estimation process, it is reasonable to put the reserves in a rather large range of 100 - 200 million tons. The ore is contained as 40 - 63% iron in magnetic separate which constitutes 2 - 25% rock mass. Any weakly magnetic iron oxides are additional to these estimates.*

#### **Titanium:**

As indicated above, chemical analysis shows that magnetic titanium (ilmenite) is present in quantities which range from 10 - 20% of recoverable magnetite and that two to five times the amount of non magnetic titanium (Rutile) is present. Therefore, assuming recoverable magnetite reserve of 130 m tons, there is a strong indication of 13 - 25 m tons of Ilmenite and 25 - 100 m tons of Rutile.

While smaller than indicated by magnetic modelling, the estimated reserves are capable of commercial production for more than a hundred years. It should be noted that the overburden has been neglected in calculations even though the surface samples picked up on various occasions indicate high magnetite concentration.

#### **Sulphide Ores:**

*The chemical analysis of a sample from 95-3 has zinc concentration of .01% (Appendix 5). While this is negligible in itself, a review of VLF-EM data collected with aeromagnetic survey in 1993 (Figure 20B) shows two strong anomalies near the hole (and five others) which may be caused by concentrations of disseminated sulfide minerals. The depth, amount or exact nature*

of these ores is not indicated by the data. However, anomalies are of great interest because their shape and location correspond closely to topographic features and they occur at the rim of major magnetite-rich intrusives. A surface sample was taken from the western anomaly near the airstrip during the field visit in October 1995. It is noteworthy that the strongest EM anomaly is located 500 m south of 95-3 and well within 26BT claims. Four other EM anomalies are also located in the claimed area.

Appendix 6 is the result of Chemical analyses of several core samples, one from 95-3, seven from 94-8, surface samples from western E-M anomaly (E-W1-2.5 and E-W2-2.3), western magnetic anomaly (MWS) and one from the creek between holes 94-3 and 94-4 (SS-3-4). The analyses show magnetite and Titanium concentration in magnetic area, higher zinc in 95-3, but no indication of sulphide concentration over western E-M anomaly. More investigation of these anomalies is planned for next year. The samples from 95-3 indicate higher zinc (though only .015%) than other samples. The E-M anomaly 0.5 km south of this hole will be examined in detail next year.

A 500' deep hole to test the strongest anomaly is being considered as part of the 1996 drilling program.

### **CONCLUSIONS AND FUTURE WORK**

Geological analysis of available report, geophysical work, drilling of twelve holes and core analysis from the holes indicate the probability of a large reserve of magnetite, ilmenite and rutile in the prospect area. The investigation so far has concentrated on magnetite and titanium. Next stage of exploration will expand the investigation of the concentration of iron and Titanium minerals and also explore for sulphide minerals. This work will be carried out in 1996. There is considerable work to be done by more detailed drilling of magnetic and E-M anomalies.



## References

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HOLE 94-1 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Drilled to ~ 33 m (100'). Approx. collar elevation is 3620'.  
 Near full recovery of 32.1 m in 6 boxes.  
 Casing at 15' (4.57 m). Minor core rubble at the top.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 15' (4.57 m)

0.55 m=17' 1.75 m=21' 3.07=27' 5.47=30' (9.14 m)

4.57 - 12.44 7.87 m DG Biotite Syenite. Mesocratic, coarse crystalline, well foliated. Not porphyritic. Rare healed epidote fractures. Anhedral very coarse crystalline biotite. Very rusty, very common limonitized fractures causing much rubble in the interval.

0.66=38' (11.58 m)

7.87 - 11.58 2.02 m DH As Unit DG Biotite Syenite but with more mafics; meso - melanocratic. Minor fracturing, very minor rubble in the interval.

11.58 - 12.28 0.70 m DI Magnetic Melanocratic Bi Syenite. Medium crystalline. Common very fine crystalline *pyrrhotite* (reacts with dilute HCl) as a late stage interstitial sulphide. Contributes to susceptibility measurement BT 1-45.

1.73=48' 5.25=58' (17.68 m)

12.28 - 20.58 8.30 m DJ As Unit DG Biotite Syenite. Melanocratic to mesocratic, equigranular, coarse crystalline. Faint igneous foliation. Competent. Approx. 10 - 15 % magnetic opaques.

0.34=68' (20.73 m)

20.58 - 21.58 1.00 m DK Leucocratic Syenite. Dark grey speckled off white. Diffuse feldspar rich bands are intermixed with minor amounts of the above Biotite Syenite. Megacrystic, little opaques.

2.82=78' 6.30=88' (26.83 m)

21.58 - 29.01 7.43 m DL Melanocratic Biotite Syenite. Diffuse off white coarse crystalline leucocratic feldspar layers are intermixed with very common schlieren bands. Minor epidote occurs in very common healed, epidotized fractures.

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**29.01 - 29.40 0.39 m DM Pelitic Xenolith. A dark grey fine crystalline pelitic inclusion. Possibly the original lithology was a shale or mudstone (argillite).**

**1.54=98' (incorrect marker)**

**29.40 - 32.10 2.70 m DN. As Unit DJ Melanocratic Biotite Syenite. Same texture, with a faint igneous foliation. Same magnetic susceptibility 43 e.m.u.**

**End Core 94-1**

HOLE 94-2 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Drilled to 30.48 m (100'). Approx. collar elevation 3700'.  
 Casing at 10' (3.05 m). Near complete recovery of 30.48 m  
 in 6 boxes. Some core rubble at the top.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 10' (3.05 m)

3.05 - 3.36	0.31 m	DO	Glacial erratic of melanocratic, well foliated Hornblende Syenite. Coarse crystalline, not porphyritic. Mostly rubble.
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3.36 - 3.75	0.39 m	DP	Hornblende Syenite. Mesocratic, coarse crystalline, mafics ~ 25%, equigranular, very well foliated. The foliation is a <i>metamorphic</i> feature (not an igneous crystal cumulate layering texture). A single high angle fault in the midsection of the interval. Opaques ~ < 5%.
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2.35=18' (5.49 m)

3.75 - 6.45	2.70 m	DQ	as Unit DO but more mafic ~ 35%. Two epidote healed fractures with open mm sized vugs occur.
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6.45 - 8.18	1.73 m	DR	Mesocratic Hornblende Syenite as Unit DP. Off white, with common epidote veinlets and diffuse epidote rich schlieren. Competent. Approx. 10 - 15 % magnetic opaques.
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1.33=28' (8.54 m)

8.18 - 9.51	1.33 m	DS	Mesocratic Hornblende Syenite. Grading from the above with v common epidote - potassium feldspar schlieren: diffuse light green - off white bands from the high temperature reaction of (possibly carbonate rich) inclusions.
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9.51 - 11.91	2.40 m	DT	Mesocratic Hornblende Syenite as Unit DR. With a very common light green disseminated mafic mineral, possibly actinolite - tremolite. Uncommon epidote stringers.
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11.91 - 12.52	0.61 m	DU	Alkalic Syenite. Very fine - very coarse crystalline. <i>Not foliated</i> . Green actinolite and black aegerine (sodium pyroxene) needles in an inequigranular potassium feldspar rich, felted matrix. Possibly from the complete absorption of an inclusion at very high temperatures. Texture is typical of alkalic rocks.
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12.52 - 13.99 1.47 m DV As Unit DT with the bottom part of interval rusty and fractured. Very common disseminated actinolite - tremolite?. Uncommon schlieren as Unit DS.

2.00=48' (14.63 m)

13.99 - 16.97 2.98 m DW As Unit DV but more mafic; 40- 50 % mafics mostly amphibole. Fractured and rusty in midsection.

16.97 - 17.60 0.63 m DX Melanocratic Hornblende Syenite with three cm sized bands of epidote - potassium feldspar schlieren.

1.63=58' (17.68 m)

17.60 - 21.98 4.38 m DY As Unit DV Leucocratic - Mesocratic Hornblende Syenite. Coarse - very coarse crystalline, very well foliated, actinolite to ~25 % and black hornblende to ~ 30%.

3.40=78' (23.78 m)

21.98 - 27.32 5.34 m DZ Mesocratic Hornblende - Actinolite Syenite. Well foliated, mineralogical banding on a 10 cm - sized scale. Rare epidote veinlets infilling fractures. Similar to Unit DY.

1.14=88' (26.83 m)

25.39 - 28.15 2.76 m EA Mesocratic Hornblende - Actinolite Syenite. As above Unit DZ but partly with more mafics; one 5 cm sized band of calc-silicates.

1.60=98' (29.88 m)

28.15 - 29.51 1.36 m EB Leucocratic Actinolite - Hornblende Syenite. Actinolite ~ 25 % with < 10 % black hornblende. Typical metamorphic foliation at moderate angles to the core.

0.97=100' (30.48 m)

29.51 - 30.48 0.97 m EC As Unit EA Mesocratic Hornblende - Actinolite Syenite.

End Core 94-2

HOLE 94-3 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Drilled to ~ 33.0 m (108.3'). Casing at 1' (0.30 m). Approx.  
 Collar elevation 4080'. Full recovery of 33 m in 6 boxes.  
 Some core rubble in the upper intervals.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 1' (0.30 m) 2.71=13' (3.96 m)

0.30 - 6.14 5.84 m ED Mesocratic biotite - hornblende  
 Anorthositic Syenite. Unfoliated and massive; partly with a faint  
 igneous flow ? foliation. Medium to coarse crystalline, not  
 porphyritic, mafics ~ 45 %. Very competent. Faint blue - grey  
 larvikitic alteration of the plagioclase. Disseminated opaques to  
 ~ 20 %; very uncommon one - cm sized magnetite laminations  
 in midsection, esp. at 1.85 - 2.10 m. Also in midsection a 35 cm  
 sized rusty fault gouge; at 3.64 m depth is another rusty fault  
 gouge. No pyrrhotite observed. Gradational to

1.66m=28' (8.53 m)

6.14 - 9.67 2.40 m (poor recovery) EE Foliated Hornblende  
 Syenite. Mesocratic, very coarse crystalline, mafics ~ 25%,  
 very well foliated - a *metamorphic foliation* (not an igneous  
 crystal cumulate layering texture). Incompetent, much rubble  
 and poor recovery. Opaques ~ < 5%.

2.11=38' (11.58 m)

9.67 - 14.15 4.48 m EF as Unit EE Foliated Hornblende Syenite  
 but more competent; with common chlorite and epidote healed  
 shear planes especially at the base .

0.19=48' (14.63 m)

14.15 - 14.63 0.48 m EG as Unit EF with a prominent high angle  
 chloritized slickenplane with slickenlines - a fault surface.

14.63 - 17.59 2.96 m EH as Unit EE Foliated Hornblende  
 Syenite.

0.36=58' (17.68 m)

14.63 - 17.68 1.54 m (poor recovery) EI as Unit EE Foliated  
 Hornblende Syenite. An incompetent well fractured interval.  
 < 15 % opaques.

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17.68 - 20.90 3.22 m EJ as Unit EI Foliated Hornblende Syenite. Common actinolite veining along healed fractures; also three 35 - 40 cm bands of off white (albitic plagioclase) to pale green (actinolite - tremolite) speckled black (mafic) absorbed inclusions. A slight foliation of the inclusions is evidence of a *post-intrusive* metamorphic foliation. Competent, coarse crystalline, a rather uniform unit. No epidote.

20.90 - 22.30 1.40 m EK Argillic altered Hornblende Syenite. Intensely to slightly altered. Soft, off white, friable and incompetent, mostly rubble.

22.30 - 23.43 1.13 m EL Inclusion - rich Hornblende Syenite. Coarse crystalline to megacrystic. As Unit EJ with very abundant inclusions. Fractured and incompetent.

0.82=78' (23.78 m)

23.43 - 25.38 1.95 m EM As Unit EK Argillic altered Hornblende Syenite with slight to moderate alteration. Incompetent, mostly rubble .

25.38 - 27.88 2.50 m EN Melanocratic Hornblende Syenite. Well foliated, more mafics than the above Units. Well fractured.

27.88 - 30.57 2.69 m EO Melanocratic Magnetite Anorthosite. Very dark bluish grey, very fine - medium crystalline, with disseminated opaques to ~ 20%. Massive and competent. Very common wispy schlieren of the well foliated Melanocratic Hornblende Syenite - thus this Anorthosite Unit and Unit ED are *separate phases of the Hornblende Syenite intrusion - later differentiates.*

30.57 - 31.60 1.03 m EP as Unit EL Inclusion - rich Hornblende Syenite. Megacrystic, well foliated, fractured.

EQ 0.50=98'

31.60 - 33.03 (108.3') 1.43 m (to 100' mark) Undefined Ultramafic Rock: possibly Hornblende Lamprophyre. Abundant fine to very coarse crystalline hornblende phenocrysts. Very dark brown black, foliated with some slickenplanes or shears. Soft, dark olive green alteration on the many fracture surfaces. Very incompetent - mostly rubble. A thin section is needed to accurately describe the lithology.

End Core 94-3

HOLE 94-4 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Drilled to ~ 34 m (112'). Approx. collar elevation 3990'.  
 Casing at 5' (1.52 m). Near complete recovery of 34.19 m  
 (112.1') in 6 boxes. Some rubble at the top.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 5' (1.52 m)

1.15=9' 3.51=15' 5.28=23' 8.47=28' (8.53 m)

1.52 - 12.89 11.37 m ER Mesocratic Biotite - Hornblende  
 Syenite. Well foliated, very coarse crystalline, marginally  
 porphyritic plagioclase, mafics ~ 65%. Partly fractured with  
 black chloritic alteration; generally competent. Disseminated  
 opaques < ~ 15 %

0.78=38' (inaccurate mark) (11.58 m)

12.89 - 14.61 1.72 m ES as Unit ER Mesocratic Biotite -  
 Hornblende Syenite but with slightly less mafic mineral content  
 ~ 55%. Well foliated, porphyritic with very coarse crystalline  
 feldspar phenocrysts.

0.36=42' 2.49=48' (14.63 m)

14.61 - 17.84 3.23 m ET as Unit ER Mesocratic Biotite -  
 Hornblende Syenite with more opaques - interstitial magnetite to  
 25%. Very coarse crystalline to megacrystic. Rare megacrysts of  
 anhedral poikilitic biotite. A band of black chloritic fault gouge  
 occurs at the top for 0.36 m.

17.84 - 19.69 1.85 m EU Magnetite Shonkinite. Fine to coarse  
 crystalline with massive appearance. Evenly disseminated  
 opaques (BTS 52 100 e.m.u.). Includes a cm sized bleb of Unit  
 ET (*thus the Magnetite Shonkinite is a late igneous  
 differentiate*).

0.78m=58' 4.01=68' 7.20=78' (23.78 m)

19.69 - 28.09 8.40 m EV Melanocratic Shonkinite Porphyry.  
 Uncommon plagioclase phenocrysts in a fine to medium  
 crystalline matrix. Faint metamorphic foliation, indistinct  
 igneous foliation, rare anhedral cm sized poikilitic biotite  
 megacrysts. Disseminated opaques ~ 20 - 25 % as magnetite and  
 ilmenite (BT4-71 83.8 e.m.u.). Very competent.



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28.09 - 28.44 0.35 m EW as Unit EU Magnetite Shonkinite. Fine to medium crystalline, massive appearance with mm sized laminations. Rare anhedral cm sized poikilitic biotite megacrysts. Very competent ~ < 35 % opaques. Smaller amount of plagioclase phenocrysts than Unit EV.

1.63=88' 4.72=98' (29.88 m)

28.44 - 34.19 (112.1') 5.75 m EX as Unit EV Magnetite Shonkinite but with characteristic, more abundant (though uncommon) anhedral cm sized biotite poikilitic megacrysts, approx. 2% of the unit.

End Core 94-4

HOLE 94-5 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Approx. collar elevation is 3630'. Casing at 10' (3.04 m).  
 Drilled to ~ 34.5 m (113'). Full recovery of 34.45 m (= 113')  
 in 6 boxes. Some core rubble increase the core length.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 10' (3.04 m)

3.04 - 3.94	0.90 m	EY	Mesocratic Syenite. Unfoliated, variably coarse crystalline to megacrystic with euhedral alkalic amphibole megacrysts. 'Felted' igneous texture with euhedral undetermined mafic minerals. Mafics ~ 75 %. Incompetent; much rubble in the interval.
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3.94 - 5.28	1.34 m	EZ	'Alaskite'. A leucocratic 'flow press' differentiate with <i>no mafic minerals</i> . Composed of flesh pink medium - coarse crystalline potassium feldspar crystals with uncommon very coarse sized very light grey albite phenocrysts. Some core rubble. No opaques present.
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0.92=18' 4.58=28' (8.53 m)

5.28 - 12.94	7.66 m	FA	as Unit EY Mesocratic Syenite. Generally megacrystic with cm - sized euhedral mafics. Uncommon pistachio - green epidote segregations in the matrix. Rare miarolitic vugs in mid section. Opaques < 5%.
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0.38=38' (inaccurate mark) (11.58 m)

12.94 - 15.12	2.18 m	FB	Mesocratic Syenite. Like EY above but fine to coarse crystalline with rare mm sized white felsic (potassium feldspar?) veins. Rare mm sized miarolitic cavities.
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1.44=48' (inaccurate mark) (14.63 m)

15.12 - 16.56	1.44 m	FC	as Unit FA Megacrystic Mesocratic Syenite .
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3.53=58' (17.68 m)

16.56 - 21.85	5.29 m	FD	like Unit FB Mesocratic Syenite. Fine to coarse crystalline. Similar in mineralogy to the megacrystic Mesocratic Syenite but with finer crystal size. No miarolitic cavities. The lower part of the interval is completely gradational to the megacrystic Mesocratic Syenite Unit.
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**1.54=68' (inaccurate mark) (20.73 m)**

**21.85 - 23.60 1.75 m FE Intermixed fine crystalline and megacrystic Mesocratic Syenite. The megacrystic unit intrudes bands of the fine crystalline Unit; so *it is younger*. Competent and uniform except for this remarkable grain size variation.**

**2.97=78' (23.78 m)**

**23.60 - 29.73 6.13 m FF Mesocratic Syenite. An igneous cooling unit with abundant miarolitic vugs for 6 cm at the top of the Unit. The unit grades from coarse crystalline at the top to very fine crystalline at the base. The lower part of the interval has three megacrystic mesocratic 'xenoliths' incorporated in the Mesocratic Syenite. Unaltered (as is the rest of this hole). Very competent.**

**0.54=88' (inaccurate mark) (26.83 m)**

**29.73 - 32.07 2.34 m FG Mesocratic Syenite. Megacrystic at the top grading to coarse crystalline at the base. Rare cm sized poikilitic texture of the anhedral mafic minerals. No inclusions; a very competent unit.**

**2.22=100' (but actually 34.45 m = 113')**

**32.07 - 34.45 2.38 m FH Mesocratic Syenite. Megacrystic. Rare thin epidote veining.**

**End Core 94-5**

HOLE 94-6 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Approx. collar elevation is 3880'. Casing at 5' (1.52 m).  
 Drilled to ~ 30.48 m plus (over 100').  
 Recovery of 36.37 m (abundant core rubble) in 7 boxes.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 5' (1.52 m )

1.52 - 2.44 0.92 m FI Hornblende (?) Ultramafitite. Very dark grey green, with hairline chlorite along fractures forming a network 'lace' texture. No feldspar phenocrysts. Medium to coarse crystalline. Mafics ~ 97 %. Incompetent; all rubble.

2.44 - 3.73 1.29 m FJ 'Alaskite'. A leucocratic 'flow press' differentiate with *no mafic minerals*. Dominately flesh pink coarse crystalline potassium feldspar with common hairline chlorite- epidote fractures. Slight argillic alteration gives the Unit a crumbly aspect. All core rubble, *no opaques*.

0.21=8' (2.44 m) (interval thickness is too long due to rubble)

2.44 - 5.00 2.56 m FK Ultramafitite as Unit FI. Rare coarse sized feldspar phenocrysts. Generally broken core rubble. Magnetite would be completely altered; Opaques < 5%.

5.00 - 5.98 0.98 m FL 'Alaskite' as Unit FJ.

5.98 - 6.61 0.63 m FM Hornblende (?) Ultramafitite as Unit FI with common very coarse sized feldspar phenocrysts.

0.48=18' (5.48 m)

6.61 - 7.67 1.06 m FN 'Alaskite' as Units FL and FJ. Toward the base is a 25 cm sized inclusion of Ultramafitite. At the base the Alaskite is vuggy with common miarolitic cavities.

3.20=28' (8.53 m)

7.67 - 11.92 4.25 m FO Melanocratic Hornblendite. Approx. 15% coarse sized feldspar phenocrysts. Distinct hi angle metamorphic foliation. Common thin chlorite- epidote veins.

11.92 - 13.07 1.15 m FP 'Alaskite' as Unit FN laced with sub mm sized epidote - chlorite veinlets. V competent, unaltered.

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**1.09=38' 4.52=48' 2.59=57' 2.95=58' (17.68 m)**

**13.07 - 21.56 8.49 m FQ Melanocratic Hornblendite as Unit FO. Moderate to high angle foliation. Uncommon mm sized chlorite-epidote veins infill healed fractures. Toward the base in box 3 is a 25 cm sized chloritic band (possibly from an incorporated inclusion).**

**21.56 - 22.27 0.71 m FR Melanocratic Hornblendite as Unit FO. Medium grey, more altered with a pervasive soft off white talc ? alteration.**

**6.26=78' (23.78 m)**

**22.27 - 28.49 6.22 m FS Melanocratic Hornblendite as Unit FR above; less off white alteration. Uncommon medium crystalline cm sized bands with no feldspar phenocrysts. Very rare epidote - chlorite veining. Uncommon 2 mm sized vertical calcite veinlets.**

**28.49 - 29.37 0.88 m FT Melanocratic Hornblendite. Dark grey brown to dark grey green, medium crystalline with no feldspar phenocrysts. Very common mm sized chlorite- epidote veins infill healed fractures.**

**2.30=88' 5.49=96' 7.00=100' (30.48 m) (interval thickness too long due to rubble)**

**29.37 - 36.37 7.00 m FU Melanocratic Hornblendite. Same lithology and texture as Unit FQ.**

**End Core 94-6**

### HOLE 94-7 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
Drilled to ~ 33 m (100'). Approx. collar elevation is 2810'.  
Casing @ 5'

No bedrock was recovered; very poor recovery of loose and very friable light brown glacial till. Composed of varied unsorted cobbles of varicolored alkalic rocks in a sandy and clayey matrix. 2 boxes.

### HOLE 94-8 DESCRIPTION

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
Approx. collar elevation 2695'. Casing at 5' (1.52 m).  
Drilled to 100'.

Full recovery of 30.97 m (101.58') in 6 boxes.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 5' (1.52 m). 1.43 m of drift from 1.52 - 2.95 m.

0.47=13'

2.95 - 3.42 0.47 m FV Actinolitic Hornblende - Biotite Syenite.  
Mesocratic, well foliated: striped off white, black, and very dark  
grey green. Common interstitial pistachio green epidote. Coarse  
crystalline. Mafics ~ 55 %. Competent; good core recovery.  
Opagues < 10%.

0.68=18' 2.80=24' 5.52=32' (9.75 m)

3.42 - 9.46 6.04 m FW Actinolitic Hornblende - Biotite Syenite.  
As above Unit FV but the upper half of this interval is well  
fractured with intense argillic alteration: a fault is present. *No  
opagues.*

0.92=37' 3.70=44' (13.41 m)

9.46 - 14.38 4.92 m FX as Unit FV Actinolitic Hornblende -  
Biotite Syenite. Little epidote is visible. At the base the Unit is  
increasingly mafic to ~ 75 % dark minerals with a massive  
appearance; upper half has cm sized xenolith inclusions.  
Opagues < 15%.

0.19=49' (?) (14.94 m)

14.38 - 17.82 3.44 m FY as Unit FV Actinolitic Hornblende -  
Biotite Syenite but with less mafics approx. 40 %; well foliated  
with common epidote. A clot of Unit FX at the top and a 47 cm  
sized band in midsection is evidence that this Unit is a younger,  
more felsic differentiate.

17.82 - 17.97 0.15 m FZ as Unit FV Actinolitic Hornblende -  
Biotite Syenite with less black amphibole; slightly altered.

17.97 - 19.09 1.12 m GA Meso Actinolitic Amphibole - Biotite  
Syenite. Coarse crystalline with a discernible moderate angle  
metamorphic foliation. Complex mineralogy.

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19.09 - 19.50 0.41 m GB Pink Leucosyenite. Megacrystic with abundant cm sized miarolitic cavities- vugs. Approx. ~ 10 % amphibole as coarse sized euhedral black phenocrysts. Possibly an incorporated xenolith.

19.50 - 22.81 3.31 m GC Actinolitic Amphibole - Biotite Syenite. Leucocratic and megacrystic at the top; overall meso- to melanocratic and very coarse crystalline. Discernible foliation. Cm sized mafic clots of poikilitic anhedral biotite. Very competent and unaltered.

22.81 - 25.08 2.27 m GD Leucocratic Syenite like the top part of Unit GC. Very coarse crystalline, a faint but discernible foliation present. Complex mineralogy; < 5 % opaques. Rare mm sized chlorite- epidote veins infill healed fractures. Very competent and unaltered. Completely gradational to

25.08 - 26.40 1.32 m GE Melanocratic Syenite (or Shonkinite). The upper part is mesocratic; very coarse crystalline with common cm sized mafic clots of anhedral poikilitic biotite. A sharp igneous intrusive contact with

26.40 - 28.97 2.57 m GF Leucocratic Syenite (upper sixth) completely gradational to Mesocratic Shonkinite (five sixths or most of the Unit). Very coarse crystalline, with a low angle foliation. Disseminated opaques mostly magnetite to ~ 18% in cm sized bands. No pyrrhotite observed. *Crystal settling has increased the mafic and opaque mineral content toward the base. The Leucocratic Syenite is a felsic differentiate cogenetic with the Melanocratic Syenite (Shonkinite)- both derived by settling of mafic crystals from the parental Actinolitic Hornblende - Biotite Syenite.*

28.97 - 30.97 (101.58') 2.00 m GG Leucocratic Syenite. Same texture and mineralogy as Unit GD. Very competent.

End Core 94-8



**HOLE 94-9 DESCRIPTION**

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Casing at 5' (= 1.52 m). Approx. collar elevation is 2490'.  
 Drilled to ~ 30.48 m (100').  
 Complete recovery of 30.48 m in 6 boxes.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 5'. 1.52 m

1.52 - 2.95 1.43 m of cobbles including a quartzite boulder in a lacustrine (glacial lake) silty clay matrix. Poor recovery.

0.47=13' (start 3.96 m)

3.96 - 4.43 0.47 m GH Mesocratic Syenite, no foliation evident. Very coarse crystalline, not porphyritic. General pale green weak chloritic alteration of the mafics. Trace epidote veinlets. Mafics ~ 65 %. Competent; good recovery. Opaques < 10%.

0.68=18' 2.80=24' 5.52=32' (9.75 m)

4.43 - 10.47 6.04 m GI Mesocratic Syenite as Unit GH with more common opaques ~ 18%. (BT-9-67 75.4 e.m.u).

0.92=37' 3.70=44' (13.41 m)

10.47 - 15.39 4.92 m GJ as Unit GH but moderately to intensely altered. Uncommon mm sized maroon coloured hematite veinlets and rare sub cm sized coxscumb carbonate veins infilling fractures. Opaques < 3%, destroyed by hydrothermal alteration.

0.19=49' (?)

15.39 - 25.41 3.44 m (missing core) GK As GH, Mesocratic Syenite with intense chloritic alteration grading to moderate argillic alteration at the base. Subhorizontal 3 - 5 cm sized banding with abundant one cm sized coxscumb carbonate veins. Carbonate is also in the matrix. No magnetite present; it would have been completely destroyed by alteration.

25.41 - 25.49 0.08 m GL. Fine crystalline Pyrite in an intensely clay (argillic) altered breccia. A possible original lithology is the Mesocratic Syenite.

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**2.11=92' (28.05 m)**

**25.49 - 28.19 2.70 m GM. Mesocratic Syenite (?) with Intense light grey green argillic (clay) alteration. Brecciated at the top of the interval. Common carbonate in the matrix and very abundant cm sized carbonate veins. A 10 cm hematitic band associated with breccia in the lower part of interval.**

**1.72= 98' (29.88 m)**

**28.19 - 29.91 1.72 m GN Mesocratic Syenite. Grey green due to intense chloritic alteration. Abundant cm sized carbonate veins. Competent, good recovery.**

**0.57=100' (30.48 m)**

**29.91 - 30.48 0.57 m GO Mesocratic Syenite with slight chloritic alteration. Poor recovery, mostly rubble. Little opaques.**

**End Core 94-9**

**HOLE 95-1 DESCRIPTION**

43 mm Diamond Core. Hole Inclined 090 degrees (vertical).  
 Approx. collar elevation 2400'. Casing at 16' (4.88 m).  
 Drilled to 91.46 m (300'). Full recovery of 96.91 m (317.86')  
 (some core rubble gives extra recovery) in 16 boxes.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

Start 16' (4.88 m)

0.34 m=20' 0.65=24' 1.52m=28' 2.06m=30' 3.10=34' (10.36 m)

4.88 - 10.36 3.10 m CH Mafic Syenite. Very incompetent -  
 common core rubble. Mesocratic, very coarse crystalline,  
 indeterminate mafic mineral - pyroxene ?. A different intrusion  
 than 95-2 or 95-3 drill holes. Moderate angle igneous flow  
 lamination. Uniform, but some of the interval is calc-silicate  
 (developed from xenoliths?).

1.91=37' 5.01=47' (14.33 m)

10.36 - 16.06 5.70 m CI Pyroxene Syenite. Melanocratic, very  
 coarse crystalline, uniform, competent, equicrystalline,  
 magnetite (opaques) content < 10% .

2.22=57' (17.37 m)

16.06 - 19.16 3.10 m CJ Leucocratic Biotite - Amphibole  
 Syenite. Coarse - very coarse crystalline with moderate angle  
 igneous flow banding and common mm sized epidotized healed  
 fractures.

19.16 - 19.65 0.49 m CK Mesocratic Syenite.

A calc-silicate altered very fine crystalline dark green 0.16 m  
 band at the top of the interval, probably a xenolith incorporated  
 in the Leuco - Syenite of Unit CJ.

1.87 =67' (20.4 m)

19.65 - 23.60 3.95 m CL Mesocratic Syenite like Unit CJ but  
 with more mafics ~ 30%. Uniform, with a characteristic igneous  
 flow lamination at moderate angles to the core, common  
 epidotized healed fractures, mm sized.

1.21=77' (23.47 m) 3.10=87' 6.14=97' (29.57)

23.60 - 29.57 7.35 m (some extra rubble) CM Variably Leuco -  
 Mesocratic Syenite Similar to CL. Moderate angle igneous  
 foliation. One high angle fault in box 4. Common 1 - 5 mm sized  
 epidote seams. No traces of Quartz noted. A uniform and very  
 competent lithology.

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29.57 - 30.59 1.02 m CN As Unit CM but with very common cm sized seams of epidote and pink garnet from incorporated xenoliths. Very competent.

30.59 - 31.75 1.16 m CO as CM with criss crossing mm sized healed epidotized fractures. Little magnetite or opaque content.

1.20=107' (32.62 m)

31.75 - 32.95 1.20 m CP As Unit CN with abundant epidote inclusions and veining. Incompetent.

32.95 - 33.39 0.44 m CQ A green to pink calc-silicate inclusion (xenolith) incorporated in the Syenite.

3.20m=117' (35.67 m)

33.39 - 37.66 4.27 m CR Leuco - Mesocratic Syenite As Unit CO.

37.66 - 38.01 0.35 m CS An inclusion of dark purple brown silicic hornfels.

1.62m=127' (38.72 m)

38.01 - 40.68 2.67 m CT Leuco - Mesocratic Syenite as CR, texturally identical.

40.68 - 41.11 0.43 m (to end of box 6) CU Calc-silicate inclusion very similar to CQ.

2.04=137' (41.77 m)

41.11 - 43.32 2.21 m CV Meso- partly Melanocratic Epidote Syenite. Medium grey, ~ 30 % mafics: biotite and pyroxene ? with very little magnetite. At the 135' marker (sample 95-1-135) is disseminated very fine crystalline pyrrhotite. The syenite is unaltered, very competent, and has incorporated more country rock material than usual to give more abundant epidote in his interval.

1.72=143' 2.92=147' 6.03=156' 6.79=158' (48.17 m)

43.32 - 50.42 7.10 m CW Mesocratic Syenite. With a strong igneous flow foliation and abundant epidotized fractures, some with pink calc-silicates (garnet). Mottled dark grey (mafics) and off white (feldspar). Very coarse crystalline.

50.42 - 51.03 0.61 m CX As Unit CW but mostly consisting of two epidote and garnet bearing calcsilicate inclusions as xenoliths.

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2.00=167' (50.91 m)

51.03 - 53.60 2.57 m CY Mesocratic Syenite as Unit CW  
distinctly foliated.

2.68=177' (53.96 m)

53.60 - 56.56 2.96 m CZ Mesocratic Syenite as Unit CW with  
two 10 cm sized bands of calc-silicates formed from  
incorporation of xenoliths. Little opaque content.

0.26=179' 1.32m=182' (55.49 m)

56.56 - 58.20 1.64 m DA A xenolith rich interval with minor  
intersections of the Mesocratic Syenite. The top has much  
rubble and has poor core recovery.

0.06m=184' 2.77m=192' 4.327=197' 7.34=207' (63.11 m)

58.20 - 68.01 9.81 m DB Mesocratic Syenite as Unit CY, with  
the same texture and mineralogy. Most of the interval has less  
epidote veining.

1.81=217' (66.16 m)

68.01 - 70.42 2.41 m DC Melanocratic Syenite. Very coarse  
crystalline, porphyritic texture with very fine crystalline  
pyrrhotite to ~ 30 % in the very mafic midsection (sample 95-1  
213).

1.28m=222' (67.68 m)

70.42 - 72.12 1.70 m DD Mesocratic Syenite as Unit DB with  
common cm sized epidote and grey- pink garnet veining.  
Magnetite and ilmenite opaques < 5%.

2.33m=230' 3.96=235' (71.46 m)

72.12 - 76.14 4.02 m DE Pelitic Hornfels coloured medium red-  
purple. Very fine crystalline, possibly a thick xenolith or  
argillaceous inclusion.

0.63=238' 0.71 m to end of box 12. 2.61=247' (75.30 m)

76.14 - 81.45 5.31 m DF As Unit DD Melanocratic to mesocratic  
Syenite. Well foliated with the usual epidote veins along  
fractures; uncommon calcite - healed high angle fault planes in  
the lower part of the interval.

81.45 - 82.38 0.93 m DE Epidote - Calcite xenolithic Mesocratic  
Syenite.

0.13=255' 0.85m=257' 3.91m=267' 7.13=277' 10.25=287'

13.41=297' 14.53=300' (91.46 m)

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**82.38 - 96.91 (317.86') 14.53 m DF Melanocratic to mesocratic  
Syenite as Unit DF; same lithology and texture. Uncommon  
calcite healed fractures. Igneous flow foliation at a moderate  
angle to the core.**

**End Core 95-1**

HOLE 95-2 DESCRIPTION

43 mm Diamond Core. Hole inclined 090 degrees (vertical).  
 Approx. collar elevation 4575'. Casing at 10' (3.05 m)  
 Drilled to 298' (90.85 m). Full recovery of 93.60 m (107')  
 in 16 boxes. Very minor core rubble.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

1.60m=16' 2.15m=18' (5.48 m)

3.05 - 5.48 2.26 m BF Biotite Syenite. Mesocratic, very coarse crystalline, with ~ 30 % anhedral 'ragged' biotite. Uniform. Competent.

0.70=22' (6.71 m)

5.42 - 6.84 1.42 m BG Biotite Syenite as Unit BF but with altered dark brown biotite, well fractured and possibly a faulted zone.

0.61=28' 3.80=38' 5.45=42' (12.80 m)

6.84 - 12.52 5.68 m BH As Unit BF Biotite Syenite with a distinctive and common (faint) grey blue larvikitic alteration of the plagioclase.

0.67=48' 2.31=53' 3.93=58' 5.15=61' 7.26=68' 2.97=78' 6.10=88' (26.83 m)

12.52 - 26.33 13.81 m BI Larvikitic Biotite Syenite. Intense alteration of the calcic plagioclase has resulted in the uniform blue grey colour characteristic of larvikitic alteration. Megacrystic, generally competent. Some fracturing and hydrothermal alteration at biotite rich selvages has caused bleaching and destruction of the larvikitic alteration.

26.33 - 26.81 0.48 m BJ Anorthosite. Leucocratic, pale grey - blue due to weak larvikitic alteration. Inequicrystalline fine to very coarse sized crystals with < 5 % biotite; a reaction or contact zone with ~ 15 % fine grained interstitial euhedral glomeroporphyritic opaques - magnetite and ilmenite - developed.

2.45=98' 5.50=108' (32.92 m)

26.81 - 35.16 8.35 m BK Magnetite. Equicrystalline, medium to coarse sized, dark grey, melanocratic and anorthositic with 15 - 25 % medium crystalline euhedral opaques. Variably strongly magnetic. Only very rare traces of carbonate noted.

0.56=118' 1.00=127' (38.72 m)

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**35.16 - 39.07 3.91 m BL Magnetite as BK, medium to dark grey, possibly more calcium content in the plagioclase. Common fractures.**

**39.07 - 39.38 0.31 m BM Syenite. Very coarse crystalline to megacrystic. Dark green amphibole - actinolite ? and black equant hornblende developed. No reaction with dilute HCl acid. Little magnetite content.**

**1.33=132' (40.24 m)**

**39.38 - 41.66 2.28 m BN Melanocratic Anorthosite. Medium - coarse crystalline, generally equicrystalline. Common yellow - brown limonite alteration is partially destructive of the ~ 10 % magnetite present. Competent.**

**0.75=138' (42.07 m)**

**41.66 - 43.37 1.71 m BO Magnetite. Melanocratic, anorthositic, with common pyroxene (?). Very competent, uncommon coarse sized anhedral biotite phenocrysts, coarse - very coarse crystalline, unaltered.**

**2.25m=148' 3.69=155' 5.43=158' (48.17 m)**

**43.37 - 50.21 6.84 m BP Anorthosite, megacrystic, no larvikitic alteration, common dark green hornblende (actinolite?) and < 10 % opaques.**

**50.21 - 51.07 0.86 m BQ Biotite Anorthosite as Unit BP but well fractured. The biotite is partially altered to limonite. Mostly rubble.**

**0.98=168' 4.11=178' (54.27 m)**

**51.07 - 55.25 4.18 m BR Biotite Anorthosite as Unit BP but with a very coarse to pegmatitic grain size. The magnetite is concentrated in unevenly distributed clots; generally 5 - to exceptionally 30%.**

**2.50= 188' (57.32 m)**

**55.25 - 58.61 3.36 m BS Anorthosite. Pegmatoid texture for 0.60 meters in box 9. In box 10 the Anorthosite is very coarse crystalline to megacrystic, mesocratic. Clotted opaques mostly magnetite varying greatly in concentration.**

**58.61 - 59.16 0.55 m BT Leucocratic Anorthosite. Off white, < 5 % mafics, biotite is mostly anhedral. Very little magnetite.**



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1.95=198' (60.36 m)

59.16 - 62.13 2.97 m BU Mesocratic Anorthosite. Strongly foliated with common healed and limonitized fractures,; some are vuggy with sub cm sized cavities. Very coarse poikilitic phenocrysts of anhedral biotite.

62.13 - 63.20 1.07m BV Melanocratic Anorthosite. Very coarse - megacrystic, faintly but discernibly foliated.

0.29 m BW Anorthosite Meso - Leucocratic. With a very distinct moderate angle foliation.

0.78=208' (63.41 m)

63.20 - 66.91 3.71m BX Magnetitic Anorthosite. Very dark grey green, inequicrystalline generally very coarse sized.

Melanocratic with abundant actinolite? and calcic hornblende at 215'. 10 % pyrrhotite as late disseminations is intergrown with the magnetite. Opaques 20 to 30 %.

0.23=218' (66.46 m)

66.91 - 72.60 5.69 m BY Biotite - Hornblende Anorthosite.

Minor actinolite. Pegmatitic, unaltered, massive. Same lithology as Unit BP.

0.58=238' (72.56 m)

72.60 - 73.70 1.10 m BZ Leucocratic Anorthosite. Megacrystic, off white mottled black. Two hi angle faults present, one with a polished slickenplane (toward the end of box 12). Unaltered.

2.88=248' (75.61 m)

73.70 - 76.78 3.08 m CA Meso to Melanocratic Biotite Anorthosite. Megacrystic as BZ. Trace of interstitial (late) pyrrhotite.

76.78 - 77.43 0.65 m CB Pyrrhotite Anorthosite. Melanocratic, silicates are generally coarse crystalline. Fine to medium crystalline pyrrhotite is ~ 25 % of the interval. Magnetite and ilmenite opaques are < 10%.

2.38m = 258' (78.65 m)

77.43 - 80.53 3.10 m CC Mostly Mesocratic Biotite Anorthosite with cm sized leucocratic bands like Unit CA. Coarse - very coarse crystalline; mafics are anhedral. Maximum 15 % to < 5 % accessory interstitial pyrrhotite. Opaques (mag and ilmenite) approx. 10 - 15 %.

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80.53 - 81.47 0.94 m CD Pyrrhotite Anorthosite. Melanocratic like Unit CB but with more pyrrhotite. Disseminated very fine - fine crystalline (grey brown with a metallic lustre) pyrrhotite to 35%, always interstitial to the silicates. Uncommon Leucocratic Anorthosite bands outline a cm sized horizontal igneous layering.

1.62=268' (81.70 m)

81.47 - 86.10 4.63 m CE Biotite Anorthosite. Mesocratic, megacrystic, colour is mottled very pale grey green (plagioclase) and black (mafics). Variable trace interstitial pyrrhotite in the lower part of the interval increases to a maximum of 20 - 30%. Very competent. No alteration.

0.15=278' (84.75 m)

86.10 - 88.62 2.52 m CF Biotite Anorthosite as Unit CE but with more plagioclase and only trace pyrrhotite. Some high angle healed fractures.

0.92 m = 288' 4.14 m = 298' (90.85 m)

88.62 - 93.60 (307.01') 4.98 m CG Biotite Anorthosite. Meso to leucocratic, megacrystic. Generally < 5% interstitial pyrrhotite concentrated in cm sized bands.

End Core 95-2

HOLE 95-3 DESCRIPTION

43 mm Diamond Core. Hole inclined 090 degrees (vertical).  
 Approx. collar elevation 5320'. Casing at 7' (2.13 m).  
 Drilled to 91 m (299'). Full recovery of 91.18 m (299.07')  
 (some core rubble throughout) in 15 boxes.

<u>Depth (m)</u>	<u>Interval</u>	<u>Thickness</u>	<u>Letter</u>	<u>Description</u>
		<u>Interval</u>	<u>Designation</u>	

3.14=28' (8.53)

2.13 - 8.53 3.14 m (minimal recovery) AA Melanocratic Diorite.  
 No quartz, coarse crystalline. In midsection is a 20 cm silicified  
 orange chert inclusion. Common rubble.

8.53 - 9.27 0.74 m AB Melanocratic Diorite. as AA, fractured.

9.27 - 10.67 1.40 m AC Mesocratic Syenite. A very coarse  
 crystalline strongly altered rock composed of light green  
 propylitically altered plagioclase and pale pink potassium  
 feldspar. A skarn with calcite present (reacts with dilute HCl  
 acid). Uncommon medium grey blue sodalite. Mostly rubble.

2.5=38' (11.58 m)

10.67 - 13.43 2.76 m AD Mesocratic Syenite. Very coarse  
 crystalline, no calc-silicate. intense pink potassic alteration.

1.7=58' (17.68 m)

13.43 - 17.68 (minimal recovery) 1.70 m AE As AD but with  
 strong argillic alteration and light brown Fe staining. Friable; an  
 incompetent lithology. All rubble.

17.68 - 18.54 0.86 m AF Melanocratic Syenite as AC. Very  
 coarse crystalline, very common cm sized lath shaped  
 megacrystic amphiboles. Full recovery.

18.54 - (approx.) 20.98 2.44 m AG Mesocratic Syenite. Common  
 coarse crystalline potassium feldspar phenocrysts. Thin high  
 angle mylonitic fractures with epidote. Full recovery

starts 0.27 m above 68' (20.73 m)

20.46 - 20.53 0.07 m AH Mesocratic Syenite. Exactly as AD with  
 the same texture. Very coarse crystalline, no calc-silicate.  
 Intense pink potassic alteration.

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1.46=78' Start box 4: 1.03=88' 4.0=98' 4.30 m in box 4.

20.53 - 27.83 7.3 m AI Mesocratic Syenite. Very pale pink to off white, medium to coarse crystalline with intense sodic alteration - albite has formed. At the top is a fault plane with chloritized slickenlines. Fractured in mid section. Full recovery.

27.83 - 28.23 0.40 m AJ Mesocratic Syenite. Medium to coarse crystalline with typical flesh pink intense potassic alteration.

end is 107' (32.62 m)

28.23 - 30.81 2.58 m AK Mesocratic Syenite. As Unit AI, uniform; no faulting observed.

32.62 - 33.03 0.41 m AL Melanocratic Syenite. Fractured, poor recovery with common rubble.

0.6=110' 1.51=118' (35.97 m)

35.85 - 35.97 0.12 m AM Mesocratic Syenite As Unit AI. In midsection at 1.15 m is an igneous intrusive contact between medium and coarse crystalline phases of the same syenite lithology.

1.15=128' 4.70=138' (42.07 m)

35.97 - 43.92 7.95 m AN Mesocratic Syenite. Coarse crystalline. Potassium feldspar alteration with very thin (hairline) epidotized fractures.

3.14=148' (45.12 m)

43.92 - 47.56 3.64 m AO As AN Mesocratic Syenite but with slight to intense Fe-stained limonitized breccia fractures esp. in the midsection. A zone of cataclasis with very common healed fractures.

47.56 - 49.08 1.52 m AP Upper part is Mesocratic Syenite like AN; the lower part has healed limonitic fractures like AO.

49.08 - 49.63 0.55 m AQ Melanocratic Syenite. Two prominent cataclastic 'crush breccia' fault zones occur at high angles to the core.

0.60=158' (48.17 m)

49.63 - 51.95 2.32 m AR Leucosyenite Syenite. Relatively fresh, pale pink, coarse crystalline with euhedral mafic very coarse crystalline amphibole. Very common felsic bands with little mafic minerals. A high temperature zone.

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51.95 - 52.33 0.38 m AS Leucosyenite Syenite. As AR starting with a cm sized mylonitic hi-angle epidotized fault plane.

1.25=168' 4.03=178' 4.95 m to end of box 8. 2.72=188' 5.93= 198' 9.33=208' (63.41 m)

52.33 - 63.74 11.41 m AT Mesocratic Syenite. Generally very coarse, minor part is fine crystalline. Massive, uniform with little foliation developed.

63.74 - 64.59 0.85 m AU Mesocratic Syenite. Grading to off white with slight to common argillic alteration. Fractured at the base.

64.59 - 66.85 2.26 m AV Mesocratic Syenite. Medium - coarse crystalline with a uniform crystal size.

66.85 - 67.05 0.20 m AW A thin very melanocratic Cataclastic Fault Zone with very common opaques present.

1.06=228' 3.25=234' End of box is 3.45 m. 0.83=238' (72.56 m)

67.05 - 72.56 (missing core) 2.62 m AX Mesocratic Syenite like Unit AT. At 0.85 m is a 5 cm thick calcsilicate band with epidote. Fresh, off white, coarse crystalline. Euhedral variably sized mafic amphibole crystals. With uncommon healed fractures and traces of green calc-silicates.

1.51m=248' (75.61 m)

72.56 - 75.24 2.68 m AY Leuco - Mesocratic Syenite. Very coarse crystalline. Characteristic pink potassium feldspar alteration. Common felsic (leucosome) bands.

75.24 - 78.81 3.57 m AZ Mesocratic Syenite. Pale grey green and pink, medium - very coarse crystalline. Moderate hydrothermal alteration. No fractures. Two mafic minerals are present; one is equant and coarse - medium crystalline: possibly amphibole; the other is very fine - fine crystalline euhedral acicular lath shaped grains - a mafic calc-silicate?

1.90=268' (81.70 m)

78.81 - 81.87 3.06 m BA Leuco - Mesocratic Syenite. Very coarse crystalline. No or very rare lath shaped mineral present.

81.87 - 82.27 0.40 m BB Mesocratic Syenite. Fine crystalline, slightly altered.

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**82.27 - 83.07 0.80 m BC Mesocratic Syenite. Very fine crystalline as Unit BB. Common limonite stained fractures, calc silicate alteration, brecciated with xenolith-like blebs.**

**0.28=278' 4.31=288' (87.80 m)**

**83.07 - 88.47 5.40 m BD Mesocratic Syenite. Very mafic (last box), generally coarse crystalline with v common epidotized mylonitic fractures.**

**88.47 - 91.18 2.71 m BE Mesocratic Syenite. Pale pink, very coarse crystalline. A few epidotized fracture or fault planes are present.**

**End Core 94-1 at 91.18 m (299.07')**

**Table 1:**

**Chemical analysis of two boulder samples collected in May, 1994.**

<b>Sample Number</b>	<b>SiO<sub>2</sub> %</b>	<b>Al<sub>2</sub>O<sub>3</sub> %</b>	<b>CaO %</b>	<b>MgO %</b>	<b>Na<sub>2</sub>O %</b>	<b>K<sub>2</sub>O %</b>	<b>Fe<sub>2</sub>O<sub>3</sub> %</b>	<b>MnO %</b>	<b>TiO<sub>2</sub> %</b>	<b>LOI %</b>	<b>Total %</b>
93-2	37.9	10.0	13.850	9.882	0.949	0.151	22.45	0.182	4.34		99.67
93-3	34.7	8.7	8.982	13.513	0.325	0.245	27.60	0.219	5.00		99.23

Table 2:

## Chemical analysis and magnetite susceptibility for core samples.

Sample Number	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	CaO %	MgO %	Na <sub>2</sub> O %	K <sub>2</sub> O %	Fe <sub>2</sub> O <sub>3</sub> %	MnO %	TiO <sub>2</sub> %	LOI %	Total %	Susc. cmu * 10 <sup>3</sup>	Rock Types
BT 1 33	40.0	13.0	11.640	07.809	2.426	0.307	19.02	0.247	3.84	1.6	99.92	054.10	BS
BT 1 39	43.6	15.1	11.752	06.947	2.548	0.334	14.59	0.181	2.59	1.6	99.28	040.20	BS
BT 1 45	40.2	14.2	10.604	06.748	2.629	0.921	18.02	0.245	3.75	2.0	99.30	054.60	BS
BT 1 56	43.4	16.1	12.479	06.516	2.480	0.305	13.93	0.176	3.09	0.8	99.25	033.10	BS
BT 1 63	40.9	15.9	12.227	07.030	2.399	0.302	15.02	0.176	3.04	3.6	99.87	043.40	BS
BT 1 73	52.6	16.8	08.786	03.731	7.360	0.476	06.45	0.089	0.92	2.8	99.83	001.19	BS
BT 1 78	41.3	15.3	10.702	05.902	3.154	0.307	13.27	0.182	3.12	5.8	99.02	009.27	BS
BT 1 94	42.4	15.5	11.598	06.466	2.656	0.693	13.77	0.181	2.80	2.4	98.41	033.00	BS
BT 1 97	42.1	16.4	13.095	06.831	2.507	0.233	14.03	0.158	3.07	0.0	98.49	040.10	BS
BT 2 23	45.8	20.0	11.822	03.747	3.100	0.348	10.73	0.116	3.19	0.6	99.44	023.70	HS
BT 2 30	46.0	19.5	11.724	03.747	2.925	0.281	10.32	0.127	2.97	1.0	98.54	007.33	HS
BT 2 49	43.4	18.1	11.724	04.858	2.629	0.322	13.57	0.139	4.00	0.8	99.60	033.60	HS
BT 2 68	46.2	20.4	11.933	03.631	3.208	0.443	09.75	0.112	2.65	0.6	98.94	015.00	HS
BT 2 72	46.0	20.0	12.045	03.581	3.168	0.364	10.15	0.112	2.95	0.2	98.59	022.60	HS
BT 2 93	46.6	21.0	12.087	03.117	3.397	0.354	08.69	0.105	2.42	1.0	98.77	003.38	HS
BT 2 99	42.8	18.1	12.171	04.991	2.588	0.249	14.73	0.134	2.79	1.4	99.96	018.70	HS
BT 3 12	43.0	17.9	12.297	04.891	2.467	0.222	14.59	0.134	2.67	0.0	98.21	054.80	HS
BT 3 19	45.1	19.6	11.864	03.847	3.127	0.323	10.40	0.117	2.94	1.2	98.59	042.90	HS
BT 3 26	42.8	17.8	09.821	04.991	2.332	1.374	14.30	0.133	2.62	3.8	99.91	044.20	HS
BT 3 31	41.9	17.6	11.430	04.808	2.561	0.395	14.03	0.133	2.69	3.4	98.93	047.40	HS
BT 3 49	44.5	17.4	11.514	04.941	2.494	0.233	14.30	0.132	2.75	1.2	99.43	041.40	HS
BT 3 53	43.0	18.1	11.822	04.957	2.534	0.248	14.44	0.134	2.80	1.6	99.67	036.70	HS
BT 3 60	44.3	21.5	11.598	03.664	3.222	0.189	10.68	0.096	1.88	2.2	99.35	028.60	HS
BT 3 68	45.3	21.7	11.192	03.482	3.316	0.296	09.87	0.096	1.47	1.8	98.59	024.60	HS
BT 3 75	44.3	21.0	12.479	03.349	2.844	0.292	08.82	0.068	1.42	5.2	99.72	005.02	HS
BT 3 83	44.5	18.7	11.430	04.294	2.548	0.219	13.44	0.112	2.50	1.6	99.34	032.80	HS
BT 3 88	42.8	17.0	12.325	05.239	2.346	0.171	13.77	0.132	4.34	0.8	98.90	028.20	MA
BT 3 97	42.6	17.4	12.227	04.974	2.588	0.239	12.30	0.179	3.84	2.6	98.89	000.49	HL
BT 4 07	36.4	10.0	11.654	06.632	2.035	0.198	22.17	0.336	5.84	1.0	96.23	074.00	BHS
BT 4 20	38.7	12.3	10.632	05.438	3.033	0.371	16.59	0.253	4.17	0.2	91.68	042.90	BHS
BT 4 25	39.1	13.0	10.562	05.355	2.831	0.298	16.73	0.258	4.50	0.2	92.92	043.90	BHS
BT 4 31	39.1	12.7	10.255	04.974	2.912	0.351	16.30	0.247	4.17	0.0	91.01	048.60	BHS
BT 4 40	35.3	09.8	10.590	06.334	2.116	0.318	20.45	0.312	5.17	0.4	90.81	034.30	BHS
BT 4 43	34.7	09.8	10.660	06.748	1.982	0.227	21.02	0.328	5.50	0.4	91.34	055.70	BHS
BT 4 52	26.1	02.6	10.982	11.125	0.406	0.076	34.75	0.554	8.17	-2.2	92.61	100.00	BHS
BT 4 57	41.5	13.4	10.674	05.455	2.939	0.358	16.30	0.267	4.17	0.6	95.67	029.90	MS
BT 4 65	40.2	12.3	10.548	05.770	2.642	0.383	18.02	0.287	4.67	0.6	95.41	042.20	SP
BT 4 71	33.4	07.0	11.290	08.622	1.415	0.190	27.74	0.436	7.01	-1.0	96.06	083.80	SP
BT 4 78	32.5	07.2	11.444	09.517	1.725	0.186	27.89	0.442	6.84	-0.6	97.13	086.00	SP
BT 4 85	35.5	09.1	10.423	07.444	2.035	0.251	24.02	0.413	6.00	-1.2	93.97	059.00	SP
BT 4 95	39.4	11.1	10.367	06.300	2.656	0.311	20.45	0.343	3.84	-0.6	94.16	047.10	MS



Sample Number	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	CaO %	MgO %	Na <sub>2</sub> O %	K <sub>2</sub> O %	Fe <sub>2</sub> O <sub>3</sub> %	MnO %	TiO <sub>2</sub> %	LOI %	Total %	Susc. emu * 10 <sup>3</sup>	Rock Types
BT 5 24	42.6	17.8	06.589	03.018	3.707	1.434	11.57	0.146	2.10	02.4	91.29	011.80	Mess
BT 5 35	38.1	12.1	09.191	05.820	2.035	0.866	19.02	0.261	5.67	01.8	94.83	015.70	Mess
BT 5 46	38.7	13.6	10.409	06.980	1.806	0.878	19.45	0.205	6.00	01.8	99.85	027.30	Mess
BT 5 60	37.2	13.2	10.898	06.864	1.806	0.686	16.45	0.198	5.00	02.4	94.74	008.43	Mess
BT 5 74	38.5	11.7	11.752	06.980	1.415	0.465	18.88	0.209	6.34	02.0	98.25	003.44	Mess
BT 5 88	39.6	12.3	11.626	06.914	1.928	0.606	16.02	0.205	5.84	02.0	96.98	003.40	Mess
BT 5 99	40.2	13.6	11.024	07.063	1.860	0.624	14.87	0.159	4.17	03.0	96.59	006.44	Mess
BT 6 22	33.2	12.3	05.414	08.273	1.112	0.472	28.60	0.280	5.67	03.2	98.46	045.00	MelH
BT 6 34	69.5	15.7	00.755	00.635	7.967	0.125	02.97	0.015	0.17	01.0	98.84	000.07	MelH
BT 6 43	40.9	13.0	12.227	06.400	1.550	0.313	18.16	0.181	4.17	02.6	99.49	010.70	MelH
BT 6 53	40.0	11.3	11.290	07.643	1.442	0.395	20.31	0.226	4.67	02.0	99.31	029.20	MelH
BT 6 62	38.3	10.8	11.108	08.025	1.219	0.480	22.02	0.222	4.84	02.6	99.57	042.60	MelH
BT 6 65	38.7	11.1	11.947	07.279	1.039	0.370	18.88	0.198	4.84	02.8	97.21	025.60	MelH
BT 6 75	37.9	12.1	11.108	06.350	1.361	0.383	17.59	0.173	3.34	03.0	93.25	007.48	MelH
BT 6 93	36.6	10.4	10.870	07.494	1.132	0.289	20.74	0.201	4.50	02.0	94.19	053.50	MelH
BT 6 97	37.2	10.4	11.402	07.527	1.321	0.349	20.45	0.205	5.00	01.6	95.47	039.50	MelH
BT 8 31	48.8	19.1	06.925	01.658	4.475	1.386	06.42	0.089	1.18	02.8	92.79	05.660	BHS
BT 8 42	37.4	10.0	09.681	07.279	1.847	0.769	19.59	0.298	5.17	01.4	93.48	033.60	BHS
BT 8 73	41.1	14.0	09.261	04.891	3.249	0.653	13.41	0.227	2.90	02.6	92.24	010.90	LS
BT 8 86	35.9	09.3	09.163	07.527	1.914	1.195	20.02	0.323	5.34	01.6	92.27	064.80	LS
BT 8 96	49.2	19.3	09.331	02.852	4.489	1.374	09.28	0.133	1.95	01.8	99.68	020.30	LS
BT 9 38	98.0	00.2	00.238	00.036	0.046	0.057	00.46	0.006	0.03	00.2	99.23	000.00	Mess
BT 9 56	36.8	17.6	09.583	04.145	1.318	1.131	12.36	0.121	1.92	03.8	88.73	048.90	Mess
BT 9 66	36.6	20.2	11.500	02.437	1.591	2.133	07.72	0.079	1.25	05.2	88.70	008.08	Mess
BT 9 67	34.0	13.4	11.514	05.389	1.302	1.142	17.30	0.185	2.92	03.8	90.98	075.30	Mess
BT 9 78	38.7	21.2	09.471	02.172	2.211	1.735	08.21	0.070	1.22	05.6	90.56	011.30	Mess
BT 9 96	37.9	20.2	11.724	01.152	2.130	2.639	10.47	0.120	2.34	11.2	99.84	000.25	Mess
GE-1	38.1	13.2	14.550	06.649	1.320	0.713	20.02	0.190	3.52	01.6	99.86	166.00	
GE-2	38.3	12.5	14.410	07.643	0.895	1.165	20.16	0.194	3.19	01.4	99.81	121.00	
95-1 39	40.6	07.9	15.300	13.380	0.890	0.584	14.87	0.223	2.65	9.9	99.99	059.80	PS
95-1 46	40.4	07.6	14.425	14.410	0.777	0.528	17.16	0.227	2.74	1.6	99.88	078.60	PS
95-1 73	37.7	06.6	17.070	11.656	0.767	0.236	19.73	0.241	5.17	0.6	99.99	101.00	Mess
95-1 75	42.6	25.3	14.555	02.437	2.238	1.670	06.33	0.083	1.28	3.4	99.99	015.90	Mess
95-1 90	40.4	23.6	16.090	03.084	2.035	0.880	08.57	0.103	1.63	3.4	99.99	022.50	Mess
95-1 112	42.2	23.4	14.690	03.034	1.779	1.789	08.37	0.107	1.57	2.8	99.90	031.30	Mess
95-1 135	38.3	11.5	16.090	09.119	1.096	0.715	17.16	0.210	4.34	1.4	99.94	085.80	Mess
95-1 162	41.3	22.9	14.690	03.349	1.712	1.892	09.27	0.112	1.65	3.0	99.81	028.10	Mess
95-1 175	35.9	08.7	16.510	10.164	0.666	0.378	20.88	0.285	5.17	1.2	99.87	121.00	Mess
95-1 189	40.4	23.6	15.530	03.316	1.645	1.888	09.09	0.103	1.62	2.6	99.62	032.70	Mess
95-1 213	35.3	09.4	14.830	09.401	0.960	0.606	22.02	0.239	5.50	1.6	99.90	138.00	Mess
95-1 229	58.6	16.6	08.117	00.204	9.234	0.106	04.60	0.063	0.45	1.2	99.26	000.30	MelS
95-1 237	41.3	21.2	13.500	04.311	1.806	1.747	11.10	0.121	2.17	2.8	99.96	045.50	Ho
95-1 248	40.0	21.3	15.670	03.996	1.604	1.458	11.21	0.124	2.15	2.4	99.96	052.20	MelS

Sample Number	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	CaO %	MgO %	Na <sub>2</sub> O %	K <sub>2</sub> O %	Fe <sub>2</sub> O <sub>3</sub> %	MnO %	TiO <sub>2</sub> %	LOI %	Total %	Susc. emu * 10 <sup>3</sup>	Rock Types
95-1 256	38.1	20.8	17.770	02.964	1.901	1.001	08.77	0.099	1.53	7.0	99.91	020.00	Mess
95-1 270	38.1	16.1	14.970	06.731	1.456	0.636	16.02	0.187	3.67	2.0	99.80	095.90	Mess
95-1 290	42.6	21.5	15.530	03.333	2.143	0.699	09.87	0.102	1.67	2.0	99.66	035.00	Mess
95-2 10	49.9	17.0	13.800	6.633	1.941	0.158	15.59	0.155	5.34	0.2	99.98	053.10	BS
95-2 40	18.1	16.1	05.300	2.750	5.325	2.880	07.09	0.124	2.04	0.6	99.67	006.10	BS
95-2 61	51.1	17.2	06.800	3.465	4.866	2.506	10.52	0.167	2.60	0.4	99.67	024.70	BS
95-2 86	49.2	15.5	08.800	3.813	4.246	1.723	12.17	0.218	3.37	0.2	99.60	027.10	BA
95-2 95	45.3	13.0	11.800	5.405	3.330	0.847	15.59	0.296	3.44	0.2	99.29	061.80	M
95-2 102	44.7	13.8	11.400	5.272	3.491	0.894	15.87	0.288	4.00	0.2	99.92	063.50	M
95-2 114	44.9	12.8	11.400	5.272	3.494	0.927	16.30	0.298	4.00	0.2	99.72	073.50	M
95-2 135	45.3	13.2	10.600	5.256	3.896	1.326	15.59	0.342	3.24	1.0	99.90	123.00	M
95-2 140	38.3	11.1	10.200	5.654	2.790	1.253	23.74	0.412	5.84	0.6	99.88	026.50	M
95-2 148	44.5	14.0	11.400	5.554	3.869	1.204	15.16	0.315	3.22	0.6	99.80	050.70	A
95-2 159	49.8	17.9	08.600	3.067	5.513	1.675	10.73	0.165	2.09	0.4	99.80	025.60	A
95-2 172	47.3	12.3	04.700	1.708	4.934	2.976	21.59	0.473	3.70	0.0	99.64	133.00	BA
95-2 185	42.6	13.0	09.500	4.100	4.000	1.500	19.31	0.350	4.84	0.0	99.11	100.00	A
95-2 200	54.8	19.6	03.100	0.450	6.200	2.500	08.54	0.140	1.55	2.4	99.20	016.90	MesA
95-2 208	34.2	05.1	09.890	3.000	2.300	1.000	35.89	0.790	6.84	0.0	99.03	265.00	M
95-2 211	36.4	03.8	13.100	4.100	1.900	0.800	33.32	0.840	5.67	0.0	99.61	201.00	A
95-2 215	36.4	02.8	15.100	4.200	1.700	0.500	32.75	0.820	5.17	0.0	99.46	184.00	A
95-2 225	43.4	15.5	09.890	4.600	4.000	1.000	15.02	0.260	5.00	1.2	99.90	053.60	BHA
95-2 235	60.5	20.0	04.160	0.800	7.200	2.700	02.65	0.070	0.35	0.6	99.93	008.30	BHA
95-2 250	40.2	13.8	11.860	6.200	3.100	0.500	17.59	0.300	6.17	0.2	99.82	055.90	BHA
95-2 266	45.1	14.5	10.380	5.100	3.900	0.900	15.44	0.290	3.97	0.2	99.82	055.90	PA
95-2 279	46.2	16.4	09.990	4.400	4.200	1.200	13.28	0.220	3.09	0.4	99.41	050.70	BA
95-2 292	51.5	18.1	07.200	3.000	5.300	1.700	09.95	0.150	1.70	0.6	99.22	034.50	BA
95-2 297	40.6	14.0	13.260	7.200	2.700	0.290	16.59	0.210	4.50	0.2	99.47	057.60	BA
95-3 147	57.6	17.9	01.450	0.530	4.900	5.900	07.21	0.200	0.37	3.6	99.88	005.40	Mess
95-3 206	61.6	19.1	00.860	0.120	6.600	6.200	04.19	0.100	0.12	1.2	100.00	031.70	Mess
95-3 219	59.9	19.1	01.670	0.210	6.500	6.300	04.92	0.150	0.15	1.0	99.87	006.50	Mess
95-3 227	60.3	18.5	01.890	0.200	6.300	6.000	04.93	0.120	0.18	1.4	99.86	009.30	Mess
95-3 238	57.8	18.1	02.530	0.390	6.200	6.200	07.26	0.220	0.32	1.0	99.97	009.50	Mess

### INDEX FOR ROCK TYPES

BS	Biotite Syenite	PS	Pyroxene Syenite
HS	Hornblende Syenite	HO	Hornfels
MA	Magnetite Anorthosite	A	Anorthosite
HL	Hornblende Lamprophyre	M	Magnetite
BHS	Biotite-Hornblende Syenite	BA	Biotite Anorthosite
MS	Magnetite Shonkinite	MesA	Mesocratic Anorthosite
SP	Shonkinite Porphyry	MagA	Magnetitic Anorthosite
Mess	Mesocratic Syenite	BHA	Biotite-Hornblende Anorthosite
MelS	Melanocratic Syenite	PA	Pyrrhotite Anorthosite
MelH	Melanocratic Hornblendite	LS	Leucocratic Syenite

**Table 3:**

**Average susceptibility and estimated magnetite content for twelve holes and the boulder.**

<u>Hole No.</u>	<u>Susceptibility emu</u>	<u>Magnetite Content (volume)</u>	
		<u>Gaucher</u>	<u>Bath</u>
94-1	.045	21	14
94-2	.020	15	8
94-3	.041	20	13
94-4	.066	25	18
94-5	.012	14	5
94-6	.029	18	10
94-7 Bottom only	.023	16	8
94-8	.018	15	7
94-9	.012	13	5
95-1	.412		
95-2	.569		
95-3	.068		
boulder	.215	44	43

**TABLE 4**

**Distribution of Fe and Ti after magnetic separation**

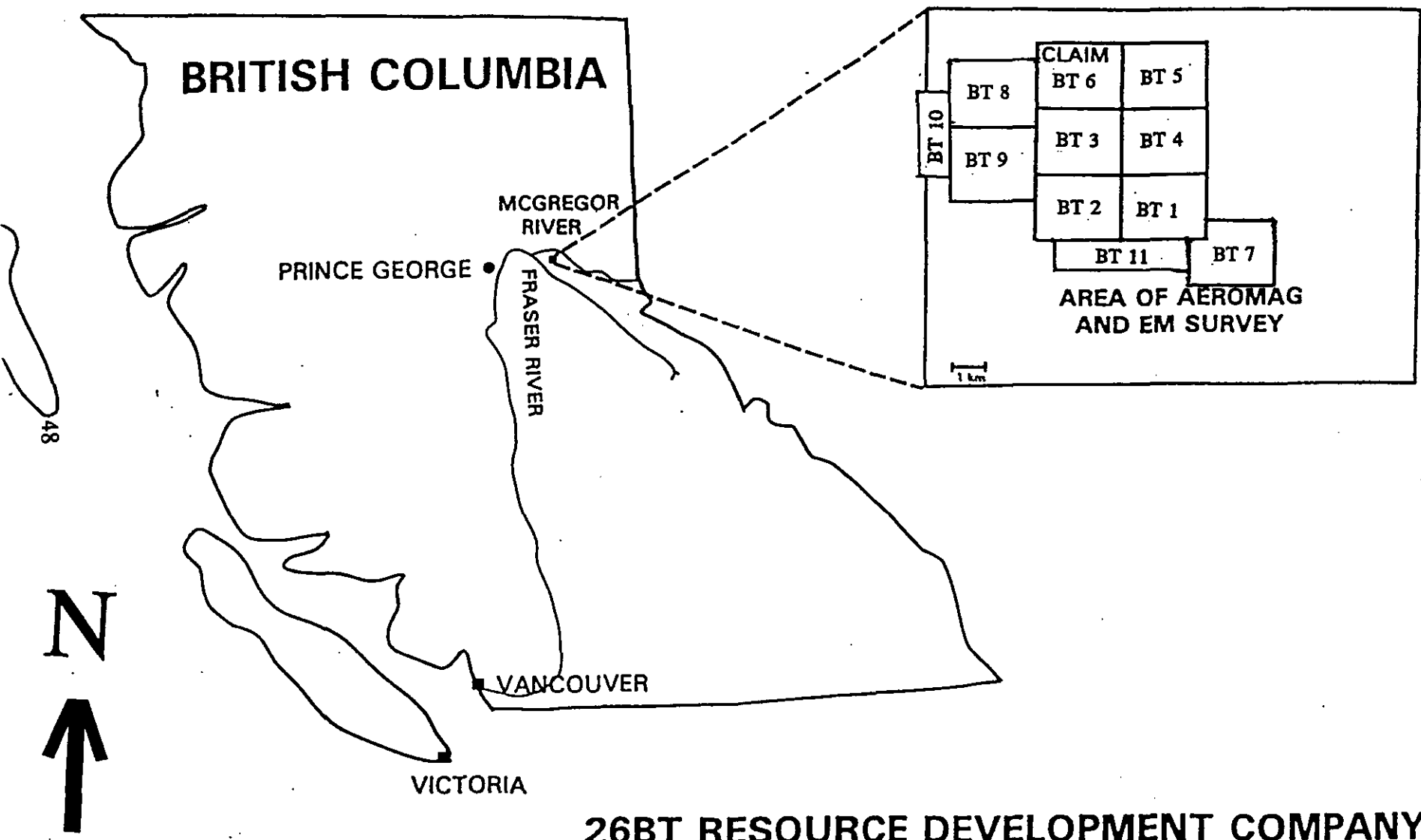
SAMPLE						MAGNETIC SEPARATE					SAMPLE	
Number	Susceptibility emu	Fe <sub>2</sub> O <sub>3</sub> %	Fe %	TiO <sub>2</sub> %	Ti %	Total Recovery %	Fe %	Ti %	Other	Fe in MAGNETITE •	Fe **	Ti
BT 4-52	100	34.75	24.3	8.17	4.90	22.1	55	11.9	6	43	9.5	2.6
BT 4-71	83	27.74	19.4	7.01	4.21	21.7	51	11.4	10	38	8.2	2.5
BT 4-93	47	20.45	14.3	3.84	2.30	10.8	54	10.9	8	41	4.4	1.2
BT 5-35	16	19.02	13.3	5.67	3.40	13.1	29	7.0	49	21	2.8	0.9
BT 5-99	0.25	14.87	10.4	4.17	2.50	6.1	38	16.3	22	19	1.1	1.0
BT 6-22	45	28.60	20.0	5.67	3.40	20.7	45	8.7	21	35	7.0	1.8

\* Assumes that Titanium in magnetic separate is in the form of Ilmenite FeTiO<sub>3</sub>.

\*\* This is Fe in magnetite form in the magnetic separate.

**Table 5:****Total magnetic field, average susceptibility and Magnetite content in the holes (weight).**

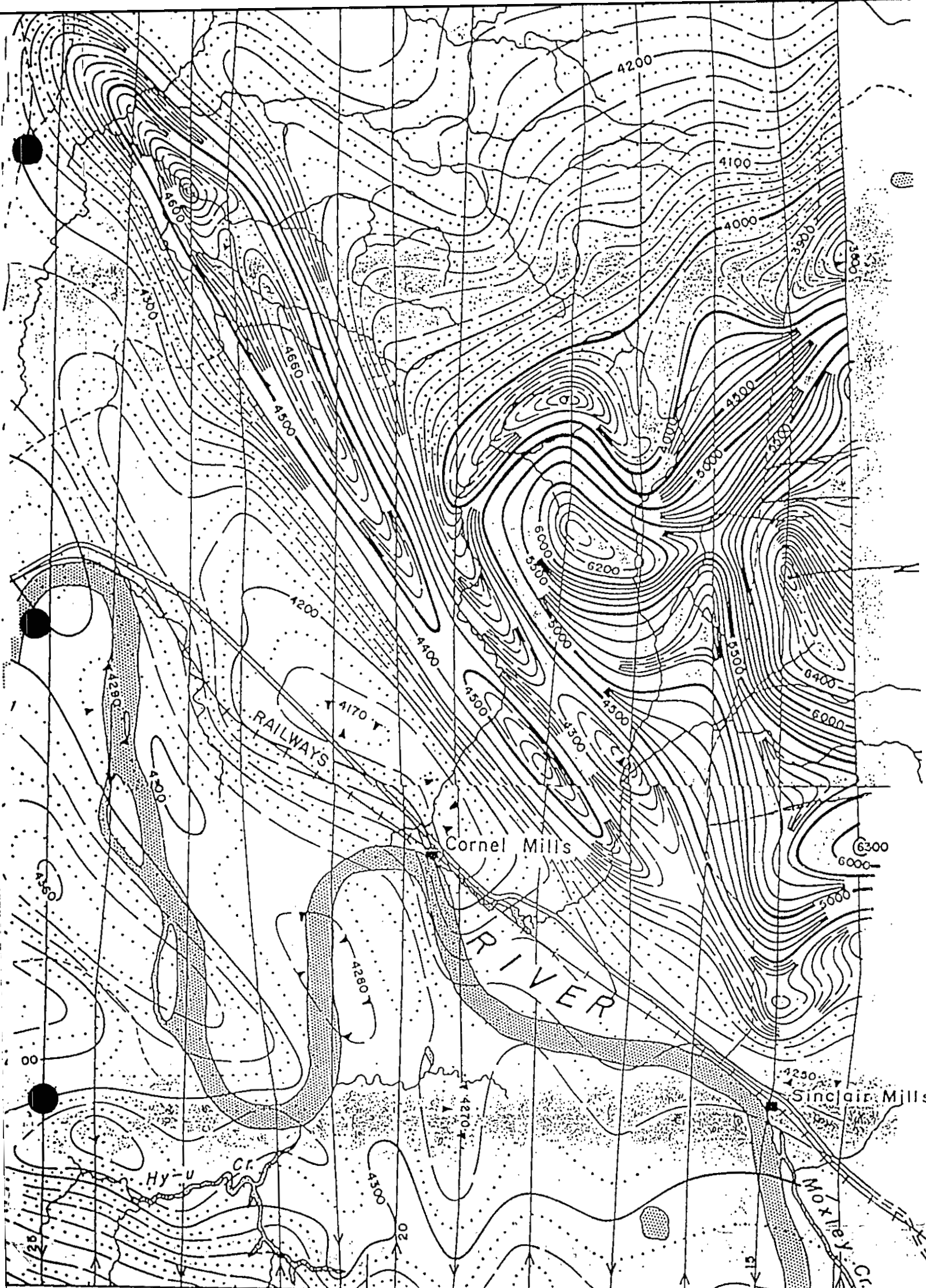
Hole Number	Susceptibility (emu * 10 <sup>3</sup> )	Magnetite	Total Field (IGRF removed NT)
94-1	45.3	3.68	2703
94-2	19.6	1.59	2583
94-3	41.1	3.34	1351
94-4	66.5	5.40	2591
94-5	12.0	0.98	1068
94-6	28.8	2.34	543
94-7	22.9	1.86	1623
94-8	18.0	1.47	1172
94-9	12.1	0.98	844
95-1	41.2	3.35	1876
95-2	56.9	4.63	3255
95-3	6.83	0.55	1011



**26BT RESOURCE DEVELOPMENT COMPANY LTD.**

**FIGURE 1  
AREA OF AEROMAG AND EM SURVEY**

**CALGARY ALBERTA**



Joins Map 1535 G, "Hutton"

40'

MAP 1536G

FIGURE 2  
AEROMAGNETIC MAP 1536G

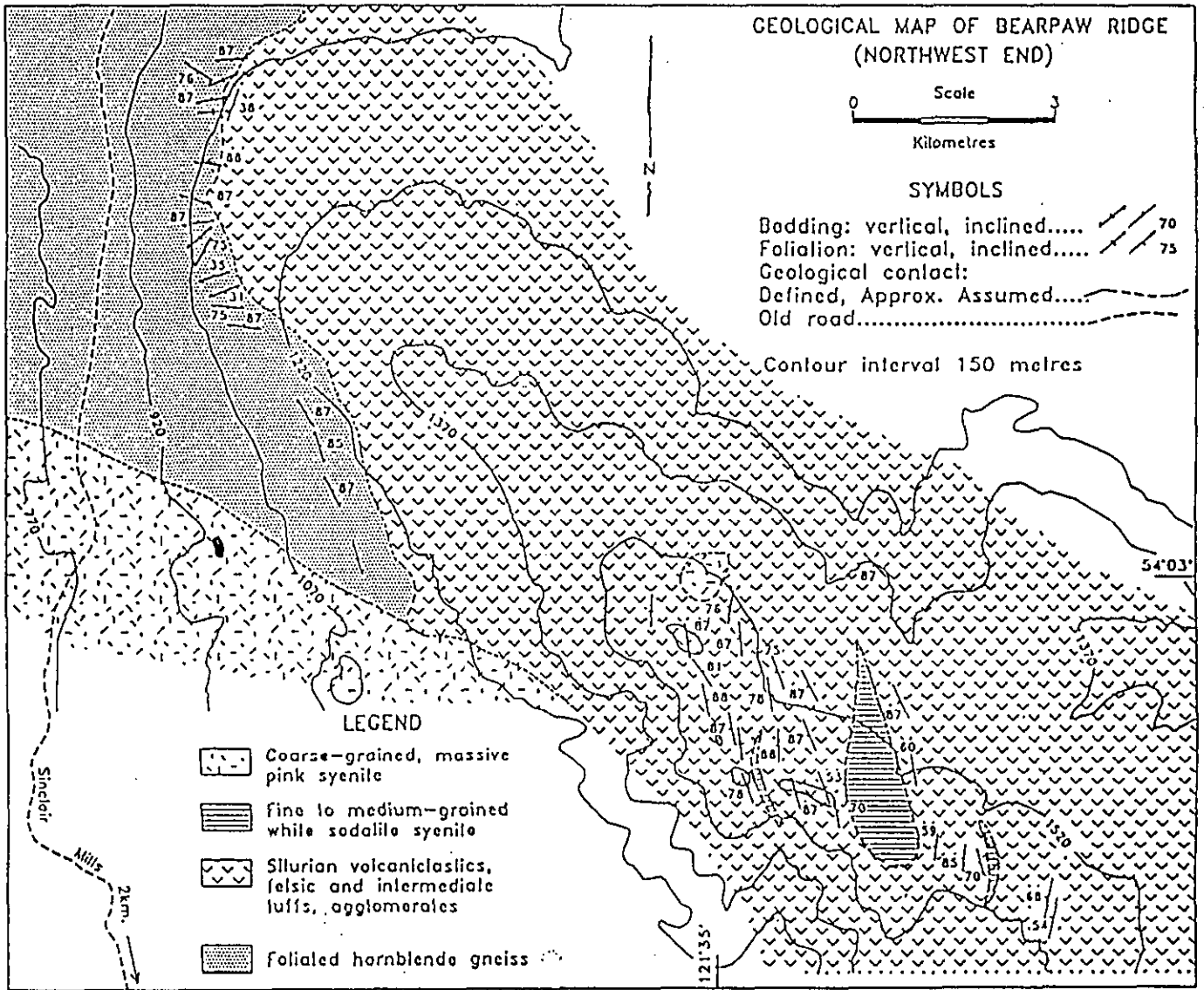
JUNE - SEPT  
1961

# SINCLAIR MILLS

49

BRITISH COLUMBIA

Magnetic survey  
Geophysics Division,



**FIGURE 3  
GEOLOGICAL MAP OF BEARPAW RIDGE**



## APPENDIX 1

### Drill hole and core information

Hole diameter	1 3/4" 43 mm
Inclination	90°
Azimuth	n.a.
Minerals noted	no obvious metals noted, detailed analysis planned.
Number of holes	12
Total hole depth	1800' 548.2 m
Total length of core	1578' 480.6 m
Location of cores	7203 Keewatin Street S.W., Calgary, AB, T2V 2M6
Collar elevation of holes (estimated from topo map)	94-1 3620' 94-2 3700' 94-3 4080' 94-4 3990' 94-5 3630' 94-6 3880' 94-7 2810' 94-8 2695' 94-9 2490' 95-1 2400' 95-2 4575' 95-3 5320'22

# MASTER MINERAL RESOURCE SERVICES LTD.

Pilsum Master, M.Sc., P.Geol

Industrial Minerals - Market Development; Technical Advice, Evaluation  
AutoCAD, Computer Imaging, Mineralogy (Diamond Indicator Minerals)

## APPENDIX 2

To: Lorne Kelsch  
BT Resource Development  
c/o TerraMin Research Labs Ltd.  
Calgary, Alberta

From: Pilsum Master, P.Geol.  
Master Mineral Resource Services Ltd.

Date: January 19, 1995.

Re.: Petrology of BT 4- and BT 5 - samples

---

To determine the petrology and identification of rock samples, thin section petrography is normally completed, supplemented by major element chemical analysis.

The major element chemical analysis was completed for the suite of samples, and was made available for interpretation. Also, the rejects from each sample were preserved and submitted for examination under a petrographic binocular microscope with a magnification between 10X and 40X. The petrological descriptions and the mineralogy determined are preliminary, and can only be confirmed by detailed mineralogical examination, e.g. thin sections.

### NORM MINERALOGICAL ANALYSIS BY CALCULATION FROM CHEMICAL ANALYSIS:

It was felt that the results of the preliminary petrological examination could be supplemented by the data from the chemical analysis. The technique described below is used for igneous rocks, and calculates the theoretical mineral composition or *norm* (*normalisation of chemical composition for comparison*). Although the petrological examination revealed that the rocks are probably from a contact zone of an igneous body, the NORM CALCULATIONS are useful to compare the samples, and determine their unique characters.

It is emphasised that the mineralogical composition of an igneous rock, expressed as weight or volume percentages of microscopically identified minerals, i.e. the *mode* (modal composition) of the rock is not determined here. In the norm calculations the various oxide components as determined by chemical analysis are combined in a series of steps to form a series of normative mineral components.

The complete calculations require completion of a number of sequence of oxide combinations so that eventually the calculated normative minerals correspond broadly with those present modally in any igneous rock which crystallised slowly at low pressure. Thus insufficient silica to form quartz or to be applied to other rock forming minerals like pyroxene, suggests that the rock is undersaturated in silica, and normative olivine (instead of hypersthene), normative nepheline and/or leucite instead of feldspars are recalculated. In this exercise, calculations were only taken to the point where deficiency in silica -- no free quartz -- is indicated. A more complete calculation is warranted if selected members of the rock suite are subjected to modal analysis (thin section) and the data used to calculate the norms for the rest of the samples.

The norms of samples BT4-52, BT4-85, BT 4-93, BT5-24, BT5-46 were completed to the determination of quartz, and are enclosed. The calculations indicate that a substantial portion of the Fe occurs as magnetite, there is no free quartz, and very little potassic feldspar. The silicate minerals are mainly sodic feldspar and plagioclase, although feldspathoid minerals can be present. The ferro magnesian minerals are mainly diopsidic pyroxene, with a strong indication of enstatic (Mg) component. Presence of Ca-silicates is likely due to the high proportion of wollastonite (skarn?). Complex hydrous modal minerals like amphibole and mica cannot be calculated by these methods directly.

None of the five samples match the norms of common igneous rock types.

The rocks are tentatively identified as diorite (>50% mafic) from the contact zone (probably a skarn) with undetermined country rock. A major component is magnetite, and sufficient titanium is present to indicate the existence of ilmenite.

#### PETROGRAPHIC EXAMINATION:

Laboratory rejects of thirteen samples of the BT 4- series and 7 samples of the BT 5-series were examined under hand lens and a 10-40X binocular microscope. In addition, the samples were tested for carbonate by 10% HCl acid at room temperature, and for magnetism by a hand-held magnetic stud finder. The terms used to describe the carbonate content and magnetic properties are subjective, e.g. weak, strong.

BT 4 -20:

Dioritic, >50% mafic

Mafics, lath shaped diopsidic pyroxene and/or hornblende, biotite, magnetite.

Felsic, lath shaped opaque, white, prismatic cleavage -- feldspar (?)

Slight effervescence with 10% HCl

Strong magnetic.

BT 4 - 25:

same as BT4-20, less green more dark mafic component.

BT Resource Development/ TerraMin/MMRS

BT 4- 7:

same as BT 4- 20, slightly finer grained

BT 4- 31, - 40, -43:

same as BT 4-20

BT 4- 52:

same as BT 4- 20, except less (< 50%) light coloured component, and more magnetic.

BT 4 - 57:

same as BT 4 -20

BT 4 - 65:

same as BT 4-20, except stronger response to 10% HCl -- more CO<sub>2</sub>, calcite grains recognisable, some H<sub>2</sub>S smell with acid --- sulphide in matrix (?).

BT 4 - 71:

same as BT 4- 65

BT 4 - 78:

same as BT 4 - 65.

BT 4- 85:

same as BT 4 -65, except weakly magnetic

BT 4 - 93:

same as BT 4 - 65.

BT 5 - 24:

Dioritic, 50% mafics.

Mafics mainly diopsidic pyroxene and/or hornblende.

Light coloured minerals: opaque dull lustre (not like feldspar), hardness > 5, not possible to id..

Some effervescence with 10% HCl

Weakly magnetic.

BT 5 - 35:

More like BT4-20 than BT 5-24 with less of the sheet like mafic minerals present. Light coloured mineral laths look like feldspar phenocrysts.

Little or no reaction to 10% HCl

Weakly magnetic.

BT 5- 46:

same as BT 5 - 35, except some effervescence with 10% HCl.

BT Resource Development/ TerraMin/MMRS

BT 5- 60:  
same as BT 5 - 46.

BT 5 - 74:  
Dioritic, light coloured feldspar (?) laths not all lath shaped, smaller more irregular in form, some with ochre colour.  
No magnetic reaction  
Medium effervescence with 10% HCl

BT 5 - 88:  
same as BT 5- 74, except green "albitic" phenocrysts.

BT 5 - 99:  
same as BT 5 - 88, except weakly magnetic and a slight response to 10% HCl.

**CONCLUSIONS AND RECOMMENDATIONS:**

The samples represent a contact zone of a dioritic intrusion. The mode of origin of the magnetite is not possible to determine. Presence of Ca-silicate minerals is suspected but cannot be confirmed, nor can the presence of skarn type of mineralisation be determined. Modal mineralogical determinations using thin section petrography of atleast three representative samples of each of the series is recommended. The modal compositions can then be used to compare the remainder of the sample suite using their major element chemical analysis. For this normative calculations can be used with more confidence.



---

January 19, 1995

Pilsun P. Master, P.Geol.

DETERMINATIVE PETROLOGY.  
 NORM CALCULATIONS BY CIPW METHOD.

SAMPLE: BT 5-24 PROJECT: 36 BT RESOURCE DEVELOPMENT  
 MASTER MINERAL RESOURCE SERVICES LTD.

Reported Fe2O3: 11.57 All Fe recalculated and assigned to FeO

CONSTITUENTS	SiO2	Al2O3	FeO (calc.)	Fe2O3 (calc.)	MgO	CaO	Na2O	K2O	TiO2	MnO	LOI	TOTAL	MOLECULAR PROPORTIONS	MOLECULAR WEIGHTS	NORM % WEIGHT MINERAL	
WEIGHT % CHEM ANAL.	42.60	17.60	10.44	0.00	9.02	8.59	3.71	1.43	2.10	0.15	2.40	80.23				
MOLECULAR WTS.	60.00	102.00	160.00	72.00	40.00	56.00	62.00	94.00	80.00	71.00						
MOLECULAR PROP.	710.00	174.51	65.23	0.00	75.45	117.68	59.79	15.28	28.25	2.08						
ADJUSTED MOL. PROP.			67.29													
ILMENITE			30.29						30.29				0.03	152.00	4.60	ILMENITE
SPHENE(TITANITE)																SPHENE(TITANITE)
RUTILE									-4.04				-0.00	80.00	-0.32	RUTILE
ORTHOCLASE	91.53	15.28						15.28					0.02	555.00	8.48	ORTHOCLASE
ALBITE	558.74	59.79					59.79						0.08	524.00	31.33	ALBITE
ANORTHITE	198.93	89.48				89.48							0.10	278.00	27.85	ANORTHITE
MAGNETITE			34.94	0.00									0.03	232.00	8.11	MAGNETITE
HEMATITE				0.00									0.00	160.00	0.00	HEMATITE
DIOPSIDE	Fe		0.48			17.71							0.00	132.00	0.08	ferrocite
	Mg	135.68											0.14	100.00	13.59	DIOPSIDE enstatite
	Ca					117.68							0.12	118.00	13.65	wollastonite
OLIVINE		0.93	-0.04										-0.00	132.00	-0.01	OLIVINE fayalite
	Mg					0.97							0.00	100.00	0.10	forsterite
QUARTZ		-75.80											-0.08	60.00	-4.58	QUARTZ
CORUNDUM			0.00										0.00	102.00	0.00	CORUNDUM
															102.83	Totals

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DETERMINATIVE PETROLOGY.  
 NORM CALCULATIONS BY CIPW METHOD.

SAMPLE: BT 4 - 85 PROJECT: 26 BT RESOURCE DEVELOPMENT  
 MASTER MINERAL RESOURCE SERVICES LTD.

Reported Fe2O3: 24.02 All Fe recalculated and assigned to FeO

CONSTITUENTS	SiO2	Al2O3	FeO (calc.)	Fe2O3(calc)	MgO	CaO	Na2O	K2O	TiO2	MnO	LOI	TOTAL	MOLECULAR PROPORTIONS	MOLECULAR WEIGHTS	NORM % WEIGHT MINERAL
WEIGHT % CHEM. ANAL.	55.50	9.10	21.87	0.00	7.44	10.42	2.04	0.25	8.00	0.41	-1.20	91.63			
MOLECULAR WTS.	60.00	102.00	160.00	72.00	40.00	56.00	62.00	84.00	50.00	71.00					
MOLECULAR PROP.	591.67	89.22	135.43	0.00	166.10	166.13	32.62	2.67	75.00	5.82					
ADJUSTED MOL. PROP.			141.24												
ILMENITE			30.29						30.29				0.03	152.00	4.60
SPHENE(TITANITE)															
RUTILE								44.71					0.04	80.00	3.58
ORTHOCLASE	16.02	2.67						2.87					0.00	559.00	1.48
ALBITE	126.94	32.62					32.62						0.03	524.00	17.20
ANORTHITE	107.45	53.72				53.72							0.05	278.00	14.93
MAGNETITE			105.14	0.00									0.11	232.00	24.39
HEMATITE				0.00									0.00	160.00	0.00
DIOPSIDE	Fe		4.01										0.00	132.00	0.53
	Mg	318.53			128.39								0.32	100.00	31.85
	Ca					166.13							0.19	118.00	21.59
OLIVINE		0.94	-0.02										-0.00	132.00	-0.00
	Mg				0.87								0.00	100.00	0.10
QUARTZ		-48.21											-0.05	60.00	-2.89
CORUNDUM			0.00										0.00	102.00	0.00
															117.37 Total

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DETERMINATIVE PETROLOGY.  
NORM CALCULATIONS BY CIPW METHOD.

SAMPLE: BT 4 - 52 PROJECT: 28 BT RESOURCE DEVELOPMENT  
MASTER MINERAL RESOURCE SERVICES LTD.

Reported Fe2O3: 34.75 All Fe recalculated and assigned to FeO

CONSTITUENTS	SiO2	Al2O3	FeO (calc.)	Fe2O3(calc)	MgO	CaO	Na2O	K2O	TiO2	MnO	LOI	TOTAL	MOLECULAR PROPORTIONS	MOLECULAR WEIGHTS	NORM % WEIGHT MINERAL
WEIGHT % CHEM ANAL.	26.10	2.60	31.35	0.00	11.13	10.88	0.41	0.06	8.17	0.55	-2.20	69.18			
MOLECULAR WTS.	60.00	102.00	160.00	72.00	40.00	56.00	62.00	94.00	80.00	71.00					
MOLECULAR PROP.	435.00	25.49	185.82	0.00	278.13	188.11	6.55	0.81	102.13	7.80					
ADJUSTED MOL. PROP.			203.73												
ILMENITE			30.29						30.29				0.03	152.00	4.60
SPHENE(TITANITE)									71.84				0.07	60.00	5.75
RUTILE								0.21					0.00	58.00	0.45
ORTHOCLASE	4.85	0.81											0.01	524.00	3.43
ALBITE	39.29	6.55					6.55						0.02	278.00	5.04
ANORTHITE	38.27	15.13				18.13							0.17	232.00	39.43
MAGNETITE			185.83	0.00									0.00	180.00	0.00
HEMATITE				0.00									0.00	132.00	0.64
DIOPSIDE	Fe Mg	374.03	4.88		173.12								0.37	100.00	37.41
OLIVINE	Ca	0.95	-0.02			168.11							0.20	118.00	22.75
QUARTZ	Mg	-20.44			0.97								-0.00	132.00	-0.00
CORUNDUM			0.00										0.00	100.00	0.10
													-0.02	60.00	-1.23
													0.00	102.00	0.00
															117.37

50

117.37 Total



DETERMINATIVE PETROLOGY.  
 NORM CALCULATIONS BY CIPW METHOD.

SAMPLE: BT 5 - 45 PROJECT: 26 BT RESOURCE DEVELOPMENT  
 MASTER MINERAL RESOURCE SERVICES LTD.

Reported Fe2O3: 19.45 All Fe recalculated and assigned to FeO

CONSTITUENTS	SiO2	Al2O3	FeO (calc.)	Fe2O3(calc)	MgO	CaO	Na2O	K2O	TiO2	MnO	LOI	TOTAL	MOLECULAR PROPORTIONS	MOLECULAR WEIGHTS	NORM % WEIGHT MINERAL
WEIGHT %, CHEM. ANAL.	58.70	13.60	17.55	0.00	6.98	10.41	1.81	0.88	6.00	0.21	1.50	97.92			
MOLECULAR WTS.	60.00	102.00	160.00	72.00	40.00	56.00	62.00	94.00	80.00	71.00					
MOLECULAR PROP.	645.00	133.33	109.88	0.00	174.50	165.83	29.13	8.34	75.00	2.89					
ADJUSTED MOL. PROP.			112.55												
ILMENITE			50.29						50.29				0.09	152.00	4.80
SPHENE(TITANITE)									44.71						
RUTILE								9.34					0.04	80.00	3.58
ORTHOCLEASE	58.04	9.34											0.01	558.00	5.19
ALBITE	174.77	29.13					29.13						0.03	524.00	15.26
ANORTHITE	189.73	94.86				94.86							0.08	278.00	26.37
MAGNETITE			79.37	0.00									0.03	232.00	18.41
HEMATITE				0.00									0.00	160.00	0.00
DIOPSIDE			1.48										0.00	132.00	0.20
	Fe												0.00	132.00	0.20
	Mg				89.53								0.28	100.00	27.89
	Ca					165.83							0.19	118.00	21.58
OLIVINE	0.97		-0.02										-0.00	132.00	-0.00
	Mg				0.88								0.00	100.00	0.10
QUARTZ	-53.40												-0.05	60.00	-3.20
CORUNDUM		0.00											0.00	102.00	0.00
															118.76 Total

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DETERMINATIVE PETROLOGY.  
 NORM CALCULATIONS BY CIPW METHOD.

SAMPLE: BT 4 - 83 PROJECT: 25 BT RESOURCE DEVELOPMENT  
 MASTER MINERAL RESOURCE SERVICES LTD.

Reported Fe2O3: 20.45 All Fe recalculated and assigned to FeO

CONSTITUENTS	SiO2	Al2O3	FeO (calc.)	Fe2O3(calc)/MgO	CaO	Na2O	K2O	TiO2	MnO	LOI	TOTAL	MOLECULAR PROPORTIONS	MOLECULAR WEIGHTS	NORM % WEIGHT MINERAL	
WEIGHT %, CHEM ANAL.	59.40	11.10	18.45	0.00	6.30	10.57	2.66	0.31	3.54	0.34	-0.60	52.16			
MOLECULAR WTS.	60.00	102.00	160.00	72.00	40.00	58.00	62.00	84.00	65.00	71.00					
MOLECULAR PROP.	658.67	106.82	115.30	0.00	157.50	185.13	42.84	3.31	48.00	4.83					
ADJUSTED MOL. PROP.			120.13												
ILMENITE			30.29					30.29				0.03	152.00	4.80	ILMENITE
SPHENE(TITANITE)															SPHENE(TITANITE)
RUTILE								17.71				0.02	80.00	1.42	RUTILE
ORTHOCLASE	19.85	3.31						3.31				0.00	558.00	1.84	ORTHOCLASE
ALBITE	257.03	42.84				42.84						0.04	524.00	22.45	ALBITE
ANORTHITE	125.35	62.86			62.86							0.06	276.00	17.42	ANORTHITE
MAGNETITE			65.01	0.00								0.08	232.00	19.72	MAGNETITE
HEMATITE			3.84	0.00								0.00	160.00	0.00	HEMATITE
DIOPSIDE	Mg	307.57			113.60							0.00	132.00	0.48	ferrosilite
												0.31	100.00	30.78	DIOPSIDE enstatite
	Ca				185.13							0.19	118.00	21.47	wollastonite
OLIVINE	Mg	0.95	-0.02									-0.00	132.00	-0.00	OLIVINE fayalite
					0.87							0.00	100.00	0.10	forsterite
QUARTZ		-54.09										-0.05	60.00	-3.25	QUARTZ
CORUNDUM			0.00									0.00	102.00	0.00	CORUNDUM
														117.02	Total

09

APPENDIX 3

ANALYTICAL REPORT

26 BT Resource Dev't.

Lorne Kelsch

Date: January 27, 1995

Job No: 95-014

Project:

P.O. No:

20 Core

Signed: \_\_\_\_\_





TERRAMIN RESEARCH LABS Ltd.

Job No: 95-014

Client: 26 BT Resource Development  
Project:

Sample Number	Magnetite %
BT-4 7	14.6
BT-4 20	9.5
BT-4 25	9.6
BT-4 31	9.6
BT-4 40	12.5
BT-4 43	14.1
BT-4 52	22.1
BT-4 57	3.0
BT-4 65	3.5
BT-4 71	21.7
BT-4 78	21.9
BT-4 85	14.3
BT-4 93	10.8
BT-5 24	4.1
BT-5 35	13.1
BT-5 46	10.2
BT-5 60	5.5
BT-5 74	6.2
BT-5 88	4.3
BT-5 99	6.1



## APPENDIX 4

TERRAMIN RESEARCH LABS LTD.

### ANALYTICAL REPORT

26 BT Resource Development  
7203 Keewatin St. S.W.  
Calgary, Alberta  
T2V 2M6

Lorne Kelsch

Date: Sept. 1, 1995

Job No: 95-102

Project:

46 Samples

Signed: *ymh*

14, 2235 30th Avenue N.E., Calgary, AB, T2E 7C7  
Phone: (403)250-9460 Fax: (403)291-7064



## TERRAMIN RESEARCH LABS Ltd.

Job No: 95-102

Client: 26 BT Resources  
Project:

## ANALYSIS OF MAGNETIC FRACTION

Sample Number	Magnetics %	Fe %	Ti %
95-1 39	11.4	40.3	3.56
95-1 46	19.0	38.4	2.80
95-1 73	16.1	49.5	4.51
95-1 75	2.4	41.5	5.00
95-1 90	3.4	44.4	4.94
95-1 112	2.9	45.6	3.23
95-1 135	12.2	51.2	4.57
95-1 182	3.6	47.3	5.34
95-1 175	17.4	48.9	4.76
95-1 189	5.9	46.8	3.90
95-1 213	17.3	52.5	5.48
95-1 229	0.0	0.0	0.00
95-1 237	6.5	50.1	4.82
95-1 248	7.7	47.5	4.57
95-1 256	3.2	45.5	4.62
95-1 270	11.7	55.8	4.59
95-1 290	4.0	50.0	3.50
95-2 10	9.0	58.2	5.21
95-2 40	1.2	60.5	2.45
95-2 61	5.2	55.3	5.89
95-2 86	6.4	56.0	6.02
95-2 95	11.7	55.4	6.40
95-2 102	12.7	51.2	6.98
95-2 114	13.1	56.0	6.08
95-2 135	10.6	51.9	6.98
95-2 140	19.6	59.7	6.60
95-2 148	10.2	54.1	6.50
95-2 159	5.4	59.4	5.42
95-2 172	18.4	65.8	4.92
95-2 185	16.5	59.4	6.42
95-2 200	4.8	53.6	4.87
95-2 208	31.7	63.0	5.45
95-2 211	25.9	59.6	5.42
95-2 215	23.4	61.1	5.21
95-2 225	8.8	56.1	6.39
95-2 235	0.7	60.7	3.75
95-2 250	8.9	56.8	6.05
95-2 268	10.9	56.8	6.43
95-2 279	9.4	55.8	6.77
95-2 292	12.4	54.8	6.16

95-2 297	4.5	57.6	5.55
95-3 147	0.7	49.0	3.85
95-3 206	1.9	56.6	1.37
95-3 219	0.8	52.3	1.07
95-3 227	1.0	55.0	2.40
95-3 238	0.5	49.5	3.05



## APPENDIX 5

TERRAMIN RESEARCH LABS Ltd.

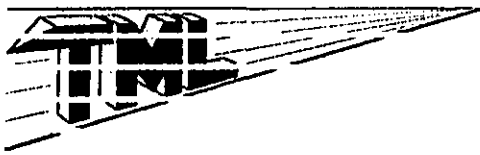
Job No: 96-102

Client: 26 BT Resources  
Project:

Sample Number	Ba ppm	Be ppm	Cr ppm	Li ppm	Rb ppm	Sr ppm	V ppm
95-1-229	10	2.9	52	3	4	227	30
95-2-200	1260	1.6	45	7	33	538	90
95-3-147	370	3.6	20	14	61	155	30

Sample Number	Ag ppm	Cd ppm	Co ppm	Cu ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm
95-1-229	<.1	0.2	2	5	4	3	1	7
95-2-200	<.1	0.1	7	6	3	1	4	85
95-3-147	<.1	0.3	2	18	2	1	6	108





## APPENDIX 6

TERRAMIN RESEARCH LABS LTD.

### ANALYTICAL REPORT

26 BT Resources Dev't.  
7203 Keewatin St. S.W.  
Calgary, Alberta  
T2V 2M6

Lorne Kelsch

Date: Nov. 17, 1995

Job No: 95-230

Project:

P.O. No:

13 Rock for Major, Minor, Trace Elements

Signed: \_\_\_\_\_

14, 2235 30th Avenue N.E., Calgary, AB, T2E 7C7  
Phone: (403)250-9460 Fax: (403)291-7064



TERRAMIN RESEARCH LABS Ltd.

Job No: 95-230

Client: 26 BT Resources  
Project:

Sample Number	Ba ppm	Be ppm	Cr ppm	Li ppm	Rb ppm	Sr ppm	V ppm
94-BT8-31	2520	1.3	33	13	30	1600	80
95-3 101	1050	3.5	91	15	131	151	30
95-3 147	490	3.3	25	11	135	147	20
95-3 149	740	5.0	26	12	151	398	30
95-3 168	670	2.2	79	18	160	113	20
95-3 202	80	2.5	62	28	177	36	10
95-3 223	740	3.2	83	14	127	170	30
95-3 253	1670	3.2	68	13	149	218	10
95-1-5-NW	200	0.7	35	21	19	1080	310
E-W1-2.5	1040	1.6	170	18	59	411	110
E-W2-2.3	640	1.1	156	17	45	174	110
MWS	1010	1.7	161	23	58	239	120
SS-3-4	510	0.8	62	17	14	842	330

Sample Number	Ag ppm	Cd ppm	Co ppm	Cu ppm	Pb ppm	Mo ppm	Ni ppm	Zn ppm
94-BT8-31	< 0.1	< 0.1	10	10	1	4	1	33
95-3 101	0.1	< 0.1	3	24	6	5	2	121
95-3 147	0.1	< 0.1	3	15	5	4	< 1	110
95-3 149	0.1	< 0.1	3	11	3	3	< 1	80
95-3 168	0.1	< 0.1	2	13	5	7	< 1	92
95-3 202	0.1	< 0.1	3	9	7	4	< 1	100
95-3 223	< 0.1	< 0.1	4	14	1	8	2	105
95-3 253	0.1	< 0.1	3	18	2	6	< 1	93
95-1-5-NW	< 0.1	< 0.1	24	7	1	2	1	31
E-W1-2.5	< 0.1	< 0.1	12	11	3	7	20	64
E-W2-2.3	0.1	< 0.1	9	13	7	6	21	50
MWS	0.1	0.1	12	31	9	3	41	74
SS-3-4	< 0.1	< 0.1	28	31	3	1	17	66



TERRAMIN RESEARCH LABS Ltd.

Job No: 95-230

Client: 26 BT Resources  
Project:

Sample Number	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	CaO %	MgO %	Na <sub>2</sub> O %	K <sub>2</sub> O %	Fe <sub>2</sub> O <sub>3</sub> %	MnO %	TiO <sub>2</sub> %	LOI %	Total %
94-BT8-31	51.3	21.5	6.883	1.708	5.136	1.398	6.95	0.094	1.25	2.7	99.01
95-3 101	58.4	17.6	1.959	0.623	5.190	5.302	8.04	0.232	0.35	1.6	99.23
95-3 147	57.3	18.7	1.357	0.531	5.028	5.615	7.88	0.181	0.33	3.3	100.26
95-3 149	57.5	17.8	2.140	0.400	3.222	6.266	6.58	0.435	0.27	5.3	99.85
95-3 168	57.8	18.1	1.875	0.317	5.352	6.652	7.04	0.173	0.25	1.9	99.43
95-3 202	58.8	18.1	1.182	0.206	5.405	5.567	6.26	0.156	0.13	2.7	98.56
95-3 223	57.5	17.9	2.490	0.368	5.972	5.338	8.59	0.209	0.25	1.2	99.93
95-3 253	58.2	17.8	2.462	0.459	5.527	6.013	8.08	0.208	0.37	0.5	99.52
95-1-5-NW	37.0	13.8	15.389	5.654	1.483	0.429	19.45	0.187	4.84	1.0	99.23
E-W1-2.5	67.4	13.2	2.071	1.472	3.020	2.326	6.55	0.101	0.93	2.4	99.45
E-W2-2.3	73.8	9.6	1.567	1.330	1.321	1.518	5.75	0.079	0.60	3.3	98.85
MWS	68.2	13.8	1.441	1.519	1.928	1.952	5.63	0.053	0.50	3.7	98.71
SS-3-4	43.0	16.4	10.003	5.256	2.022	0.406	15.30	0.178	4.17	3.1	99.88

*Chem. between  
94-3 & 94-4*

**STATEMENT OF COSTS**  
**(December 22, 1994 to December 04, 1995)**  
**BT 8, 9 and 10**

**A. EXPLORATION COSTS**

- Drilling (Falcon Drilling)	\$20,666.66 210.48
- Geological Field Trips (June 18 and 19/95) 2 days X 200.00/day X 2 people	800.00
(October 1 and 3/95) 2 days X 200.00/day X 2 people	1200.00
- 20% of 800.00 for Transportation Expenses	160.00
- 20% of 1200.00 for Transportation Expenses	240.00

**B. SAMPLE ANALYSIS**

- Terramin Research Labs Ltd.	24.00 561.60 800.00 849.46 21.00 292.25
-------------------------------	--

**TOTAL EXPENSES** **\$25,825.45**

ZOOLOGICAL BRANCH  
ASSESSMENT REPORT

121° 45'  
54° 07.8'

121° 30'  
54° 07.8'

24,198

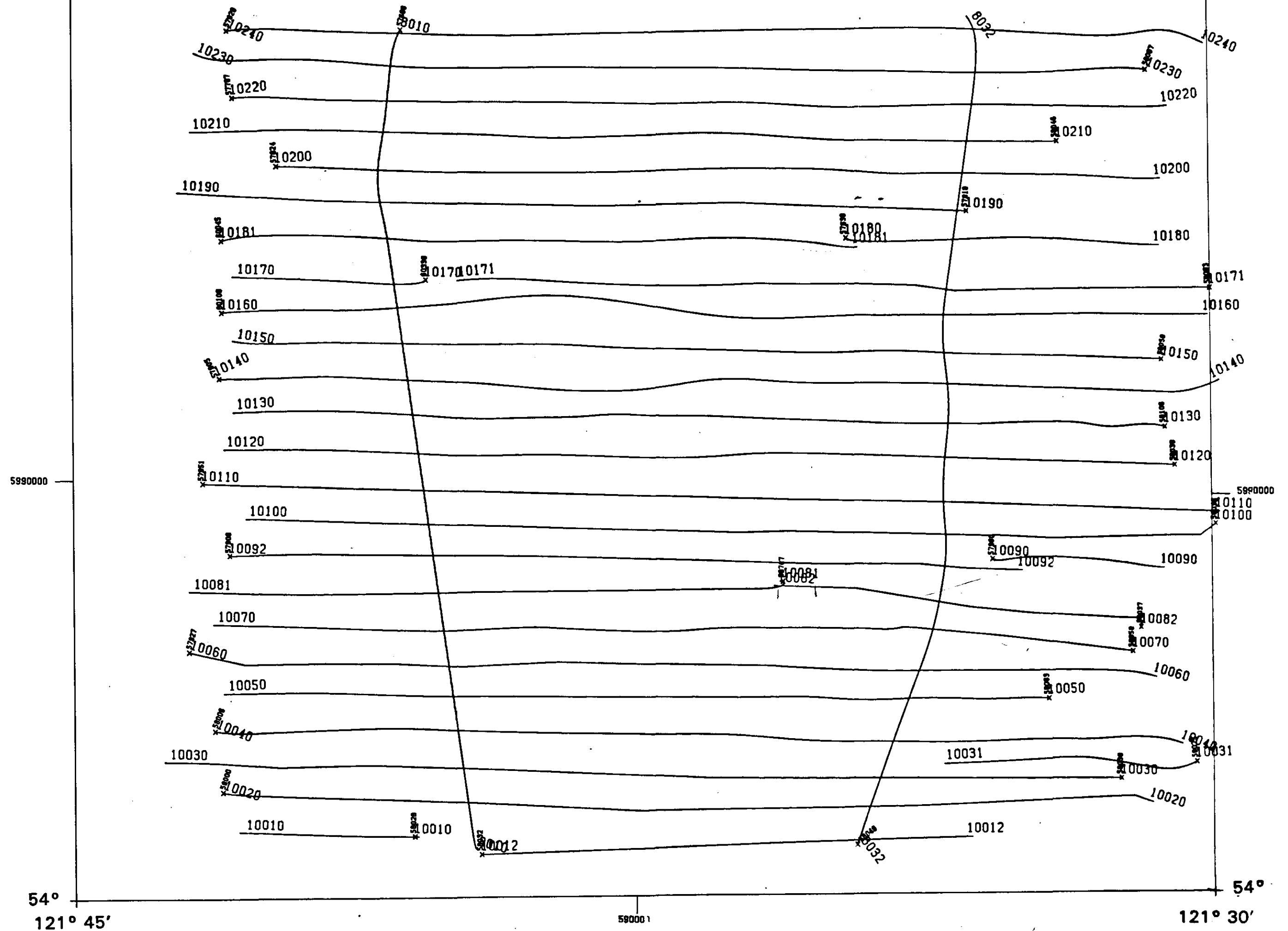
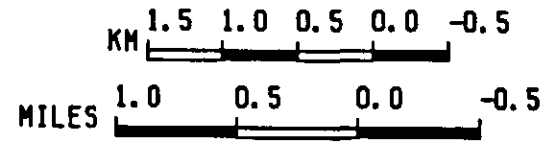





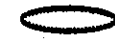

FIGURE 4  
FLIGHT LINE LOCATION MAP

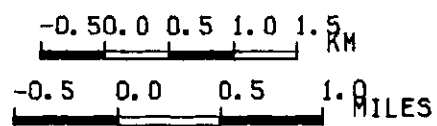


Prince George  
Profile Locations

SCALE 1 TO 50000



 <b>Commonwealth Geophysical</b>	
Explanation	
2000 nT	
500 nT	
100 nT	
Field Low	



SCALE 1 TO 50000  
CONTOUR INT. 100.00

26BT Resource Ltd., Total Field (IGRF removed)

**FIGURE 5**

TOTAL MAGNETIC FIELD MAP - CONSTANT CONTOUR INTERVAL, 100 nT

(2)

GEOLOGIC BRANCH  
ASSESSMENT REPORT

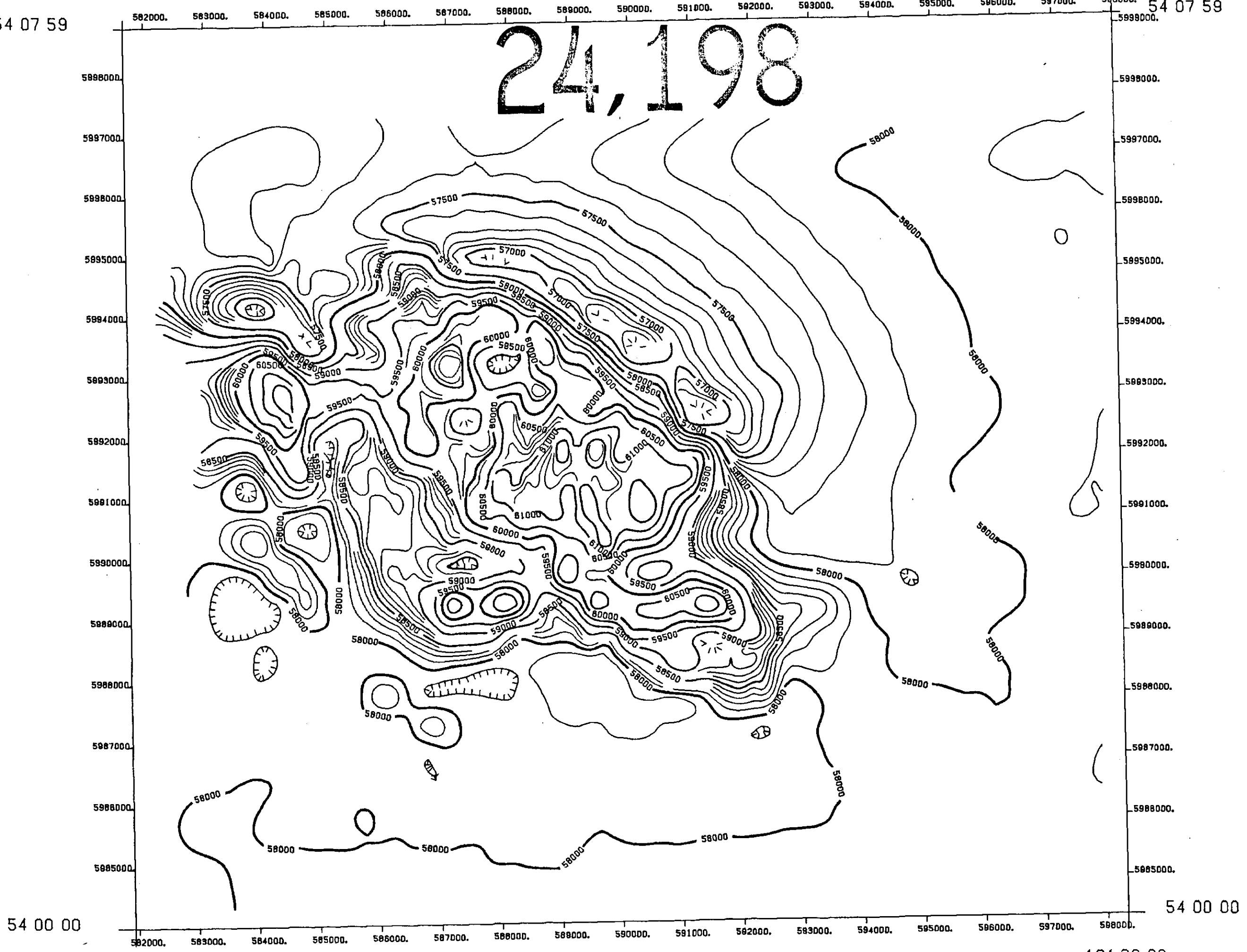
-121 30 00

-121 45 00

54 07 59

54 07 59

24,198

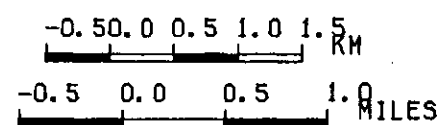
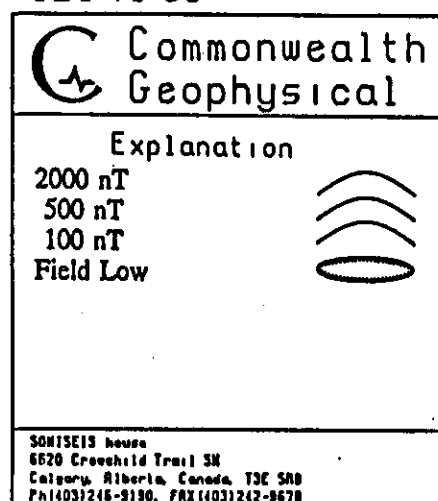


54 00 00

54 00 00

-121 30 00

-121 45 00



SCALE 1 TO 50000  
CONTOUR INT. 100.00

26BT Resource Ltd., Total Field  
FIGURE 6  
TOTAL MAGNETIC FIELD REDUCED TO THE POLE - CONSTANT CONTOUR INTERVAL

③

OLOGIC BRANCH  
ASSESSMENT REPORT

-121 30 00

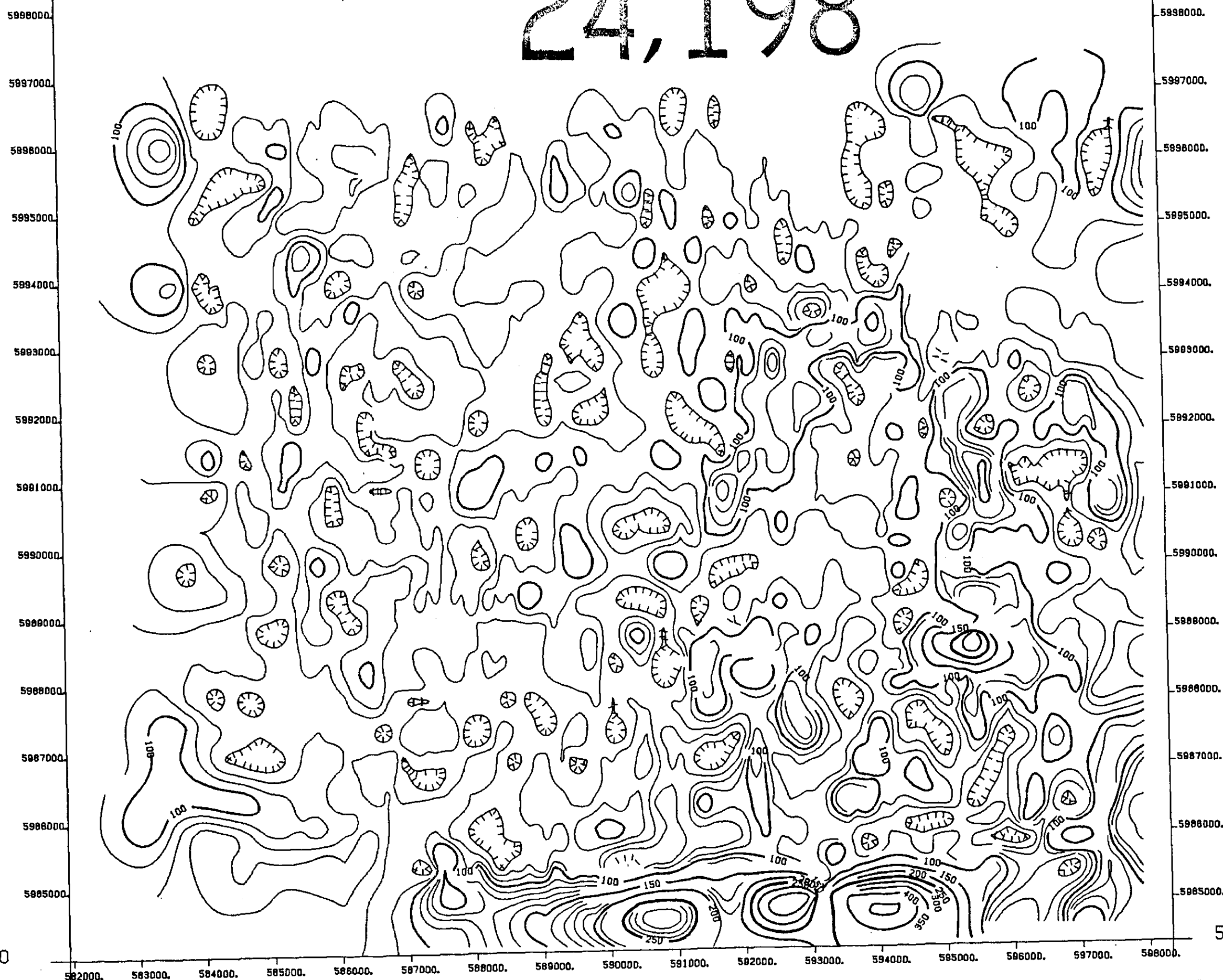
-121 45 00

54 07 59

582000. 583000. 584000. 585000. 586000. 587000. 588000. 589000. 590000. 591000. 592000. 593000. 594000. 595000. 596000. 597000. 598000. 599000.

54 07 59

24,198



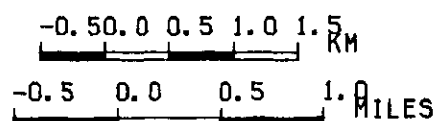
54 00 00

54 00 00

-121 45 00

-121 30 00

|  |  |
|--|--|
|  |  |
| <p>Explanation</p>   |  |
| 250 m  |  |
| 50 m   |  |
| 10 m   |  |
| Elevation Low  |  |
| <p>SONISEIS House<br/>6620 Crowschild Trail SW<br/>Calgary, Alberta, Canada, T2C 5R0<br/>Ph: (403) 248-9190, FAX: (403) 242-9670</p> |  |



SCALE 1 TO 50000  
CONTOUR INT. 10.00

26BT Resource Ltd., Radar Altimeter

FIGURE 7

MAP OF RADAR ALTIMETER DATA - CONSTANT CONTOUR INTERVAL

4



GEOLOGIC BRANCH  
ASSESSMENT REPORT

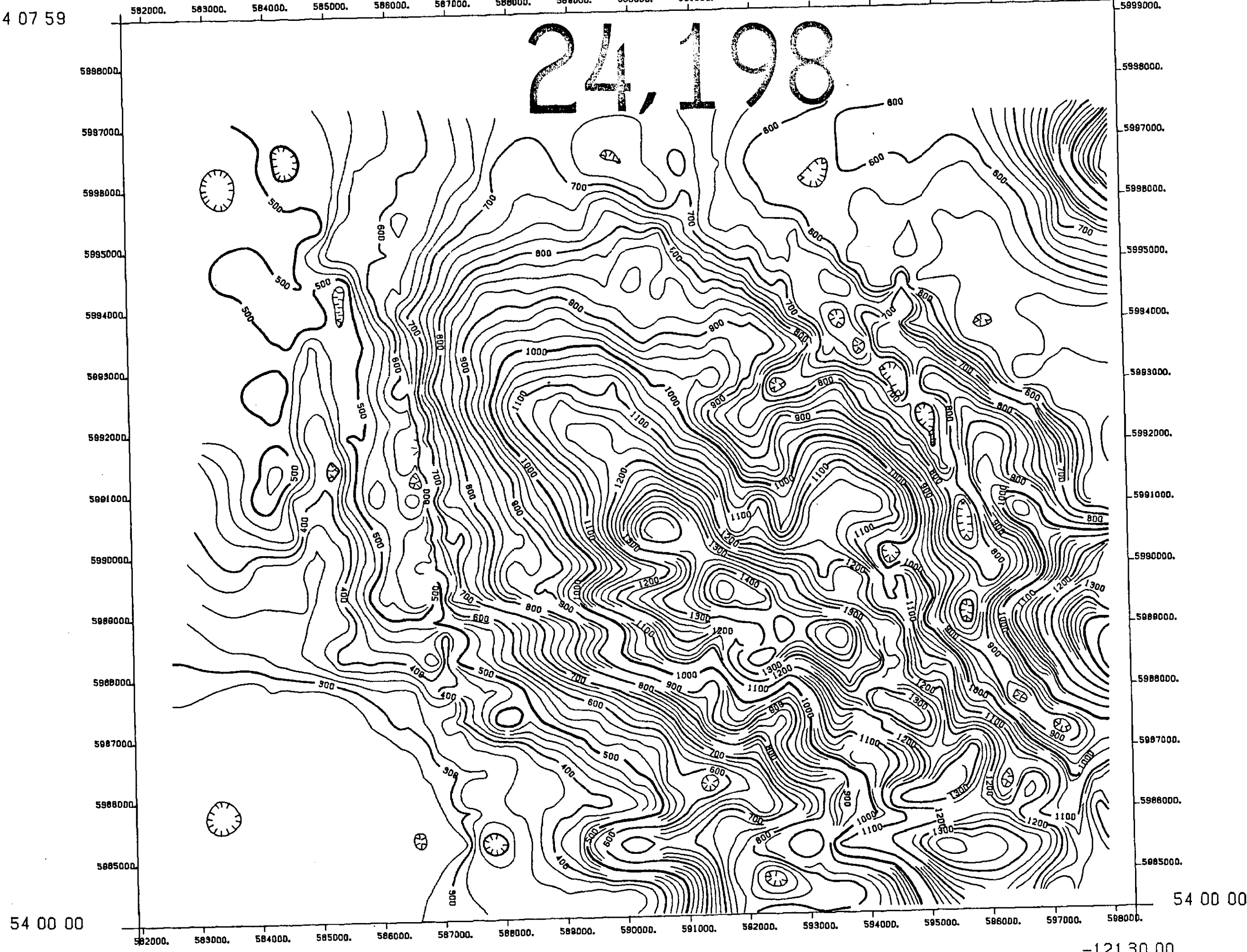
-121 30 00

-121 45 00

54 07 59


54 07 59


24, 198

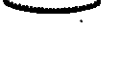



**Commonwealth Geophysical**

**Explanation**

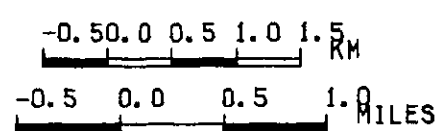
1000 m 

100 m 

25 m 

Elevation Low 

SONISCIIS House  
6620 Creechside Trail SW  
Calgary, Alberta, Canada, T2E 5R8  
Ph: (403) 246-9190, Fax: (403) 242-9678



SCALE 1 TO 50000  
CONTOUR INT. 25.00

26BT Resource Ltd., Ground Elevation

FIGURE 8  
MAP OF GROUND ELEVATION DATA - CONSTANT CONTOUR INTERVAL

5

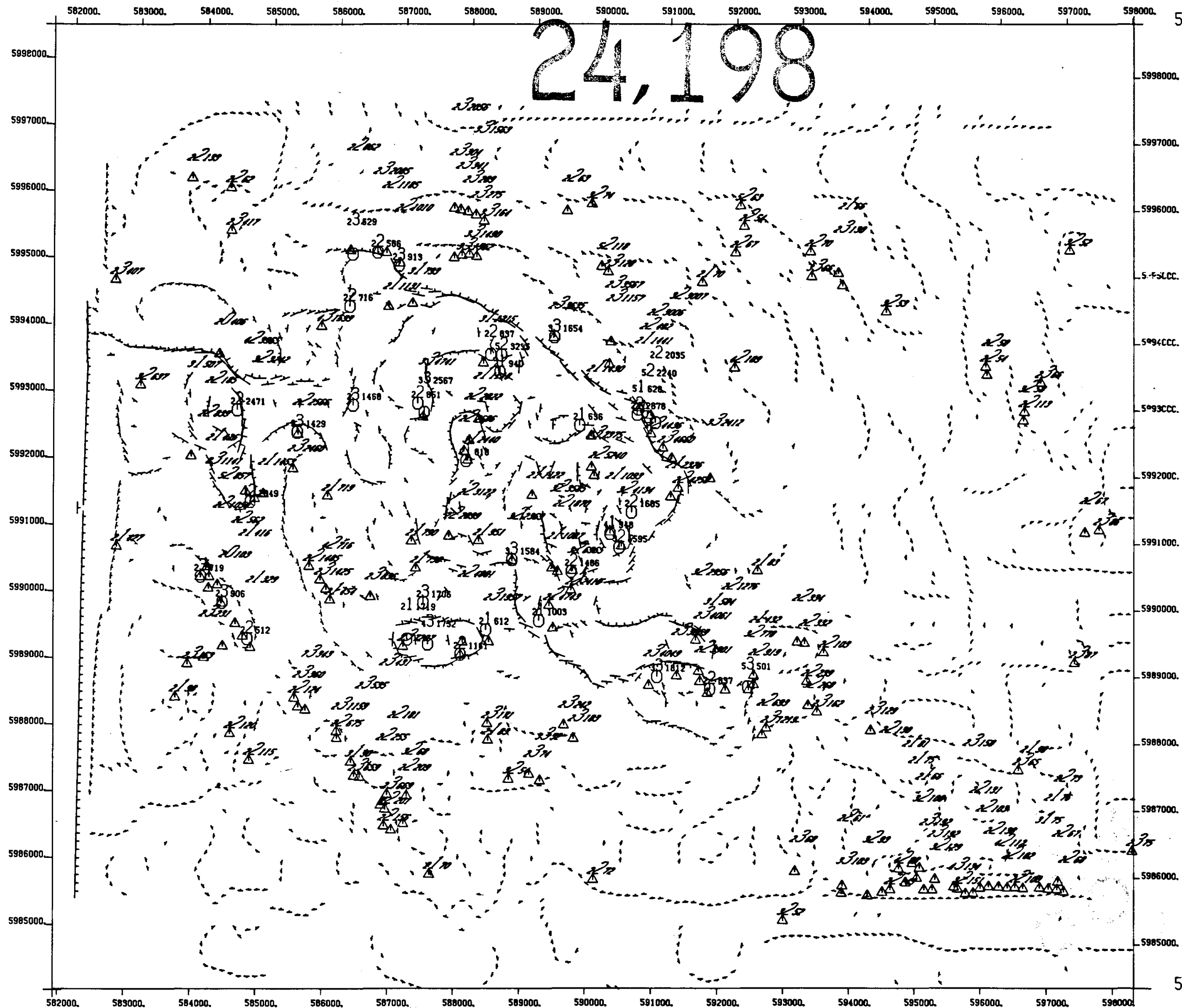
GEOLOGIC BRANCH  
ASSESSMENT REPORT

-121 45 00

-121 30 00

54 07 48

54 07 48



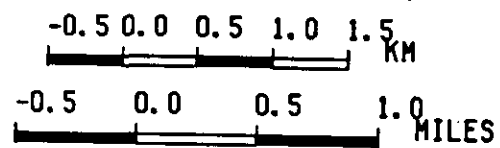
54 00 00

54 00 00

-121 45 00

-121 30 00

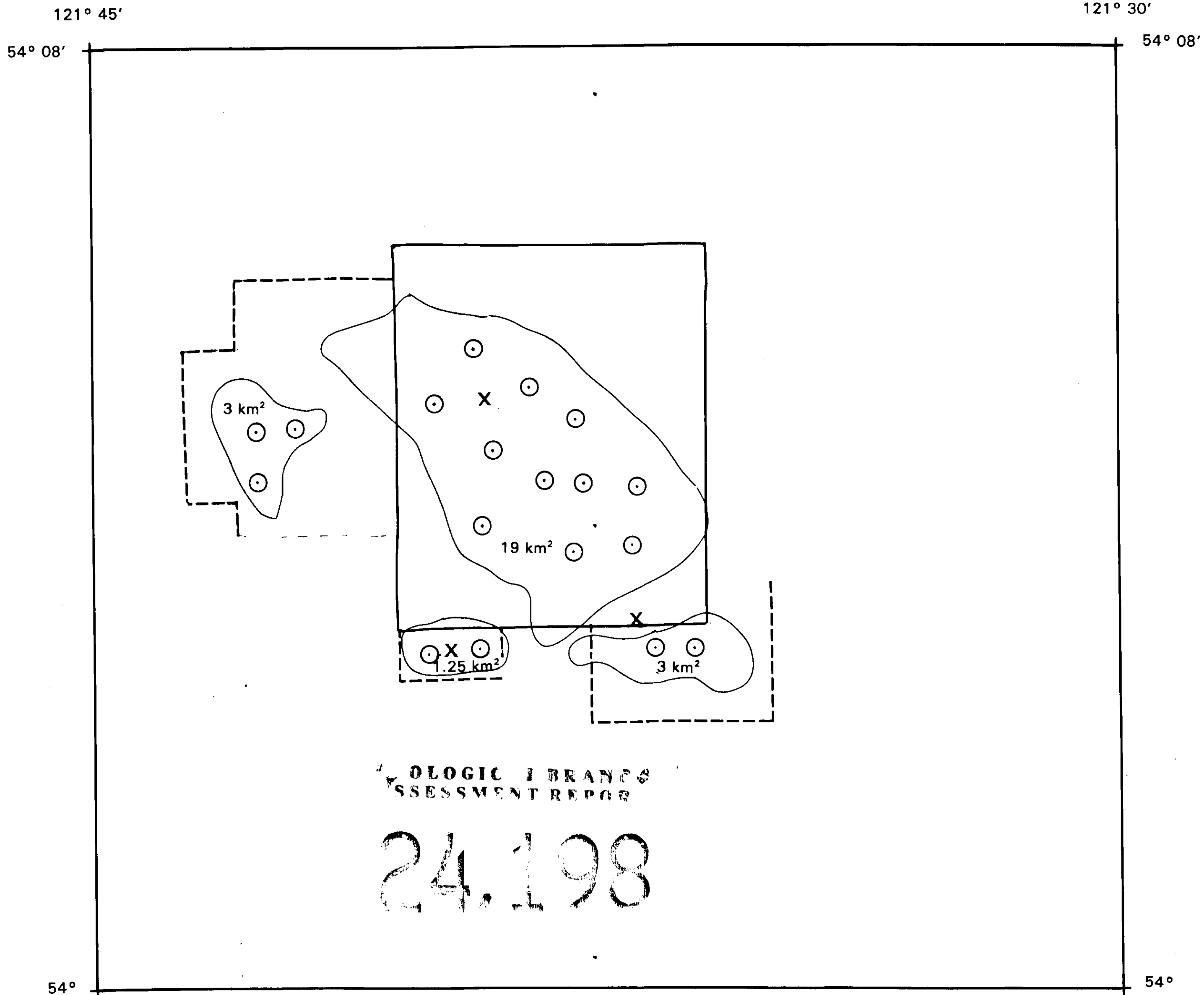
FIGURE 9  
MAP OF SOURCE EDGES, AND DEPTHS FROM TWO-DIMENSIONAL  
WERNER DECONVOLUTION (MAGDEP2D)



PRINCE GEORGE

SCALE 1 TO 5000

6



GEOLOGIC BRANCH  
ASSESSMENT REPORT

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**PRINCE GEORGE**  
**INTERPRETATION OVERLAY**

FIGURE 10  
COMPILATION/INTERPRETATION OF RESULTS OF AEROMAGNETIC SURVEY

- STAKED AREA
- AREA TO BE STAKED
- SHALLOW SAMPLE SITE (18)
- X DEEP SAMPLE SITE (3)

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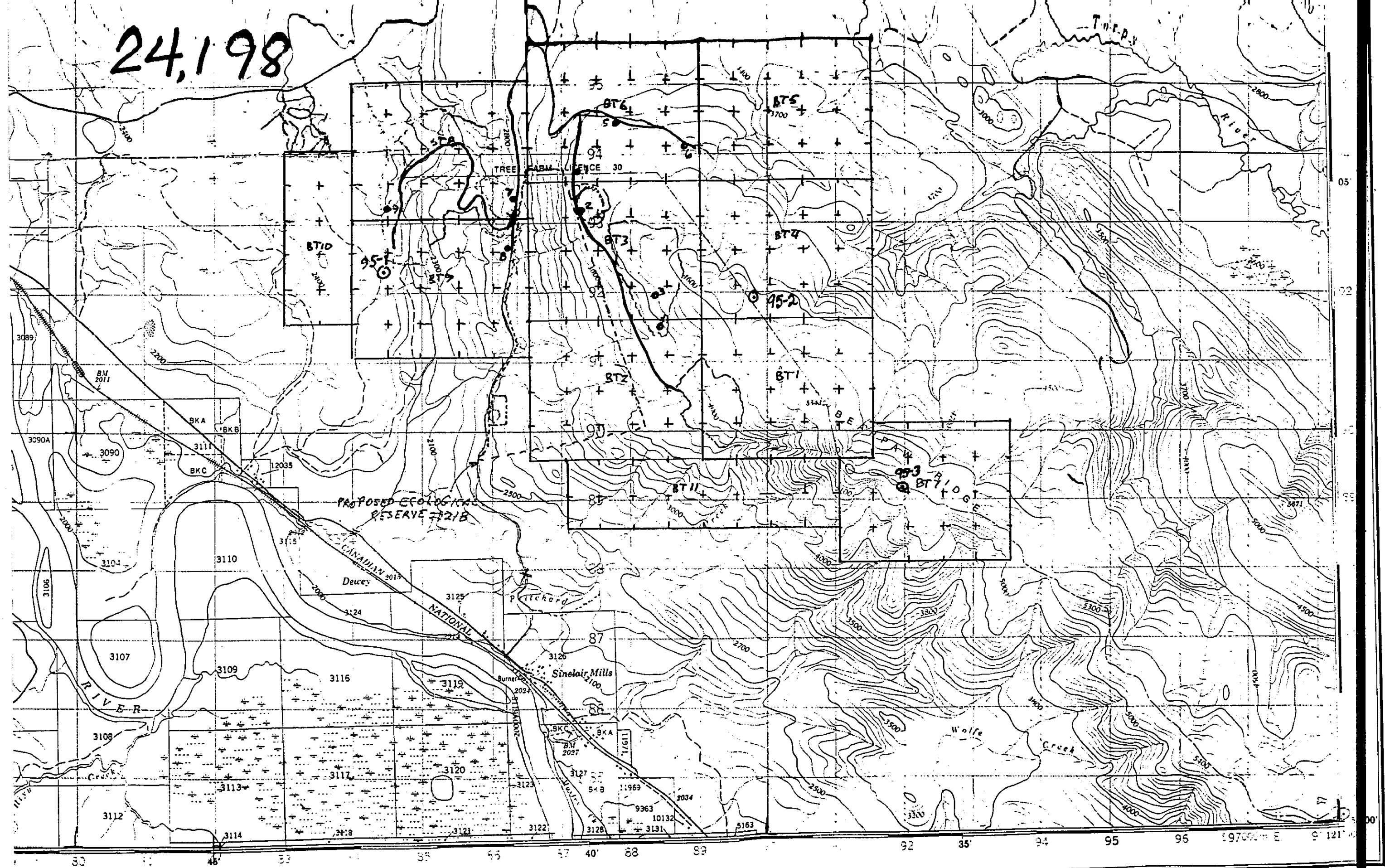
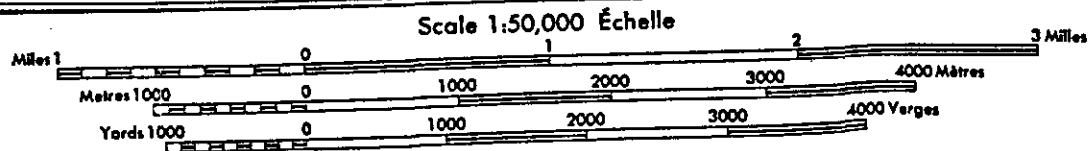


FIGURE 11  
LOCATION OF HOLES DRILLED

**SINCLAIR MILLS**  
CARIBOO LAND DISTRICT  
BRITISH COLUMBIA

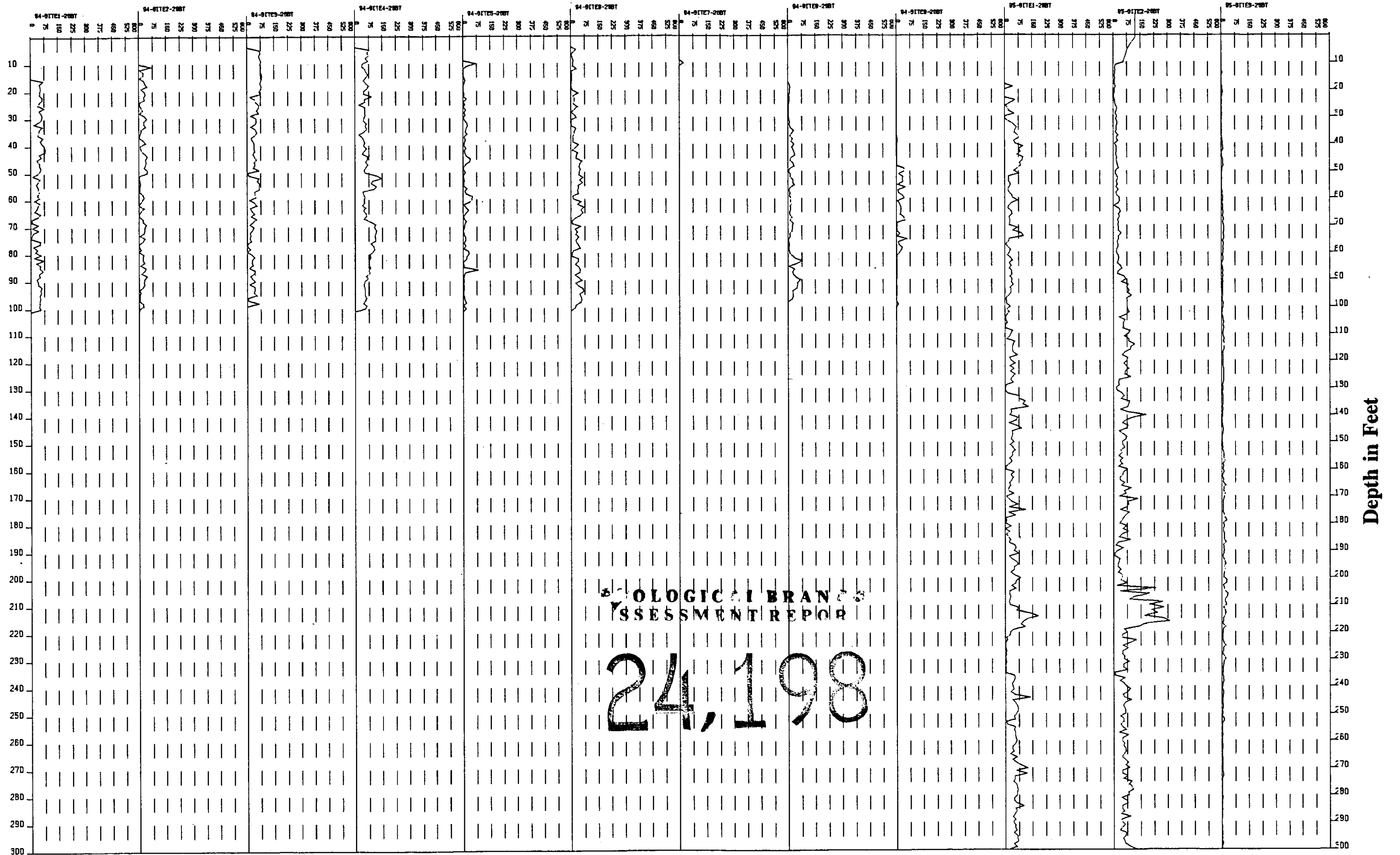


CONTOUR INTERVAL 100 FEET  
Elevations in Feet above Mean Sea Level  
North American Datum 1927  
Transverse Mercator Projection

Établie par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE,  
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES.  
Mise à jour à l'aide de photographies aériennes prises en 1970. Vérification des ouvrages en 1974. Imprimée en 1975.

Les cartes sont en vente au Bureau des Cartes du Canada,  
ministère de l'Énergie, des Mines et des Ressources, Ottawa,  
ou chez le vendeur le plus près.

Susceptibility  
in emu \* 10<sup>3</sup>



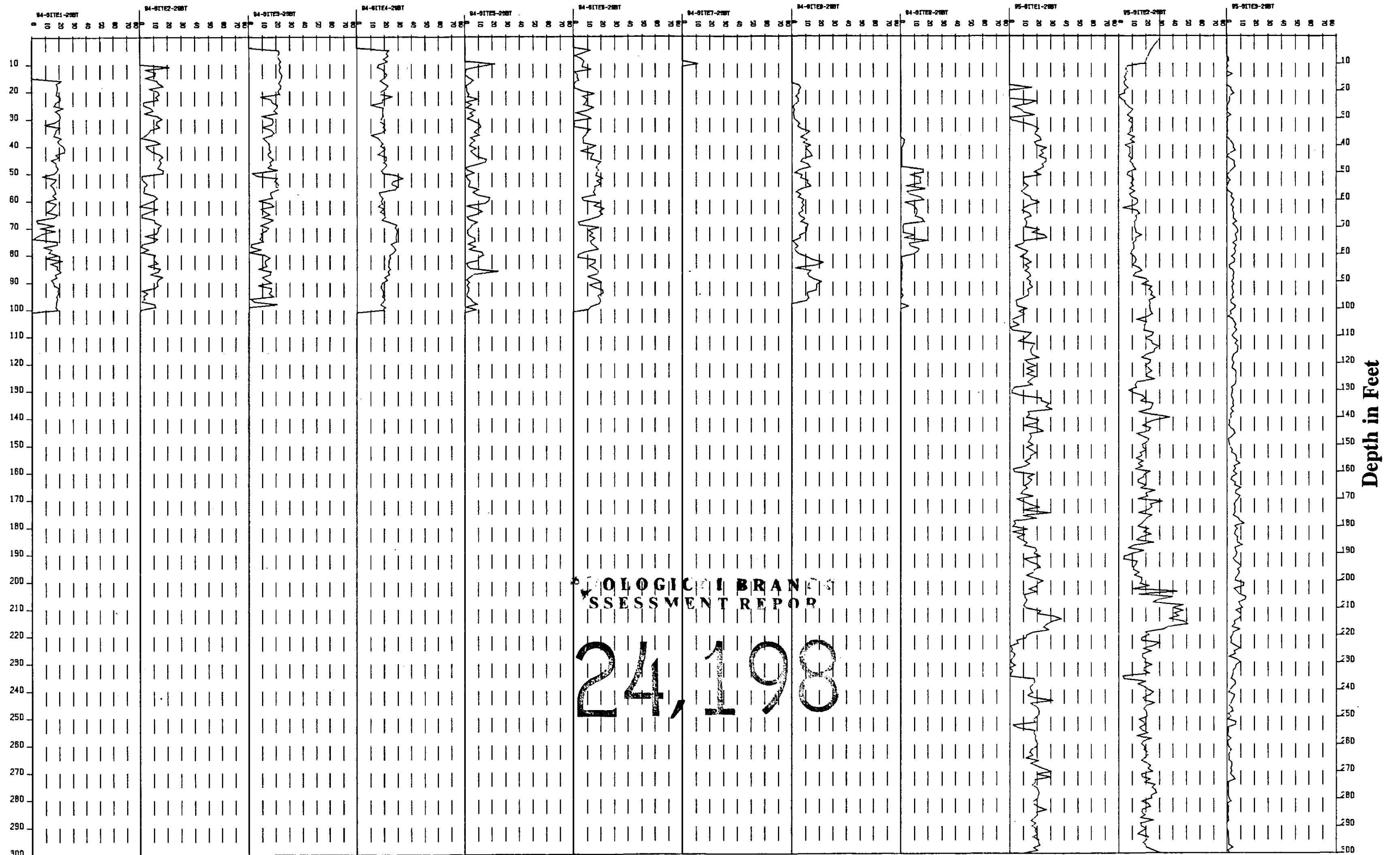
GEOLOGICAL BRANCH  
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26BT RESOURCE DEVELOPMENT CO. LTD.  
SUSCEPTIBILITY PL3T.1995

**FIGURE 12**  
**SUSCEPTIBILITY PLOT**  
Susceptibility in emu X 10<sup>3</sup> (top)  
vs depth in feet for twelve drill  
holes and two boulders.

**Magnetic content  
(percent volume)**



LOGIC BRANES  
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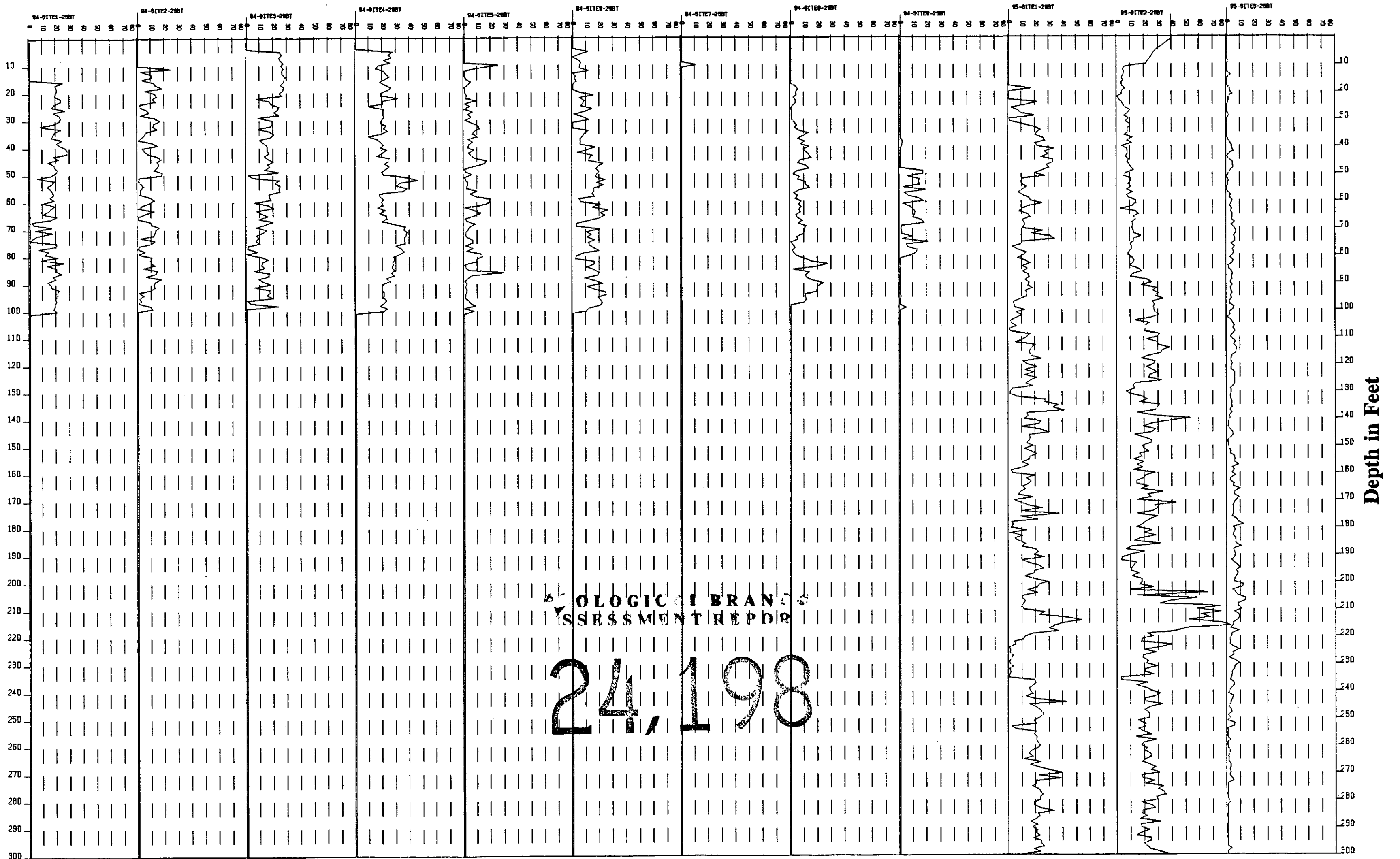
24, 198

26BT RESOURCE DEVELOPMENT CO. LTD.  
Mag. sq110x+22.51-5  
GAUCHER, N. QUEBEC

**FIGURE 13**  
**MAGNETITE CONTENT (VOLUME) GAUCHER, N. QUEBEC**  
Magnetic content in percent by volume (top)  
vs depth in feet for twelve holes, as computed  
from the relationship established in N. Quebec.



# Magnetic content (volume percent)

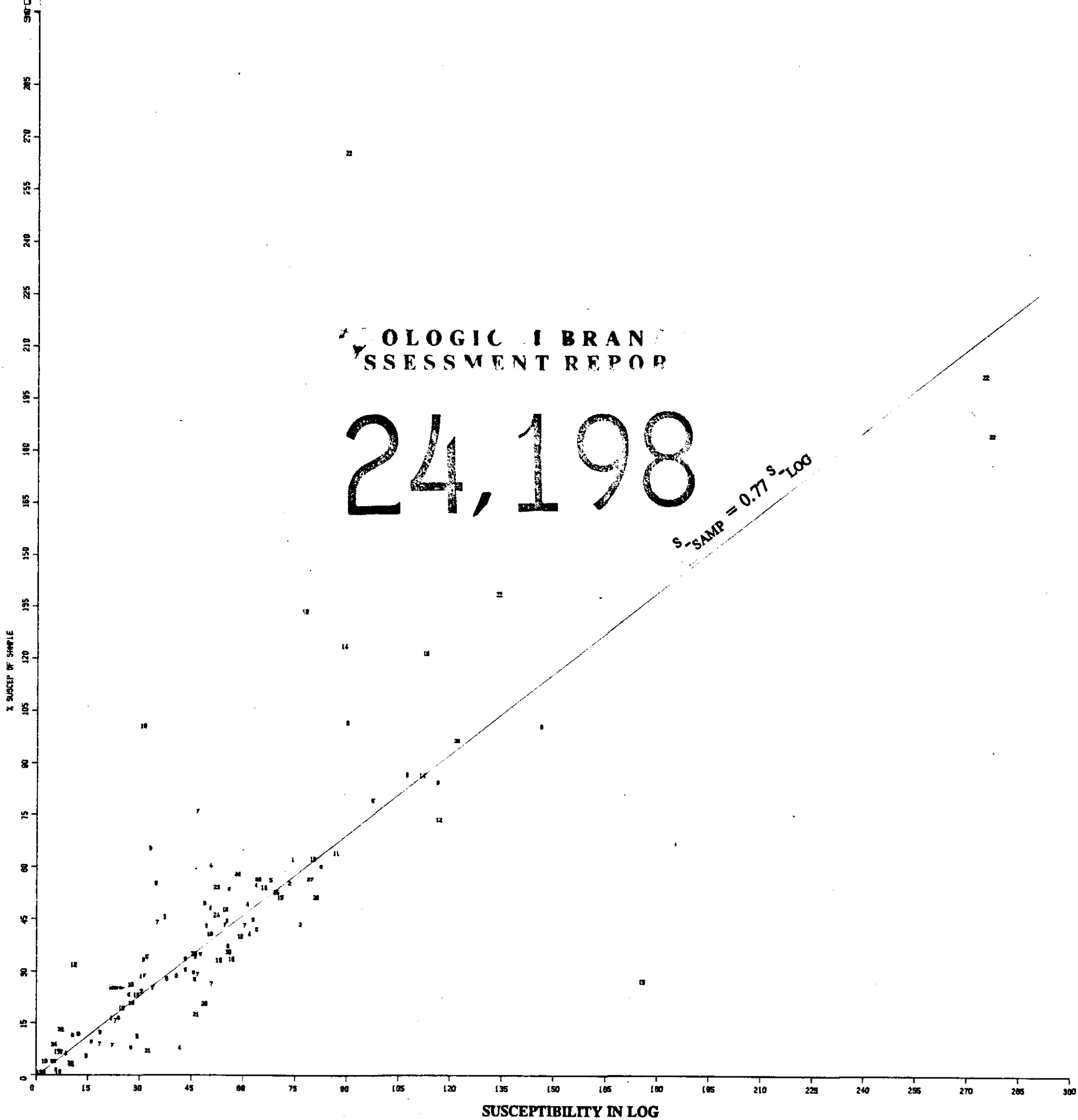


Geological Branch  
Assessment Report

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26BT RESOURCE DEVELOPMENT CO. L.T.C.  
Map. (s/l. 18) no. 7314  
BATH, MINNESOTA

**FIGURE 14**  
**MAGNETITE CONTENT (VOLUME) BATH, MINNESOTA**  
Magnetite content is percent by volume (top) vs depth  
in feet for twelve holes and two boulders calculated  
from the relationship established in Minnesota.



**FIGURE 15**  
**SAMPLE SUSCEPTIBILITY VS LOG SUSCEPTIBILITY**

Plot of sample value (measured in lab) vs log  
(measured in field) for susceptibility of core sample.



LOGIC I BRAND  
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$$I = .07538 S_{\text{-SAMP}}^S$$

$$I = .0580426 S_{\text{-LOG}}^S$$

$$\text{MAG} = .08126 S_{\text{-LOG}}^S$$

Iron Content, % by weight

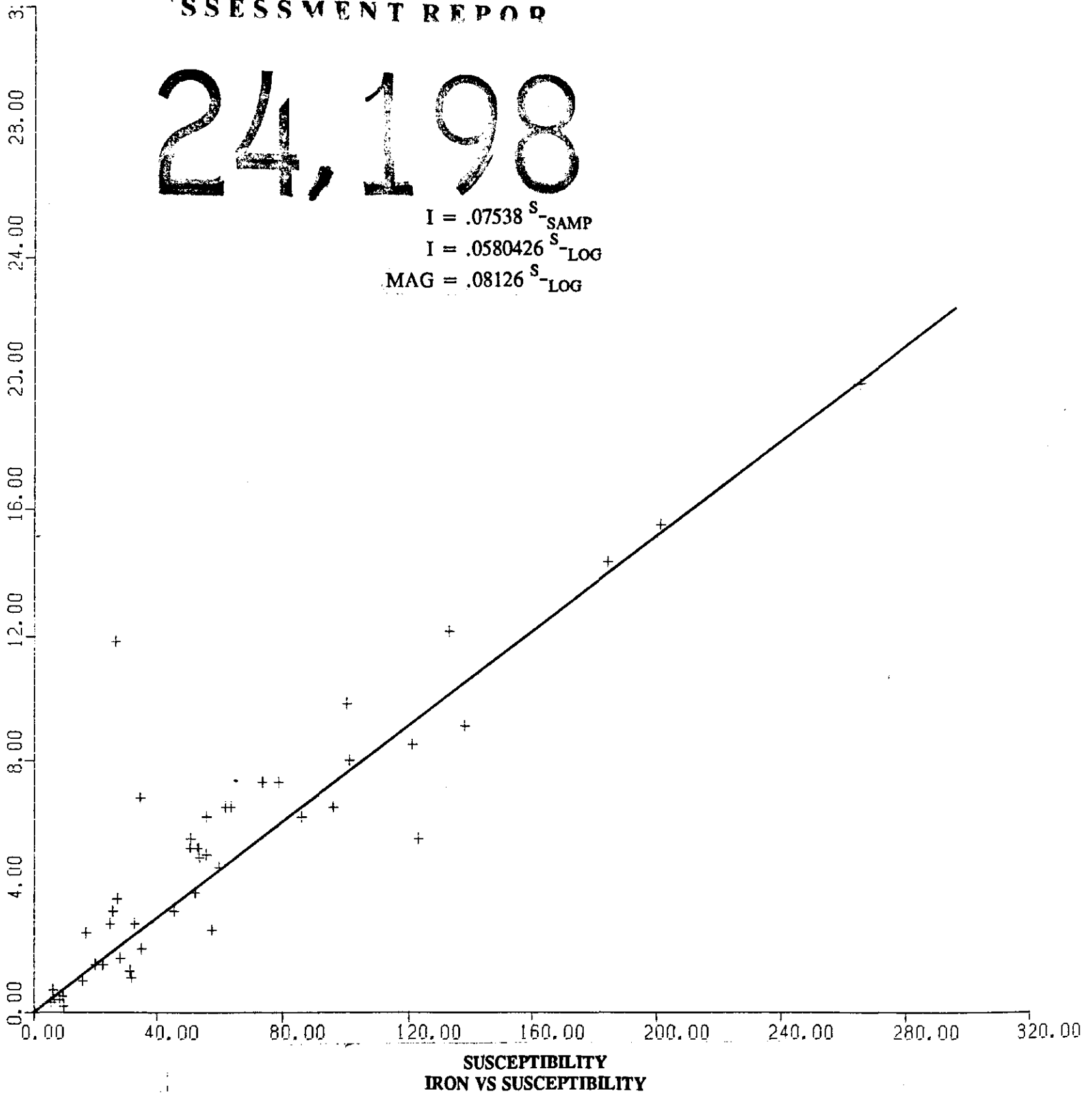
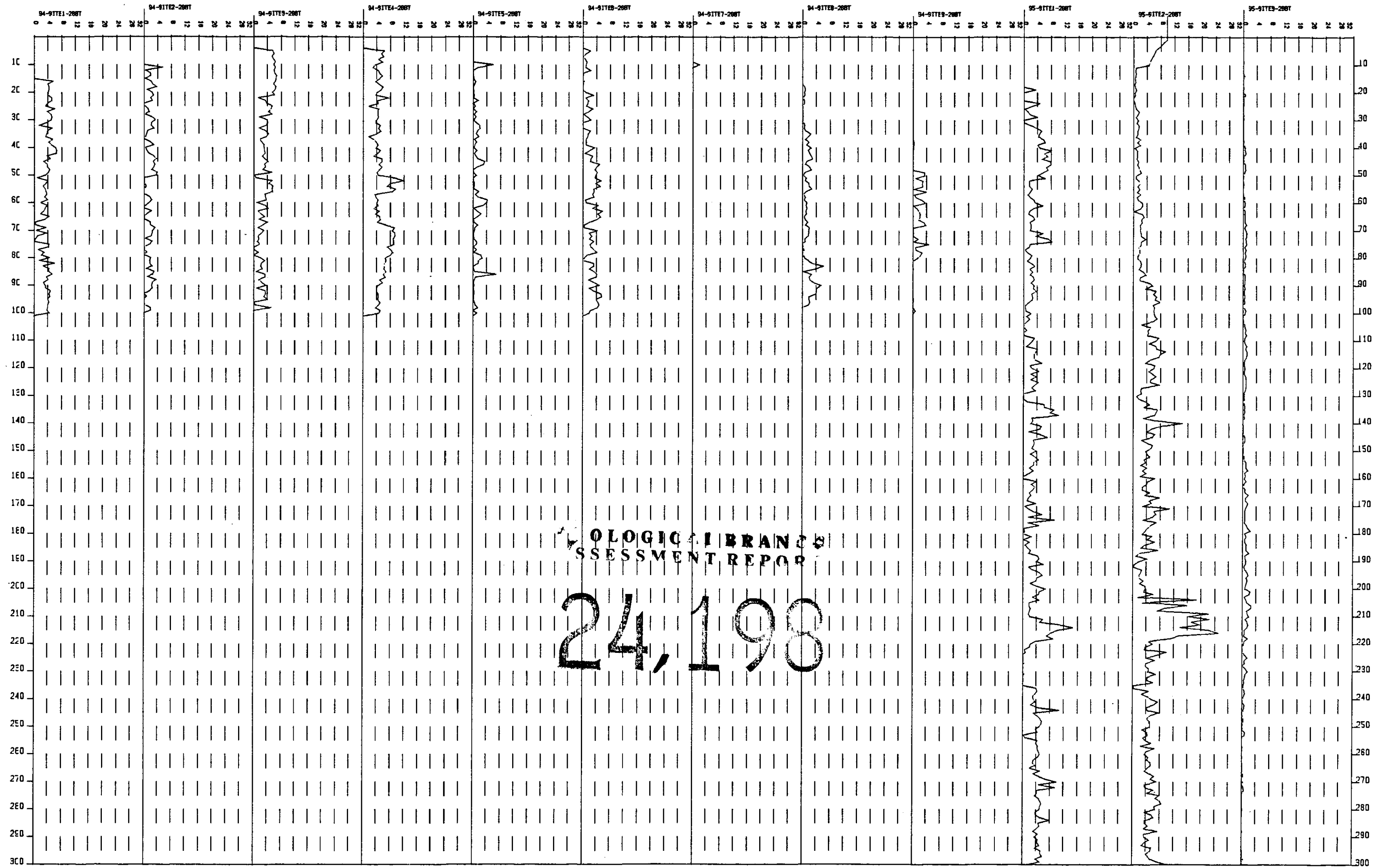


FIGURE 16  
IRON CONTENT BY WEIGHT VS SAMPLE SUSCEPTIBILITY



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26BT RESOURCE DEVELOPMENT CO. LTD.  
 Z Mag. = 0.08126 \* S\_log

**FIGURE 17**  
**MAGNETITE CONTENT ESTIMATED FROM SUSCEPTIBILITY**  
**USING EQUATION DERIVED FROM CORE SAMPLE ANALYSIS**

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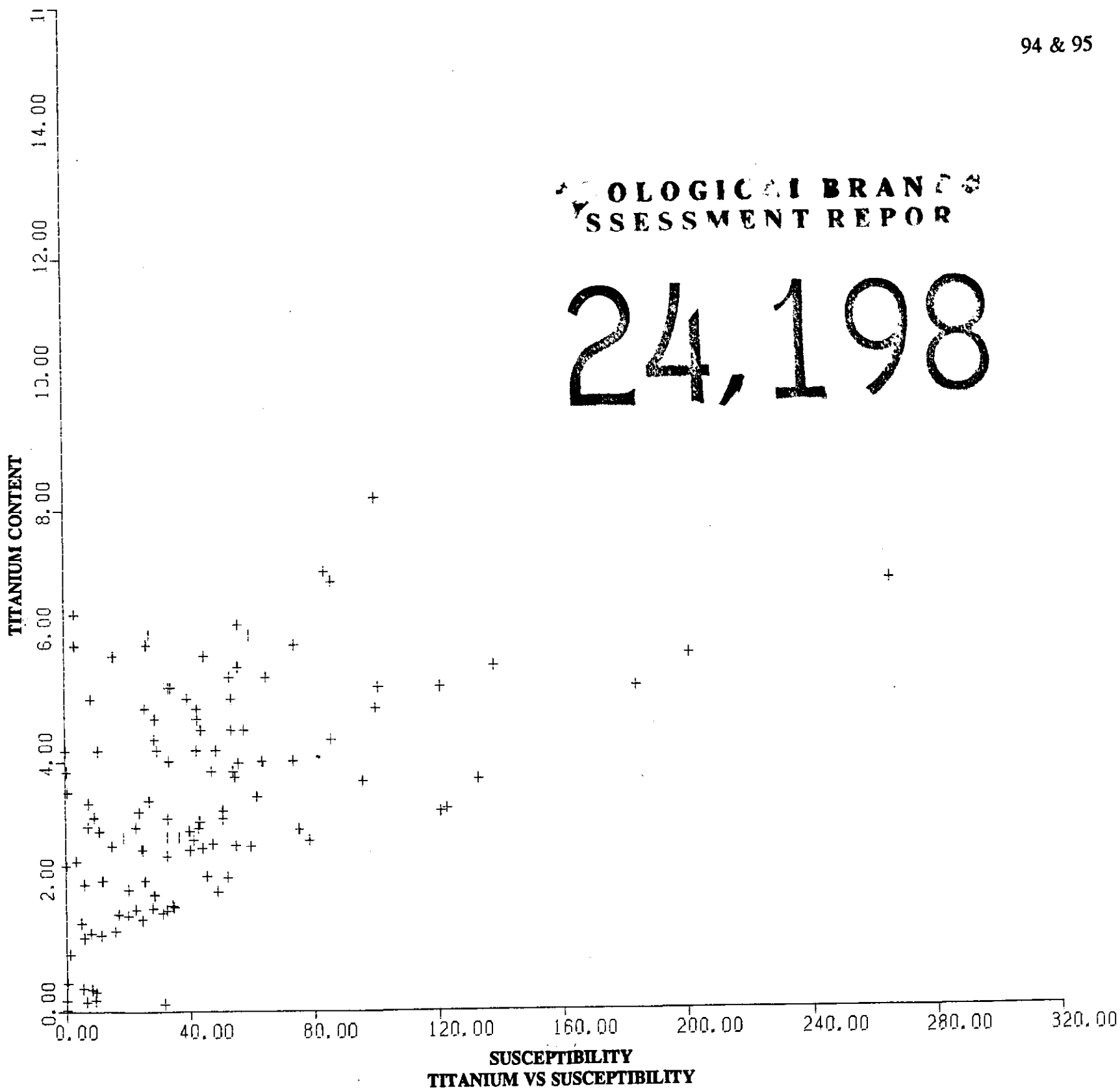
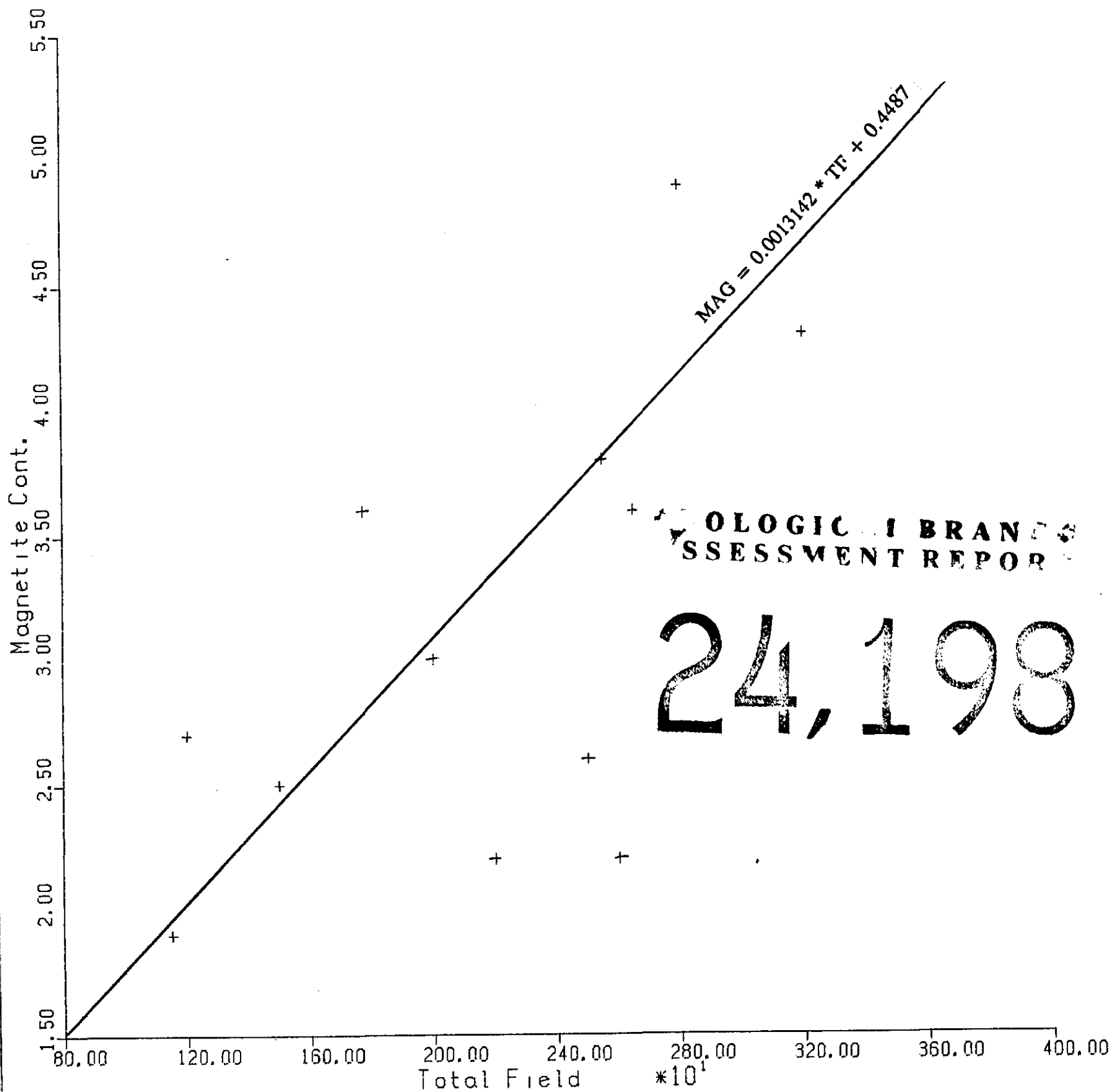


FIGURE 18  
TITANIUM OXIDE CONTENT BY WEIGHT VS SAMPLE SUSCEPTIBILITY



Magnetite vs Total Field

FIGURE 19

MAGNETITE CONTENT VS TOTAL FIELD FOR TWELVE HOLES.  
NOTE TWO POINTS LOCATED ON TOTAL FIELD AXIS.

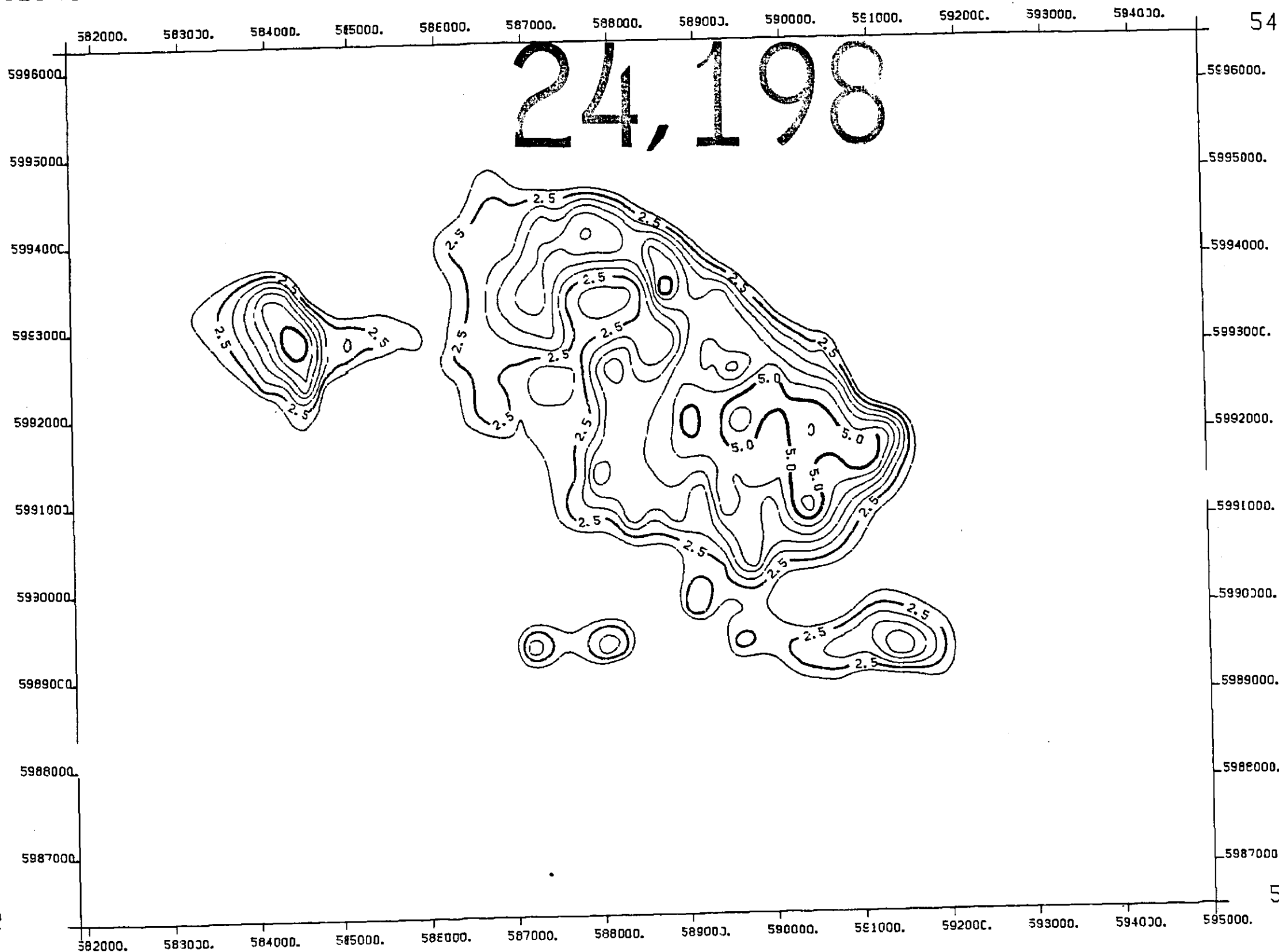
LOGIC I BRAND  
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-121 33 00

-121 45 00

54 06 36

54 06 36






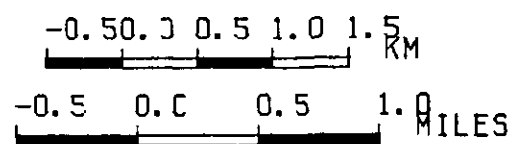
54 01 12

54 01 12

-121 33 00

-121 45 00

|  |   |
|--|---|
|  <b>Commonwealth Geophysical</b>                    |   |
| Explanation  |   |
| 5.0 %  |  |
| 2.5 %  |  |
| <small>SONISEIS House<br/>6620 Crossfield Trail SW<br/>Calgary, Alberta, Canada, T2E 5A8<br/>Ph(403)246-9190, FAX(403)242-9670</small> |   |



SCALE 1 TO 50000  
CONTOUR INT. 0.50

26BT Resource Ltd., Magnetite

**FIGURE 20**  
**ESTIMATED AVERAGE MAGNETITE CONTENT**  
**COMPUTED FROM THE MAGNETIC FIELD**



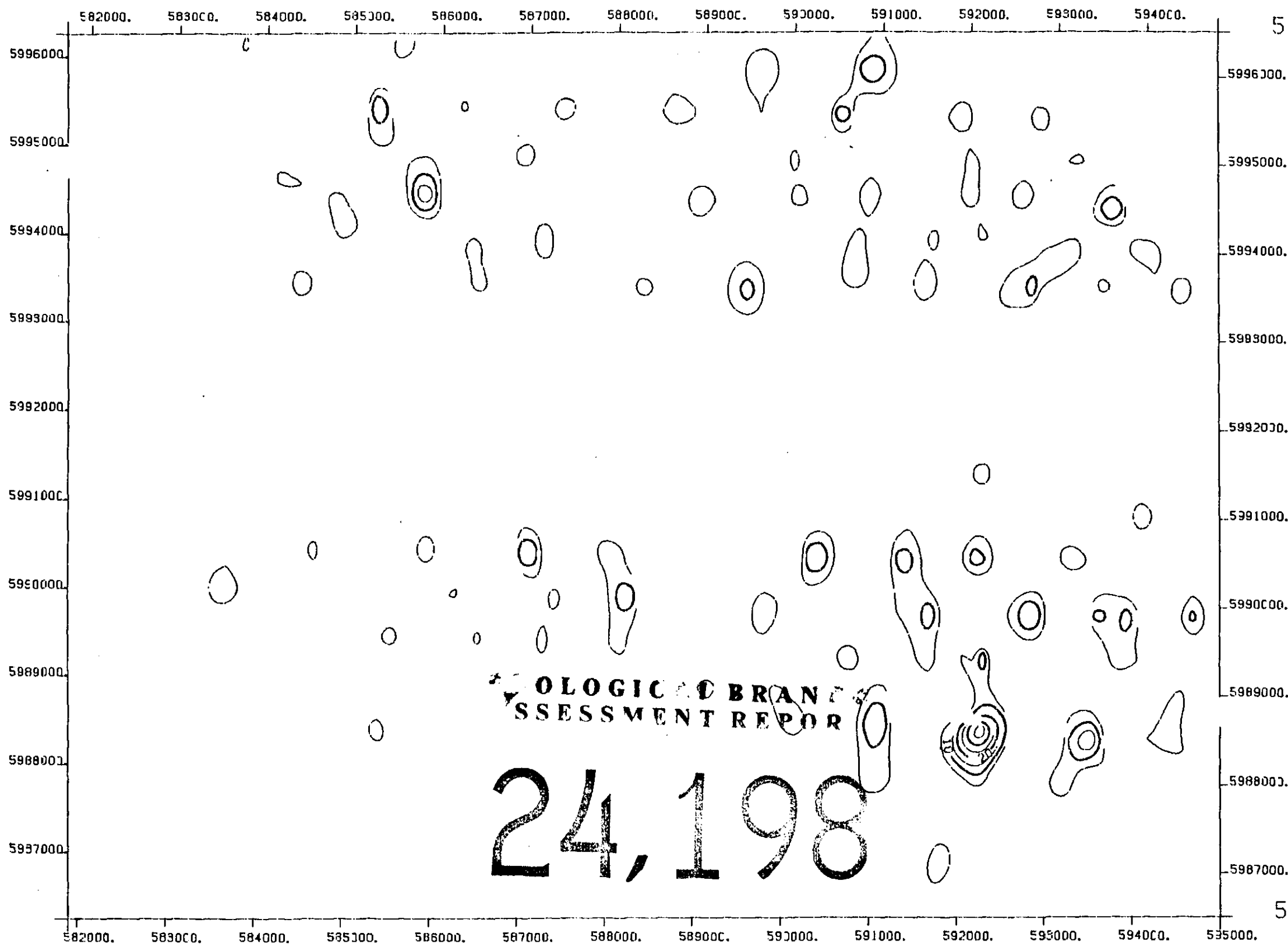
FIGURE 20A  
DEPTH OF MAGNETITE FROM MAGDEP PROFILE INTERPRETATION AND HOLE  
INFORMATION. EM anomalies are also shown.

-121 45 00

-121 33 00

54 06 36

54 06 36

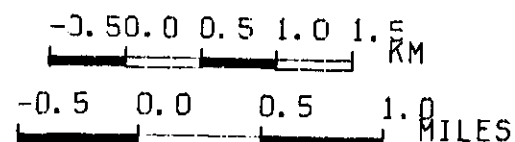


54 01 12

54 01 12

-121 45 00

-121 33 00



SCALE 1:1050000  
CONTOUR INT. 5.00

26BT Resources Ltd., VLF-EM

FIGURE 20B

VLF - EM TOTAL FIELD IN PERCENT

19

-121 45 00

-121 33 00

54 06 36

54 06 36

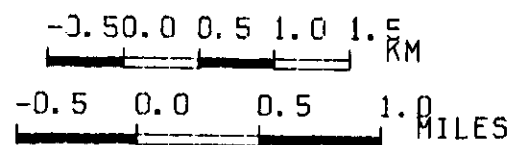


54 01 12

54 01 12

-121 45 00

-121 33 00



SCALE 1 TO 50000  
CONTOUR INT. 0.50

26BT Resources Ltd., Magnetite Cont. in %

FIGURE 20C  
MAGNETITE CONTENT FROM  
(TOTAL MAGNETIC FIELD REDUCED TO THE POLE)

20